DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-24
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.0	0	58-133	0		%REC	10	02/09/16 10:03 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		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-25
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:20 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.1	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 01:15 PM
IS: Bismuth	96.4	0	30-120	0		%REC	5	02/11/16 01:15 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Acenaphthylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[a]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[a]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[b]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[e]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[g,h,i]perylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[j]fluoranthene	0.0705	0.0470	0.0940	0.0705	NU	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[k]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Chrysene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Dibenz[a,h]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Fluorene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Indeno[1,2,3-cd]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Phenanthrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/09/16 10:43 AM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	02/09/16 10:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-25
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:20 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.1	0	58-133	0		%REC	10	02/09/16 10:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-26
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.3	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 01:17 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 01:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	02/09/16 11:24 AM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	02/09/16 11:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-26
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.0	0	58-133	0		%REC	10	02/09/16 11:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-27
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.2	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:19 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 01:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Acenaphthylene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[a]anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[a]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[b]fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[e]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[g,h,i]perylene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[j]fluoranthene	0.0687	0.0458	0.0917	0.0687	NU	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[k]fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Chrysene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Dibenz[a,h]anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Fluorene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Indeno[1,2,3-cd]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Phenanthrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
IS: Acenaphthene-d10	108	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	02/09/16 12:04 PM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	02/09/16 12:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-27
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.6	0	58-133	0		%REC	10	02/09/16 12:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB002-17
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-28
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**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	02/11/16 12:34 PM
IS: Bismuth	101	0	30-120	0		%REC	1	02/11/16 12:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Acenaphthylene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[a]anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[a]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[b]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[e]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[g,h,i]perylene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[j]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	NU	mg/L	1	01/28/16 07:36 PM
Benzo[k]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Chrysene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Dibenz[a,h]anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Fluorene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Indeno[1,2,3-cd]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Phenanthrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
IS: Acenaphthene-d10	87.8	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Chrysene-d12	82.7	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Naphthalene-d8	88.3	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Perylene-d12	86.1	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Phenanthrene-d10	85.8	0	50-200	0		%REC	1	01/28/16 07:36 PM
Surr: 2-Fluorobiphenyl	55.5	0	53-106	0		%REC	1	01/28/16 07:36 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB002-17
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-28
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	60.8	0	58-132	0		%REC	1	01/28/16 07:36 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

February 16, 2016

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

Order No.: 1601231

RE: Laredo Shotgun Range

Dear Alex Walter:

DHL Analytical, Inc. received 28 sample(s) on 1/26/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-15-15 & DoD-ELAP #L15-426

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DHL ANALYTICAL
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Phone (512) 388-8222 ■ FAX (512) 388-8229
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№ 70010

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston TX 77042
PHONE: 713-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Boine@arcadis.com

DATE: January 24, 2016 PAGE 1 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 160123
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

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 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU019-01-A	01	1/24/16	0845	Soil	Bag	1				X						X													X		
SGR-DU019-01-B	02	1/24/16	0850	Soil	Bag	1				X						X													X		
SGR-DU019-01-C	03	1/24/16	0855	Soil	Bag	1				X						X													X		
SGR-DU019-02-A	04	1/24/16	0925	Soil	Bag	1				X						X													X		
SGR-DU019-02-B	05	1/24/16	1000	Soil	Bag	1				X						X													X		
SGR-DU019-02-C	06	1/24/16	0930	Soil	Bag	1				X						X													X		
SGR-DU019-03-A	07	1/24/16	0950	Soil	Bag	1				X						X													X		
SGR-DU019-03-B	08	1/24/16	1000	Soil	Bag	1				X						X													X		
SGR-DU019-03-C	09	1/24/16	1010	Soil	Bag	1				X						X													X		
SGR-DU002-16-A	10	1/24/16	~~1125~~ 1125 AG	Soil	Bag	1				X						X													X		
SGR-DU002-16-B	11	1/24/16	1130	Soil	Bag	1				X						X													X		
SGR-DU002-16-C	12	1/24/16	1140	Soil	Bag	1				X						X													X		
SGR-DU002-08-A	13	1/24/16	1145	Soil	Bag	1				X						X													X		
SGR-DU002-08-B	14	1/24/16	1205	Soil	Bag	1				X						X													X		
SGR-DU002-08-C	15	1/24/16	1210	Soil	Bag	1				X						X													X		

RELINQUISHED BY: (Signature) DATE/TIME 1/24/16/1700 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 1/25/16 1000 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: 3.3, 3.5, 2.1, 2.2 THERM #: 28
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

№ 70009

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briarpark, Suite 300, Houston TX 77042
PHONE: 713-645-3203 FAX/E-MAIL alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: January 24, 2016 PAGE 2 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 1601231
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

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 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU0002-23-A	16	1/24/16	1230	Soil	Bag	1				X						X														X	
SGR-DU0002-23-B	17	1/24/16	1235	Soil	Bag	1				X						X														X	
SGR-DU0002-23-C	18	1/24/16	1240	Soil	Bag	1				X						X														X	
SGR-DU0002-26-A	19	1/24/16	1455	Soil	Bag	1				X						X														X	
SGR-DU0002-26-B	20	1/24/16	1500	Soil	Bag	1				X						X														X	
SGR-DU0002-26-C	21	1/24/16	1505	Soil	Bag	1				X						X														X	
SGR-DU0002-09-A	22	1/24/16	1600	Soil	Bag	1				X						X														X	
SGR-DU0002-09-B	23	1/24/16	1610	Soil	Bag	1				X						X														X	
SGR-DU0002-09-C	24	1/24/16	1610	Soil	Bag	1				X						X														X	
SGR-DU0002-17-A	25	1/24/16	1520	Soil	Bag	1				X						X														X	
SGR-DU0002-17-B	26	1/24/16	1530	Soil	Bag	1				X						X														X	
SGR-DU0002-17-C	27	1/24/16	1535	Soil	Bag	1				X						X														X	
SGR-DU0002-17	28	1/24/16	1530	W	Glass/Poly	3		X		X						X														X	
TB	29																														

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	1/26/16 1700	[signature]
[signature]	1/26/16 1000	[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: 1.3, 3.5, 2 | 2.2 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

ORIGIN ID:LRDA (915) 533-9025
ARCADIS
401 E MAIN DR STE 400
EL PASO, TX 799011358
UNITED STATES US

512 1 C
10:30
FZ
5075
01.26

TO SAMPLE MGR
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(612) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

8 of 10
MPS# 0681 7822 3790 5075
Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

REC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 25JAN16
ACTWGT: 69.00 LB
CAD: /POS1621
DIMS: 23x14x13 IN

BILL SENDER

TO **SAMPLE MGR**
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

6 of 10

MPS# 0681 **7822 3790 5053**

Mstr# 8093 9459 5093 0200

44 BSMA

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

78664
TX-US **AUS**

CUSTODY SEAL
1/25/16
DATE
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 25JAN16
ACTWGT: 81.90 LB
CAD: /POS1621
DIMS: 24x15x13 IN

BILL SENDER

TO **SAMPLE MGR**
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

E

J161016010401uv

9 of 10

MPS# 0681 **7822 3790 5086**

Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US **AUS**

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 25JAN16
ACTWGT: 66.20 LB
CAD: /POS1621
DIMS: 24x15x13 IN

BILL SENDER

TO **SAMPLE MGR**
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx
Express

E

7 of 10

MPS# 0681 **7822 3790 5064**

Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US **AUS**

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

QEC
Quality Environmental Containers
304-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** | Date Received: **1/26/2016**

Work Order Number **1601231** | Received by **JB**

Checklist completed by: [signature] (Signature) 1/26/2016 (Date) | Reviewed by [initials] (Initials) 1/26/2016 (Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.3 °C ,3.5, 2.1, 0.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by [initials]
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo Shotgun Range	**Date:** 2/16/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1601231
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	X				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	X				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	X				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo Shotgun Range | **Date:** 2/16/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1601231

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?		X			**S2-01**
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager		02/16/16
Scott Schroeder – Technical Director	Signature	Date

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with Dodd QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 1/26/2016. A total of 28 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For PAH Analysis, the recoveries of up to eight compounds for the Matrix Spike and Matrix Spike Duplicate (1601232-06 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These compounds were within method control limits in the associated LCS. No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the samples were diluted due to observed color of extract; dilution meets project specifications.

An LCSD/MS/MSD are not required for Equipment Blank samples.

For all of the soil samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. This workorder included surface soil samples which are sieved to 250µ particle size as per project specs. Sample SGR-DU002-26-A was dried for an extended time, due to the moisture content. There was insufficient sample volume for this sample to perform the sub-sampling procedure as stated in the SOP. The entire sieved sample mass was used for the analysis.

Exception Report S2-01

CASE NARRATIVE

For PAH Analysis, performed on 2/6/2016, an ending Continuing Calibration Verification was not performed; affected samples were QC samples (only). There are bracketing calibrations performed for all of the client's field samples. No further corrective action was taken.

A summary of project communication follows:

The bottlekit was requested from Garett Ferguson via telephone to Jennifer Barker/John DuPont on 1/11/2016. The 'ship to' address provided by G. Ferguson via email on 1/11/2016. DHL Bottle Order #6705 was sent on 1/20/2016 via Lonestar Overnight Ground to arrive by 1/21/2016. Additionally, DHL Bottle Order #6716 was sent on 2/28/2016 via Lonestar Overnight Ground to arrive by 2/29/2016.

This sample delivery group arrives at DHL Analytical and the Sample Summary were sent via email from Log-in to client on 1/26/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 2/1-2/2016 - from J. DuPont to L. Mott of Arcadis regarding request to dilute based on color of extract, suppression of one Int. Std. The client accepted the corrective action for the quality exceedances.
email communications 2/4/2016 - from J. DuPont to L. Mott of Arcadis regarding exceedance in an ICV. The corrective action was accepted by the client.
email communications 2/5/2016 - from J. DuPont to L. Mott of Arcadis regarding exceedance in an ICV. The corrective action was accepted by the client.
email communications 2/16/2016 - from J. DuPont to L. Mott of Arcadis regarding an ending CCV was not performed.

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Project: Laredo Shotgun Range
Lab Order: 1601231

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1601231-01	SGR-DU019-01-A		01/24/16 08:45 AM	1/26/2016
1601231-02	SGR-DU019-01-B		01/24/16 08:50 AM	1/26/2016
1601231-03	SGR-DU019-01-C		01/24/16 08:55 AM	1/26/2016
1601231-04	SGR-DU019-02-A		01/24/16 09:25 AM	1/26/2016
1601231-05	SGR-DU019-02-B		01/24/16 10:00 AM	1/26/2016
1601231-06	SGR-DU019-02-C		01/24/16 09:30 AM	1/26/2016
1601231-07	SGR-DU019-03-A		01/24/16 09:50 AM	1/26/2016
1601231-08	SGR-DU019-03-B		01/24/16 10:00 AM	1/26/2016
1601231-09	SGR-DU019-03-C		01/24/16 10:10 AM	1/26/2016
1601231-10	SGR-DU002-16-A		01/24/16 11:25 AM	1/26/2016
1601231-11	SGR-DU002-16-B		01/24/16 11:30 AM	1/26/2016
1601231-12	SGR-DU002-16-C		01/24/16 11:40 AM	1/26/2016
1601231-13	SGR-DU002-08-A		01/24/16 11:45 AM	1/26/2016
1601231-14	SGR-DU002-08-B		01/24/16 12:05 PM	1/26/2016
1601231-15	SGR-DU002-08-C		01/24/16 12:10 PM	1/26/2016
1601231-16	SGR-DU002-23-A		01/24/16 12:30 PM	1/26/2016
1601231-17	SGR-DU002-23-B		01/24/16 12:35 PM	1/26/2016
1601231-18	SGR-DU002-23-C		01/24/16 12:40 PM	1/26/2016
1601231-19	SGR-DU002-26-A		01/24/16 02:55 PM	1/26/2016
1601231-20	SGR-DU002-26-B		01/24/16 03:00 PM	1/26/2016
1601231-21	SGR-DU002-26-C		01/24/16 03:05 PM	1/26/2016
1601231-22	SGR-DU002-09-A		01/24/16 04:00 PM	1/26/2016
1601231-23	SGR-DU002-09-B		01/24/16 04:10 PM	1/26/2016
1601231-24	SGR-DU002-09-C		01/24/16 04:10 PM	1/26/2016
1601231-25	SGR-DU002-17-A		01/24/16 03:20 PM	1/26/2016
1601231-26	SGR-DU002-17-B		01/24/16 03:30 PM	1/26/2016
1601231-27	SGR-DU002-17-C		01/24/16 03:35 PM	1/26/2016
1601231-28	SGR-EB002-17		01/24/16 03:30 PM	1/26/2016

DHL Analytical, Inc.

16-Feb-16

Lab Order: 1601231
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601231-01A	SGR-DU019-01-A	01/24/16 08:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 07:10 AM	73472
	SGR-DU019-01-A	01/24/16 08:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/02/16 08:36 AM	73429
1601231-02A	SGR-DU019-01-B	01/24/16 08:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 07:10 AM	73472
	SGR-DU019-01-B	01/24/16 08:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/02/16 08:36 AM	73429
1601231-03A	SGR-DU019-01-C	01/24/16 08:55 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 07:10 AM	73472
	SGR-DU019-01-C	01/24/16 08:55 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/02/16 08:36 AM	73429
1601231-04A	SGR-DU019-02-A	01/24/16 09:25 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-02-A	01/24/16 09:25 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-05A	SGR-DU019-02-B	01/24/16 10:00 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-02-B	01/24/16 10:00 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-06A	SGR-DU019-02-C	01/24/16 09:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-02-C	01/24/16 09:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-07A	SGR-DU019-03-A	01/24/16 09:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-03-A	01/24/16 09:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-08A	SGR-DU019-03-B	01/24/16 10:00 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-03-B	01/24/16 10:00 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-09A	SGR-DU019-03-C	01/24/16 10:10 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU019-03-C	01/24/16 10:10 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-10A	SGR-DU002-16-A	01/24/16 11:25 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-16-A	01/24/16 11:25 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-11A	SGR-DU002-16-B	01/24/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-16-B	01/24/16 11:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-12A	SGR-DU002-16-C	01/24/16 11:40 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-16-C	01/24/16 11:40 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-13A	SGR-DU002-08-A	01/24/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-08-A	01/24/16 11:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-14A	SGR-DU002-08-B	01/24/16 12:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-08-B	01/24/16 12:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501

Lab Order: 1601231
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601231-15A	SGR-DU002-08-C	01/24/16 12:10 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-08-C	01/24/16 12:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-16A	SGR-DU002-23-A	01/24/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-23-A	01/24/16 12:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-17A	SGR-DU002-23-B	01/24/16 12:35 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-23-B	01/24/16 12:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-18A	SGR-DU002-23-C	01/24/16 12:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-23-C	01/24/16 12:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-19A	SGR-DU002-26-A	01/24/16 02:55 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-26-A	01/24/16 02:55 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-20A	SGR-DU002-26-B	01/24/16 03:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-26-B	01/24/16 03:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-21A	SGR-DU002-26-C	01/24/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-26-C	01/24/16 03:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-22A	SGR-DU002-09-A	01/24/16 04:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-09-A	01/24/16 04:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-23A	SGR-DU002-09-B	01/24/16 04:10 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/03/16 09:23 AM	73479
	SGR-DU002-09-B	01/24/16 04:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/04/16 08:30 AM	73501
1601231-24A	SGR-DU002-09-C	01/24/16 04:10 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU002-09-C	01/24/16 04:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601231-25A	SGR-DU002-17-A	01/24/16 03:20 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU002-17-A	01/24/16 03:20 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601231-26A	SGR-DU002-17-B	01/24/16 03:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU002-17-B	01/24/16 03:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601231-27A	SGR-DU002-17-C	01/24/16 03:35 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU002-17-C	01/24/16 03:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601231-28A	SGR-EB002-17	01/24/16 03:30 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	02/09/16 08:30 AM	73575
1601231-28B	SGR-EB002-17	01/24/16 03:30 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	01/27/16 01:03 PM	73352

Lab Order: 1601231
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601231-01A	SGR-DU019-01-A	Soil	SW8270D-LL	PAHs: GC/MS	73472	10	02/07/16 03:38 AM	GCMS6_160206A
	SGR-DU019-01-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73429	5	02/09/16 05:23 PM	ICP-MS4_160209E
1601231-02A	SGR-DU019-01-B	Soil	SW8270D-LL	PAHs: GC/MS	73472	10	02/07/16 04:18 AM	GCMS6_160206A
	SGR-DU019-01-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73429	5	02/09/16 05:25 PM	ICP-MS4_160209E
1601231-03A	SGR-DU019-01-C	Soil	SW8270D-LL	PAHs: GC/MS	73472	10	02/07/16 04:58 AM	GCMS6_160206A
	SGR-DU019-01-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73429	5	02/09/16 05:27 PM	ICP-MS4_160209E
1601231-04A	SGR-DU019-02-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 11:43 AM	GCMS6_160208A
	SGR-DU019-02-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:26 PM	ICP-MS4_160209E
1601231-05A	SGR-DU019-02-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 12:24 PM	GCMS6_160208A
	SGR-DU019-02-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:28 PM	ICP-MS4_160209E
1601231-06A	SGR-DU019-02-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 01:04 PM	GCMS6_160208A
	SGR-DU019-02-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:30 PM	ICP-MS4_160209E
1601231-07A	SGR-DU019-03-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 01:44 PM	GCMS6_160208A
	SGR-DU019-03-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:32 PM	ICP-MS4_160209E
1601231-08A	SGR-DU019-03-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 02:25 PM	GCMS6_160208A
	SGR-DU019-03-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:34 PM	ICP-MS4_160209E
1601231-09A	SGR-DU019-03-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 03:05 PM	GCMS6_160208A
	SGR-DU019-03-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:36 PM	ICP-MS4_160209E
1601231-10A	SGR-DU002-16-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 03:45 PM	GCMS6_160208A
	SGR-DU002-16-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:38 PM	ICP-MS4_160209E
1601231-11A	SGR-DU002-16-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 04:25 PM	GCMS6_160208A
	SGR-DU002-16-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:40 PM	ICP-MS4_160209E
1601231-12A	SGR-DU002-16-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 05:06 PM	GCMS6_160208A
	SGR-DU002-16-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:42 PM	ICP-MS4_160209E
1601231-13A	SGR-DU002-08-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 05:46 PM	GCMS6_160208A
	SGR-DU002-08-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:58 PM	ICP-MS4_160209E
1601231-14A	SGR-DU002-08-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 06:27 PM	GCMS6_160208A
	SGR-DU002-08-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:59 PM	ICP-MS4_160209E

Lab Order: 1601231
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601231-15A	SGR-DU002-08-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 07:06 PM	GCMS6_160208A
	SGR-DU002-08-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:01 PM	ICP-MS4_160209E
1601231-16A	SGR-DU002-23-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 09:43 PM	GCMS6_160208A
	SGR-DU002-23-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:03 PM	ICP-MS4_160209E
1601231-17A	SGR-DU002-23-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 10:23 PM	GCMS6_160208A
	SGR-DU002-23-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:05 PM	ICP-MS4_160209E
1601231-18A	SGR-DU002-23-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 11:03 PM	GCMS6_160208A
	SGR-DU002-23-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:07 PM	ICP-MS4_160209E
1601231-19A	SGR-DU002-26-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/08/16 11:43 PM	GCMS6_160208A
	SGR-DU002-26-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:09 PM	ICP-MS4_160209E
1601231-20A	SGR-DU002-26-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/09/16 12:23 AM	GCMS6_160208A
	SGR-DU002-26-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:11 PM	ICP-MS4_160209E
1601231-21A	SGR-DU002-26-C	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/09/16 01:04 AM	GCMS6_160208A
	SGR-DU002-26-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:13 PM	ICP-MS4_160209E
1601231-22A	SGR-DU002-09-A	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/09/16 01:44 AM	GCMS6_160208A
	SGR-DU002-09-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 04:15 PM	ICP-MS4_160209E
1601231-23A	SGR-DU002-09-B	Soil	SW8270D-LL	PAHs: GC/MS	73479	10	02/09/16 02:25 AM	GCMS6_160208A
	SGR-DU002-09-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73501	5	02/09/16 03:22 PM	ICP-MS4_160209E
1601231-24A	SGR-DU002-09-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 10:03 AM	GCMS6_160209A
	SGR-DU002-09-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:13 PM	ICP-MS4_160211F
1601231-25A	SGR-DU002-17-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 10:43 AM	GCMS6_160209A
	SGR-DU002-17-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:15 PM	ICP-MS4_160211F
1601231-26A	SGR-DU002-17-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 11:24 AM	GCMS6_160209A
	SGR-DU002-17-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:17 PM	ICP-MS4_160211F
1601231-27A	SGR-DU002-17-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 12:04 PM	GCMS6_160209A
	SGR-DU002-17-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:19 PM	ICP-MS4_160211F
1601231-28A	SGR-EB002-17	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	73575	1	02/11/16 12:34 PM	ICP-MS4_160211A
1601231-28B	SGR-EB002-17	Equip Blank	SW8270D-LL	PAHs: GC/MS	73352	1	01/28/16 07:36 PM	GCMS6_160128B

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-01
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:45 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.4	0.0847	0.254	0.127		mg/Kg-dry	5	02/09/16 05:23 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/09/16 05:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/07/16 03:38 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/07/16 03:38 AM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[a]anthracene	0.375	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[a]pyrene	0.522	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[b]fluoranthene	0.486	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[e]pyrene	0.437	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[g,h,i]perylene	0.459	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[j]fluoranthene	0.267	0.0500	0.0999	0.0749	N	mg/Kg-dry	10	02/07/16 03:38 AM
Benzo[k]fluoranthene	0.246	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Chrysene	0.536	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Dibenz[a,h]anthracene	0.0995	0.0500	0.0999	0.0749	J	mg/Kg-dry	10	02/07/16 03:38 AM
Fluoranthene	0.685	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/07/16 03:38 AM
Indeno[1,2,3-cd]pyrene	0.373	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Phenanthrene	0.209	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
Pyrene	0.617	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/07/16 03:38 AM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/07/16 03:38 AM
IS: Chrysene-d12	97.1	0	50-200	0		%REC	10	02/07/16 03:38 AM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	02/07/16 03:38 AM
IS: Perylene-d12	96.8	0	50-200	0		%REC	10	02/07/16 03:38 AM
IS: Phenanthrene-d10	117	0	50-200	0		%REC	10	02/07/16 03:38 AM
Surr: 2-Fluorobiphenyl	71.2	0	46-115	0		%REC	10	02/07/16 03:38 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-01
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:45 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	74.9	0	58-133	0		%REC	10	02/07/16 03:38 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-02
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:50 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.8	0.0917	0.275	0.138		mg/Kg-dry	5	02/09/16 05:25 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/09/16 05:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/07/16 04:18 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/07/16 04:18 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[a]anthracene	0.382	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[a]pyrene	0.546	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[b]fluoranthene	0.516	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[e]pyrene	0.471	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[g,h,i]perylene	0.503	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[j]fluoranthene	0.290	0.0487	0.0974	0.0730	N	mg/Kg-dry	10	02/07/16 04:18 AM
Benzo[k]fluoranthene	0.259	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Chrysene	0.578	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Dibenz[a,h]anthracene	0.105	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Fluoranthene	0.740	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/07/16 04:18 AM
Indeno[1,2,3-cd]pyrene	0.404	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Phenanthrene	0.200	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
Pyrene	0.663	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/07/16 04:18 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/07/16 04:18 AM
IS: Chrysene-d12	95.1	0	50-200	0		%REC	10	02/07/16 04:18 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/07/16 04:18 AM
IS: Perylene-d12	92.6	0	50-200	0		%REC	10	02/07/16 04:18 AM
IS: Phenanthrene-d10	120	0	50-200	0		%REC	10	02/07/16 04:18 AM
Surr: 2-Fluorobiphenyl	72.3	0	46-115	0		%REC	10	02/07/16 04:18 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-02
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:50 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.7	0	58-133	0		%REC	10	02/07/16 04:18 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-03
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:55 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	22.0	0.0917	0.275	0.138		mg/Kg-dry	5	02/09/16 05:27 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/09/16 05:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	02/07/16 04:58 AM
Acenaphthylene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	02/07/16 04:58 AM
Anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[a]anthracene	0.346	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[a]pyrene	0.479	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[b]fluoranthene	0.480	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[e]pyrene	0.397	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[g,h,i]perylene	0.422	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[j]fluoranthene	0.248	0.0500	0.100	0.0750	N	mg/Kg-dry	10	02/07/16 04:58 AM
Benzo[k]fluoranthene	0.228	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Chrysene	0.499	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Dibenz[a,h]anthracene	0.0880	0.0500	0.100	0.0750	J	mg/Kg-dry	10	02/07/16 04:58 AM
Fluoranthene	0.626	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Fluorene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	02/07/16 04:58 AM
Indeno[1,2,3-cd]pyrene	0.338	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Phenanthrene	0.180	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
Pyrene	0.570	0.0500	0.100	0.0750		mg/Kg-dry	10	02/07/16 04:58 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/07/16 04:58 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	02/07/16 04:58 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	02/07/16 04:58 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	02/07/16 04:58 AM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	10	02/07/16 04:58 AM
Surr: 2-Fluorobiphenyl	71.7	0	46-115	0		%REC	10	02/07/16 04:58 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-03
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 08:55 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.3	0	58-133	0		%REC	10	02/07/16 04:58 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-04
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:25 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.1	0.0935	0.280	0.140		mg/Kg-dry	5	02/09/16 03:26 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	02/08/16 11:43 AM
Acenaphthylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	02/08/16 11:43 AM
Anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[a]anthracene	0.159	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[a]pyrene	0.222	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[b]fluoranthene	0.214	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[e]pyrene	0.181	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[g,h,i]perylene	0.191	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[j]fluoranthene	0.115	0.0470	0.0941	0.0706	N	mg/Kg-dry	10	02/08/16 11:43 AM
Benzo[k]fluoranthene	0.107	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Chrysene	0.221	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Dibenz[a,h]anthracene	0.0474	0.0470	0.0941	0.0706	J	mg/Kg-dry	10	02/08/16 11:43 AM
Fluoranthene	0.273	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Fluorene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	02/08/16 11:43 AM
Indeno[1,2,3-cd]pyrene	0.154	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
Phenanthrene	0.0906	0.0470	0.0941	0.0706	J	mg/Kg-dry	10	02/08/16 11:43 AM
Pyrene	0.251	0.0470	0.0941	0.0706		mg/Kg-dry	10	02/08/16 11:43 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/08/16 11:43 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/08/16 11:43 AM
IS: Naphthalene-d8	131	0	50-200	0		%REC	10	02/08/16 11:43 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	02/08/16 11:43 AM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/08/16 11:43 AM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	02/08/16 11:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-04
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:25 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	77.3	0	58-133	0		%REC	10	02/08/16 11:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-05
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:00 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.5	0.0917	0.275	0.138		mg/Kg-dry	5	02/09/16 03:28 PM
IS: Bismuth	104	0	30-120	0		%REC	5	02/09/16 03:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 12:24 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 12:24 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[a]anthracene	0.191	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[a]pyrene	0.253	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[b]fluoranthene	0.238	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[e]pyrene	0.212	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[g,h,i]perylene	0.226	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[j]fluoranthene	0.128	0.0497	0.0994	0.0746	N	mg/Kg-dry	10	02/08/16 12:24 PM
Benzo[k]fluoranthene	0.122	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Chrysene	0.256	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Dibenz[a,h]anthracene	0.0529	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 12:24 PM
Fluoranthene	0.314	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 12:24 PM
Indeno[1,2,3-cd]pyrene	0.175	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Phenanthrene	0.108	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
Pyrene	0.284	0.0497	0.0994	0.0746		mg/Kg-dry	10	02/08/16 12:24 PM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/08/16 12:24 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	02/08/16 12:24 PM
IS: Naphthalene-d8	137	0	50-200	0		%REC	10	02/08/16 12:24 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	02/08/16 12:24 PM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/08/16 12:24 PM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/08/16 12:24 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		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-05
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:00 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	75.8	0	58-133	0		%REC	10	02/08/16 12:24 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		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-06
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:30 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.1	0.0990	0.297	0.149		mg/Kg-dry	5	02/09/16 03:30 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	02/08/16 01:04 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	02/08/16 01:04 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[a]anthracene	0.192	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[a]pyrene	0.259	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[b]fluoranthene	0.254	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[e]pyrene	0.214	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[g,h,i]perylene	0.229	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[j]fluoranthene	0.131	0.0490	0.0980	0.0735	N	mg/Kg-dry	10	02/08/16 01:04 PM
Benzo[k]fluoranthene	0.123	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Chrysene	0.254	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	02/08/16 01:04 PM
Fluoranthene	0.342	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	02/08/16 01:04 PM
Indeno[1,2,3-cd]pyrene	0.179	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Phenanthrene	0.116	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
Pyrene	0.307	0.0490	0.0980	0.0735		mg/Kg-dry	10	02/08/16 01:04 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	02/08/16 01:04 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	02/08/16 01:04 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	02/08/16 01:04 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	02/08/16 01:04 PM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	10	02/08/16 01:04 PM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	02/08/16 01:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-02-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-06
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:30 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	02/08/16 01:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-07
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:50 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.6	0.0943	0.283	0.142		mg/Kg-dry	5	02/09/16 03:32 PM
IS: Bismuth	107	0	30-120	0		%REC	5	02/09/16 03:32 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/08/16 01:44 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/08/16 01:44 PM
Anthracene	0.0697	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[a]anthracene	0.658	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[a]pyrene	0.944	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[b]fluoranthene	0.878	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[e]pyrene	0.725	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[g,h,i]perylene	0.770	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[j]fluoranthene	0.448	0.0498	0.0996	0.0747	N	mg/Kg-dry	10	02/08/16 01:44 PM
Benzo[k]fluoranthene	0.421	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Chrysene	0.879	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Dibenz[a,h]anthracene	0.163	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Fluoranthene	1.11	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/08/16 01:44 PM
Indeno[1,2,3-cd]pyrene	0.609	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Phenanthrene	0.366	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
Pyrene	1.01	0.0498	0.0996	0.0747		mg/Kg-dry	10	02/08/16 01:44 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/08/16 01:44 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/08/16 01:44 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/08/16 01:44 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	02/08/16 01:44 PM
IS: Phenanthrene-d10	115	0	50-200	0		%REC	10	02/08/16 01:44 PM
Surr: 2-Fluorobiphenyl	74.9	0	46-115	0		%REC	10	02/08/16 01:44 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-07
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 09:50 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.6	0	58-133	0		%REC	10	02/08/16 01:44 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-08
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:00 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	23.8	0.0901	0.270	0.135		mg/Kg-dry	5	02/09/16 03:34 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	02/08/16 02:25 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	02/08/16 02:25 PM
Anthracene	0.0550	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[a]anthracene	0.583	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[a]pyrene	0.806	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[b]fluoranthene	0.743	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[e]pyrene	0.638	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[g,h,i]perylene	0.692	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[j]fluoranthene	0.390	0.0494	0.0987	0.0740	N	mg/Kg-dry	10	02/08/16 02:25 PM
Benzo[k]fluoranthene	0.357	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Chrysene	0.774	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Dibenz[a,h]anthracene	0.143	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Fluoranthene	0.924	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	02/08/16 02:25 PM
Indeno[1,2,3-cd]pyrene	0.544	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Phenanthrene	0.307	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
Pyrene	0.842	0.0494	0.0987	0.0740		mg/Kg-dry	10	02/08/16 02:25 PM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/08/16 02:25 PM
IS: Chrysene-d12	99.8	0	50-200	0		%REC	10	02/08/16 02:25 PM
IS: Naphthalene-d8	133	0	50-200	0		%REC	10	02/08/16 02:25 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	02/08/16 02:25 PM
IS: Phenanthrene-d10	109	0	50-200	0		%REC	10	02/08/16 02:25 PM
Surr: 2-Fluorobiphenyl	76.2	0	46-115	0		%REC	10	02/08/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-08
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:00 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.3	0	58-133	0		%REC	10	02/08/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-09
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:10 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.5	0.0990	0.297	0.149		mg/Kg-dry	5	02/09/16 03:36 PM
IS: Bismuth	106	0	30-120	0		%REC	5	02/09/16 03:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0718	0.0479	0.0958	0.0718	U	mg/Kg-dry	10	02/08/16 03:05 PM
Acenaphthylene	0.0718	0.0479	0.0958	0.0718	U	mg/Kg-dry	10	02/08/16 03:05 PM
Anthracene	0.0557	0.0479	0.0958	0.0718	J	mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[a]anthracene	0.590	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[a]pyrene	0.890	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[b]fluoranthene	0.839	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[e]pyrene	0.719	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[g,h,i]perylene	0.798	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[j]fluoranthene	0.425	0.0479	0.0958	0.0718	N	mg/Kg-dry	10	02/08/16 03:05 PM
Benzo[k]fluoranthene	0.386	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Chrysene	0.790	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Dibenz[a,h]anthracene	0.165	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Fluoranthene	0.969	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Fluorene	0.0718	0.0479	0.0958	0.0718	U	mg/Kg-dry	10	02/08/16 03:05 PM
Indeno[1,2,3-cd]pyrene	0.611	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Phenanthrene	0.306	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
Pyrene	0.895	0.0479	0.0958	0.0718		mg/Kg-dry	10	02/08/16 03:05 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	02/08/16 03:05 PM
IS: Chrysene-d12	97.1	0	50-200	0		%REC	10	02/08/16 03:05 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/08/16 03:05 PM
IS: Perylene-d12	89.2	0	50-200	0		%REC	10	02/08/16 03:05 PM
IS: Phenanthrene-d10	115	0	50-200	0		%REC	10	02/08/16 03:05 PM
Surr: 2-Fluorobiphenyl	70.5	0	46-115	0		%REC	10	02/08/16 03:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-03-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-09
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 10:10 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.2	0	58-133	0		%REC	10	02/08/16 03:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-10
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:25 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.3	0.0877	0.263	0.132		mg/Kg-dry	5	02/09/16 03:38 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:38 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Acenaphthylene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[a]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[a]pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[b]fluoranthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[e]pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[g,h,i]perylene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[j]fluoranthene	0.0710	0.0473	0.0946	0.0710	NU	mg/Kg-dry	10	02/08/16 03:45 PM
Benzo[k]fluoranthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Chrysene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Fluoranthene	0.0512	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	02/08/16 03:45 PM
Fluorene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Indeno[1,2,3-cd]pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Phenanthrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
Pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/08/16 03:45 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	02/08/16 03:45 PM
IS: Chrysene-d12	126	0	50-200	0		%REC	10	02/08/16 03:45 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/08/16 03:45 PM
IS: Perylene-d12	134	0	50-200	0		%REC	10	02/08/16 03:45 PM
IS: Phenanthrene-d10	115	0	50-200	0		%REC	10	02/08/16 03:45 PM
Surr: 2-Fluorobiphenyl	69.1	0	46-115	0		%REC	10	02/08/16 03:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-10
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:25 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.5	0	58-133	0		%REC	10	02/08/16 03:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-11
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:30 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	26.9	0.0990	0.297	0.149		mg/Kg-dry	5	02/09/16 03:40 PM
IS: Bismuth	107	0	30-120	0		%REC	5	02/09/16 03:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[a]pyrene	0.0570	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[b]fluoranthene	0.0599	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[g,h,i]perylene	0.0527	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	02/08/16 04:25 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Chrysene	0.0571	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Fluoranthene	0.0815	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	02/08/16 04:25 PM
Pyrene	0.0738	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	02/08/16 04:25 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/08/16 04:25 PM
IS: Chrysene-d12	125	0	50-200	0		%REC	10	02/08/16 04:25 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	02/08/16 04:25 PM
IS: Perylene-d12	134	0	50-200	0		%REC	10	02/08/16 04:25 PM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/08/16 04:25 PM
Surr: 2-Fluorobiphenyl	73.8	0	46-115	0		%REC	10	02/08/16 04:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-11
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:30 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.7	0	58-133	0		%REC	10	02/08/16 04:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-12
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:40 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	32.3	0.0935	0.280	0.140		mg/Kg-dry	5	02/09/16 03:42 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[a]pyrene	0.0572	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[b]fluoranthene	0.0570	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[g,h,i]perylene	0.0496	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	02/08/16 05:06 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Chrysene	0.0548	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Fluoranthene	0.0721	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/08/16 05:06 PM
Pyrene	0.0658	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/08/16 05:06 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	02/08/16 05:06 PM
IS: Chrysene-d12	128	0	50-200	0		%REC	10	02/08/16 05:06 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/08/16 05:06 PM
IS: Perylene-d12	137	0	50-200	0		%REC	10	02/08/16 05:06 PM
IS: Phenanthrene-d10	116	0	50-200	0		%REC	10	02/08/16 05:06 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	02/08/16 05:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-16-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-12
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:40 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.3	0	58-133	0		%REC	10	02/08/16 05:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-13
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:45 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	170	0.0971	0.291	0.146		mg/Kg-dry	5	02/09/16 03:58 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	02/08/16 05:46 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	02/08/16 05:46 PM
Anthracene	0.0956	0.0496	0.0991	0.0743	J	mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[a]anthracene	0.889	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[a]pyrene	1.18	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[b]fluoranthene	1.17	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[e]pyrene	0.953	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[g,h,i]perylene	1.00	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[j]fluoranthene	0.606	0.0496	0.0991	0.0743	N	mg/Kg-dry	10	02/08/16 05:46 PM
Benzo[k]fluoranthene	0.561	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Chrysene	1.19	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Dibenz[a,h]anthracene	0.216	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Fluoranthene	1.66	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	02/08/16 05:46 PM
Indeno[1,2,3-cd]pyrene	0.785	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Phenanthrene	0.524	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
Pyrene	1.50	0.0496	0.0991	0.0743		mg/Kg-dry	10	02/08/16 05:46 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	02/08/16 05:46 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/08/16 05:46 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	02/08/16 05:46 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/08/16 05:46 PM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	10	02/08/16 05:46 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	02/08/16 05:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-13
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 11:45 AM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.0	0	58-133	0		%REC	10	02/08/16 05:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-14
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:05 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	265	0.0926	0.278	0.139		mg/Kg-dry	5	02/09/16 03:59 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 03:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	02/08/16 06:27 PM
Acenaphthylene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	02/08/16 06:27 PM
Anthracene	0.0558	0.0462	0.0923	0.0693	J	mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[a]anthracene	0.439	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[a]pyrene	0.601	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[b]fluoranthene	0.602	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[e]pyrene	0.498	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[g,h,i]perylene	0.573	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[j]fluoranthene	0.314	0.0462	0.0923	0.0693	N	mg/Kg-dry	10	02/08/16 06:27 PM
Benzo[k]fluoranthene	0.290	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Chrysene	0.610	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Dibenz[a,h]anthracene	0.114	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Fluoranthene	0.788	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Fluorene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	02/08/16 06:27 PM
Indeno[1,2,3-cd]pyrene	0.435	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Phenanthrene	0.249	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
Pyrene	0.714	0.0462	0.0923	0.0693		mg/Kg-dry	10	02/08/16 06:27 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	02/08/16 06:27 PM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	02/08/16 06:27 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	10	02/08/16 06:27 PM
IS: Perylene-d12	132	0	50-200	0		%REC	10	02/08/16 06:27 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	10	02/08/16 06:27 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	02/08/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-14
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:05 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	02/08/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-15
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	71.3	0.100	0.300	0.150		mg/Kg-dry	5	02/09/16 04:01 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 04:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/08/16 07:06 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/08/16 07:06 PM
Anthracene	0.0716	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[a]anthracene	0.674	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[a]pyrene	0.913	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[b]fluoranthene	0.913	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[e]pyrene	0.754	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[g,h,i]perylene	0.781	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[j]fluoranthene	0.484	0.0493	0.0986	0.0740	N	mg/Kg-dry	10	02/08/16 07:06 PM
Benzo[k]fluoranthene	0.444	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Chrysene	0.925	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Dibenz[a,h]anthracene	0.166	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Fluoranthene	1.30	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/08/16 07:06 PM
Indeno[1,2,3-cd]pyrene	0.613	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Phenanthrene	0.417	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
Pyrene	1.18	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/08/16 07:06 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	02/08/16 07:06 PM
IS: Chrysene-d12	126	0	50-200	0		%REC	10	02/08/16 07:06 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	02/08/16 07:06 PM
IS: Perylene-d12	137	0	50-200	0		%REC	10	02/08/16 07:06 PM
IS: Phenanthrene-d10	111	0	50-200	0		%REC	10	02/08/16 07:06 PM
Surr: 2-Fluorobiphenyl	71.3	0	46-115	0		%REC	10	02/08/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-08-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-15
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.4	0	58-133	0		%REC	10	02/08/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-16
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.73	0.0885	0.265	0.133		mg/Kg-dry	5	02/09/16 04:03 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 04:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	02/08/16 09:43 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Fluoranthene	0.0548	0.0486	0.0972	0.0729	J	mg/Kg-dry	10	02/08/16 09:43 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/08/16 09:43 PM
Pyrene	0.0489	0.0486	0.0972	0.0729	J	mg/Kg-dry	10	02/08/16 09:43 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	02/08/16 09:43 PM
IS: Chrysene-d12	129	0	50-200	0		%REC	10	02/08/16 09:43 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/08/16 09:43 PM
IS: Perylene-d12	138	0	50-200	0		%REC	10	02/08/16 09:43 PM
IS: Phenanthrene-d10	111	0	50-200	0		%REC	10	02/08/16 09:43 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	02/08/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-16
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.9	0	58-133	0		%REC	10	02/08/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-17
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.4	0.0952	0.286	0.143		mg/Kg-dry	5	02/09/16 04:05 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/09/16 04:05 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Acenaphthylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[a]anthracene	0.0696	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[a]pyrene	0.0893	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[b]fluoranthene	0.0948	0.0472	0.0944	0.0708		mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[e]pyrene	0.0765	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[g,h,i]perylene	0.0815	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[j]fluoranthene	0.0708	0.0472	0.0944	0.0708	NU	mg/Kg-dry	10	02/08/16 10:23 PM
Benzo[k]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Chrysene	0.0924	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Fluoranthene	0.129	0.0472	0.0944	0.0708		mg/Kg-dry	10	02/08/16 10:23 PM
Fluorene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Indeno[1,2,3-cd]pyrene	0.0626	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	02/08/16 10:23 PM
Phenanthrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	02/08/16 10:23 PM
Pyrene	0.119	0.0472	0.0944	0.0708		mg/Kg-dry	10	02/08/16 10:23 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	02/08/16 10:23 PM
IS: Chrysene-d12	129	0	50-200	0		%REC	10	02/08/16 10:23 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/08/16 10:23 PM
IS: Perylene-d12	141	0	50-200	0		%REC	10	02/08/16 10:23 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	10	02/08/16 10:23 PM
Surr: 2-Fluorobiphenyl	71.7	0	46-115	0		%REC	10	02/08/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-17
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.9	0	58-133	0		%REC	10	02/08/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-18
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:40 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.1	0.0962	0.288	0.144		mg/Kg-dry	5	02/09/16 04:07 PM
IS: Bismuth	106	0	30-120	0		%REC	5	02/09/16 04:07 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[b]fluoranthene	0.0494	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	02/08/16 11:03 PM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Chrysene	0.0487	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	02/08/16 11:03 PM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Fluoranthene	0.0702	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	02/08/16 11:03 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/08/16 11:03 PM
Pyrene	0.0634	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	02/08/16 11:03 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	02/08/16 11:03 PM
IS: Chrysene-d12	130	0	50-200	0		%REC	10	02/08/16 11:03 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	02/08/16 11:03 PM
IS: Perylene-d12	140	0	50-200	0		%REC	10	02/08/16 11:03 PM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	10	02/08/16 11:03 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	02/08/16 11:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-23-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-18
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 12:40 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.0	0	58-133	0		%REC	10	02/08/16 11:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-19
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 02:55 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.57	0.0952	0.286	0.143		mg/Kg-dry	5	02/09/16 04:09 PM
IS: Bismuth	106	0	30-120	0		%REC	5	02/09/16 04:09 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Acenaphthylene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Anthracene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[a]anthracene	0.0785	0.0461	0.0923	0.0692	J	mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[a]pyrene	0.102	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[b]fluoranthene	0.110	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[e]pyrene	0.0970	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[g,h,i]perylene	0.0917	0.0461	0.0923	0.0692	J	mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[j]fluoranthene	0.0601	0.0461	0.0923	0.0692	JN	mg/Kg-dry	10	02/08/16 11:43 PM
Benzo[k]fluoranthene	0.0573	0.0461	0.0923	0.0692	J	mg/Kg-dry	10	02/08/16 11:43 PM
Chrysene	0.124	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
Dibenz[a,h]anthracene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Fluoranthene	0.153	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
Fluorene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Indeno[1,2,3-cd]pyrene	0.0716	0.0461	0.0923	0.0692	J	mg/Kg-dry	10	02/08/16 11:43 PM
Phenanthrene	0.0692	0.0461	0.0923	0.0692	U	mg/Kg-dry	10	02/08/16 11:43 PM
Pyrene	0.133	0.0461	0.0923	0.0692		mg/Kg-dry	10	02/08/16 11:43 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	02/08/16 11:43 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	02/08/16 11:43 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/08/16 11:43 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	02/08/16 11:43 PM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/08/16 11:43 PM
Surr: 2-Fluorobiphenyl	77.2	0	46-115	0		%REC	10	02/08/16 11:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-19
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 02:55 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.3	0	58-133	0		%REC	10	02/08/16 11:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-20
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:00 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.7	0.0980	0.294	0.147		mg/Kg-dry	5	02/09/16 04:11 PM
IS: Bismuth	104	0	30-120	0		%REC	5	02/09/16 04:11 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[a]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[a]pyrene	0.0596	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[b]fluoranthene	0.0694	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[e]pyrene	0.0550	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[g,h,i]perylene	0.0558	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[j]fluoranthene	0.0732	0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	02/09/16 12:23 AM
Benzo[k]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Chrysene	0.0715	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Fluoranthene	0.0878	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Phenanthrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/09/16 12:23 AM
Pyrene	0.0810	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/09/16 12:23 AM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	02/09/16 12:23 AM
IS: Chrysene-d12	128	0	50-200	0		%REC	10	02/09/16 12:23 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/09/16 12:23 AM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/09/16 12:23 AM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	10	02/09/16 12:23 AM
Surr: 2-Fluorobiphenyl	70.8	0	46-115	0		%REC	10	02/09/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-20
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:00 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/09/16 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-21
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:05 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	25.6	0.0952	0.286	0.143		mg/Kg-dry	5	02/09/16 04:13 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 04:13 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Acenaphthylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[a]anthracene	0.0522	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[a]pyrene	0.0696	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[b]fluoranthene	0.0809	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[e]pyrene	0.0672	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[g,h,i]perylene	0.0655	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[j]fluoranthene	0.0724	0.0483	0.0965	0.0724	NU	mg/Kg-dry	10	02/09/16 01:04 AM
Benzo[k]fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Chrysene	0.0840	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Dibenz[a,h]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Fluoranthene	0.108	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/09/16 01:04 AM
Fluorene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Indeno[1,2,3-cd]pyrene	0.0530	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
Phenanthrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/09/16 01:04 AM
Pyrene	0.0958	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/09/16 01:04 AM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	02/09/16 01:04 AM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	02/09/16 01:04 AM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	02/09/16 01:04 AM
IS: Perylene-d12	126	0	50-200	0		%REC	10	02/09/16 01:04 AM
IS: Phenanthrene-d10	111	0	50-200	0		%REC	10	02/09/16 01:04 AM
Surr: 2-Fluorobiphenyl	71.7	0	46-115	0		%REC	10	02/09/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-26-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-21
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:05 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.5	0	58-133	0		%REC	10	02/09/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-22
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:00 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	40.6	0.0935	0.280	0.140		mg/Kg-dry	5	02/09/16 04:15 PM
IS: Bismuth	105	0	30-120	0		%REC	5	02/09/16 04:15 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[b]fluoranthene	0.0492	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	02/09/16 01:44 AM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Chrysene	0.0499	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/09/16 01:44 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Fluoranthene	0.0753	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/09/16 01:44 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/09/16 01:44 AM
Pyrene	0.0664	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/09/16 01:44 AM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	02/09/16 01:44 AM
IS: Chrysene-d12	127	0	50-200	0		%REC	10	02/09/16 01:44 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/09/16 01:44 AM
IS: Perylene-d12	137	0	50-200	0		%REC	10	02/09/16 01:44 AM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/09/16 01:44 AM
Surr: 2-Fluorobiphenyl	73.8	0	46-115	0		%REC	10	02/09/16 01:44 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-22
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:00 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	02/09/16 01:44 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-23
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	30.7	0.0962	0.288	0.144		mg/Kg-dry	5	02/09/16 03:22 PM
IS: Bismuth	104	0	30-120	0		%REC	5	02/09/16 03:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	02/09/16 02:25 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	02/09/16 02:25 AM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	02/09/16 02:25 AM
IS: Chrysene-d12	126	0	50-200	0		%REC	10	02/09/16 02:25 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/09/16 02:25 AM
IS: Perylene-d12	135	0	50-200	0		%REC	10	02/09/16 02:25 AM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/09/16 02:25 AM
Surr: 2-Fluorobiphenyl	73.0	0	46-115	0		%REC	10	02/09/16 02:25 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-23
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/09/16 02:25 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-24
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	29.0	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 01:13 PM
IS: Bismuth	96.6	0	30-120	0		%REC	5	02/11/16 01:13 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	02/09/16 10:03 AM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/09/16 10:03 AM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/09/16 10:03 AM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/09/16 10:03 AM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/09/16 10:03 AM
IS: Perylene-d12	125	0	50-200	0		%REC	10	02/09/16 10:03 AM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	02/09/16 10:03 AM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	02/09/16 10:03 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		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-09-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-24
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 04:10 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.0	0	58-133	0		%REC	10	02/09/16 10:03 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		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-25
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:20 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.1	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 01:15 PM
IS: Bismuth	96.4	0	30-120	0		%REC	5	02/11/16 01:15 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Acenaphthylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[a]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[a]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[b]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[e]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[g,h,i]perylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[j]fluoranthene	0.0705	0.0470	0.0940	0.0705	NU	mg/Kg-dry	10	02/09/16 10:43 AM
Benzo[k]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Chrysene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Dibenz[a,h]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Fluorene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Indeno[1,2,3-cd]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Phenanthrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
Pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	02/09/16 10:43 AM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/09/16 10:43 AM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/09/16 10:43 AM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	02/09/16 10:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-25
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:20 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.1	0	58-133	0		%REC	10	02/09/16 10:43 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-26
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.3	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 01:17 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 01:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	02/09/16 11:24 AM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	02/09/16 11:24 AM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/09/16 11:24 AM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	02/09/16 11:24 AM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	02/09/16 11:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-26
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.0	0	58-133	0		%REC	10	02/09/16 11:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-27
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.2	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:19 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 01:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Acenaphthylene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[a]anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[a]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[b]fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[e]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[g,h,i]perylene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[j]fluoranthene	0.0687	0.0458	0.0917	0.0687	NU	mg/Kg-dry	10	02/09/16 12:04 PM
Benzo[k]fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Chrysene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Dibenz[a,h]anthracene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Fluoranthene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Fluorene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Indeno[1,2,3-cd]pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Phenanthrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
Pyrene	0.0687	0.0458	0.0917	0.0687	U	mg/Kg-dry	10	02/09/16 12:04 PM
IS: Acenaphthene-d10	108	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/09/16 12:04 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	02/09/16 12:04 PM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	02/09/16 12:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU002-17-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-27
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:35 PM
Lab Order:	1601231	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.6	0	58-133	0		%REC	10	02/09/16 12:04 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB002-17
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-28
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**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	02/11/16 12:34 PM
IS: Bismuth	101	0	30-120	0		%REC	1	02/11/16 12:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Acenaphthylene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[a]anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[a]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[b]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[e]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[g,h,i]perylene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Benzo[j]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	NU	mg/L	1	01/28/16 07:36 PM
Benzo[k]fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Chrysene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Dibenz[a,h]anthracene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Fluoranthene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Fluorene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Indeno[1,2,3-cd]pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Phenanthrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
Pyrene	0.0000671	0.0000420	0.0000839	0.0000671	U	mg/L	1	01/28/16 07:36 PM
IS: Acenaphthene-d10	87.8	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Chrysene-d12	82.7	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Naphthalene-d8	88.3	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Perylene-d12	86.1	0	50-200	0		%REC	1	01/28/16 07:36 PM
IS: Phenanthrene-d10	85.8	0	50-200	0		%REC	1	01/28/16 07:36 PM
Surr: 2-Fluorobiphenyl	55.5	0	53-106	0		%REC	1	01/28/16 07:36 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB002-17
Project:	Laredo Shotgun Range	**Lab ID:**	1601231-28
Project No:	04285081.0000.00043	**Collection Date:**	01/24/16 03:30 PM
Lab Order:	1601231	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	60.8	0	58-132	0		%REC	1	01/28/16 07:36 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160122B**

Sample ID	**DCS1-73242**	Batch ID:	**73242**	TestNo:	**SW6020A**	Units:	**mg/Kg**
SampType:	**DCS**	Run ID:	**ICP-MS4_160122B**	Analysis Date:	**1/22/2016 10:52:00 AM**	Prep Date:	**1/21/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.243	0.300	0.2500	0	97.0	80	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160202I**

Sample ID	**DCS1-73394**	Batch ID:	**73394**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**ICP-MS4_160202I**	Analysis Date:	**2/2/2016 4:05:00 PM**	Prep Date:	**1/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000440	0.00100	0.000500	0	88.0	80	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

The QC data in batch 73429 applies to the following samples: 1601231-01A, 1601231-02A, 1601231-03A

Sample ID **MB-73429** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:25:00 PM** Prep Date: **2/2/2016**

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		108	30	120			

Sample ID **LCS-73429** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:27:00 PM** Prep Date: **2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.2	0.300	50.00	0	104	84	118			
IS: Bismuth	50.0		200.0		106	30	120			

Sample ID **LCSD-73429** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:29:00 PM** Prep Date: **2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.0	0.300	50.00	0	106	84	118	1.42	20	
IS: Bismuth	50.0		200.0		107	30	120	0	0	

Sample ID **1601230-05ASD** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:36:00 PM** Prep Date: **2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	23.8	1.36	0	24.09				1.07	10	
IS: Bismuth	227		181.8		109	30	120	0	0	

Sample ID **1601230-05APDS** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:56:00 PM** Prep Date: **2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	70.0	0.273	45.45	24.09	101	80	120			
IS: Bismuth	45.5		909.1		104	30	120			

Sample ID **1601230-05AMS** Batch ID: **73429** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 4:57:00 PM** Prep Date: **2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	71.8	0.283	47.17	24.09	101	84	118			
IS: Bismuth	47.2		188.7		103	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

Sample ID	**1601230-05AMSD**	Batch ID:	**73429**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 4:59:00 PM**	Prep Date:	**2/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.0	0.297	49.50	24.09	96.8	84	118	0.359	20	
IS: Bismuth	49.5		198.0		103	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

The QC data in batch 73501 applies to the following samples: 1601231-04A, 1601231-05A, 1601231-06A, 1601231-07A, 1601231-08A, 1601231-09A, 1601231-10A, 1601231-11A, 1601231-12A, 1601231-13A, 1601231-14A, 1601231-15A, 1601231-16A, 1601231-17A, 1601231-18A, 1601231-19A, 1601231-20A, 1601231-21A, 1601231-22A, 1601231-23A

Sample ID **MB-73501** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:14:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		111	30	120			

Sample ID **LCS-73501** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:16:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.0	0.300	50.00	0	104	84	118			
IS: Bismuth	50.0		200.0		107	30	120			

Sample ID **LCSD-73501** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:18:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.0	0.300	50.00	0	104	84	118	0.003	20	
IS: Bismuth	50.0		200.0		109	30	120	0	0	

Sample ID **1601231-23A SD** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:24:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	30.3	1.44	0	30.72				1.39	10	
IS: Bismuth	240		192.3		109	30	120	0	0	

Sample ID **1601231-23A PDS** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:44:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	80.6	0.288	48.08	30.72	104	80	120			
IS: Bismuth	48.1		961.5		104	30	120			

Sample ID **1601231-23A MS** Batch ID: **73501** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:46:00 PM** Prep Date: **2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	76.5	0.288	48.08	30.72	95.3	84	118			
IS: Bismuth	48.1		192.3		103	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

Sample ID	**1601231-23A MSD**	Batch ID:	**73501**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 3:47:00 PM**	Prep Date:	**2/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	75.2	0.288	48.08	30.72	92.6	84	118	1.70	20	
IS: Bismuth	48.1		192.3		103	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

Sample ID **ICV-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 10:47:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0996	0.00100	0.100	0	99.6	90	110			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **LCVL-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 10:53:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **CCV6-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:01:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.211	0.00100	0.200	0	106	90	110			
IS: Bismuth	0.200		0.200		106	70	200			

Sample ID **LCVL6-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:07:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **CCV7-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:49:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **LCVL7-160209** Batch ID: **R84080** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160209E** Analysis Date: **2/9/2016 3:53:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	0.200		0.200		107	70	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160209E**

Sample ID	**CCV8-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 4:17:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.209	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		106	70	200			

Sample ID	**LCVL8-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 4:21:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	70	130			
IS: Bismuth	0.200		0.200		105	70	200			

Sample ID	**CCV9-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 5:01:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.213	0.00100	0.200	0	106	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID	**LCVL9-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 5:05:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	70	130			
IS: Bismuth	0.200		0.200		107	70	200			

Sample ID	**CCV10-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 5:29:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.210	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID	**LCVL10-160209**	Batch ID:	**R84080**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160209E**	Analysis Date:	**2/9/2016 5:33:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	0.200		0.200		105	70	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211A**

The QC data in batch 73575 applies to the following samples: 1601231-28A

Sample ID	**MB-73575**	Batch ID:	**73575**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:20:00 PM**	Prep Date:	**2/9/2016**

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		105	30	120			

Sample ID	**LCS-73575**	Batch ID:	**73575**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:22:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.198	0.00100	0.200	0	98.8	88	115			
IS: Bismuth	0.200		0.200		102	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211A**

Sample ID	**ICV-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**ICV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 10:41:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0997	0.00100	0.100	0	99.7	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID	**LCVL-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 10:46:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000999	0.00100	0.00100	0	99.9	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV3-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:11:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.9	70	200			

Sample ID	**LCVL3-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:15:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000981	0.00100	0.00100	0	98.1	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV4-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:42:00 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		101	70	200			

Sample ID	**LCVL4-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:46:00 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	70	130			
IS: Bismuth	0.200		0.200		102	70	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

The QC data in batch 73587 applies to the following samples: 1601231-24A, 1601231-25A, 1601231-26A, 1601231-27A

Sample ID	**MB-73587**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MBLK**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:01:00 PM**	Prep Date:	**2/9/2016**

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		104	30	120			

Sample ID	**LCS-73587**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**LCS**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:03:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.0	0.300	50.00	0	102	84	118			
IS: Bismuth	50.0		200.0		101	30	120			

Sample ID	**LCSD-73587**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**LCSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:05:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.9	0.300	50.00	0	102	84	118	0.018	20	
IS: Bismuth	50.0		200.0		100	30	120	0	0	

Sample ID	**1601232-15A SD**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**SD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:11:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	18.9	1.47	0	18.89				0.101	10	
IS: Bismuth	245		196.1		103	30	120	0	0	

Sample ID	**1601232-15A PDS**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**PDS**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:31:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	68.8	0.294	49.02	18.89	102	80	120			
IS: Bismuth	49.0		980.4		98.7	30	120			

Sample ID	**1601232-15A MS**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MS**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:33:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	67.0	0.286	47.62	18.89	101	84	118			
IS: Bismuth	47.6		190.5		98.3	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**1601232-15A MSD**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:35:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	68.9	0.291	48.54	18.89	103	84	118	2.73	20	
IS: Bismuth	48.5		194.2		96.8	30	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID **ICV-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 10:41:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0997	0.00100	0.100	0	99.7	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID **LCVL-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 10:46:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000999	0.00100	0.00100	0	99.9	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **CCV4-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 12:42:00 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		101	70	200			

Sample ID **LCVL4-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 12:46:00 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	70	130			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **CCV5-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:37:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.4	70	200			

Sample ID **LCVL5-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:42:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		99.5	70	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160127A**

Sample ID	**DCS-73349**	Batch ID:	**73349**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**DCS**	Run ID:	**GCMS6_160127A**	Analysis Date:	**1/27/2016 4:31:00 PM**	Prep Date:	**1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00938	0.0100	0.01000	0	93.8	20	200	0	0	
Acenaphthylene	0.00855	0.0100	0.01000	0	85.5	20	200	0	0	
Anthracene	0.00875	0.0100	0.01000	0	87.5	20	200	0	0	
Benzo[a]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Benzo[a]pyrene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[b]fluoranthene	0.00903	0.0100	0.01000	0	90.3	20	200	0	0	
Benzo[e]pyrene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[g,h,i]perylene	0.00940	0.0100	0.01000	0	94.0	20	200	0	0	
Benzo[j]fluoranthene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	N
Benzo[k]fluoranthene	0.00922	0.0100	0.01000	0	92.2	20	200	0	0	
Chrysene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Dibenz[a,h]anthracene	0.00955	0.0100	0.01000	0	95.5	20	200	0	0	
Fluoranthene	0.0104	0.0100	0.01000	0	104	20	200	0	0	
Fluorene	0.00898	0.0100	0.01000	0	89.8	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00925	0.0100	0.01000	0	92.5	20	200	0	0	
Phenanthrene	0.00921	0.0100	0.01000	0	92.1	20	200	0	0	
Pyrene	0.0104	0.0100	0.01000	0	104	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

The QC data in batch 73352 applies to the following samples: 1601231-28B

Sample ID **LCS-73352** Batch ID: **73352** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 1:36:00 PM** Prep Date: **1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00229	0.0000500	0.00400	0	57.2	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00271	0.0000500	0.00400	0	67.8	53	119			
Benzo[a]anthracene	0.00303	0.0000500	0.00400	0	75.7	59	120			
Benzo[a]pyrene	0.00294	0.0000500	0.00400	0	73.6	53	120			
Benzo[b]fluoranthene	0.00301	0.0000500	0.00400	0	75.1	53	126			
Benzo[e]pyrene	0.00288	0.0000500	0.00400	0	71.9	40	140			
Benzo[g,h,i]perylene	0.00281	0.0000500	0.00400	0	70.2	44	128			
Benzo[j]fluoranthene	0.00299	0.0000500	0.00400	0	74.8	45	124			N
Benzo[k]fluoranthene	0.00306	0.0000500	0.00400	0	76.6	54	125			
Chrysene	0.00302	0.0000500	0.00400	0	75.5	57	120			
Dibenz[a,h]anthracene	0.00289	0.0000500	0.00400	0	72.2	44	131			
Fluoranthene	0.00289	0.0000500	0.00400	0	72.3	58	120			
Fluorene	0.00274	0.0000500	0.00400	0	68.6	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	71.0	48	130			
Phenanthrene	0.00274	0.0000500	0.00400	0	68.5	53	115			
Pyrene	0.00282	0.0000500	0.00400	0	70.5	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		81.4	50	200			
IS: Chrysene-d12	0.00800		0.00800		80.7	50	200			
IS: Naphthalene-d8	0.00800		0.00800		83.5	50	200			
IS: Perylene-d12	0.00800		0.00800		81.9	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		83.3	50	200			
Surr: 2-Fluorobiphenyl	4.32		8.000		54.0	53	106			
Surr: 4-Terphenyl-d14	5.90		8.000		73.7	58	132			

Sample ID **MB-73352** Batch ID: **73352** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 4:16:00 PM** Prep Date: **1/27/2016**

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID	**MB-73352**	Batch ID:	**73352**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**GCMS6_160128B**	Analysis Date:	**1/28/2016 4:16:00 PM**	Prep Date:	**1/27/2016**

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		82.2	50	200			
IS: Chrysene-d12	0.00800		0.00800		80.4	50	200			
IS: Naphthalene-d8	0.00800		0.00800		81.8	50	200			
IS: Perylene-d12	0.00800		0.00800		80.9	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		80.9	50	200			
Surr: 2-Fluorobiphenyl	4.71		8.000		58.9	53	106			
Surr: 4-Terphenyl-d14	5.60		8.000		70.0	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID **ICV-160128** Batch ID: **R83871** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **ICV** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 12:53:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.87	0.0000500	2.00	0	93.7	80	120			
Acenaphthylene	1.92	0.0000500	2.00	0	95.9	80	120			
Anthracene	1.88	0.0000500	2.00	0	94.0	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	97.8	80	120			
Benzo[a]pyrene	1.92	0.0000500	2.00	0	95.8	80	120			
Benzo[b]fluoranthene	1.93	0.0000500	2.00	0	96.6	80	120			
Benzo[e]pyrene	1.87	0.0000500	2.00	0	93.5	80	120			
Benzo[g,h,i]perylene	1.78	0.0000500	2.00	0	89.1	80	120			
Benzo[j]fluoranthene	1.97	0.0000500	2.00	0	98.4	80	120			N
Benzo[k]fluoranthene	2.00	0.0000500	2.00	0	100	80	120			
Chrysene	1.93	0.0000500	2.00	0	96.3	80	120			
Dibenz[a,h]anthracene	1.84	0.0000500	2.00	0	91.8	80	120			
Fluoranthene	1.83	0.0000500	2.00	0	91.6	80	120			
Fluorene	1.93	0.0000500	2.00	0	96.7	80	120			
Indeno[1,2,3-cd]pyrene	1.82	0.0000500	2.00	0	91.0	80	120			
Phenanthrene	1.87	0.0000500	2.00	0	93.3	80	120			
Pyrene	1.81	0.0000500	2.00	0	90.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		85.7	50	200			
IS: Chrysene-d12	4.00		4.00		86.4	50	200			
IS: Naphthalene-d8	4.00		4.00		94.0	50	200			
IS: Perylene-d12	4.00		4.00		82.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		88.4	50	200			
Surr: 2-Fluorobiphenyl	1890		2000		94.3	65	120			
Surr: 4-Terphenyl-d14	1930		2000		96.5	65	120			

Sample ID **CCV1-160128** Batch ID: **R83871** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **CCV** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 10:15:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.918	0.0000500	1.00	0	91.8	50	150			
Acenaphthylene	0.956	0.0000500	1.00	0	95.6	50	150			
Anthracene	0.932	0.0000500	1.00	0	93.2	50	150			
Benzo[a]anthracene	0.950	0.0000500	1.00	0	95.0	50	150			
Benzo[a]pyrene	0.919	0.0000500	1.00	0	91.9	50	150			
Benzo[b]fluoranthene	0.923	0.0000500	1.00	0	92.3	50	150			
Benzo[e]pyrene	0.906	0.0000500	1.00	0	90.6	50	150			
Benzo[g,h,i]perylene	0.921	0.0000500	1.00	0	92.1	50	150			
Benzo[j]fluoranthene	0.916	0.0000500	1.00	0	91.6	50	150			N
Benzo[k]fluoranthene	0.938	0.0000500	1.00	0	93.8	50	150			
Chrysene	0.933	0.0000500	1.00	0	93.3	50	150			
Dibenz[a,h]anthracene	0.926	0.0000500	1.00	0	92.6	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID **CCV1-160128**	Batch ID: **R83871**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160128B**	Analysis Date: **1/28/2016 10:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.906	0.0000500	1.00	0	90.6	50	150			
Fluorene	0.960	0.0000500	1.00	0	96.0	50	150			
Indeno[1,2,3-cd]pyrene	0.917	0.0000500	1.00	0	91.7	50	150			
Phenanthrene	0.920	0.0000500	1.00	0	92.0	50	150			
Pyrene	0.893	0.0000500	1.00	0	89.3	50	150			
IS: Acenaphthene-d10	4.00		4.00		91.9	50	200			
IS: Chrysene-d12	4.00		4.00		85.7	50	200			
IS: Naphthalene-d8	4.00		4.00		94.3	50	200			
IS: Perylene-d12	4.00		4.00		85.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		89.6	50	200			
Surr: 2-Fluorobiphenyl	924		1000		92.4	50	150			
Surr: 4-Terphenyl-d14	925		1000		92.5	50	150			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128C**

The QC data in batch 73352 applies to the following samples: 1601231-28B

Sample ID	**DCS-73352**	Batch ID:	**73352**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**GCMS6_160128C**	Analysis Date:	**1/28/2016 3:36:00 PM**	Prep Date:	**1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000257	0.0000500	0.0000400	0	64.2	20	170			
Acenaphthylene	0.0000243	0.0000500	0.0000400	0	60.7	20	170			
Anthracene	0.0000260	0.0000500	0.0000400	0	65.1	20	170			
Benzo[a]anthracene	0.0000260	0.0000500	0.0000400	0	64.9	20	170			
Benzo[a]pyrene	0.0000240	0.0000500	0.0000400	0	59.9	20	170			
Benzo[b]fluoranthene	0.0000244	0.0000500	0.0000400	0	61.0	20	170			
Benzo[e]pyrene	0.0000239	0.0000500	0.0000400	0	59.8	20	170			
Benzo[g,h,i]perylene	0.0000252	0.0000500	0.0000400	0	63.1	20	170			
Benzo[j]fluoranthene	0.0000241	0.0000500	0.0000400	0	60.2	20	170			N
Benzo[k]fluoranthene	0.0000247	0.0000500	0.0000400	0	61.8	20	170			
Chrysene	0.0000253	0.0000500	0.0000400	0	63.4	20	170			
Dibenz[a,h]anthracene	0.0000252	0.0000500	0.0000400	0	63.0	20	170			
Fluoranthene	0.0000258	0.0000500	0.0000400	0	64.4	20	170			
Fluorene	0.0000270	0.0000500	0.0000400	0	67.4	20	170			
Indeno[1,2,3-cd]pyrene	0.0000249	0.0000500	0.0000400	0	62.3	20	170			
Phenanthrene	0.0000274	0.0000500	0.0000400	0	68.4	20	170			
Pyrene	0.0000252	0.0000500	0.0000400	0	63.0	20	170			

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

The QC data in batch 73472 applies to the following samples: 1601231-01A, 1601231-02A, 1601231-03A

Sample ID **MB-73472** Batch ID: **73472** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 12:18:00 PM** Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		83.8	50	200			
IS: Chrysene-d12	4.00		4.000		110	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		117	50	200			
IS: Phenanthrene-d10	4.00		4.000		80.9	50	200			
Surr: 2-Fluorobiphenyl	0.913		1.000		91.3	46	115			
Surr: 4-Terphenyl-d14	1.16		1.000		116	58	133			

Sample ID **1601230-12AMS** Batch ID: **73472** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 8:21:00 PM** Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.955	0.0998	0.9980	0.1310	82.6	44	111			
Acenaphthylene	0.821	0.0998	0.9980	0	82.2	39	116			
Anthracene	1.20	0.0998	0.9980	0.4271	77.8	50	114			
Benzo[a]anthracene	6.35	0.0998	0.9980	5.528	82.7	54	122			
Benzo[a]pyrene	8.14	0.0998	0.9980	7.390	74.7	50	125			
Benzo[b]fluoranthene	7.66	0.0998	0.9980	6.805	85.8	53	128			
Benzo[e]pyrene	6.55	0.0998	0.9980	5.848	70.7	43	140			
Benzo[g,h,i]perylene	7.19	0.0998	0.9980	6.540	65.4	49	127			
Benzo[j]fluoranthene	4.26	0.0998	0.9980	3.402	85.5	45	125			N
Benzo[k]fluoranthene	4.01	0.0998	0.9980	3.136	87.3	56	123			
Chrysene	8.55	0.0998	0.9980	7.745	80.2	57	118			

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID **1601230-12AMS** Batch ID: **73472** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 8:21:00 PM** Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	2.30	0.0998	0.9980	1.372	92.7	50	129			
Fluoranthene	8.33	0.0998	0.9980	7.699	62.9	55	119			
Fluorene	0.943	0.0998	0.9980	0	94.5	47	114			
Indeno[1,2,3-cd]pyrene	6.14	0.0998	0.9980	5.328	81.5	49	130			
Phenanthrene	3.20	0.0998	0.9980	2.487	71.5	49	113			
Pyrene	7.55	0.0998	0.9980	6.900	65.4	55	117			
IS: Acenaphthene-d10	39.9		3.992		97.8	50	200			
IS: Chrysene-d12	39.9		3.992		85.6	50	200			
IS: Naphthalene-d8	39.9		3.992		121	50	200			
IS: Perylene-d12	39.9		3.992		94.3	50	200			
IS: Phenanthrene-d10	39.9		3.992		115	50	200			
Surr: 2-Fluorobiphenyl	0.776		0.9980		77.8	46	115			
Surr: 4-Terphenyl-d14	0.671		0.9980		67.3	58	133			

Sample ID **1601230-12AMSD** Batch ID: **73472** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 9:02:00 PM** Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.903	0.0979	0.9794	0.1310	78.8	44	111	5.66	20	
Acenaphthylene	0.792	0.0979	0.9794	0	80.9	39	116	3.53	20	
Anthracene	1.16	0.0979	0.9794	0.4271	74.8	50	114	3.69	20	
Benzo[a]anthracene	6.31	0.0979	0.9794	5.528	79.4	54	122	0.755	20	
Benzo[a]pyrene	8.17	0.0979	0.9794	7.390	79.5	50	125	0.412	20	
Benzo[b]fluoranthene	7.63	0.0979	0.9794	6.805	83.9	53	128	0.451	20	
Benzo[e]pyrene	6.50	0.0979	0.9794	5.848	66.4	43	140	0.845	20	
Benzo[g,h,i]perylene	7.14	0.0979	0.9794	6.540	61.7	49	127	0.683	20	
Benzo[j]fluoranthene	4.19	0.0979	0.9794	3.402	80.6	45	125	1.50	20	N
Benzo[k]fluoranthene	4.05	0.0979	0.9794	3.136	92.9	56	123	0.958	20	
Chrysene	8.54	0.0979	0.9794	7.745	80.7	57	118	0.117	20	
Dibenz[a,h]anthracene	2.24	0.0979	0.9794	1.372	88.7	50	129	2.48	20	
Fluoranthene	8.40	0.0979	0.9794	7.699	71.3	55	119	0.841	20	
Fluorene	0.908	0.0979	0.9794	0	92.7	47	114	3.84	20	
Indeno[1,2,3-cd]pyrene	6.04	0.0979	0.9794	5.328	72.3	49	130	1.73	20	
Phenanthrene	3.12	0.0979	0.9794	2.487	64.7	49	113	2.52	20	
Pyrene	7.65	0.0979	0.9794	6.900	76.5	55	117	1.26	20	
IS: Acenaphthene-d10	39.2		3.918		100	50	200	0	0	
IS: Chrysene-d12	39.2		3.918		90.7	50	200	0	0	
IS: Naphthalene-d8	39.2		3.918		122	50	200	0	0	
IS: Perylene-d12	39.2		3.918		103	50	200	0	0	
IS: Phenanthrene-d10	39.2		3.918		121	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.743		0.9794		75.9	46	115	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID	**1601230-12AMSD**	Batch ID:	**73472**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**GCMS6_160206A**	Analysis Date:	**2/6/2016 9:02:00 PM**	Prep Date:	**2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.657		0.9794		67.1	58	133	0	0	

Sample ID	**SBLK-160206**	Batch ID:	**73472**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160206A**	Analysis Date:	**2/6/2016 10:58:00 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							

Sample ID	**LCS-73472**	Batch ID:	**73472**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**LCS**	Run ID:	**GCMS6_160206A**	Analysis Date:	**2/8/2016 9:43:00 AM**	Prep Date:	**2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.874	0.0100	1.000	0	87.4	44	111			
Acenaphthylene	0.867	0.0100	1.000	0	86.7	39	116			
Anthracene	0.831	0.0100	1.000	0	83.1	50	114			
Benzo[a]anthracene	0.909	0.0100	1.000	0	90.9	54	122			
Benzo[a]pyrene	0.850	0.0100	1.000	0	85.0	50	125			
Benzo[b]fluoranthene	0.917	0.0100	1.000	0	91.7	53	128			
Benzo[e]pyrene	0.887	0.0100	1.000	0	88.7	43	140			
Benzo[g,h,i]perylene	0.868	0.0100	1.000	0	86.8	49	127			

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID **LCS-73472**	Batch ID: **73472**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **GCMS6_160206A**	Analysis Date: **2/8/2016 9:43:00 AM**	Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[j]fluoranthene	0.897	0.0100	1.000	0	89.7	45	125			N
Benzo[k]fluoranthene	0.914	0.0100	1.000	0	91.4	56	123			
Chrysene	0.934	0.0100	1.000	0	93.4	57	118			
Dibenz[a,h]anthracene	0.898	0.0100	1.000	0	89.8	50	129			
Fluoranthene	1.10	0.0100	1.000	0	110	55	119			
Fluorene	0.883	0.0100	1.000	0	88.3	47	114			
Indeno[1,2,3-cd]pyrene	0.886	0.0100	1.000	0	88.6	49	130			
Phenanthrene	0.868	0.0100	1.000	0	86.8	49	113			
Pyrene	1.12	0.0100	1.000	0	112	55	117			
IS: Acenaphthene-d10	4.00		4.000		91.1	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		133	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.5	50	200			
Surr: 2-Fluorobiphenyl	0.820		1.000		82.0	46	115			
Surr: 4-Terphenyl-d14	1.05		1.000		105	58	133			

Sample ID **SBLK-160208**	Batch ID: **73472**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160206A**	Analysis Date: **2/8/2016 11:02:00 AM**	Prep Date: **2/3/2016**

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							

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID	**SBLK-160208**	Batch ID:	**73472**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160206A**	Analysis Date:	**2/8/2016 11:02:00 AM**	Prep Date:	**2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.876		0							
Surr: 4-Terphenyl-d14	1.17		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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID **ICV-160206** Batch ID: **R84019** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 10:57:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.91	0.0100	2.000	0	95.7	80	120			
Acenaphthylene	1.91	0.0100	2.000	0	95.7	80	120			
Anthracene	1.89	0.0100	2.000	0	94.5	80	120			
Benzo[a]anthracene	2.04	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.05	0.0100	2.000	0	102	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.00	0.0100	2.000	0	100	80	120			
Benzo[g,h,i]perylene	1.87	0.0100	2.000	0	93.6	80	120			
Benzo[j]fluoranthene	2.05	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.08	0.0100	2.000	0	104	80	120			
Chrysene	2.07	0.0100	2.000	0	103	80	120			
Dibenz[a,h]anthracene	1.97	0.0100	2.000	0	98.7	80	120			
Fluoranthene	2.01	0.0100	2.000	0	100	80	120			
Fluorene	1.94	0.0100	2.000	0	97.0	80	120			
Indeno[1,2,3-cd]pyrene	1.97	0.0100	2.000	0	98.6	80	120			
Phenanthrene	1.90	0.0100	2.000	0	95.0	80	120			
Pyrene	2.00	0.0100	2.000	0	99.8	80	120			
IS: Acenaphthene-d10	4.00		4.000		117	50	200			
IS: Chrysene-d12	4.00		4.000		137	50	200			
IS: Naphthalene-d8	4.00		4.000		153	50	200			
IS: Perylene-d12	4.00		4.000		143	50	200			
IS: Phenanthrene-d10	4.00		4.000		130	50	200			
Surr: 2-Fluorobiphenyl	1.96		2.000		98.1	65	120			
Surr: 4-Terphenyl-d14	1.84		2.000		91.8	65	120			

Sample ID **ICV2-160206** Batch ID: **R84019** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 10:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.88	0.0100	2.000	0	94.1	80	120			
Acenaphthylene	1.90	0.0100	2.000	0	95.0	80	120			
Anthracene	1.90	0.0100	2.000	0	94.9	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.00	0.0100	2.000	0	100	80	120			
Benzo[b]fluoranthene	1.97	0.0100	2.000	0	98.5	80	120			
Benzo[e]pyrene	1.95	0.0100	2.000	0	97.5	80	120			
Benzo[g,h,i]perylene	1.86	0.0100	2.000	0	93.0	80	120			
Benzo[j]fluoranthene	1.99	0.0100	2.000	0	99.5	80	120			N
Benzo[k]fluoranthene	2.05	0.0100	2.000	0	103	80	120			
Chrysene	2.03	0.0100	2.000	0	101	80	120			
Dibenz[a,h]anthracene	1.96	0.0100	2.000	0	98.2	80	120			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID **ICV2-160206** Batch ID: **R84019** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160206A** Analysis Date: **2/6/2016 10:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Fluorene	2.09	0.0100	2.000	0	104	80	120			
Indeno[1,2,3-cd]pyrene	1.93	0.0100	2.000	0	96.7	80	120			
Phenanthrene	1.90	0.0100	2.000	0	94.9	80	120			
Pyrene	2.01	0.0100	2.000	0	100	80	120			
IS: Acenaphthene-d10	4.00		4.000		115	50	200			
IS: Chrysene-d12	4.00		4.000		140	50	200			
IS: Naphthalene-d8	4.00		4.000		139	50	200			
IS: Perylene-d12	4.00		4.000		150	50	200			
IS: Phenanthrene-d10	4.00		4.000		133	50	200			
Surr: 2-Fluorobiphenyl	1.89		2.000		94.4	65	120			
Surr: 4-Terphenyl-d14	1.95		2.000		97.3	65	120			

Sample ID **CCV-160206** Batch ID: **R84019** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160206A** Analysis Date: **2/7/2016 5:38:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.950	0.0100	1.000	0	95.0	50	150			
Acenaphthylene	0.957	0.0100	1.000	0	95.7	50	150			
Anthracene	0.939	0.0100	1.000	0	93.9	50	150			
Benzo[a]anthracene	0.987	0.0100	1.000	0	98.7	50	150			
Benzo[a]pyrene	0.966	0.0100	1.000	0	96.6	50	150			
Benzo[b]fluoranthene	0.973	0.0100	1.000	0	97.3	50	150			
Benzo[e]pyrene	0.946	0.0100	1.000	0	94.6	50	150			
Benzo[g,h,i]perylene	0.927	0.0100	1.000	0	92.7	50	150			
Benzo[j]fluoranthene	0.963	0.0100	1.000	0	96.3	50	150			N
Benzo[k]fluoranthene	0.966	0.0100	1.000	0	96.6	50	150			
Chrysene	0.992	0.0100	1.000	0	99.2	50	150			
Dibenz[a,h]anthracene	0.966	0.0100	1.000	0	96.6	50	150			
Fluoranthene	1.00	0.0100	1.000	0	100	50	150			
Fluorene	1.03	0.0100	1.000	0	103	50	150			
Indeno[1,2,3-cd]pyrene	0.947	0.0100	1.000	0	94.7	50	150			
Phenanthrene	0.916	0.0100	1.000	0	91.6	50	150			
Pyrene	1.01	0.0100	1.000	0	101	50	150			
IS: Acenaphthene-d10	4.00		4.000		119	50	200			
IS: Chrysene-d12	4.00		4.000		138	50	200			
IS: Naphthalene-d8	4.00		4.000		125	50	200			
IS: Perylene-d12	4.00		4.000		150	50	200			
IS: Phenanthrene-d10	4.00		4.000		126	50	200			
Surr: 2-Fluorobiphenyl	0.876		1.000		87.6	50	150			
Surr: 4-Terphenyl-d14	0.958		1.000		95.8	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160206A**

Sample ID **ICV-160208**	Batch ID: **R84019**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160206A**	Analysis Date: **2/8/2016 9:03:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.15	0.0100	2.000	0	108	80	120			
Acenaphthylene	2.15	0.0100	2.000	0	108	80	120			
Anthracene	2.15	0.0100	2.000	0	107	80	120			
Benzo[a]anthracene	2.28	0.0100	2.000	0	114	80	120			
Benzo[a]pyrene	2.30	0.0100	2.000	0	115	80	120			
Benzo[b]fluoranthene	2.25	0.0100	2.000	0	112	80	120			
Benzo[e]pyrene	2.21	0.0100	2.000	0	110	80	120			
Benzo[g,h,i]perylene	2.12	0.0100	2.000	0	106	80	120			
Benzo[j]fluoranthene	2.28	0.0100	2.000	0	114	80	120			N
Benzo[k]fluoranthene	2.33	0.0100	2.000	0	117	80	120			
Chrysene	2.31	0.0100	2.000	0	116	80	120			
Dibenz[a,h]anthracene	2.26	0.0100	2.000	0	113	80	120			
Fluoranthene	2.30	0.0100	2.000	0	115	80	120			
Fluorene	2.27	0.0100	2.000	0	114	80	120			
Indeno[1,2,3-cd]pyrene	2.21	0.0100	2.000	0	111	80	120			
Phenanthrene	2.19	0.0100	2.000	0	109	80	120			
Pyrene	2.29	0.0100	2.000	0	115	80	120			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		120	50	200			
IS: Perylene-d12	4.00		4.000		126	50	200			
IS: Phenanthrene-d10	4.00		4.000		109	50	200			
Surr: 2-Fluorobiphenyl	2.05		2.000		102	65	120			
Surr: 4-Terphenyl-d14	2.19		2.000		109	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

The QC data in batch 73479 applies to the following samples: 1601231-04A, 1601231-05A, 1601231-06A, 1601231-07A, 1601231-08A, 1601231-09A, 1601231-10A, 1601231-11A, 1601231-12A, 1601231-13A, 1601231-14A, 1601231-15A, 1601231-16A, 1601231-17A, 1601231-18A, 1601231-19A, 1601231-20A, 1601231-21A, 1601231-22A, 1601231-23A

Sample ID **LCS-73479** Batch ID: **73479** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160208A** Analysis Date: **2/8/2016 10:23:00 AM** Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.906	0.0100	1.000	0	90.6	44	111			
Acenaphthylene	0.921	0.0100	1.000	0	92.1	39	116			
Anthracene	0.897	0.0100	1.000	0	89.7	50	114			
Benzo[a]anthracene	0.981	0.0100	1.000	0	98.1	54	122			
Benzo[a]pyrene	0.918	0.0100	1.000	0	91.8	50	125			
Benzo[b]fluoranthene	0.991	0.0100	1.000	0	99.1	53	128			
Benzo[e]pyrene	0.958	0.0100	1.000	0	95.8	43	140			
Benzo[g,h,i]perylene	0.932	0.0100	1.000	0	93.2	49	127			
Benzo[j]fluoranthene	0.961	0.0100	1.000	0	96.1	45	125			N
Benzo[k]fluoranthene	0.975	0.0100	1.000	0	97.5	56	123			
Chrysene	0.996	0.0100	1.000	0	99.6	57	118			
Dibenz[a,h]anthracene	0.963	0.0100	1.000	0	96.3	50	129			
Fluoranthene	1.14	0.0100	1.000	0	114	55	119			
Fluorene	0.971	0.0100	1.000	0	97.1	47	114			
Indeno[1,2,3-cd]pyrene	0.951	0.0100	1.000	0	95.1	49	130			
Phenanthrene	0.933	0.0100	1.000	0	93.3	49	113			
Pyrene	1.17	0.0100	1.000	0	117	55	117			
IS: Acenaphthene-d10	4.00		4.000		89.0	50	200			
IS: Chrysene-d12	4.00		4.000		119	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		126	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.7	50	200			
Surr: 2-Fluorobiphenyl	0.832		1.000		83.2	46	115			
Surr: 4-Terphenyl-d14	1.08		1.000		108	58	133			

Sample ID **MB-73479** Batch ID: **73479** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160208A** Analysis Date: **2/8/2016 11:02:00 AM** Prep Date: **2/3/2016**

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

Sample ID	**MB-73479**	Batch ID:	**73479**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MBLK**	Run ID:	**GCMS6_160208A**	Analysis Date:	**2/8/2016 11:02:00 AM**	Prep Date:	**2/3/2016**

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		90.1	50	200			
IS: Chrysene-d12	4.00		4.000		127	50	200			
IS: Naphthalene-d8	4.00		4.000		99.4	50	200			
IS: Perylene-d12	4.00		4.000		135	50	200			
IS: Phenanthrene-d10	4.00		4.000		87.0	50	200			
Surr: 2-Fluorobiphenyl	0.876		1.000		87.6	46	115			
Surr: 4-Terphenyl-d14	1.17		1.000		117	58	133			

Sample ID	**SBLK-160208**	Batch ID:	**73479**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160208A**	Analysis Date:	**2/8/2016 9:03:00 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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

Sample ID	**SBLK-160208**	Batch ID:	**73479**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160208A**	Analysis Date:	**2/8/2016 9:03:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.000850		0							
Surr: 4-Terphenyl-d14	0.00185		0							

Sample ID	**1601231-23AMS**	Batch ID:	**73479**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MS**	Run ID:	**GCMS6_160208A**	Analysis Date:	**2/9/2016 3:05:00 AM**	Prep Date:	**2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.862	0.0982	0.9823	0	87.8	44	111			
Acenaphthylene	0.836	0.0982	0.9823	0	85.1	39	116			
Anthracene	0.846	0.0982	0.9823	0	86.2	50	114			
Benzo[a]anthracene	0.880	0.0982	0.9823	0	89.6	54	122			
Benzo[a]pyrene	0.890	0.0982	0.9823	0	90.6	50	125			
Benzo[b]fluoranthene	0.899	0.0982	0.9823	0	91.5	53	128			
Benzo[e]pyrene	0.897	0.0982	0.9823	0	91.3	43	140			
Benzo[g,h,i]perylene	0.874	0.0982	0.9823	0	89.0	49	127			
Benzo[j]fluoranthene	0.893	0.0982	0.9823	0	90.9	45	125			N
Benzo[k]fluoranthene	0.878	0.0982	0.9823	0	89.4	56	123			
Chrysene	0.940	0.0982	0.9823	0	95.7	57	118			
Dibenz[a,h]anthracene	0.852	0.0982	0.9823	0	86.7	50	129			
Fluoranthene	1.00	0.0982	0.9823	0	102	55	119			
Fluorene	0.823	0.0982	0.9823	0	83.8	47	114			
Indeno[1,2,3-cd]pyrene	0.859	0.0982	0.9823	0	87.5	49	130			
Phenanthrene	0.895	0.0982	0.9823	0	91.1	49	113			
Pyrene	1.03	0.0982	0.9823	0	105	55	117			
IS: Acenaphthene-d10	39.3		3.929		114	50	200			
IS: Chrysene-d12	39.3		3.929		120	50	200			
IS: Naphthalene-d8	39.3		3.929		120	50	200			
IS: Perylene-d12	39.3		3.929		131	50	200			
IS: Phenanthrene-d10	39.3		3.929		104	50	200			
Surr: 2-Fluorobiphenyl	0.804		0.9823		81.9	46	115			
Surr: 4-Terphenyl-d14	0.895		0.9823		91.1	58	133			

Sample ID	**1601231-23AMSD**	Batch ID:	**73479**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**GCMS6_160208A**	Analysis Date:	**2/9/2016 3:45:00 AM**	Prep Date:	**2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.770	0.0952	0.9524	0	80.8	44	111	11.3	20	
Acenaphthylene	0.745	0.0952	0.9524	0	78.2	39	116	11.5	20	
Anthracene	0.759	0.0952	0.9524	0	79.7	50	114	10.9	20	
Benzo[a]anthracene	0.798	0.0952	0.9524	0	83.8	54	122	9.79	20	
Benzo[a]pyrene	0.799	0.0952	0.9524	0	83.9	50	125	10.8	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

Sample ID **1601231-23AMSD**	Batch ID: **73479**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160208A**	Analysis Date: **2/9/2016 3:45:00 AM**	Prep Date: **2/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.808	0.0952	0.9524	0	84.8	53	128	10.7	20	
Benzo[e]pyrene	0.802	0.0952	0.9524	0	84.3	43	140	11.1	20	
Benzo[g,h,i]perylene	0.793	0.0952	0.9524	0	83.3	49	127	9.69	20	
Benzo[j]fluoranthene	0.792	0.0952	0.9524	0	83.2	45	125	12.0	20	N
Benzo[k]fluoranthene	0.773	0.0952	0.9524	0	81.2	56	123	12.7	20	
Chrysene	0.844	0.0952	0.9524	0	88.7	57	118	10.7	20	
Dibenz[a,h]anthracene	0.765	0.0952	0.9524	0	80.3	50	129	10.8	20	
Fluoranthene	0.894	0.0952	0.9524	0	93.9	55	119	11.5	20	
Fluorene	0.729	0.0952	0.9524	0	76.6	47	114	12.1	20	
Indeno[1,2,3-cd]pyrene	0.777	0.0952	0.9524	0	81.6	49	130	10.0	20	
Phenanthrene	0.800	0.0952	0.9524	0	84.0	49	113	11.2	20	
Pyrene	0.916	0.0952	0.9524	0	96.2	55	117	11.7	20	
IS: Acenaphthene-d10	38.1		3.810		124	50	200	0	0	
IS: Chrysene-d12	38.1		3.810		131	50	200	0	0	
IS: Naphthalene-d8	38.1		3.810		130	50	200	0	0	
IS: Perylene-d12	38.1		3.810		143	50	200	0	0	
IS: Phenanthrene-d10	38.1		3.810		115	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.711		0.9524		74.6	46	115	0	0	
Surr: 4-Terphenyl-d14	0.785		0.9524		82.4	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

Sample ID **ICV-160208**	Batch ID: **R84028**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160208A**	Analysis Date: **2/8/2016 9:03:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.15	0.0100	2.000	0	108	80	120			
Acenaphthylene	2.15	0.0100	2.000	0	108	80	120			
Anthracene	2.15	0.0100	2.000	0	107	80	120			
Benzo[a]anthracene	2.28	0.0100	2.000	0	114	80	120			
Benzo[a]pyrene	2.30	0.0100	2.000	0	115	80	120			
Benzo[b]fluoranthene	2.25	0.0100	2.000	0	112	80	120			
Benzo[e]pyrene	2.21	0.0100	2.000	0	110	80	120			
Benzo[g,h,i]perylene	2.12	0.0100	2.000	0	106	80	120			
Benzo[j]fluoranthene	2.28	0.0100	2.000	0	114	80	120			N
Benzo[k]fluoranthene	2.33	0.0100	2.000	0	117	80	120			
Chrysene	2.31	0.0100	2.000	0	116	80	120			
Dibenz[a,h]anthracene	2.26	0.0100	2.000	0	113	80	120			
Fluoranthene	2.30	0.0100	2.000	0	115	80	120			
Fluorene	2.27	0.0100	2.000	0	114	80	120			
Indeno[1,2,3-cd]pyrene	2.21	0.0100	2.000	0	111	80	120			
Phenanthrene	2.19	0.0100	2.000	0	109	80	120			
Pyrene	2.29	0.0100	2.000	0	115	80	120			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		120	50	200			
IS: Perylene-d12	4.00		4.000		126	50	200			
IS: Phenanthrene-d10	4.00		4.000		109	50	200			
Surr: 2-Fluorobiphenyl	2.05		2.000		102	65	120			
Surr: 4-Terphenyl-d14	2.19		2.000		109	65	120			

Sample ID **ICV2-160208**	Batch ID: **R84028**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160208A**	Analysis Date: **2/8/2016 8:22:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.20	0.0100	2.000	0	110	80	120			
Acenaphthylene	2.18	0.0100	2.000	0	109	80	120			
Anthracene	2.15	0.0100	2.000	0	107	80	120			
Benzo[a]anthracene	2.29	0.0100	2.000	0	114	80	120			
Benzo[a]pyrene	2.21	0.0100	2.000	0	111	80	120			
Benzo[b]fluoranthene	2.23	0.0100	2.000	0	111	80	120			
Benzo[e]pyrene	2.19	0.0100	2.000	0	109	80	120			
Benzo[g,h,i]perylene	2.05	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	2.24	0.0100	2.000	0	112	80	120			N
Benzo[k]fluoranthene	2.27	0.0100	2.000	0	113	80	120			
Chrysene	2.28	0.0100	2.000	0	114	80	120			
Dibenz[a,h]anthracene	2.20	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160208A**

Sample ID **ICV2-160208** Batch ID: **R84028** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160208A** Analysis Date: **2/8/2016 8:22:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.34	0.0100	2.000	0	117	80	120			
Fluorene	2.24	0.0100	2.000	0	112	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	108	80	120			
Phenanthrene	2.16	0.0100	2.000	0	108	80	120			
Pyrene	2.33	0.0100	2.000	0	116	80	120			
IS: Acenaphthene-d10	4.00		4.000		117	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		131	50	200			
IS: Perylene-d12	4.00		4.000		134	50	200			
IS: Phenanthrene-d10	4.00		4.000		113	50	200			
Surr: 2-Fluorobiphenyl	2.11		2.000		106	65	120			
Surr: 4-Terphenyl-d14	2.29		2.000		114	65	120			

Sample ID **CCV1-160208** Batch ID: **R84028** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160208A** Analysis Date: **2/9/2016 6:46:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.780	0.0100	1.000	0	78.0	50	150			
Acenaphthylene	0.803	0.0100	1.000	0	80.3	50	150			
Anthracene	0.775	0.0100	1.000	0	77.5	50	150			
Benzo[a]anthracene	0.785	0.0100	1.000	0	78.5	50	150			
Benzo[a]pyrene	0.802	0.0100	1.000	0	80.2	50	150			
Benzo[b]fluoranthene	0.801	0.0100	1.000	0	80.1	50	150			
Benzo[e]pyrene	0.800	0.0100	1.000	0	80.0	50	150			
Benzo[g,h,i]perylene	0.741	0.0100	1.000	0	74.1	50	150			
Benzo[j]fluoranthene	0.806	0.0100	1.000	0	80.6	50	150			N
Benzo[k]fluoranthene	0.801	0.0100	1.000	0	80.1	50	150			
Chrysene	0.792	0.0100	1.000	0	79.2	50	150			
Dibenz[a,h]anthracene	0.777	0.0100	1.000	0	77.7	50	150			
Fluoranthene	0.869	0.0100	1.000	0	86.9	50	150			
Fluorene	0.733	0.0100	1.000	0	73.3	50	150			
Indeno[1,2,3-cd]pyrene	0.761	0.0100	1.000	0	76.1	50	150			
Phenanthrene	0.784	0.0100	1.000	0	78.4	50	150			
Pyrene	0.868	0.0100	1.000	0	86.8	50	150			
IS: Acenaphthene-d10	4.00		4.000		155	50	200			
IS: Chrysene-d12	4.00		4.000		168	50	200			
IS: Naphthalene-d8	4.00		4.000		154	50	200			
IS: Perylene-d12	4.00		4.000		176	50	200			
IS: Phenanthrene-d10	4.00		4.000		145	50	200			
Surr: 2-Fluorobiphenyl	0.813		1.000		81.3	50	150			
Surr: 4-Terphenyl-d14	0.830		1.000		83.0	50	150			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

The QC data in batch 73550 applies to the following samples: 1601231-24A, 1601231-25A, 1601231-26A, 1601231-27A

Sample ID **MB-73550** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 8:42:00 AM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		92.4	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		86.9	50	200			
Surr: 2-Fluorobiphenyl	0.897		1.000		89.7	46	115			
Surr: 4-Terphenyl-d14	1.14		1.000		114	58	133			

Sample ID **LCS-73550** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 9:22:00 AM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.819	0.0100	1.000	0	81.9	44	111			
Acenaphthylene	0.845	0.0100	1.000	0	84.5	39	116			
Anthracene	0.832	0.0100	1.000	0	83.2	50	114			
Benzo[a]anthracene	0.906	0.0100	1.000	0	90.6	54	122			
Benzo[a]pyrene	0.846	0.0100	1.000	0	84.6	50	125			
Benzo[b]fluoranthene	0.902	0.0100	1.000	0	90.2	53	128			
Benzo[e]pyrene	0.877	0.0100	1.000	0	87.7	43	140			
Benzo[g,h,i]perylene	0.848	0.0100	1.000	0	84.8	49	127			
Benzo[j]fluoranthene	0.889	0.0100	1.000	0	88.9	45	125			N
Benzo[k]fluoranthene	0.902	0.0100	1.000	0	90.2	56	123			
Chrysene	0.918	0.0100	1.000	0	91.8	57	118			

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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160209A

Sample ID **LCS-73550**	Batch ID: **73550**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **GCMS6_160209A**	Analysis Date: **2/9/2016 9:22:00 AM**	Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.882	0.0100	1.000	0	88.2	50	129			
Fluoranthene	1.04	0.0100	1.000	0	104	55	119			
Fluorene	0.833	0.0100	1.000	0	83.3	47	114			
Indeno[1,2,3-cd]pyrene	0.868	0.0100	1.000	0	86.8	49	130			
Phenanthrene	0.849	0.0100	1.000	0	84.9	49	113			
Pyrene	1.05	0.0100	1.000	0	105	55	117			
IS: Acenaphthene-d10	4.00		4.000		101	50	200			
IS: Chrysene-d12	4.00		4.000		126	50	200			
IS: Naphthalene-d8	4.00		4.000		115	50	200			
IS: Perylene-d12	4.00		4.000		133	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	0.781		1.000		78.1	46	115			
Surr: 4-Terphenyl-d14	0.985		1.000		98.5	58	133			

Sample ID **SBLK-160211**	Batch ID: **73550**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160209A**	Analysis Date: **2/11/2016 10:06:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **1601232-06AMS** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 3:28:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.857	0.0968	0.9681	0.07129	81.2	44	111			
Acenaphthylene	0.780	0.0968	0.9681	0	80.6	39	116			
Anthracene	1.07	0.0968	0.9681	0.2738	82.2	50	114			
Benzo[a]anthracene	3.64	0.0968	0.9681	2.944	71.9	54	122			
Benzo[a]pyrene	4.56	0.0968	0.9681	3.870	71.3	50	125			
Benzo[b]fluoranthene	4.39	0.0968	0.9681	3.781	63.4	53	128			
Benzo[e]pyrene	3.70	0.0968	0.9681	3.041	68.1	43	140			
Benzo[g,h,i]perylene	3.64	0.0968	0.9681	3.070	59.2	49	127			
Benzo[j]fluoranthene	2.64	0.0968	0.9681	1.949	70.9	45	125			N
Benzo[k]fluoranthene	2.46	0.0968	0.9681	1.802	67.9	56	123			
Chrysene	4.49	0.0968	0.9681	3.767	74.8	57	118			
Dibenz[a,h]anthracene	1.42	0.0968	0.9681	0.6776	76.6	50	129			
Fluoranthene	6.13	0.0968	0.9681	4.908	126	55	119			S
Fluorene	0.772	0.0968	0.9681	0	79.8	47	114			
Indeno[1,2,3-cd]pyrene	3.13	0.0968	0.9681	2.502	65.3	49	130			
Phenanthrene	2.40	0.0968	0.9681	1.563	87.0	49	113			
Pyrene	5.69	0.0968	0.9681	4.436	129	55	117			S
IS: Acenaphthene-d10	38.7		3.872		97.2	50	200			
IS: Chrysene-d12	38.7		3.872		112	50	200			
IS: Naphthalene-d8	38.7		3.872		115	50	200			
IS: Perylene-d12	38.7		3.872		127	50	200			
IS: Phenanthrene-d10	38.7		3.872		93.7	50	200			
Surr: 2-Fluorobiphenyl	0.738		0.9681		76.2	46	115			
Surr: 4-Terphenyl-d14	0.820		0.9681		84.7	58	133			

Sample ID **1601232-06AMSD** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 4:07:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.798	0.0950	0.9497	0.07129	76.6	44	111	7.13	20	
Acenaphthylene	0.736	0.0950	0.9497	0	77.5	39	116	5.85	20	
Anthracene	0.976	0.0950	0.9497	0.2738	73.9	50	114	9.20	20	
Benzo[a]anthracene	3.19	0.0950	0.9497	2.944	25.7	54	122	13.2	20	S
Benzo[a]pyrene	4.11	0.0950	0.9497	3.870	25.5	50	125	10.3	20	S
Benzo[b]fluoranthene	3.94	0.0950	0.9497	3.781	16.5	53	128	11.0	20	S
Benzo[e]pyrene	3.38	0.0950	0.9497	3.041	36.0	43	140	8.96	20	S
Benzo[g,h,i]perylene	3.36	0.0950	0.9497	3.070	30.6	49	127	8.06	20	S
Benzo[j]fluoranthene	2.39	0.0950	0.9497	1.949	46.5	45	125	9.73	20	N
Benzo[k]fluoranthene	2.21	0.0950	0.9497	1.802	43.4	56	123	10.5	20	S
Chrysene	3.96	0.0950	0.9497	3.767	20.3	57	118	12.6	20	S
Dibenz[a,h]anthracene	1.33	0.0950	0.9497	0.6776	68.6	50	129	6.52	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **1601232-06AMSD** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 4:07:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	5.45	0.0950	0.9497	4.908	56.6	55	119	11.9	20	
Fluorene	0.725	0.0950	0.9497	0	76.3	47	114	6.32	20	
Indeno[1,2,3-cd]pyrene	2.88	0.0950	0.9497	2.502	39.5	49	130	8.55	20	S
Phenanthrene	2.12	0.0950	0.9497	1.563	59.2	49	113	12.4	20	
Pyrene	5.00	0.0950	0.9497	4.436	59.6	55	117	12.8	20	
IS: Acenaphthene-d10	38.0		3.799		103	50	200	0	0	
IS: Chrysene-d12	38.0		3.799		117	50	200	0	0	
IS: Naphthalene-d8	38.0		3.799		118	50	200	0	0	
IS: Perylene-d12	38.0		3.799		131	50	200	0	0	
IS: Phenanthrene-d10	38.0		3.799		97.3	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.700		0.9497		73.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.778		0.9497		81.9	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **ICV-160209** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 8:02:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.14	0.0100	2.000	0	107	80	120			
Acenaphthylene	2.15	0.0100	2.000	0	107	80	120			
Anthracene	2.10	0.0100	2.000	0	105	80	120			
Benzo[a]anthracene	2.26	0.0100	2.000	0	113	80	120			
Benzo[a]pyrene	2.20	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.24	0.0100	2.000	0	112	80	120			
Benzo[e]pyrene	2.19	0.0100	2.000	0	110	80	120			
Benzo[g,h,i]perylene	2.04	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	2.25	0.0100	2.000	0	113	80	120			N
Benzo[k]fluoranthene	2.21	0.0100	2.000	0	111	80	120			
Chrysene	2.26	0.0100	2.000	0	113	80	120			
Dibenz[a,h]anthracene	2.19	0.0100	2.000	0	110	80	120			
Fluoranthene	2.34	0.0100	2.000	0	117	80	120			
Fluorene	2.09	0.0100	2.000	0	105	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	108	80	120			
Phenanthrene	2.17	0.0100	2.000	0	108	80	120			
Pyrene	2.37	0.0100	2.000	0	118	80	120			
IS: Acenaphthene-d10	4.00		4.000		120	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		131	50	200			
IS: Perylene-d12	4.00		4.000		134	50	200			
IS: Phenanthrene-d10	4.00		4.000		110	50	200			
Surr: 2-Fluorobiphenyl	2.08		2.000		104	65	120			
Surr: 4-Terphenyl-d14	2.31		2.000		116	65	120			

Sample ID **ICV2-160209** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 7:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.11	0.0100	2.000	0	105	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	105	80	120			
Anthracene	2.09	0.0100	2.000	0	105	80	120			
Benzo[a]anthracene	2.23	0.0100	2.000	0	112	80	120			
Benzo[a]pyrene	2.20	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.17	0.0100	2.000	0	108	80	120			
Benzo[e]pyrene	2.17	0.0100	2.000	0	108	80	120			
Benzo[g,h,i]perylene	2.02	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.23	0.0100	2.000	0	112	80	120			N
Benzo[k]fluoranthene	2.23	0.0100	2.000	0	112	80	120			
Chrysene	2.26	0.0100	2.000	0	113	80	120			
Dibenz[a,h]anthracene	2.17	0.0100	2.000	0	109	80	120			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID	**ICV2-160209**	Batch ID:	**R84103**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**ICV**	Run ID:	**GCMS6_160209A**	Analysis Date:	**2/9/2016 7:23:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.32	0.0100	2.000	0	116	80	120			
Fluorene	2.04	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	107	80	120			
Phenanthrene	2.13	0.0100	2.000	0	107	80	120			
Pyrene	2.31	0.0100	2.000	0	116	80	120			
IS: Acenaphthene-d10	4.00		4.000		132	50	200			
IS: Chrysene-d12	4.00		4.000		131	50	200			
IS: Naphthalene-d8	4.00		4.000		145	50	200			
IS: Perylene-d12	4.00		4.000		142	50	200			
IS: Phenanthrene-d10	4.00		4.000		115	50	200			
Surr: 2-Fluorobiphenyl	2.14		2.000		107	65	120			
Surr: 4-Terphenyl-d14	2.27		2.000		113	65	120			

Sample ID	**ICV-160211**	Batch ID:	**R84103**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**ICV**	Run ID:	**GCMS6_160209A**	Analysis Date:	**2/11/2016 9:26:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.0	80	120			
Acenaphthylene	2.00	0.0100	2.000	0	100	80	120			
Anthracene	1.86	0.0100	2.000	0	93.0	80	120			
Benzo[a]anthracene	2.07	0.0100	2.000	0	103	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.04	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	1.88	0.0100	2.000	0	94.2	80	120			
Benzo[j]fluoranthene	2.06	0.0100	2.000	0	103	80	120			N
Benzo[k]fluoranthene	2.08	0.0100	2.000	0	104	80	120			
Chrysene	2.09	0.0100	2.000	0	105	80	120			
Dibenz[a,h]anthracene	2.01	0.0100	2.000	0	100	80	120			
Fluoranthene	2.17	0.0100	2.000	0	109	80	120			
Fluorene	1.80	0.0100	2.000	0	90.0	80	120			
Indeno[1,2,3-cd]pyrene	1.98	0.0100	2.000	0	99.1	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.3	80	120			
Pyrene	2.15	0.0100	2.000	0	108	80	120			
IS: Acenaphthene-d10	4.00		4.000		111	50	200			
IS: Chrysene-d12	4.00		4.000		112	50	200			
IS: Naphthalene-d8	4.00		4.000		140	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.13		2.000		106	65	120			
Surr: 4-Terphenyl-d14	2.09		2.000		105	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: 1601231
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID	**ICV2-160126**	Batch ID:	**R84103**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**CCV**	Run ID:	**GCMS6_160209A**	Analysis Date:	**2/11/2016 5:24:00 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	50	150			
Acenaphthylene	1.97	0.0100	2.000	0	98.4	50	150			
Anthracene	1.81	0.0100	2.000	0	90.7	50	150			
Benzo[a]anthracene	2.11	0.0100	2.000	0	105	50	150			
Benzo[a]pyrene	2.03	0.0100	2.000	0	102	50	150			
Benzo[b]fluoranthene	2.01	0.0100	2.000	0	100	50	150			
Benzo[e]pyrene	2.01	0.0100	2.000	0	101	50	150			
Benzo[g,h,i]perylene	1.86	0.0100	2.000	0	93.2	50	150			
Benzo[j]fluoranthene	2.04	0.0100	2.000	0	102	50	150			N
Benzo[k]fluoranthene	2.04	0.0100	2.000	0	102	50	150			
Chrysene	2.11	0.0100	2.000	0	106	50	150			
Dibenz[a,h]anthracene	1.99	0.0100	2.000	0	99.7	50	150			
Fluoranthene	2.03	0.0100	2.000	0	101	50	150			
Fluorene	1.85	0.0100	2.000	0	92.4	50	150			
Indeno[1,2,3-cd]pyrene	1.97	0.0100	2.000	0	98.5	50	150			
Phenanthrene	1.91	0.0100	2.000	0	95.6	50	150			
Pyrene	2.00	0.0100	2.000	0	100	50	150			
IS: Acenaphthene-d10	4.00		4.000		108	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		139	50	200			
IS: Perylene-d12	4.00		4.000		118	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	50	150			
Surr: 4-Terphenyl-d14	1.96		2.000		98.0	50	150			

Qualifiers:

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

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Work Order: 1601231
Project: Laredo Shotgun Range

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
1601231

GCMS6_160128B
For

DHL Work Order
1601231

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_160128B
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			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	
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: 1/30/2016

Second-Level Review: Janice Whitt Date: 2/10/2016

REVIEWED BY
By Janice Whitt at 10:50:00 AM, 2/10/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160128B** **Run No.:** 83871

Analytical Run Date: 1/28/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160128	1	PAH_LL_WDOD1	TUNE	R83871	1/28/2016 12:17:00 PM		
ICV-160128	1	PAH_LL_WDOD1	ICV	R83871	1/28/2016 12:53:00 PM		
LCS-73352	1	PAH_LL_WDOD1	LCS	73352	1/28/2016 1:36:00 PM		Equipment blanks only. MB and LCS only QC required. See DCS in C folder. Includes benzo(j)fluoranthene.
MB-73352	1	PAH_LL_WDOD1	MBLK	73352	1/28/2016 4:16:00 PM		
1601190-07B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 4:56:00 PM	H	Hold time met.
1601205-19B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 5:35:00 PM		jw 2/10/2016
1601214-10B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 6:16:00 PM		
1601230-16B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 6:56:00 PM		
1601231-28B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 7:36:00 PM		
1601247-13B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 8:15:00 PM		
CCV1-160128	1	PAH_LL_WDOD1	CCV	R83871	1/28/2016 10:15:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-04	4000 PPM INTERNAL STANDAR	ALL	03/28/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160128.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160128\
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	16012801	DFTPPPAH	DFTPP-160128
2	Sample	2	16012802	PP160126	ICV-160128
3	Sample	3	16012803	PP160126	LCS-73351
4	Sample	4	16012804	PP160126	LCSD-73351
5	Sample	5	16012805	PP160126	LQV-73352
6	Sample	6	16012806	PP160126	DCS-73352
7	Sample	7	16012807	PP160126	MB-73351
8	Sample	8	16012808	PP160126	1601190-07B
9	Sample	9	16012809	PP160126	1601205-19B
10	Sample	10	16012810	PP160126	1601214-10B
11	Sample	11	16012811	PP160126	1601230-16B
12	Sample	12	16012812	PP160126	1601231-28B
13	Sample	13	16012813	PP160126	1601247-13B
14	Sample	14	16012814	PP160126	1601213-09B
15	Sample	15	16012815	PP160126	1601213-10B
16	Sample	16	16012816	PP160126	CCV1-160128

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 1:03:17 PM**
Digestion:
Prep End Date: **1/27/2016 5:01:00 PM**

Prep Batch **73352** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601190-07B	Equip Blank	6	318.2	1	0.003	1 of 2
	~~0.127~~					
	see JD & Karyn before starting prep!					
1601205-19B	Equip Blank	6	317.7	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601214-10B	Equip Blank	6	311.5	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601230-16B	Equip Blank	6	317.2	1	0.003	1 of 2
1601231-28B	Equip Blank	6	297.9	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601247-13B	Equip Blank	6	298.5	1	0.003	1 of 2
DCS-73352	Aqueous	6	500	1	0.002	of
LCS-73352	Aqueous	6	500	1	0.002	of
LQV-73352	Aqueous	6	500	1	0.002	of
	Spiked with 20 uL of PAHPREP160127-1					
MB-73352	Aqueous	6	500	1	0.002	of

Number	Reagent Name	Amt	Units	Exp. Date
7509	pH paper 0-14	1	paper	10/15/2025
9604	Purified Sodium Sulfate	10	g	09/03/2025
9889	Methylene Chloride	120	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS	0.01	04/25/2016
PAHPREP160127-1	2 PPM PAH SPIKE MIX	DCS	0.01	04/26/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.1	04/20/2016

REVIEWED/APPROVED

By Sherri Herschmann at 3:31:01 PM, 2/3/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 1:03:17 PM**
Digestion:
Prep End Date: 1/27/2016 5:01 PM

Prep Batch **73352** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	
1601190-07B	Equip Blank	6	500	1	0.002	1 of 2	530.0 - 211.8 = 318.2
0.127							
see JD & Karyn before starting prep!							
1601205-19B	Equip Blank	6	500	1	0.002	1 of 2	529.9 - 212.2 = 317.7
see JD & Karyn before starting prep!							
1601214-10B	Equip Blank	6	500	1	0.002	1 of 2	524.0 - 212.5 = 311.5
see JD & Karyn before starting prep!							
1601230-16B	Equip Blank	6	500	1	0.002	1 of 2	529.5 - 212.3 = 317.2
1601231-28B	Equip Blank	6	500	1	0.002	1 of 2	510.2 - 212.3 = 297.9
see JD & Karyn before starting prep!							
1601247-13B	Equip Blank	6	500	1	0.002	1 of 2	512.3 - 213.8 = 298.5
DCS-73352	Aqueous	6	500	1	0.002	of	777.1 - 277.1 = 500.0
LCS-73352	Aqueous	6	500	1	0.002	of	779.0 - 279.0 = 500.0
LQV-73352	Aqueous	6	500	1	0.002	of	778.9 - 278.9 = 500.0
Spiked with 20 uL of PAHPREP160127-1							
MB-73352	Aqueous	6	500	1	0.002	of	777.1 - 277.1 = 500.0

REVIEWED/APPROVED

By Sherri Herschmann at 3:32:11 PM, 2/3/2016

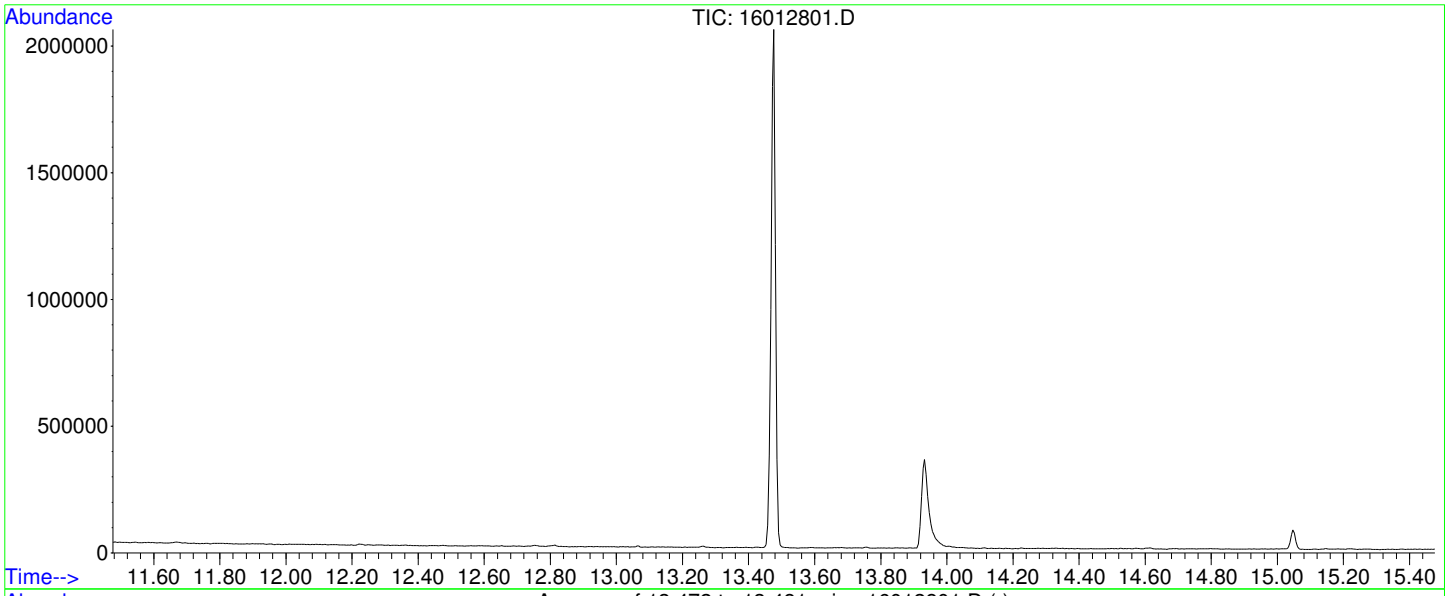
Number	Reagent Name	Amt	Units	Exp. Date
7509	pH paper 0-14	1	paper	10/15/2025
9604	Purified Sodium Sulfate	10	g	09/03/2025
9889	Methylene Chloride	120	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

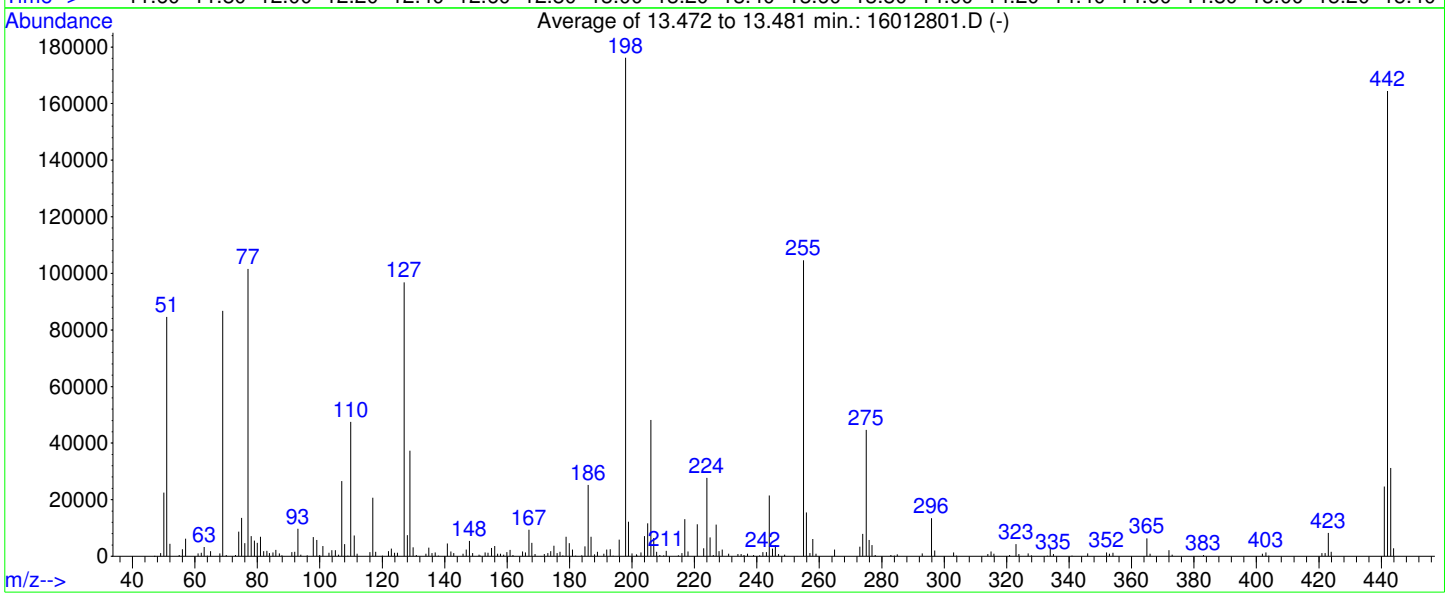
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/~~LCSD~~	0.01	04/25/2016
PAHPREP160127-1	2 PPM PAH SPIKE MIX	DCS	0.01	04/26/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.1	04/20/2016

1/27/16

1/27/16

Data File : C:\HPCHEM\1\DATA\160128\16012801.D Vial: 1
Acq On : 28 Jan 2016 12:17 pm Operator:
Sample : DFTPP-160128 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 1570, 1571, 1572; Background Corrected with Scan 1563

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	48.0	84620	PASS
68	69	0.00	2	1.2	1020	PASS
69	198	0.00	100	49.2	86728	PASS
70	69	0.00	2	0.5	424	PASS
127	198	10	80	54.9	96829	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	176232	PASS
199	198	5	9	6.9	12239	PASS
275	198	10	60	25.4	44704	PASS
365	198	1	200	3.6	6345	PASS
441	442	0.01	24	15.0	24688	PASS
442	198	50	400	93.3	164456	PASS
443	442	15	24	19.0	31245	PASS

REVIEWED BY
By Janice Whitt at 8:19:36 AM, 2/1/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1972820	4000.00 ug/kg	94
5) Acenaphthene-d10	13.18	164	1561291	4000.00 ug/kg	86
11) Phenanthrene-d10	15.27	188	2891300	4000.00 ug/kg	88
17) Chrysene-d12	20.90	240	2494621	4000.00 ug/kg	86
20) Perylene-d12	25.99	264	1897321	4000.00 ug/kg	82

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	852661	1885.02 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.13%	
16) 4-Terphenyl-d14	17.70	244	932057	1929.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.24%	

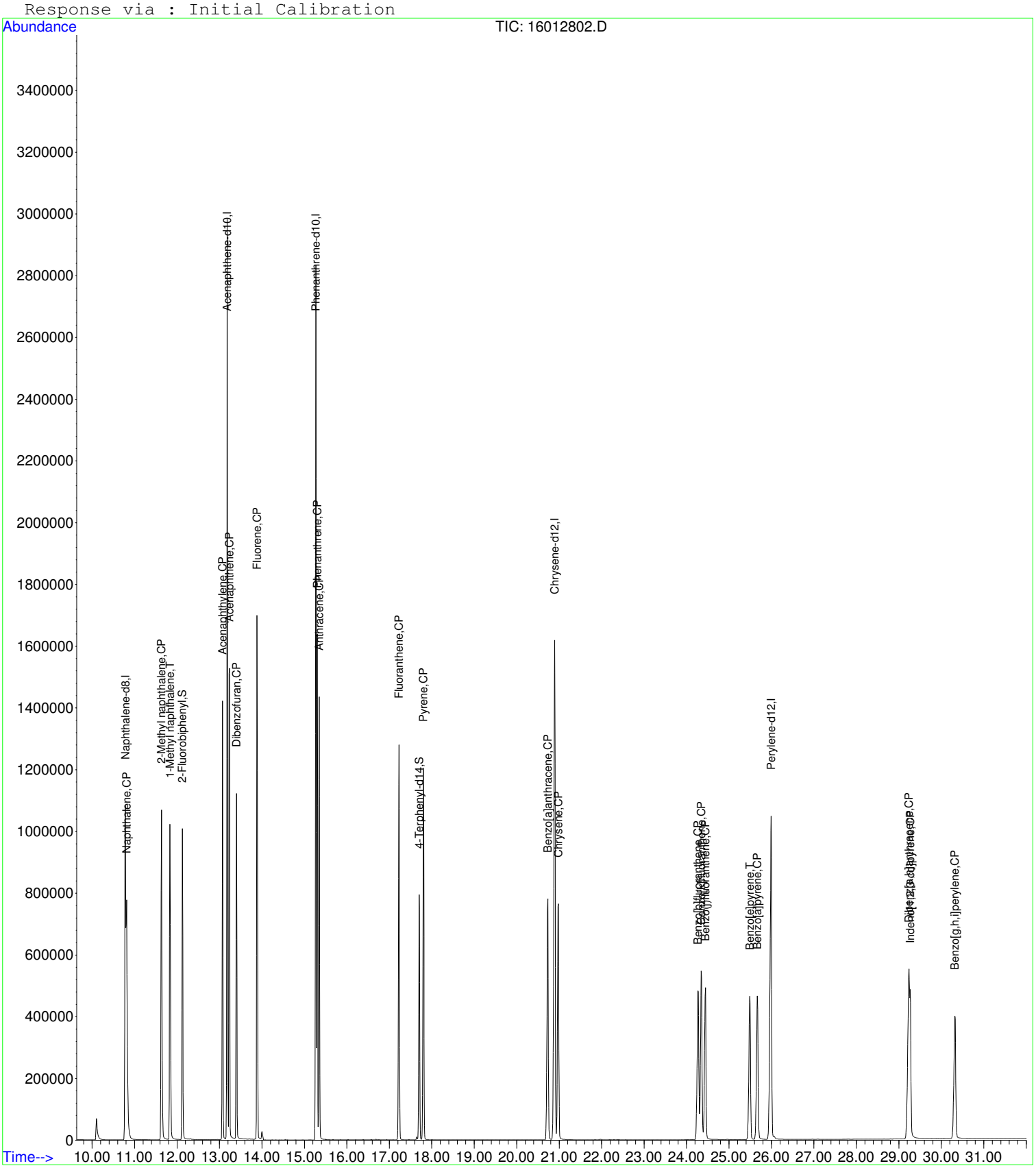
Target Compounds					Qvalue
2) Naphthalene	10.81	128	908353	1840.35 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	729918	1878.18 ug/kg	98
4) 1-Methyl naphthalene	11.83	142	672748	1834.31 ug/kg	95
6) Dibenzofuran	13.40	168	981134	1933.68 ug/kg	98
8) Acenaphthylene	13.07	152	1245456	1918.56 ug/kg	99
9) Acenaphthene	13.24	154	736924	1873.53 ug/kg	98
10) Fluorene	13.88	166	897787	1934.72 ug/kg	97
12) Phenanthrene	15.30	178	1281673	1866.70 ug/kg	100
13) Anthracene	15.35	178	1262658	1879.60 ug/kg	100
14) Fluoranthene	17.23	202	1247854	1832.80 ug/kg	99
15) Pyrene	17.80	202	1254396	1808.84 ug/kg	100
18) Benzo[a]anthracene	20.73	228	1125337	1956.42 ug/kg	99
19) Chrysene	20.98	228	1054962	1926.27 ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	976903	1931.20 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	899712	2002.26 ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	830738	1968.10 ug/kg	98
24) Benzo[e]pyrene	25.49	252	883400	1870.49 ug/kg	98
25) Benzo[a]pyrene	25.67	252	880496	1915.39 ug/kg	99
26) Dibenz[a,h]anthracene	29.23	278	780739	1835.94 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	943365	1820.90 ug/kg	99
28) Benzo[g,h,i]perylene	30.32	276	774946	1782.75 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

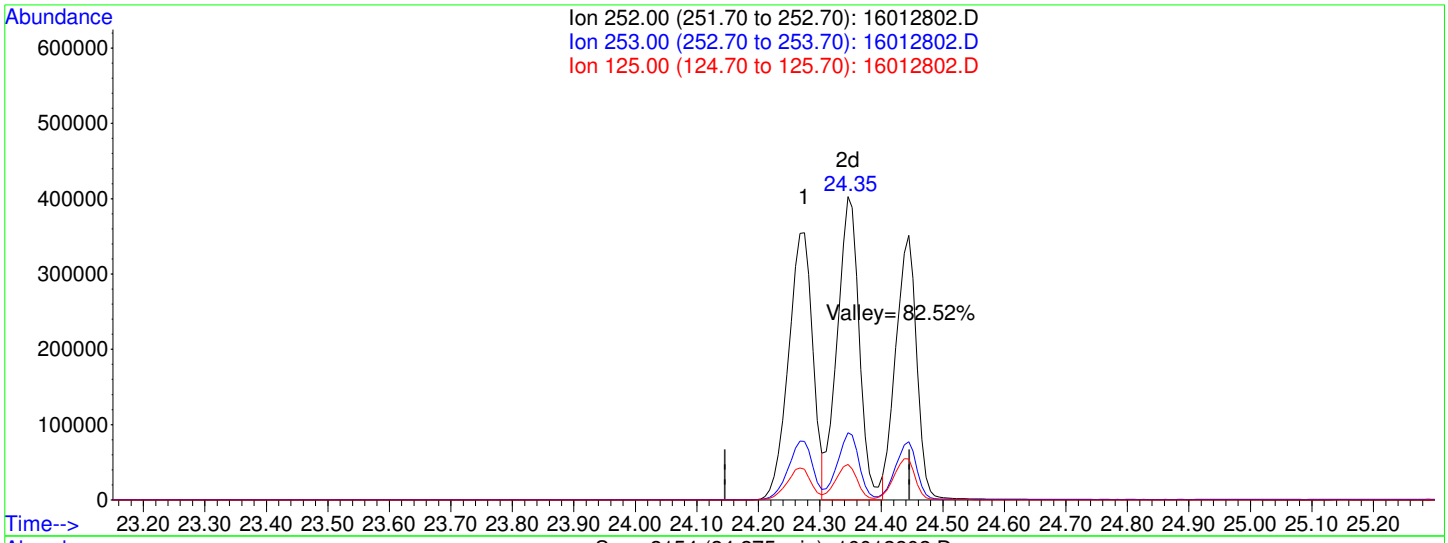
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration

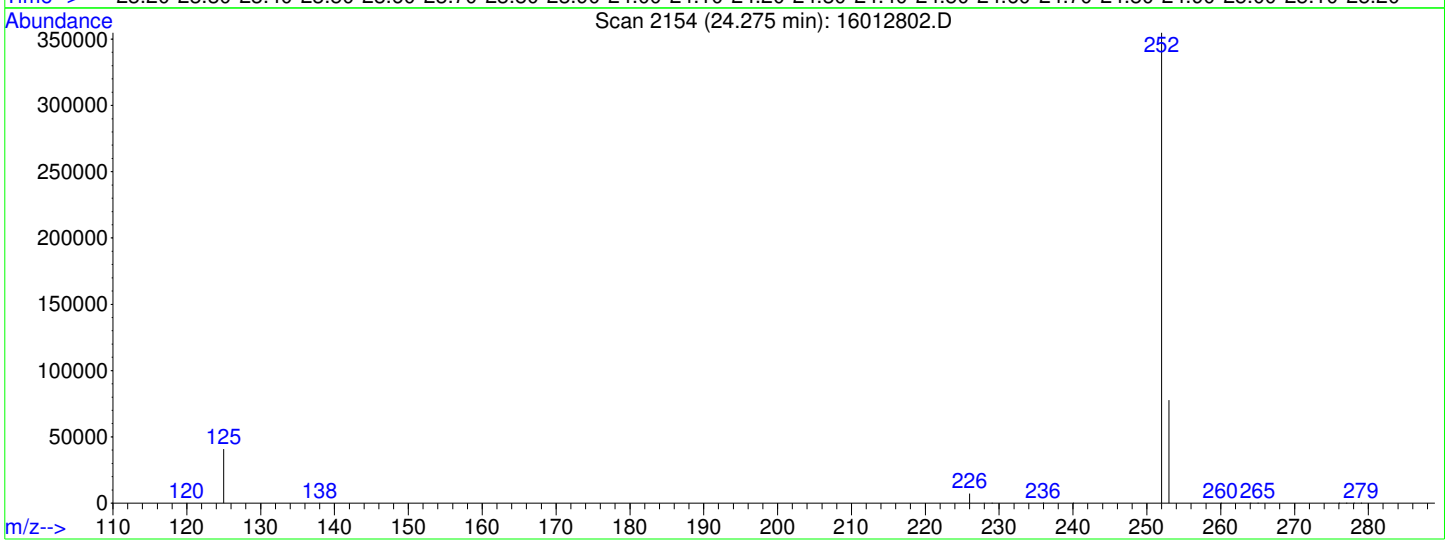


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 28 13:25 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Multiple Level Calibration





TIC: 16012802.D

(21) Benzo[b]fluoranthene (CP)

24.27min 1931.20ug/kg

response 976903

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.75
125.00	10.50	11.47
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012803.D Vial: 3
Acq On : 28 Jan 2016 1:36 pm Operator:
Sample : Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1751471	4000.00 ug/kg	83
5) Acenaphthene-d10	13.18	164	1483267	4000.00 ug/kg	81
11) Phenanthrene-d10	15.27	188	2723951	4000.00 ug/kg	83
17) Chrysene-d12	20.90	240	2331537	4000.00 ug/kg	81
20) Perylene-d12	25.99	264	1893102	4000.00 ug/kg	82

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	928857	2161.49 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.04%	
16) 4-Terphenyl-d14	17.71	244	1341506	2947.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	73.70%	

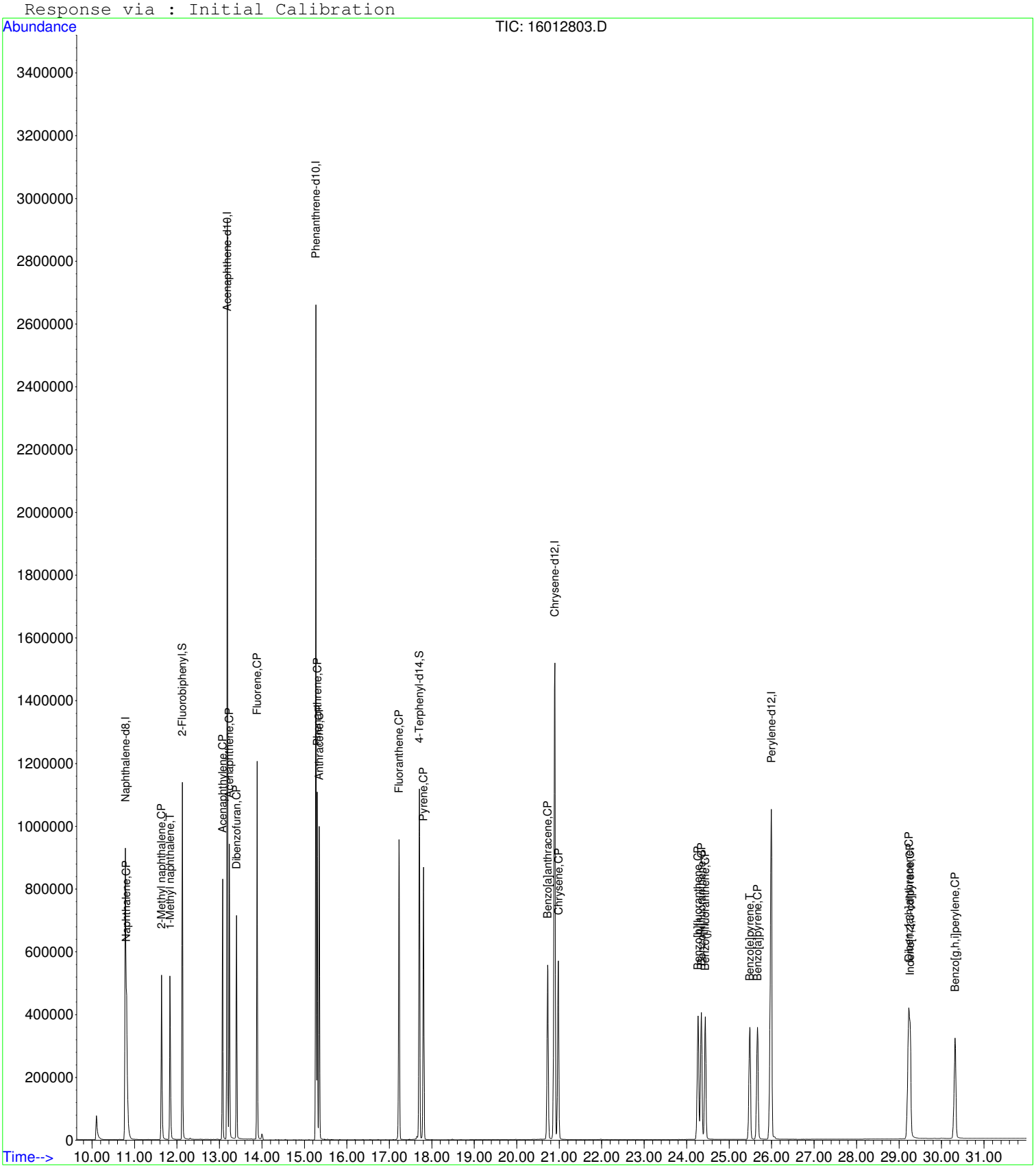
Target Compounds					Qvalue
2) Naphthalene	10.81	128	453504	1034.93 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	343711	996.19 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	321869	988.51 ug/kg	94
6) Dibenzofuran	13.40	168	629679	1306.29 ug/kg	97
8) Acenaphthylene	13.07	152	732855	1188.31 ug/kg	98
9) Acenaphthene	13.23	154	427671	1144.49 ug/kg	95
10) Fluorene	13.89	166	605015	1372.38 ug/kg	96
12) Phenanthrene	15.30	178	886227	1370.05 ug/kg	99
13) Anthracene	15.35	178	857559	1355.00 ug/kg	100
14) Fluoranthene	17.23	202	927631	1446.17 ug/kg	99
15) Pyrene	17.80	202	920692	1409.20 ug/kg	100
18) Benzo[a]anthracene	20.73	228	814310	1514.72 ug/kg	100
19) Chrysene	20.98	228	772643	1509.46 ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	758442	1502.68 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	686550	1531.29 ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	630290	1496.55 ug/kg	98
24) Benzo[e]pyrene	25.48	252	677938	1438.65 ug/kg	99
25) Benzo[a]pyrene	25.67	252	675248	1472.18 ug/kg	100
26) Dibenz[a,h]anthracene	29.22	278	612345	1443.17 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	734443	1420.79 ug/kg	98
28) Benzo[g,h,i]perylene	30.32	276	608578	1403.14 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012803.D Vial: 3
Acq On : 28 Jan 2016 1:36 pm Operator:
Sample : Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012807.D Vial: 7
Acq On : 28 Jan 2016 4:16 pm Operator:
Sample : MB-73352 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1716455	4000.00	ug/kg	82
5) Acenaphthene-d10	13.18	164	1497557	4000.00	ug/kg	82
11) Phenanthrene-d10	15.27	188	2645713	4000.00	ug/kg	81
17) Chrysene-d12	20.90	240	2320452	4000.00	ug/kg	80
20) Perylene-d12	25.99	264	1869220	4000.00	ug/kg	81

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	1022662	2357.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.93%			
16) 4-Terphenyl-d14	17.71	244	1236808	2798.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 69.96%			

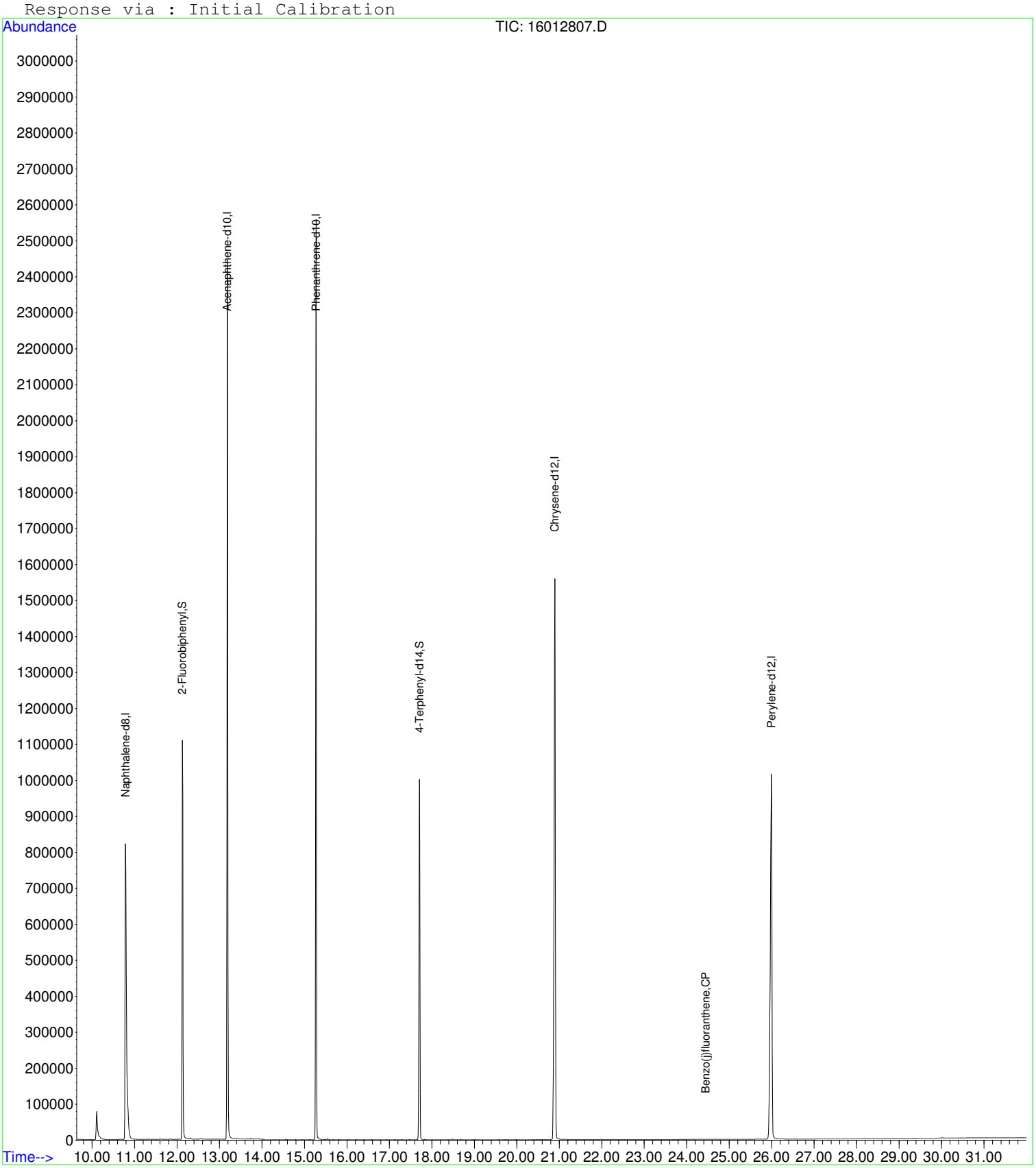
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.44	252	92	0.22	ug/kg	74

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012807.D Vial: 7
Acq On : 28 Jan 2016 4:16 pm Operator:
Sample : MB-73352 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012812.D Vial: 12
Acq On : 28 Jan 2016 7:36 pm Operator:
Sample : 1601231-28B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:23 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1853211	4000.00	ug/kg	88
5) Acenaphthene-d10	13.18	164	1598317	4000.00	ug/kg	88
11) Phenanthrene-d10	15.27	188	2804143	4000.00	ug/kg	86
17) Chrysene-d12	20.89	240	2388263	4000.00	ug/kg	83
20) Perylene-d12	25.99	264	1989897	4000.00	ug/kg	86

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1027749	2219.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 55.49%			
16) 4-Terphenyl-d14	17.70	244	1139923	2433.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 60.83%			

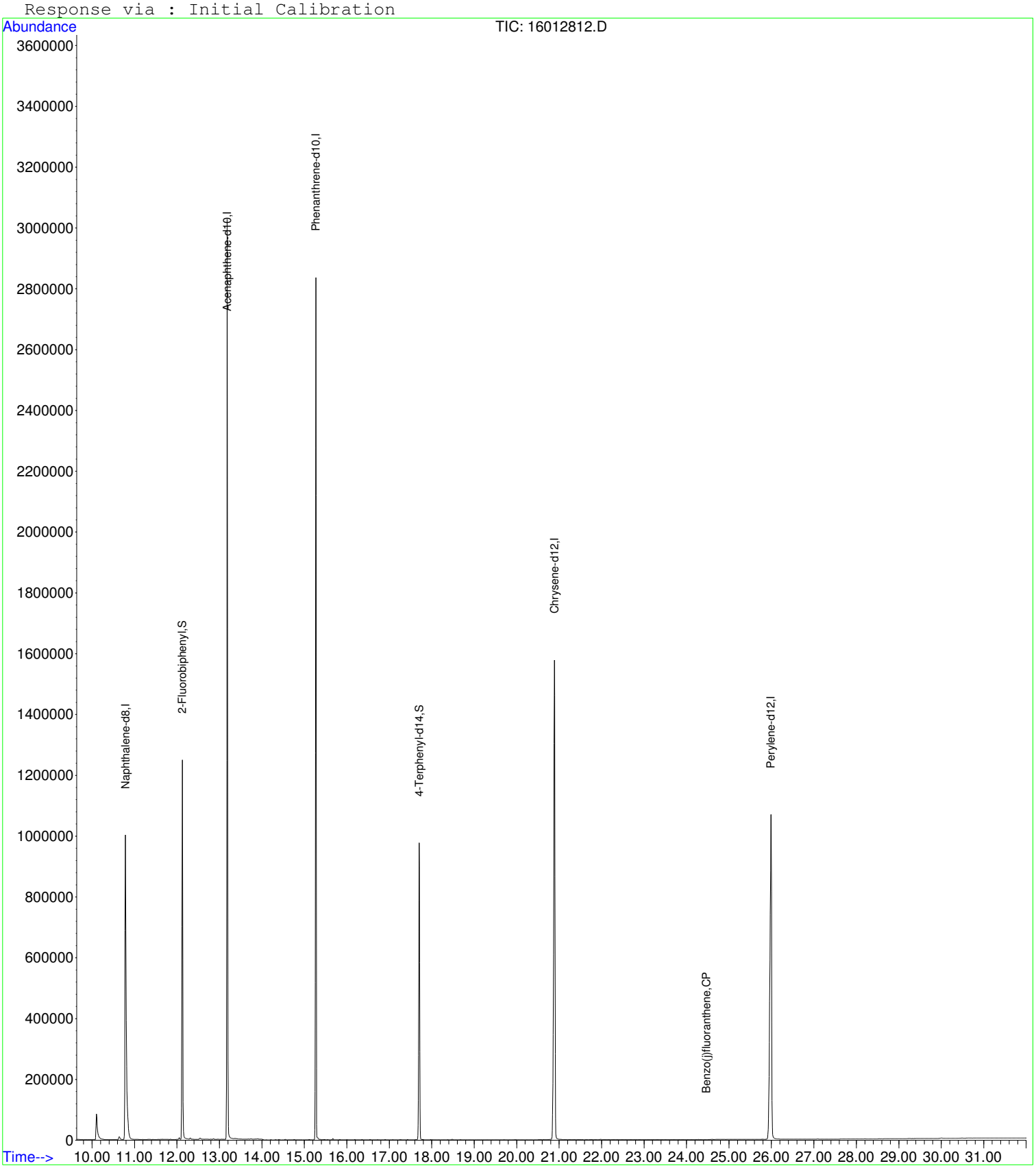
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.46	252	27	0.06	ug/kg#	1

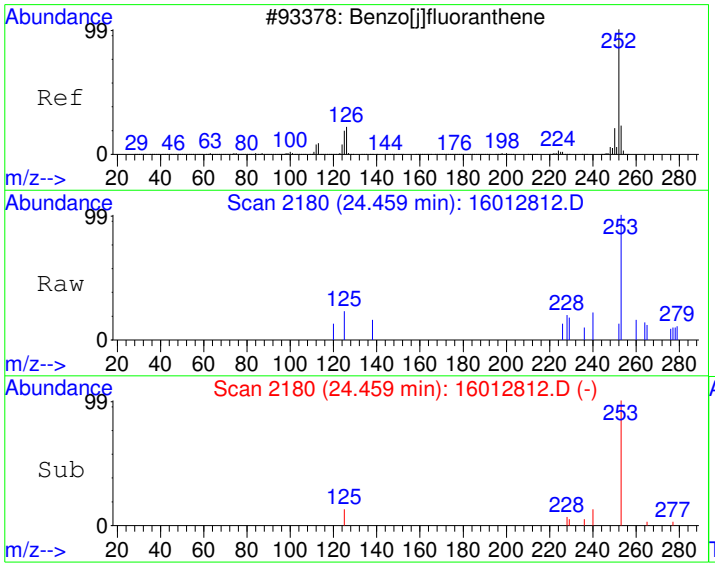
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012812.D Vial: 12
Acq On : 28 Jan 2016 7:36 pm Operator:
Sample : 1601231-28B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:23 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration

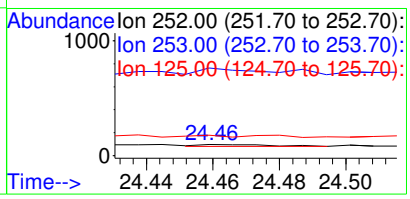




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 24.46 min Scan# 2180
Delta R.T. -0.01 min
Lab File: 16012812.D
Acq: 28 Jan 2016 7:36 pm

Tgt Ion:252 Resp: 27

Ion	Ratio	Lower	Upper
252	100		
253	341.2	2.3	42.3#
125	88.2	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012816.D Vial: 16
Acq On : 28 Jan 2016 10:15 pm Operator:
Sample : CCV1-160128 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	1978034	4000.00 ug/kg	94
5) Acenaphthene-d10	13.18	164	1672948	4000.00 ug/kg	92
11) Phenanthrene-d10	15.27	188	2930087	4000.00 ug/kg	90
17) Chrysene-d12	20.89	240	2476069	4000.00 ug/kg	86
20) Perylene-d12	25.99	264	1967114	4000.00 ug/kg	85

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	447709	923.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.09%#		
16) 4-Terphenyl-d14	17.70	244	452665	924.74 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.12%#		

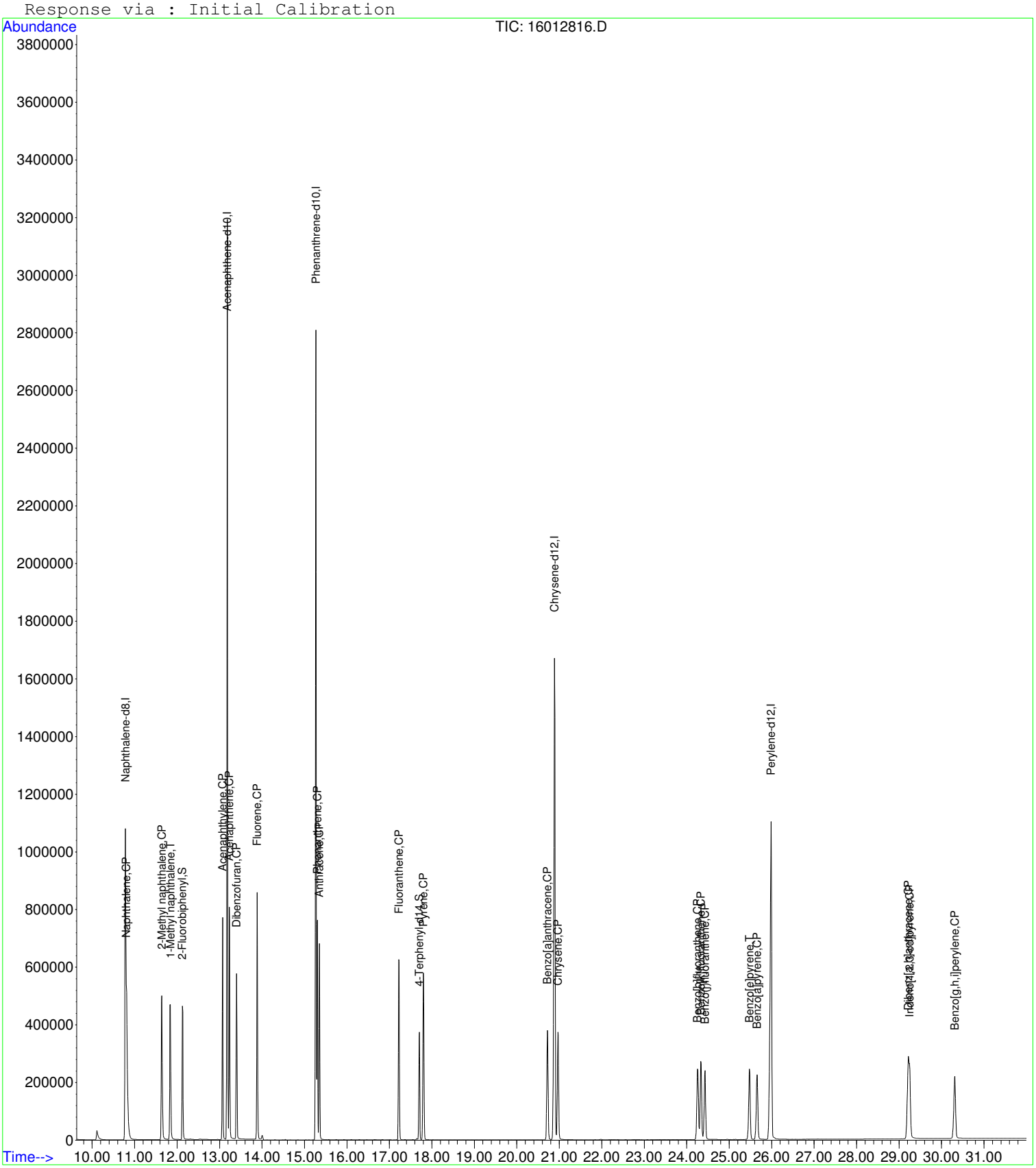
Target Compounds					Qvalue
2) Naphthalene	10.81	128	465574	940.78 ug/kg	99
3) 2-Methyl naphthalene	11.64	142	378526	971.43 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	346232	941.54 ug/kg	97
6) Dibenzofuran	13.40	168	519163	954.91 ug/kg	96
8) Acenaphthylene	13.07	152	664900	955.88 ug/kg	99
9) Acenaphthene	13.24	154	386917	918.03 ug/kg	98
10) Fluorene	13.88	166	477239	959.80 ug/kg	96
12) Phenanthrene	15.30	178	640105	919.95 ug/kg	99
13) Anthracene	15.35	178	634304	931.73 ug/kg	99
14) Fluoranthene	17.23	202	625285	906.24 ug/kg	99
15) Pyrene	17.80	202	627908	893.46 ug/kg	99
18) Benzo[a]anthracene	20.72	228	542348	949.95 ug/kg	100
19) Chrysene	20.97	228	507139	932.93 ug/kg	99
21) Benzo[b]fluoranthene	24.25	252	484330	923.48 ug/kg	99
22) Benzo[k]fluoranthene	24.33	252	436769	937.52 ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	400900	916.07 ug/kg	99
24) Benzo[e]pyrene	25.48	252	443405	905.54 ug/kg	99
25) Benzo[a]pyrene	25.66	252	437966	918.93 ug/kg	99
26) Dibenz[a,h]anthracene	29.22	278	408292	926.05 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.25	276	492672	917.22 ug/kg	99
28) Benzo[g,h,i]perylene	30.31	276	415007	920.84 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012816.D Vial: 16
Acq On : 28 Jan 2016 10:15 pm Operator:
Sample : CCV1-160128 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



GCMS6_160206A
For

DHL Work Order
1601231

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_160206A
Batch Number(s): See Run Log.	SOP: ORGANICS-PAH-01
Matrix: See Run Log.	

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	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: Sherri Herschmann Date: **VARIANCE APPROVED** By Sherri Herschmann at 1:04:42 PM, 2/15/2016

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

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

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ 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.**

All samples in this analytical run at run at 10x due to brown extract color. 10x dilution meets project requirements as per project manager.
1601230-13A: This sample done at 5x dilution due to limited sample at prep.
LCS-73472: Rerun - ending CCV not required for QC only as per JD.

Analyst: Karyn Lane Date: **REVIEWED/APPROVED** 2/8/2016

Second-Level Review: Sherri Herschmann Date: By Sherri Herschmann at 1:01:08 PM, 2/15/2016 **02/10/2016**

DHL Analytical, Inc.

Run ID: **GCMS6_160206A** **Run No.:** 84019

Analytical Run Date: 2/6/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160206	1	PAH_LL_SDOD1	TUNE	R84019	2/6/2016 10:20:00 AM		
ICV-160206	1	PAH_LL_SDOD1	ICV	R84019	2/6/2016 10:57:00 AM		
LCS-73472	1	PAH_LL_SDOD1	LCS	73472	2/6/2016 11:37:00 AM		DNR - two analytes high. See rerun.
MB-73472	1	PAH_LL_SDOD1	MBLK	73472	2/6/2016 12:18:00 PM		
1601230-05A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 12:58:00 PM		All samples in this analytical run at run at 10x due to brown extract color. 10x dilution meets project requirements as per project manager.
1601230-06A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 1:38:00 PM		
1601230-07A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 2:18:00 PM		
1601230-08A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 2:58:00 PM		
1601230-09A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 3:38:00 PM		
1601230-10A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 4:19:00 PM		
1601230-11A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 5:00:00 PM		
1601230-12A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 5:40:00 PM		
1601230-13A	5	PAH_LL_SDOD1	SAMP	73472	2/6/2016 6:20:00 PM		This sample done at 5x dilution due to limited sample at prep.
1601230-14A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 7:00:00 PM		
1601230-15A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 7:41:00 PM		
1601230-12AMS	10	PAH_LL_SDOD1	MS	73472	2/6/2016 8:21:00 PM		
1601230-12AMSD	10	PAH_LL_SDOD1	MSD	73472	2/6/2016 9:02:00 PM		
DFTPP2-160206	1	PAH_LL_SDOD1	TUNE	R84019	2/6/2016 9:41:00 PM		
ICV2-160206	1	PAH_LL_SDOD1	ICV	R84019	2/6/2016 10:17:00 PM		
SBLK-160206	1	PAH_LL_SDOD1	SBLK	73472	2/6/2016 10:58:00 PM		
1601230-17A	10	PAH_LL_SDOD1	SAMP	73472	2/6/2016 11:38:00 PM		
1601230-18A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 12:18:00 AM		
1601230-19A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 12:58:00 AM		
1601230-20A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 1:39:00 AM		
1601230-21A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 2:18:00 AM		
1601230-22A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 2:58:00 AM		
1601231-01A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 3:38:00 AM		
1601231-02A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 4:18:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160206A** **Run No.:** 84019

1601231-03A	10	PAH_LL_SDOD1	SAMP	73472	2/7/2016 4:58:00 AM		
CCV-160206	1	PAH_LL_SDOD1	CCV	R84019	2/7/2016 5:38:00 AM		
DFTPP-160208	1	PAH_LL_SDOD1	TUNE	R84019	2/8/2016 8:26:00 AM		
ICV-160208	1	PAH_LL_SDOD1	ICV	R84019	2/8/2016 9:03:00 AM		
LCS-73472	1	PAH_LL_SDOD1	LCS	73472	2/8/2016 9:43:00 AM		LCS rerun - ending CCV not required for QC only as per JD.
SBLK-160208	1	PAH_LL_SDOD1	SBLK	73472	2/8/2016 11:02:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160206.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160206\
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	16020601	PP160126	SBLK
2	Sample	2	16020602	DFTPPPAH	DFTPP-160206
3	Sample	3	16020603	PP160126	ICV-160206
4	Sample	4	16020604	PP160126	LCS-73472
5	Sample	5	16020605	PP160126	MB-73472
6	Sample	6	16020606	PP160126	1601230-05A
7	Sample	7	16020607	PP160126	1601230-06A
8	Sample	8	16020608	PP160126	1601230-07A
9	Sample	9	16020609	PP160126	1601230-08A
10	Sample	10	16020610	PP160126	1601230-09A
11	Sample	11	16020611	PP160126	1601230-10A
12	Sample	12	16020612	PP160126	1601230-11A
13	Sample	13	16020613	PP160126	1601230-12A
14	Sample	14	16020614	PP160126	1601230-13A
15	Sample	15	16020615	PP160126	1601230-14A
16	Sample	16	16020616	PP160126	1601230-15A
17	Sample	17	16020617	PP160126	1601230-12AMS
18	Sample	18	16020618	PP160126	1601230-12AMSD
19	Sample	19	16020619	DFTPPPAH	DFTPP2-160206
20	Sample	20	16020620	PP160126	ICV2-160206
21	Sample	21	16020621	PP160126	SBLK-160206
22	Sample	22	16020622	PP160126	1601230-17A
23	Sample	23	16020623	PP160126	1601230-18A
24	Sample	24	16020624	PP160126	1601230-19A
25	Sample	25	16020625	PP160126	1601230-20A
26	Sample	26	16020626	PP160126	1601230-21A
27	Sample	27	16020627	PP160126	1601230-22A
28	Sample	28	16020628	PP160126	1601231-01A
29	Sample	29	16020629	PP160126	1601231-02A
30	Sample	30	16020630	PP160126	1601231-03A
31	Sample	31	16020631	PP160126	CCV-160206
32					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 5:00:00 PM**
Prep End Date: **1/28/2016 5:03:08 PM**

Prep Batch **73341** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601230-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601230-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
	Sieved sample will be in 2-oz glass jar					
1601230-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-08A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/27/15					
1601230-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-12A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/27/15					
1601230-13A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					

MANUAL INTEGRATION REQUIRED

By Sherri Herschmann at 1:05:27 PM, 2/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 5:00:00 PM**
Prep End Date: **1/28/2016 5:03:08 PM**

Prep Batch **73341** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601230-14A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601230-15A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601230-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601231-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	Sieved sample will be in 2-oz glass jar					
1601231-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-08A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15 /					
1601231-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-16A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-19A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601231-20A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					
1601231-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-27A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/3/2016 7:10:16 AM**
Digestion:
Prep End Date: **2/3/2016 10:55:00 AM**

Prep Batch **73472** 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 #
1601230-05A	Soil		10.13	10	0.987	1 of 1
1601230-06A	Soil		10.05	10	0.995	1 of 1
1601230-07A	Soil		10.32	10	0.969	1 of 1
1601230-08A	Soil		10.25	10	0.976	1 of 1
1601230-09A	Soil		10.04	10	0.996	1 of 1
1601230-10A	Soil		10.06	10	0.994	1 of 1
1601230-11A	Soil		10.26	10	0.975	1 of 1
1601230-12A	Soil		10.16	10	0.984	1 of 1
1601230-12AMS	Soil		10.02	10	0.998	of
1601230-12AMSD	Soil		10.21	10	0.979	of
1601230-13A	Soil		5.52	10	1.812	1 of 1
Not enough sample produced.						
1601230-14A	Soil		10.14	10	0.986	1 of 1
1601230-15A	Soil		10.19	10	0.981	1 of 1
1601230-17A	Soil		10.01	10	0.999	1 of 1
1601230-18A	Soil		10.26	10	0.975	1 of 1
1601230-19A	Soil		10.39	10	0.962	1 of 1
1601230-20A	Soil		10.14	10	0.986	1 of 1
1601230-21A	Soil		10.41	10	0.961	1 of 1
1601230-22A	Soil		10.12	10	0.988	1 of 1
1601231-01A	Soil		10.01	10	0.999	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601231-02A	Soil		10.27	10	0.974	1 of 1
Sieved sample will be in 2-oz glass jar						
1601231-03A	Soil		10	10	1.000	1 of 1
LCS-73472	Soil		10	10	1.000	of
MB-73472	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9604	Purified Sodium Sulfate	10	g	09/03/2025
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.25	04/20/2016

REVIEWED/APPROVED

By Sherri Herschmann at 1:07:03 PM, 2/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/3/2016 7:10:16 AM**
Digestion:
Prep End Date: ~~2/2/2016~~ 2/3/16 10:55AM

Prep Batch **73472** 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 #			
1601230-05A	Soil		10.13	10	1.000	1	of	1	
1601230-06A	Soil		10.05	10	1.000	1	of	1	
1601230-07A	Soil		10.32	10	1.000	1	of	1	
1601230-08A	Soil		10.25	10	1.000	1	of	1	
1601230-09A	Soil		10.04	10	1.000	1	of	1	
1601230-10A	Soil		10.06	10	1.000	1	of	1	
1601230-11A	Soil		10.26	10	1.000	1	of	1	
1601230-12A	Soil		10.10	10	1.000	1	of	1	
1601230-12AMS	Soil		10.02	10	1.000		of		
1601230-12AMSD	Soil		10.21	10	1.000		of		
1601230-13A	Soil		CHB 2/3/16 ~~10~~ 5.52	10	1.000	1	of	1	NOT ENOUGH SAMPLE PRODUCED
1601230-14A	Soil		10.14	10	1.000	1	of	1	
1601230-15A	Soil		10.19	10	1.000	1	of	1	
1601230-17A	Soil		10.01	10	1.000	1	of	1	
1601230-18A	Soil		10.26	10	1.000	1	of	1	
1601230-19A	Soil		10.39	10	1.000	1	of	1	
1601230-20A	Soil		10.14	10	1.000	1	of	1	
1601230-21A	Soil		10.41	10	1.000	1	of	1	
1601230-22A	Soil		10.12	10	1.000	1	of	1	
1601231-01A	Soil		10.01	10	1.000	1	of	1	
The preparation for PAH & metals must wait til sieve completed.									
1601231-02A	Soil		10.27	10	1.000	1	of	1	
Sieved sample will be in 2-oz glass jar									
1601231-03A	Soil		10.00	10	1.000	1	of	1	
LCS-73472	Soil		10	10	1.000		of		
MB-73472	Soil		10	10	1.000		of		

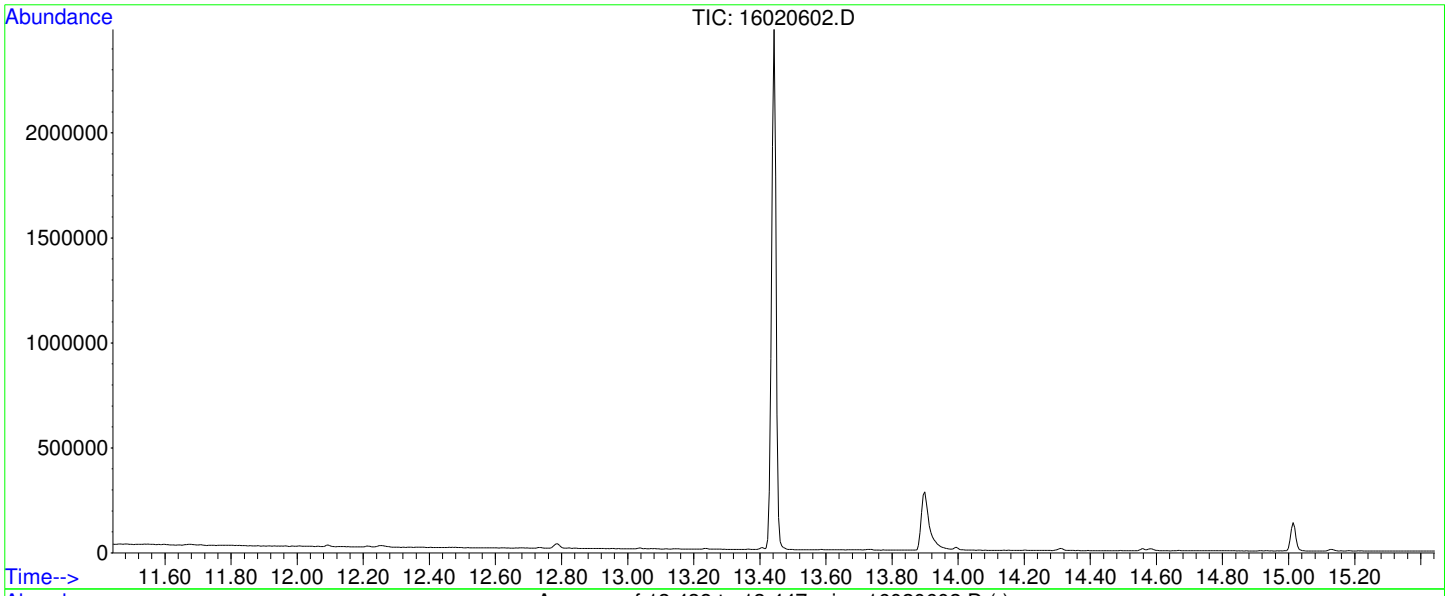
REVIEWED/APPROVED
By Sherri Herschmann at 1:06:52 PM, 2/15/2016

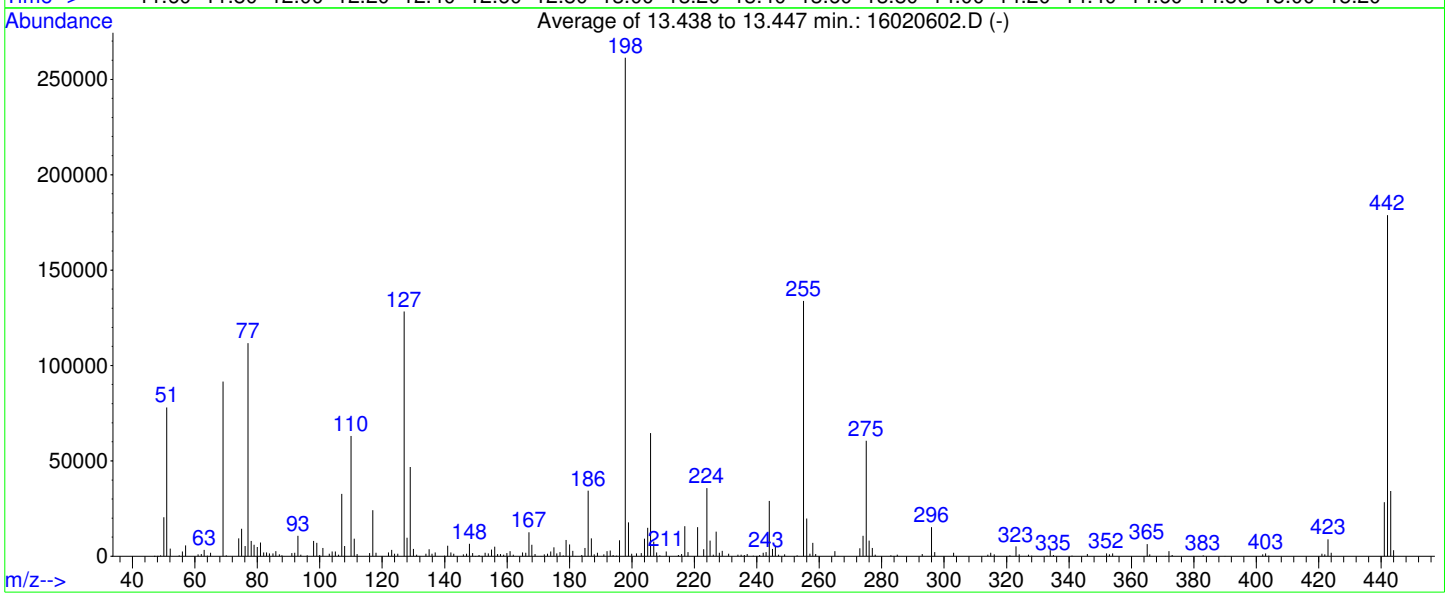
Number	Reagent Name	Amt	Units	Exp. Date
9604	Purified Sodium Sulfate	10	g	09/03/2025
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.25	04/20/2016

2/3/16

Data File : C:\HPCHEM\1\DATA\160206\16020602.D Vial: 2
Acq On : 6 Feb 2016 10:20 am Operator:
Sample : DFTPP-160206 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

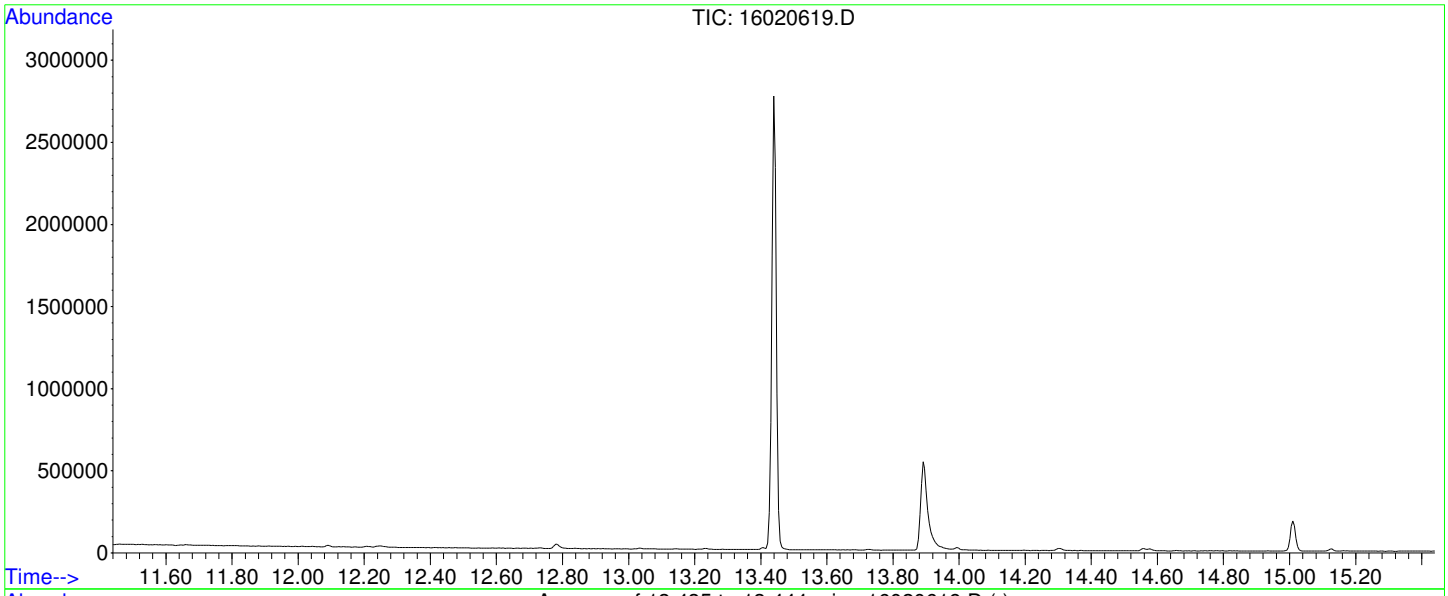


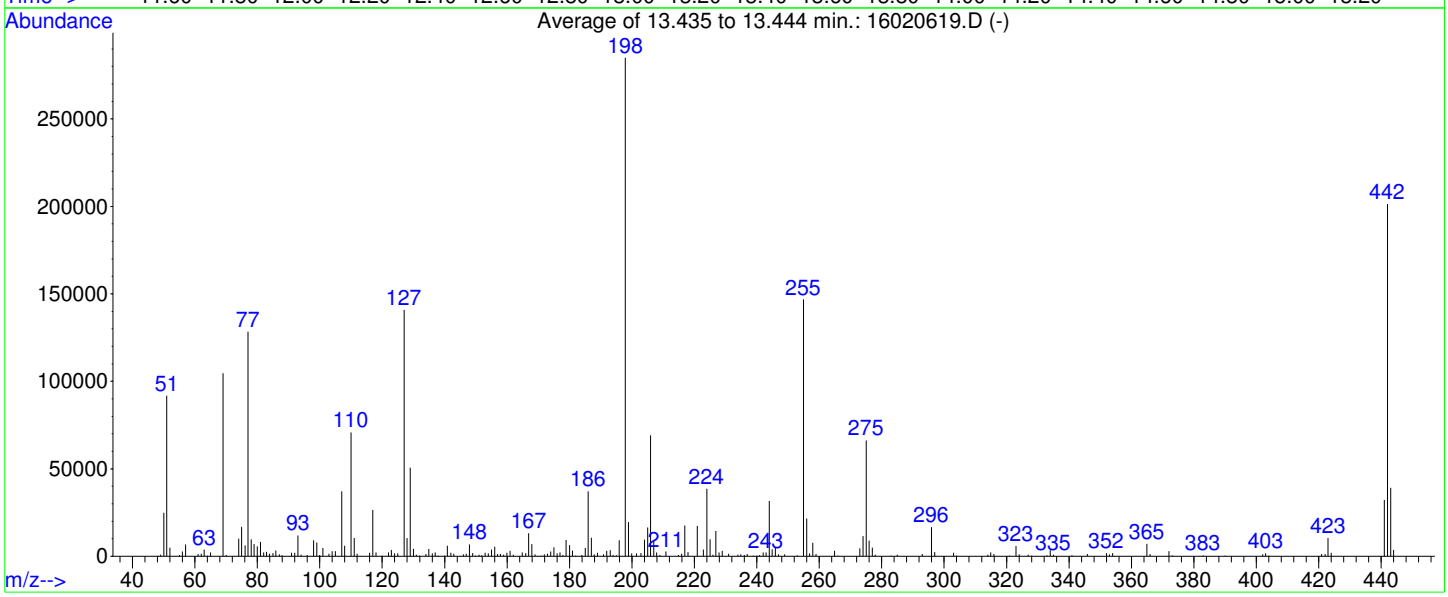


AutoFind: Scans 1563, 1564, 1565; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	29.9	78088	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	35.0	91552	PASS
70	69	0.00	2	0.5	468	PASS
127	198	10	80	49.1	128291	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	261333	PASS
199	198	5	9	6.8	17871	PASS
275	198	10	60	23.2	60635	PASS
365	198	1	200	2.5	6405	PASS
441	442	0.01	24	15.8	28344	PASS
442	198	50	400	68.4	178864	PASS
443	442	15	24	19.2	34256	PASS

Data File : C:\HPCHEM\1\DATA\160206\16020619.D Vial: 19
Acq On : 6 Feb 2016 9:41 pm Operator:
Sample : DFTPP2-160206 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

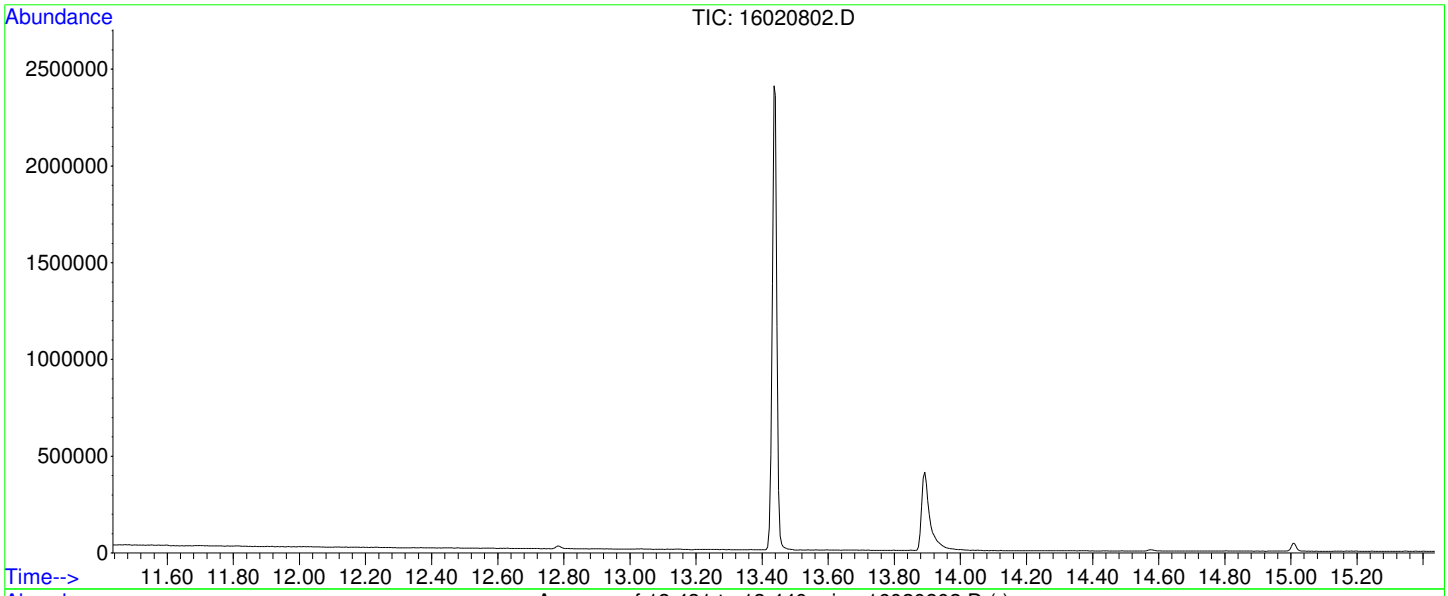


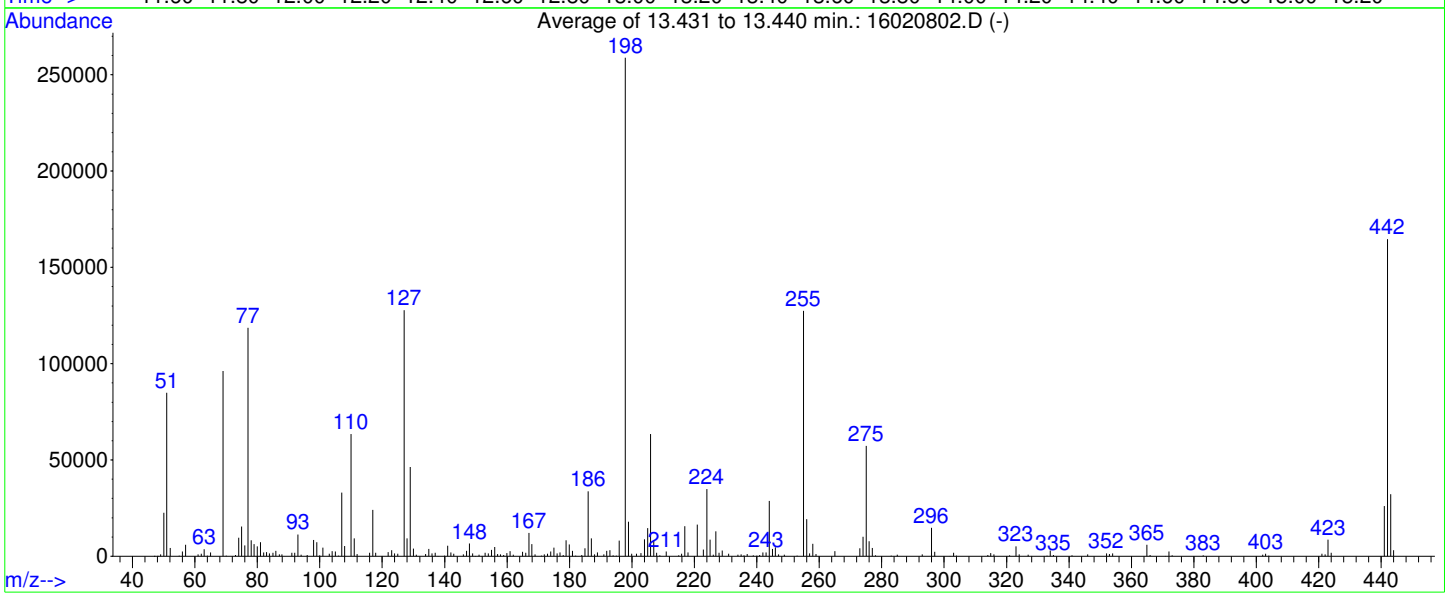


AutoFind: Scans 1562, 1563, 1564; Background Corrected with Scan 1555

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.2	91867	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	36.7	104587	PASS
70	69	0.00	2	0.7	698	PASS
127	198	10	80	49.4	140917	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	284992	PASS
199	198	5	9	6.9	19673	PASS
275	198	10	60	23.3	66261	PASS
365	198	1	200	2.5	7072	PASS
441	442	0.01	24	16.0	32218	PASS
442	198	50	400	70.7	201445	PASS
443	442	15	24	19.4	39112	PASS

Data File : C:\HPCHEM\1\DATA\160206\16020802.D Vial: 2
Acq On : 8 Feb 2016 8:26 am Operator:
Sample : DFTPP-160208 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 1561, 1562, 1563; Background Corrected with Scan 1555

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.8	84869	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.2	96267	PASS
70	69	0.00	2	0.4	386	PASS
127	198	10	80	49.3	127701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	258880	PASS
199	198	5	9	6.9	17928	PASS
275	198	10	60	22.1	57339	PASS
365	198	1	200	2.3	5932	PASS
441	442	0.01	24	15.8	26110	PASS
442	198	50	400	63.6	164736	PASS
443	442	15	24	19.6	32278	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020603.D Vial: 3
Acq On : 6 Feb 2016 10:57 am Operator:
Sample : ICV-160206 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	3212397	4000.00 ug/kg	153
5) Acenaphthene-d10	13.15	164	2122279	4000.00 ug/kg	117
11) Phenanthrene-d10	15.23	188	4265158	4000.00 ug/kg	130
17) Chrysene-d12	20.80	240	3943264	4000.00 ug/kg	137
20) Perylene-d12	25.88	264	3296479	4000.00 ug/kg	143

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1206722	1962.58 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	49.06%	
16) 4-Terphenyl-d14	17.65	244	1308386	1836.22 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.91%	

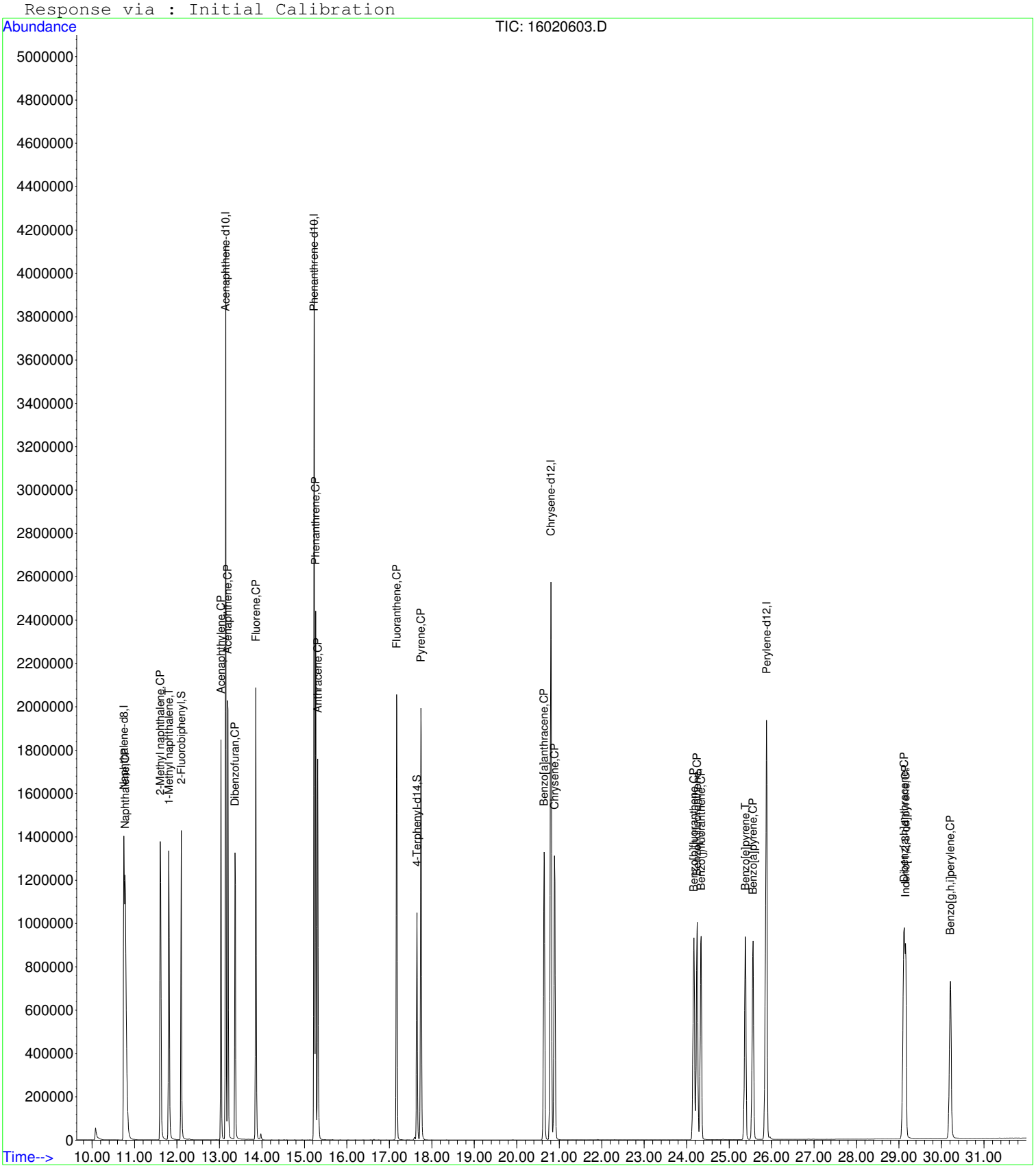
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1573912	1958.32 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1085196	1714.87 ug/kg	99
4) 1-Methyl naphthalene	11.81	142	989357	1656.65 ug/kg	96
6) Dibenzofuran	13.37	168	1375211	1993.92 ug/kg	99
8) Acenaphthylene	13.04	152	1688705	1913.74 ug/kg	99
9) Acenaphthene	13.20	154	1023231	1913.78 ug/kg	97
10) Fluorene	13.86	166	1223767	1940.10 ug/kg	98
12) Phenanthrene	15.26	178	1924483	1900.07 ug/kg	99
13) Anthracene	15.31	178	1872378	1889.44 ug/kg	99
14) Fluoranthene	17.17	202	2018104	2009.34 ug/kg	98
15) Pyrene	17.74	202	2041927	1996.02 ug/kg	98
18) Benzo[a]anthracene	20.64	228	1856460	2041.80 ug/kg	99
19) Chrysene	20.89	228	1789181	2066.73 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	1790238	2036.94 ug/kg	98
22) Benzo[k]fluoranthene	24.25	252	1626275	2083.06 ug/kg	99
23) Benzo(j)fluoranthene	24.34	252	1502427	2048.64 ug/kg	98
24) Benzo[e]pyrene	25.39	252	1644628	2004.27 ug/kg	98
25) Benzo[a]pyrene	25.56	252	1634643	2046.65 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	1459084	1974.80 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1775018	1971.97 ug/kg	96
28) Benzo[g,h,i]perylene	30.21	276	1413185	1871.15 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020603.D Vial: 3
Acq On : 6 Feb 2016 10:57 am Operator:
Sample : ICV-160206 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

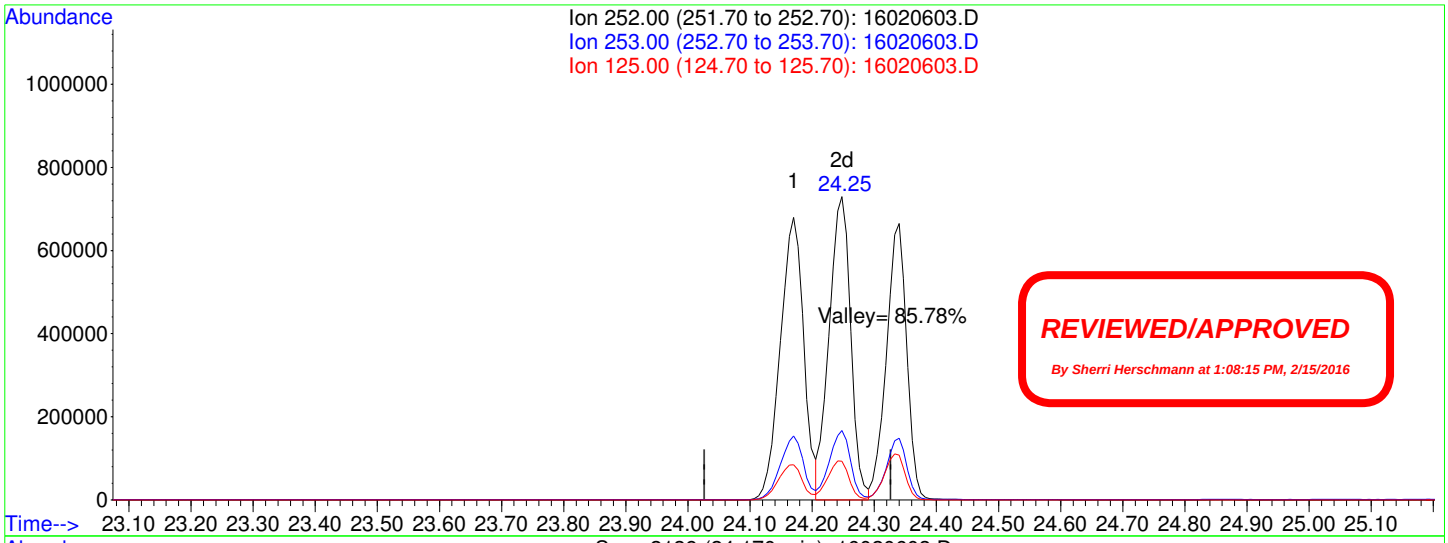
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

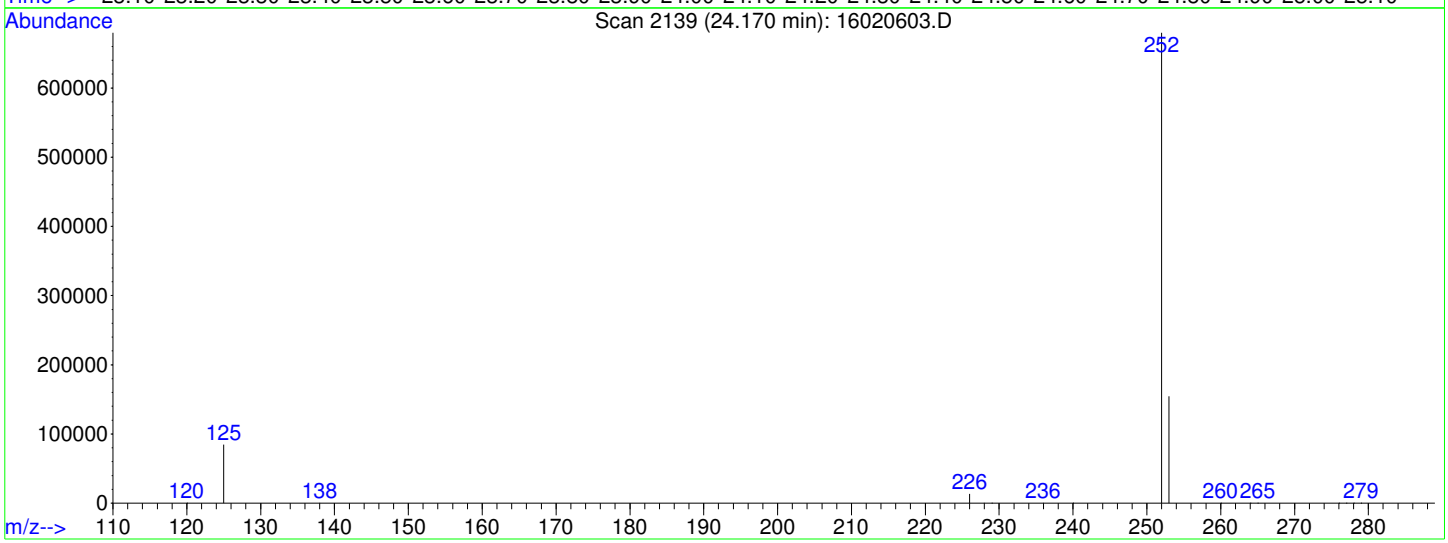
```
Data File : C:\HPCHEM\1\DATA\160206\16020603.D          Vial: 3
Acq On    :  6 Feb 2016  10:57 am                   Operator:
Sample    : ICV-160206                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb  6 11:29 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration
```



REVIEWED/APPROVED

By Sherri Herschmann at 1:08:15 PM, 2/15/2016



TIC: 16020603.D

(21) Benzo[b]fluoranthene (CP)

24.17min 2036.94ug/kg

response 1790238

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.56
125.00	10.50	12.43
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020604.D Vial: 4
Acq On : 6 Feb 2016 11:37 am Operator:
Sample : LCS-73472 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

DNR - SEE RERUN.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2354365	4000.00 ug/kg	112
5) Acenaphthene-d10	13.15	164	1388444	4000.00 ug/kg	76
11) Phenanthrene-d10	15.23	188	2578630	4000.00 ug/kg	79
17) Chrysene-d12	20.80	240	3244530	4000.00 ug/kg	112
20) Perylene-d12	25.88	264	2720009	4000.00 ug/kg	118

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	376615	936.25 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.41%#	
16) 4-Terphenyl-d14	17.65	244	525465	1219.77 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	30.49%#	

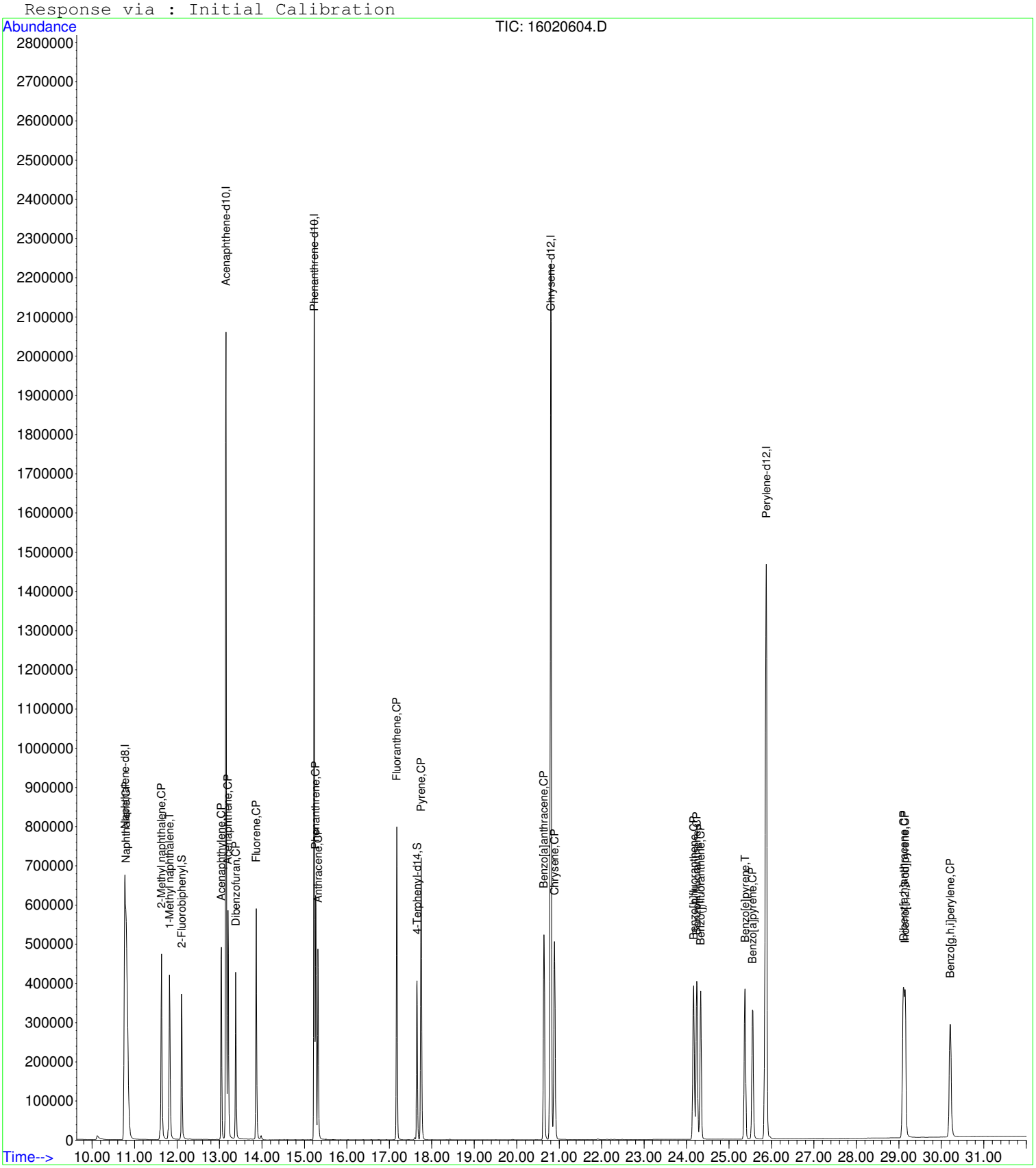
Target Compounds					Qvalue
2) Naphthalene	10.80	128	550918	935.29 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	369248	796.15 ug/kg	97
4) 1-Methyl naphthalene	11.82	142	332225	759.04 ug/kg	96
6) Dibenzofuran	13.38	168	445846	988.09 ug/kg	100
8) Acenaphthylene	13.05	152	547197	947.86 ug/kg	99
9) Acenaphthene	13.20	154	330057	943.59 ug/kg	97
10) Fluorene	13.87	166	374830	908.31 ug/kg	98
12) Phenanthrene	15.26	178	589329	962.41 ug/kg	99
13) Anthracene	15.32	178	559942	934.60 ug/kg	99
14) Fluoranthene	17.18	202	778459	1282.01 ug/kg	99
15) Pyrene	17.75	202	811706	1312.41 ug/kg	99
18) Benzo[a]anthracene	20.64	228	751603	1004.66 ug/kg	99
19) Chrysene	20.89	228	744248	1044.84 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	743847	1025.72 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	658893	1022.83 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	612268	1011.80 ug/kg	97
24) Benzo[e]pyrene	25.38	252	679768	1003.99 ug/kg	97
25) Benzo[a]pyrene	25.56	252	623290	945.78 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	608632	998.34 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	737295	992.70 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	604418	969.90 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020604.D Vial: 4
Acq On : 6 Feb 2016 11:37 am Operator:
Sample : LCS-73472 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020605.D Vial: 5
Acq On : 6 Feb 2016 12:18 pm Operator:
Sample : MB-73472 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2432272	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1526686	4000.00 ug/kg	84
11) Phenanthrene-d10	15.23	188	2644479	4000.00 ug/kg	81
17) Chrysene-d12	20.80	240	3183594	4000.00 ug/kg	110
20) Perylene-d12	25.88	264	2695584	4000.00 ug/kg	117

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	404006	913.40 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.84%#		
16) 4-Terphenyl-d14	17.65	244	512900	1160.96 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 29.02%#		

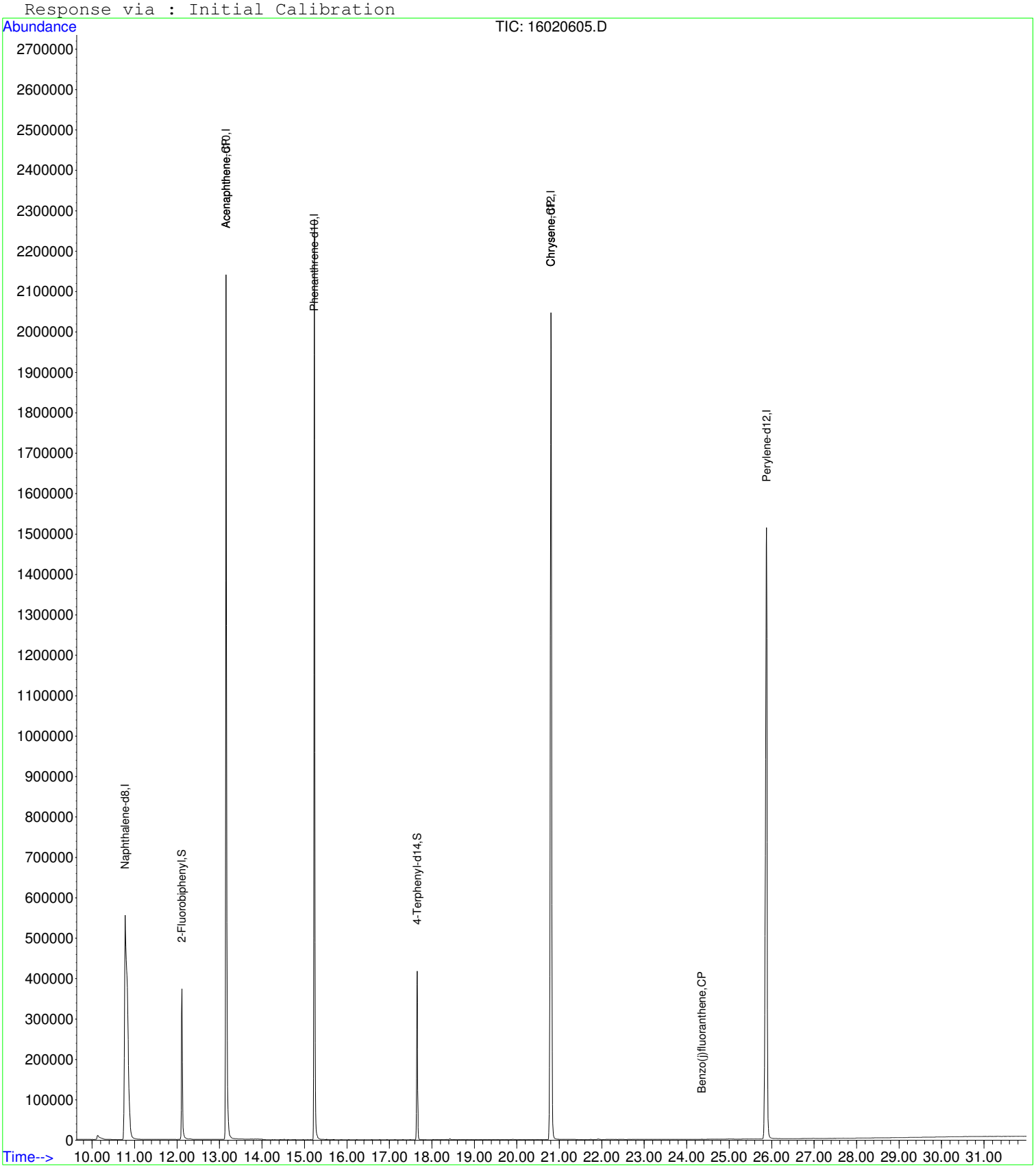
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5384	~~14.00 ug/kg~~#	10
19) Chrysene	20.80	228	7574	~~10.84 ug/kg~~	74
23) Benzo(j)fluoranthene	24.35	252	118	0.20 ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020605.D Vial: 5
Acq On : 6 Feb 2016 12:18 pm Operator:
Sample : MB-73472 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020617.D Vial: 17
Acq On : 6 Feb 2016 8:21 pm Operator:
Sample : 1601230-12AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2528323	4000.00 ug/kg	121
5) Acenaphthene-d10	13.14	164	1780815	4000.00 ug/kg	98
11) Phenanthrene-d10	15.23	188	3765381	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	2471735	4000.00 ug/kg	86
20) Perylene-d12	25.87	264	2179087	4000.00 ug/kg	94

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	40113	77.75 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#	
16) 4-Terphenyl-d14	17.65	244	42321	67.28 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#	

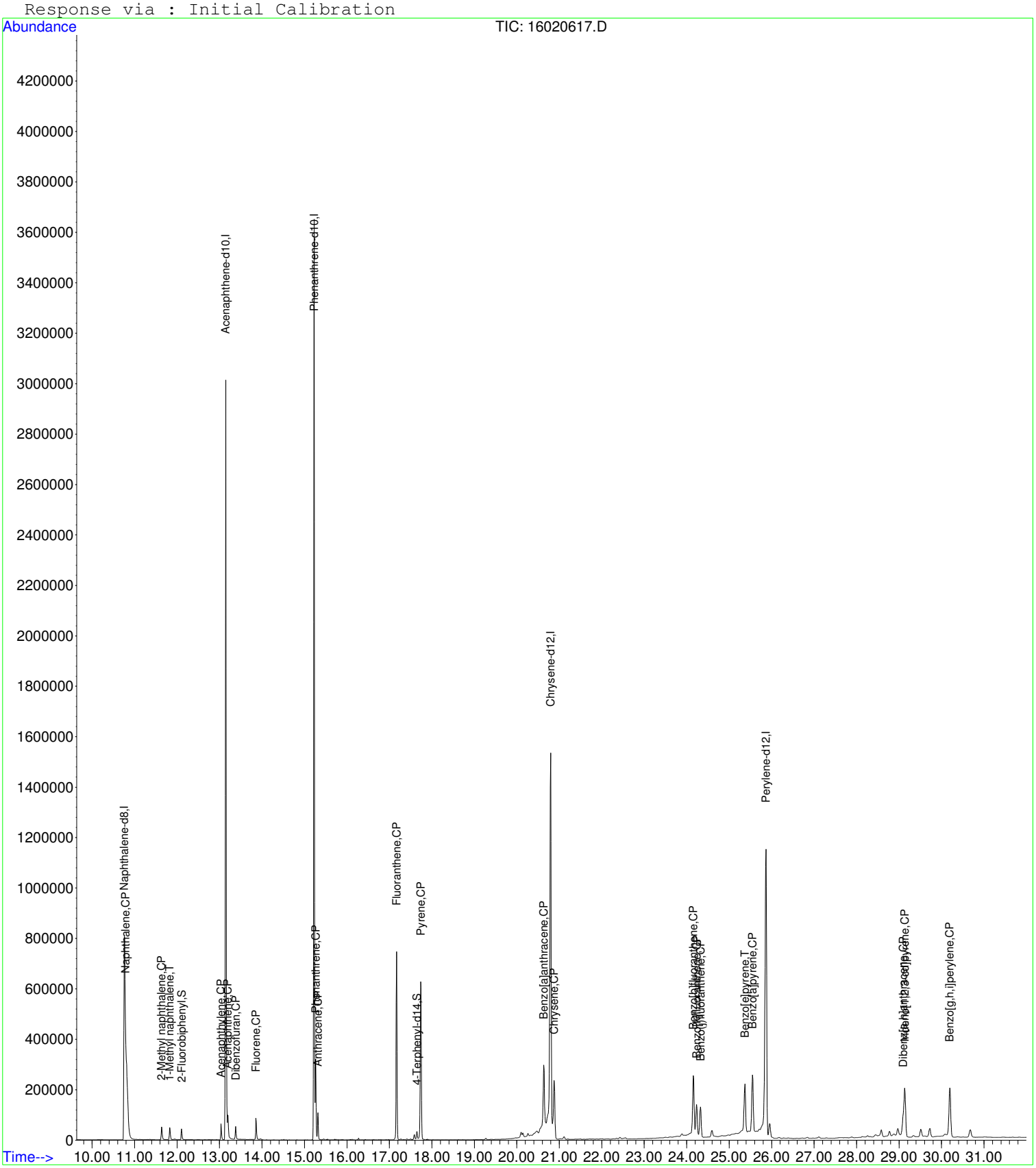
Target Compounds					Qvalue
2) Naphthalene	10.79	128	59595	94.21 ug/kg	99
3) 2-Methyl naphthalene	11.64	142	38927	78.16 ug/kg	96
4) 1-Methyl naphthalene	11.83	142	35963	76.51 ug/kg	100
6) Dibenzofuran	13.38	168	55655	96.17 ug/kg	100
8) Acenaphthylene	13.04	152	60890	82.24 ug/kg	99
9) Acenaphthene	13.20	154	42953	95.74 ug/kg	100
10) Fluorene	13.86	166	50016	94.50 ug/kg	96
12) Phenanthrene	15.26	178	286703	320.64 ug/kg	99
13) Anthracene	15.31	178	105498	120.59 ug/kg	99
14) Fluoranthene	17.17	202	739814	834.37 ug/kg	99
15) Pyrene	17.74	202	683458	756.77 ug/kg	99
18) Benzo[a]anthracene	20.63	228	362808	636.59 ug/kg	99
19) Chrysene	20.87	228	464653	856.27 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	445983	767.65 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	207204	401.50 ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	206717	426.41 ug/kg	90
24) Benzo[e]pyrene	25.37	252	356187	656.66 ug/kg	98
25) Benzo[a]pyrene	25.55	252	430379	815.17 ug/kg	98
26) Dibenz[a,h]anthracene	29.09	278	112398	230.13 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	366163	615.38 ug/kg	97
28) Benzo[g,h,i]perylene	30.20	276	359796	720.68 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020617.D Vial: 17
Acq On : 6 Feb 2016 8:21 pm Operator:
Sample : 1601230-12AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020618.D Vial: 18
Acq On : 6 Feb 2016 9:02 pm Operator:
Sample : 1601230-12AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2567853	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	1825278	4000.00 ug/kg	100
11) Phenanthrene-d10	15.23	188	3964581	4000.00 ug/kg	121
17) Chrysene-d12	20.80	240	2620628	4000.00 ug/kg	91
20) Perylene-d12	25.87	264	2375153	4000.00 ug/kg	103

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	40139	75.90 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#	
16) 4-Terphenyl-d14	17.65	244	44452	67.11 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#	

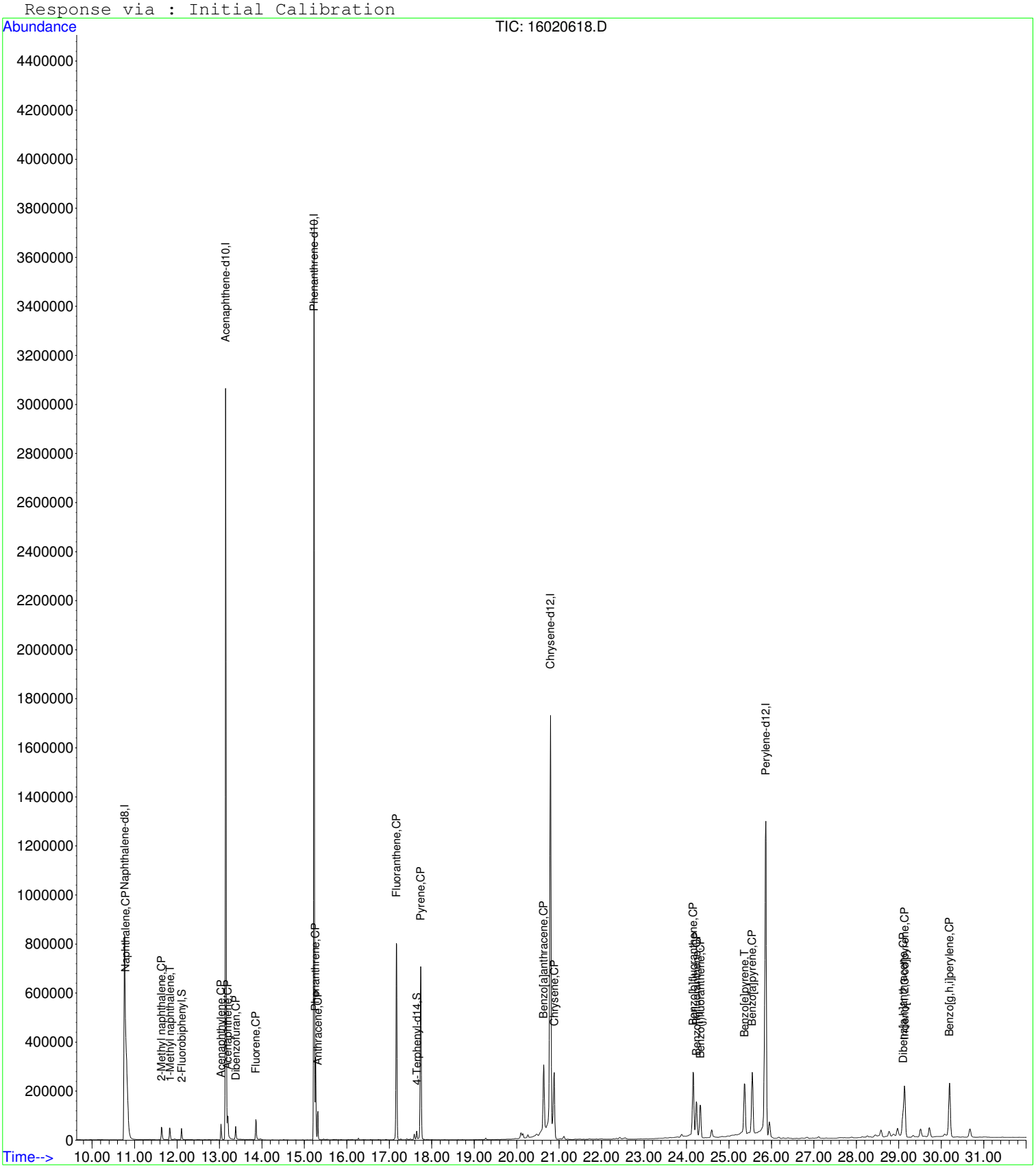
Target Compounds					Qvalue
2) Naphthalene	10.79	128	60451	94.09 ug/kg	100
3) 2-Methyl naphthalene	11.64	142	39902	78.88 ug/kg	95
4) 1-Methyl naphthalene	11.83	142	35990	75.39 ug/kg	99
6) Dibenzofuran	13.38	168	55988	94.39 ug/kg	99
8) Acenaphthylene	13.04	152	61388	80.89 ug/kg	99
9) Acenaphthene	13.20	154	42392	92.19 ug/kg	99
10) Fluorene	13.86	166	50267	92.66 ug/kg	95
12) Phenanthrene	15.26	178	299941	318.59 ug/kg	99
13) Anthracene	15.32	178	109079	118.42 ug/kg	99
14) Fluoranthene	17.17	202	800421	857.37 ug/kg	99
15) Pyrene	17.74	202	742589	780.93 ug/kg	99
18) Benzo[a]anthracene	20.63	228	389011	643.78 ug/kg	99
19) Chrysene	20.88	228	501399	871.49 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	493103	778.69 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	232348	413.05 ug/kg	97
23) Benzo(j)fluoranthene	24.32	252	226171	428.02 ug/kg	89
24) Benzo[e]pyrene	25.37	252	392269	663.48 ug/kg	98
25) Benzo[a]pyrene	25.55	252	479972	834.06 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	121769	228.74 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	399694	616.29 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	396887	729.35 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020618.D Vial: 18
Acq On : 6 Feb 2016 9:02 pm Operator:
Sample : 1601230-12AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16020618.D PP160126.M Mon Feb 08 07:50:54 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020620.D Vial: 20
Acq On : 6 Feb 2016 10:17 pm Operator:
Sample : ICV2-160206 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2912191	4000.00 ug/kg	139
5) Acenaphthene-d10	13.14	164	2090754	4000.00 ug/kg	115
11) Phenanthrene-d10	15.23	188	4358987	4000.00 ug/kg	133
17) Chrysene-d12	20.80	240	4046837	4000.00 ug/kg	140
20) Perylene-d12	25.87	264	3463614	4000.00 ug/kg	150

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1143251	1887.39 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.18%	
16) 4-Terphenyl-d14	17.64	244	1417736	1946.85 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.67%	

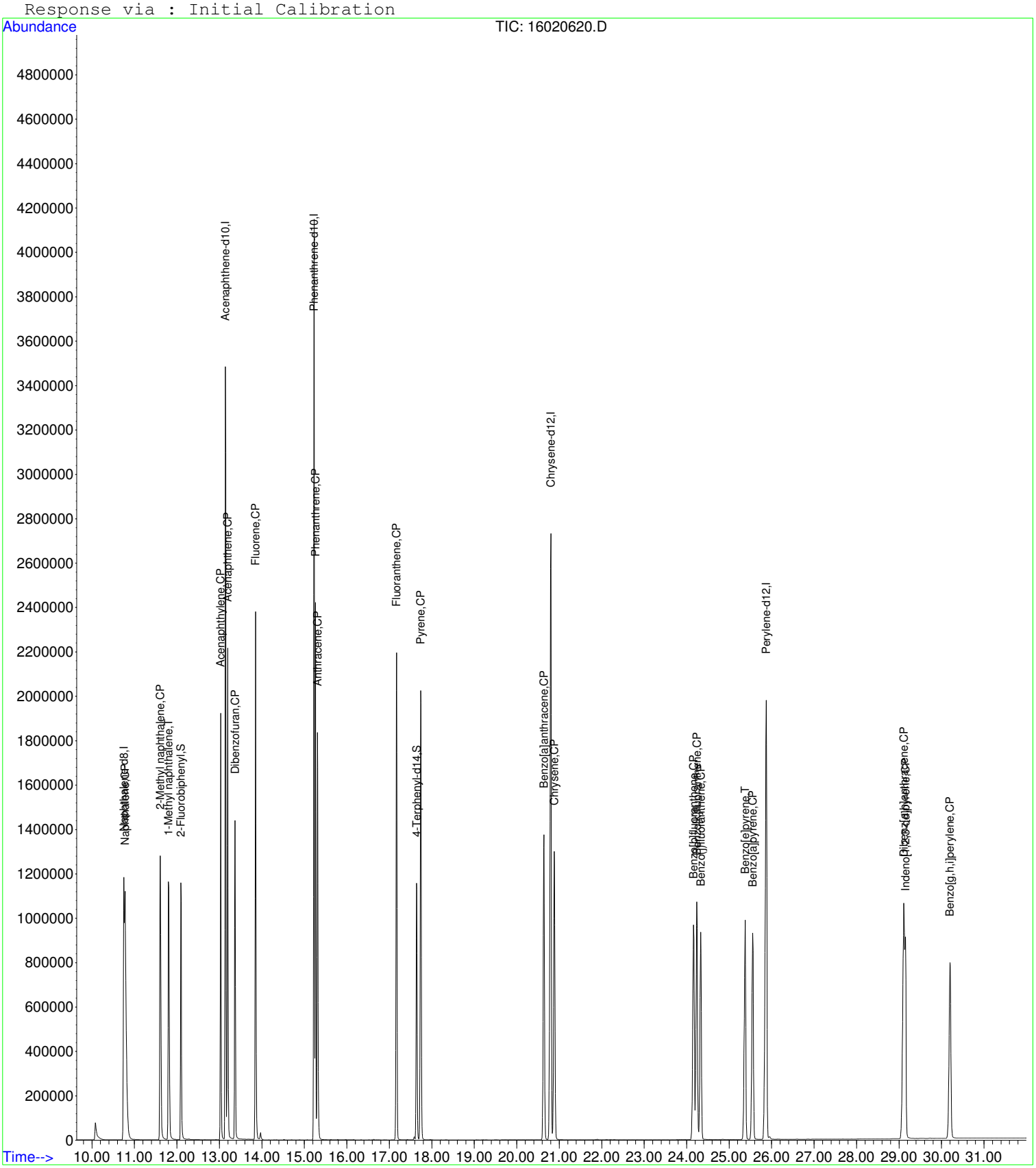
Target Compounds					Qvalue
2) Naphthalene	10.78	128	1440866	1977.59 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1007051	1755.43 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	919952	1699.23 ug/kg	99
6) Dibenzofuran	13.37	168	1393319	2050.63 ug/kg	100
8) Acenaphthylene	13.03	152	1651351	1899.62 ug/kg	99
9) Acenaphthene	13.19	154	990801	1881.07 ug/kg	98
10) Fluorene	13.85	166	1298415	2089.48 ug/kg	97
12) Phenanthrene	15.26	178	1963778	1897.13 ug/kg	99
13) Anthracene	15.31	178	1922375	1898.13 ug/kg	99
14) Fluoranthene	17.17	202	2080029	2026.42 ug/kg	99
15) Pyrene	17.74	202	2099305	2007.93 ug/kg	98
18) Benzo[a]anthracene	20.64	228	1884433	2019.52 ug/kg	99
19) Chrysene	20.88	228	1802360	2028.67 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	1819397	1970.22 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	1683134	2051.86 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	1533106	1989.60 ug/kg	97
24) Benzo[e]pyrene	25.38	252	1681818	1950.69 ug/kg	99
25) Benzo[a]pyrene	25.56	252	1681113	2003.27 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	1524022	1963.16 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1828228	1933.07 ug/kg	98
28) Benzo[g,h,i]perylene	30.21	276	1476064	1860.10 ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020620.D Vial: 20
Acq On : 6 Feb 2016 10:17 pm Operator:
Sample : ICV2-160206 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:50 2016 Quant Results File: PP160126.RES

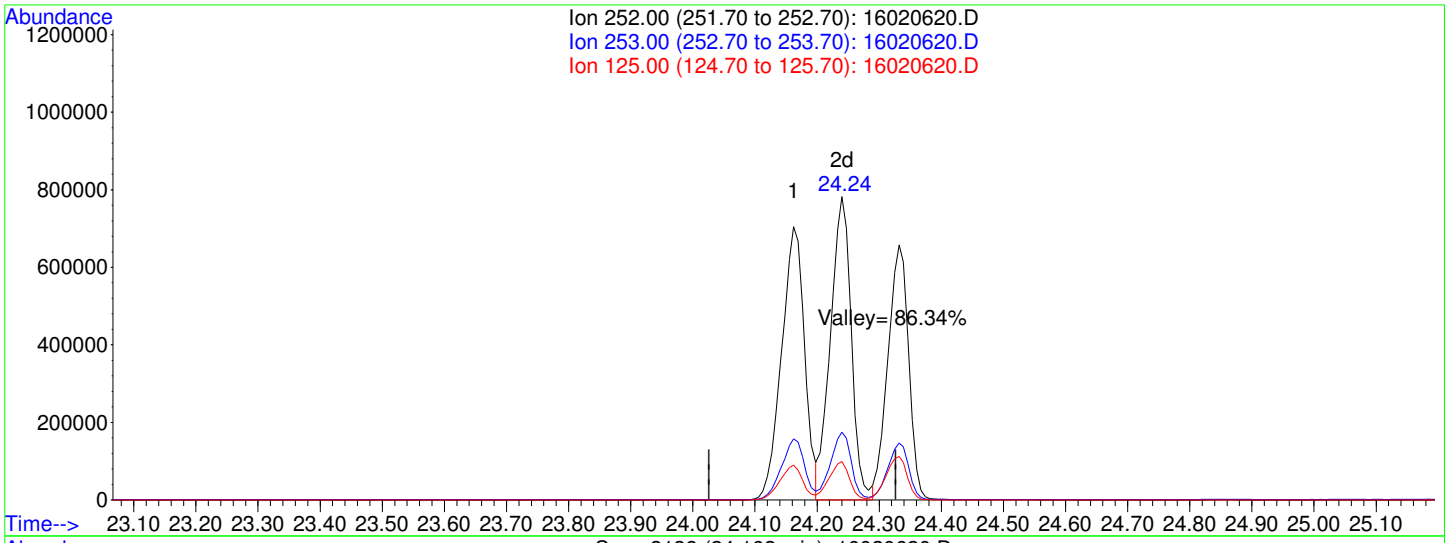
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

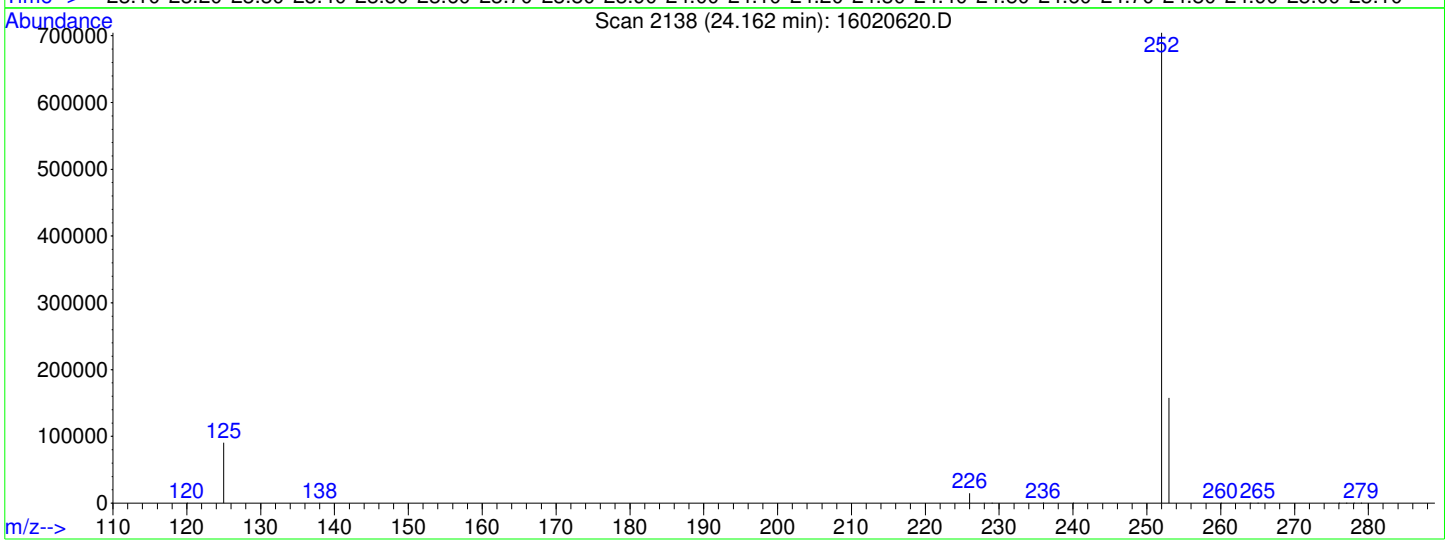


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160206\16020620.D Vial: 20
Acq On : 6 Feb 2016 10:17 pm Operator:
Sample : ICV2-160206 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 6 22:49 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration





TIC: 16020620.D

(21) Benzo[b]fluoranthene (CP)

24.16min 1970.22ug/kg

response 1819397

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.24
125.00	10.50	12.81
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020621.D Vial: 21
Acq On : 6 Feb 2016 10:58 pm Operator:
Sample : SBLK-160206 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2361928	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1776255	4000.00 ug/kg	98
11) Phenanthrene-d10	15.23	188	3335179	4000.00 ug/kg	102
17) Chrysene-d12	20.80	240	3280854	4000.00 ug/kg	114
20) Perylene-d12	25.87	264	2808414	4000.00 ug/kg	122

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	338	0.66 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#		
16) 4-Terphenyl-d14	17.67	244	248	0.45 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#		

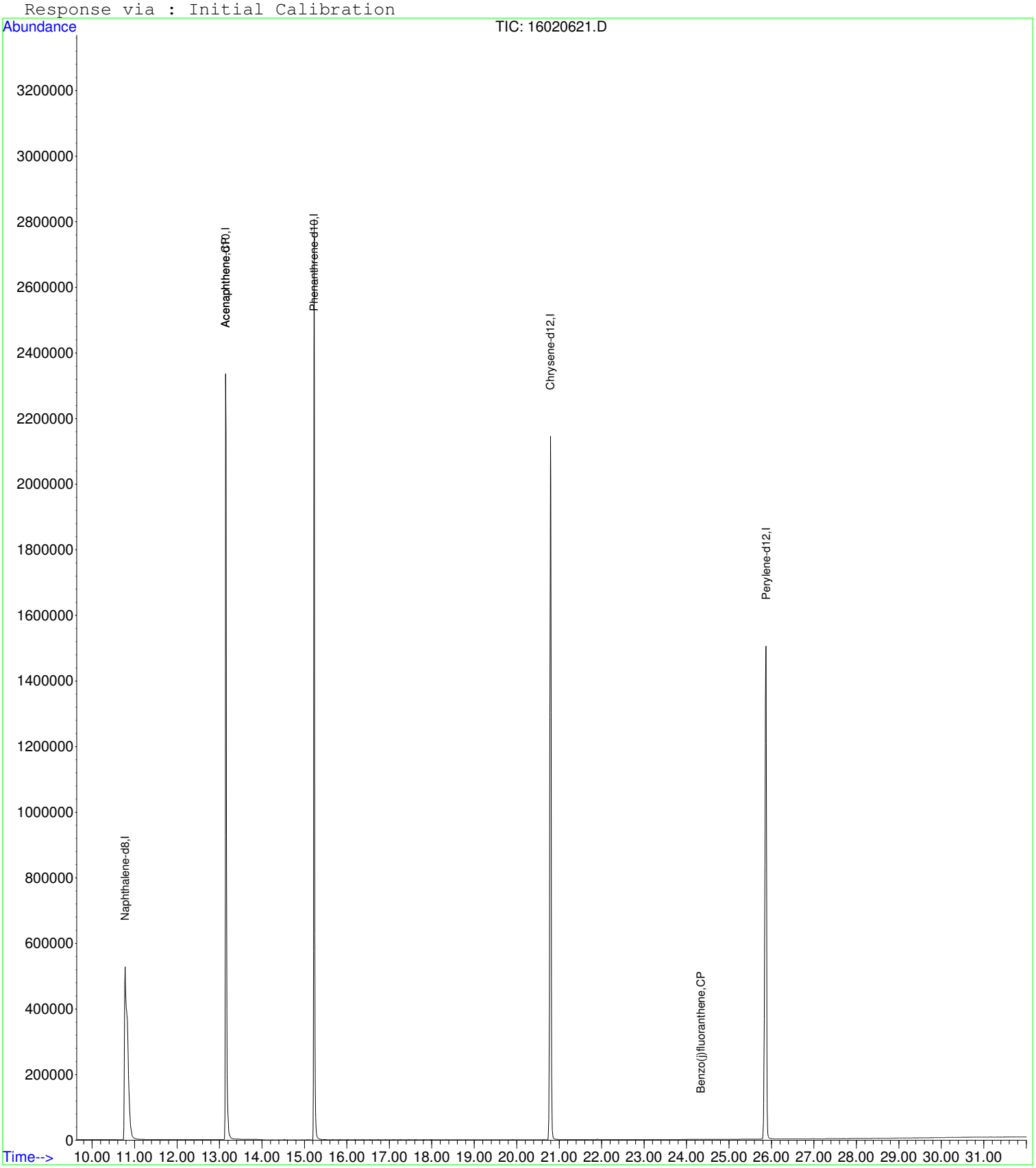
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6269	~~14.01 ug/kg#~~	10
23) Benzo(j)fluoranthene	24.34	252	330	~~0.53 ug/kg#~~	67

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020621.D Vial: 21
Acq On : 6 Feb 2016 10:58 pm Operator:
Sample : SBLK-160206 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020628.D Vial: 28
Acq On : 7 Feb 2016 3:38 am Operator:
Sample : 1601231-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2181471	4000.00 ug/kg	104
5) Acenaphthene-d10	13.15	164	1923634	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3817273	4000.00 ug/kg	117
17) Chrysene-d12	20.80	240	2804496	4000.00 ug/kg	97
20) Perylene-d12	25.87	264	2237554	4000.00 ug/kg	97

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	39688	71.21 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.78%#		
16) 4-Terphenyl-d14	17.65	244	47760	74.89 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.87%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6288	~~12.98 ug/kg#~~	10
12) Phenanthrene	15.26	178	18988	20.95 ug/kg	99
14) Fluoranthene	17.18	202	61646	68.58 ug/kg	98
15) Pyrene	17.75	202	56557	61.77 ug/kg	99
18) Benzo[a]anthracene	20.64	228	24294	37.57 ug/kg	99
19) Chrysene	20.88	228	33017	53.63 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	29016	48.64 ug/kg	98
22) Benzo[k]fluoranthene	24.25	252	13035	24.60 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	13304	26.73 ug/kg	86
24) Benzo[e]pyrene	25.37	252	24350	43.72 ug/kg	96
25) Benzo[a]pyrene	25.55	252	28340	52.28 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	4993	9.96 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.15	276	22799	37.32 ug/kg	99
28) Benzo[g,h,i]perylene	30.21	276	23572	45.98 ug/kg	96

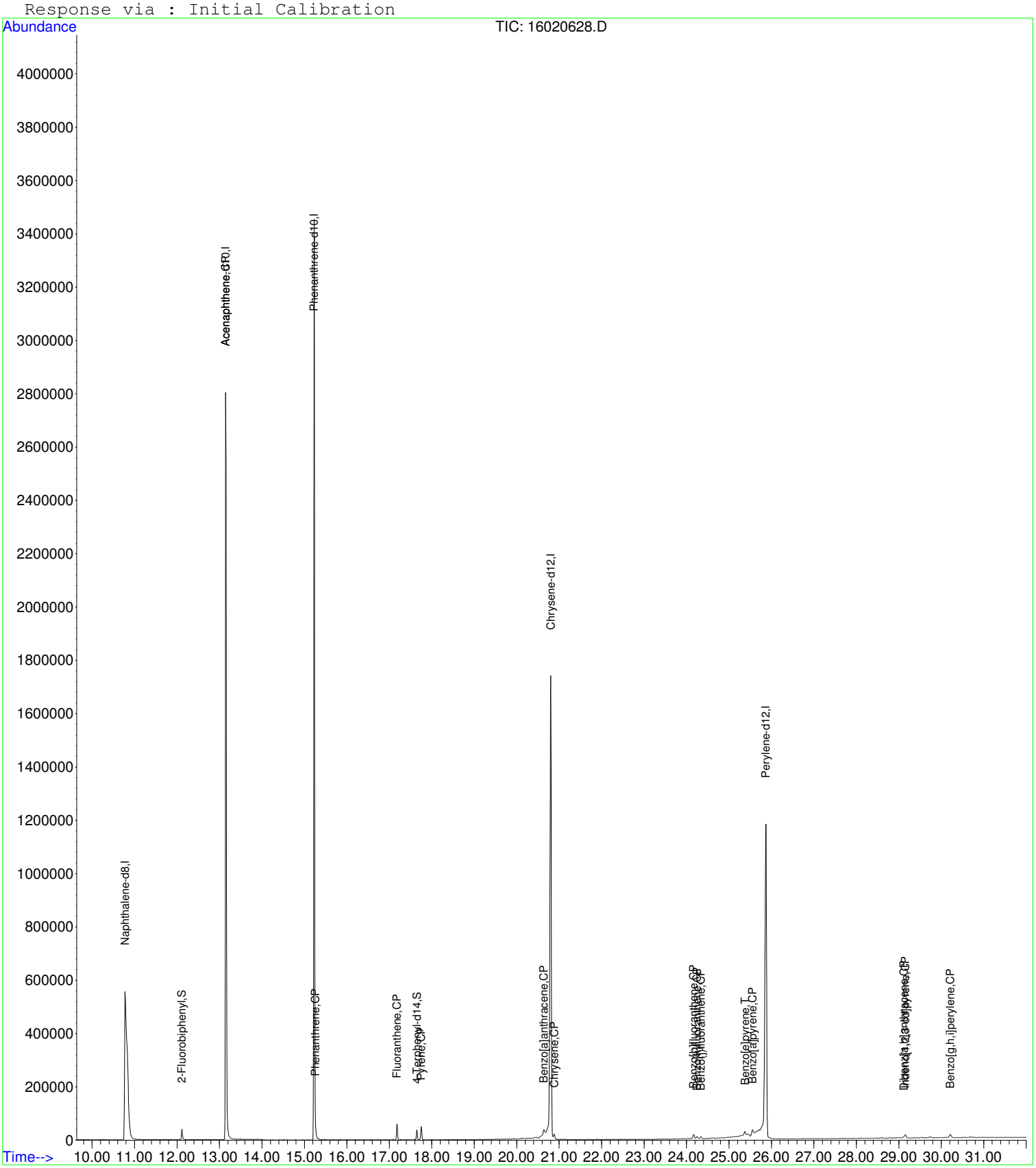
CONFIRMED
By Sherri Herschmann at 1:15:57 PM, 2/15/2016

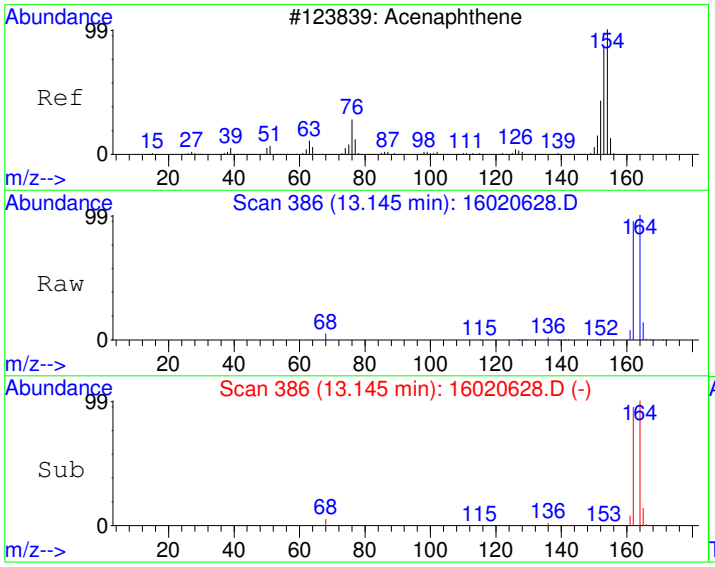
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020628.D Vial: 28
Acq On : 7 Feb 2016 3:38 am Operator:
Sample : 1601231-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

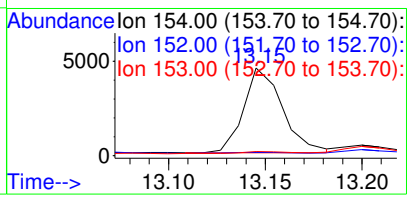


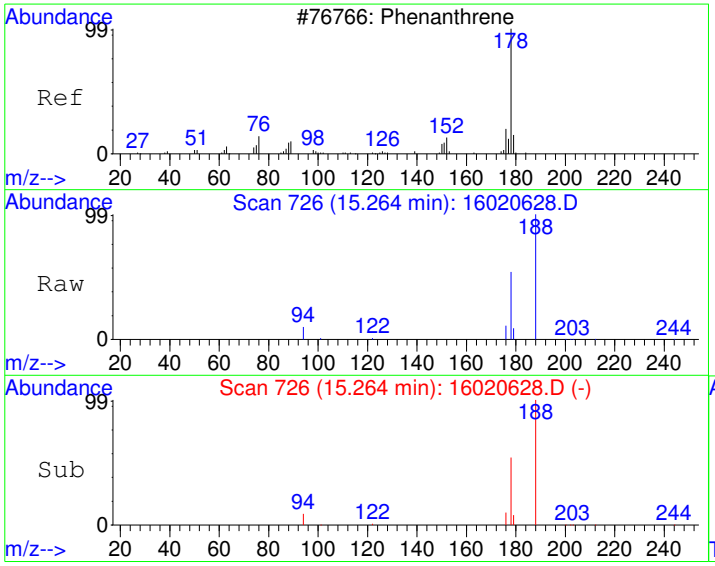


#9
Acenaphthene
Concen: 12.98 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:154 Resp: 6288

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.2	74.4	134.4#

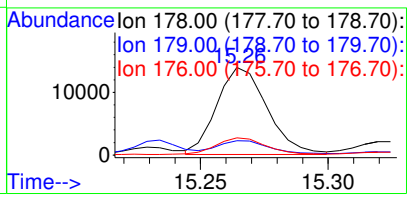


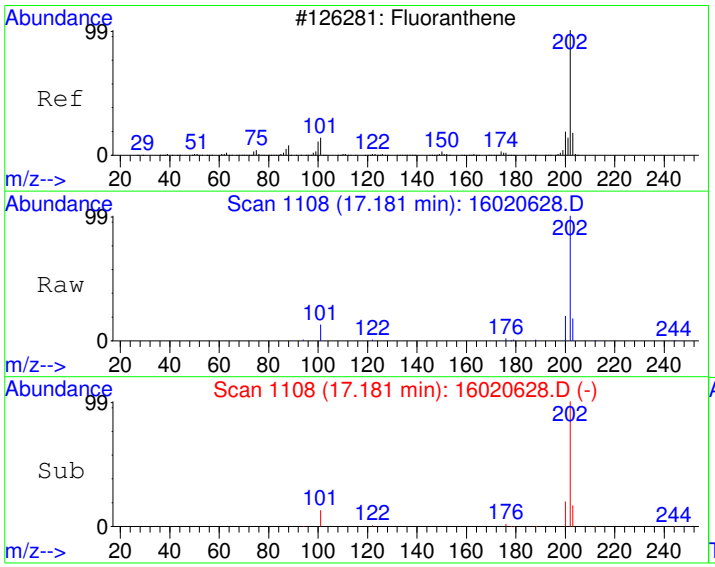


#12
Phenanthrene
Concen: 20.95 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:178 Resp: 18988

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	46.1
176	19.2	0.0	49.0

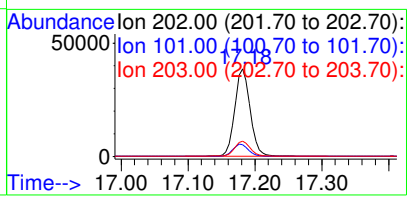


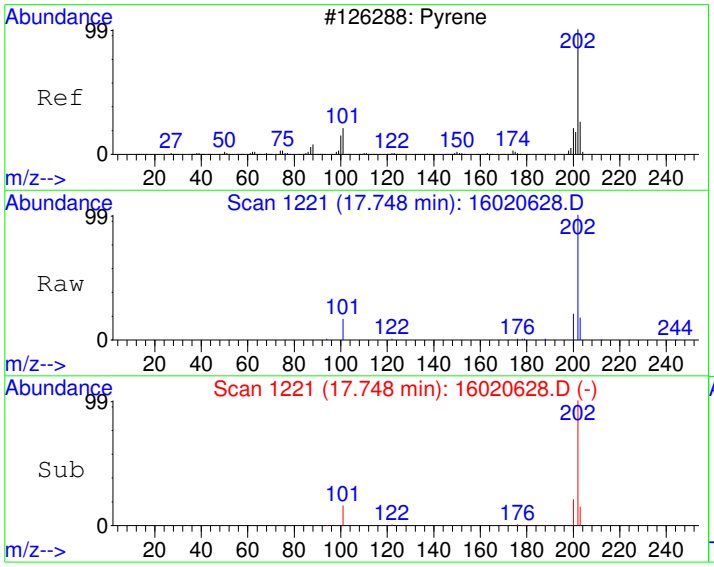


#14
Fluoranthene
Concen: 68.58 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:202 Resp: 61646

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.3	0.0	48.0

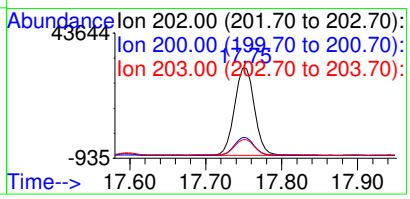


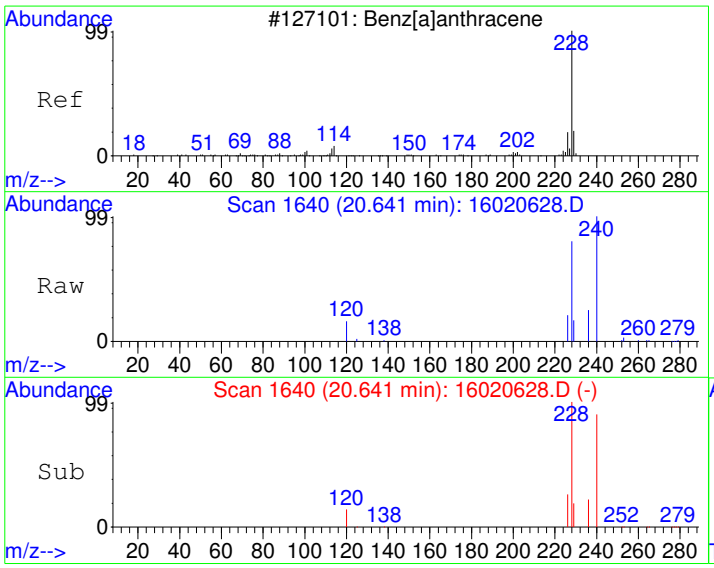


#15
Pyrene
Concen: 61.77 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:202 Resp: 56557

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.0
203	17.9	0.0	48.0

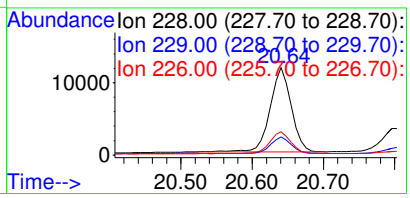


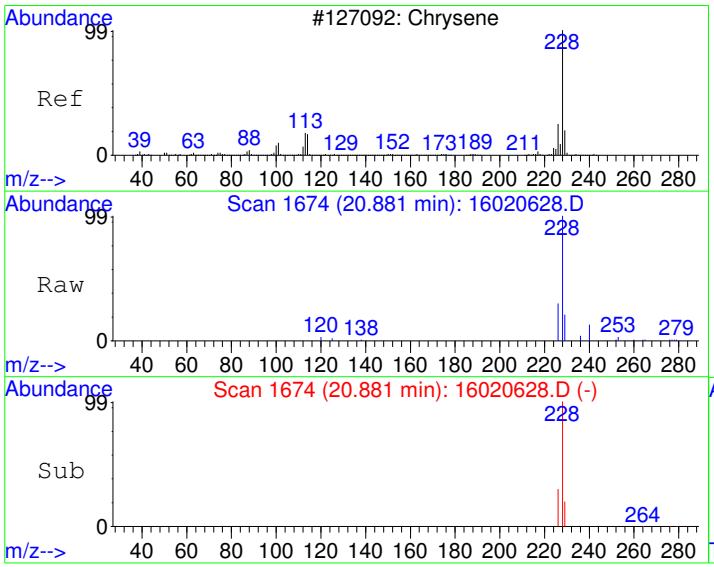


#18
Benzo[a]anthracene
Concen: 37.57 ug/kg
RT: 20.64 min Scan# 1640
Delta R.T. -0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:228 Resp: 24294

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	26.1	0.0	56.4

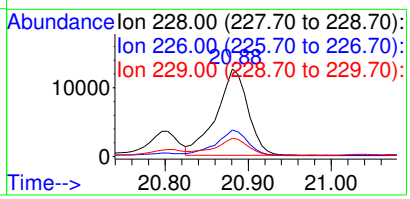


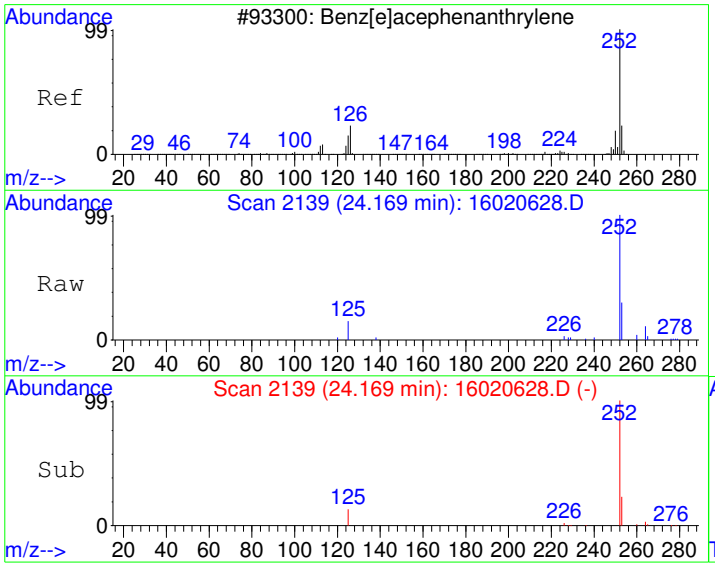


#19
Chrysene
Concen: 53.63 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.02 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:228 Resp: 33017

Ion	Ratio	Lower	Upper
228	100		
226	29.8	0.0	58.5
229	19.9	0.0	50.1

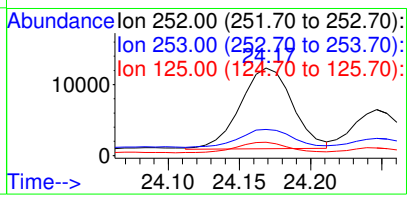


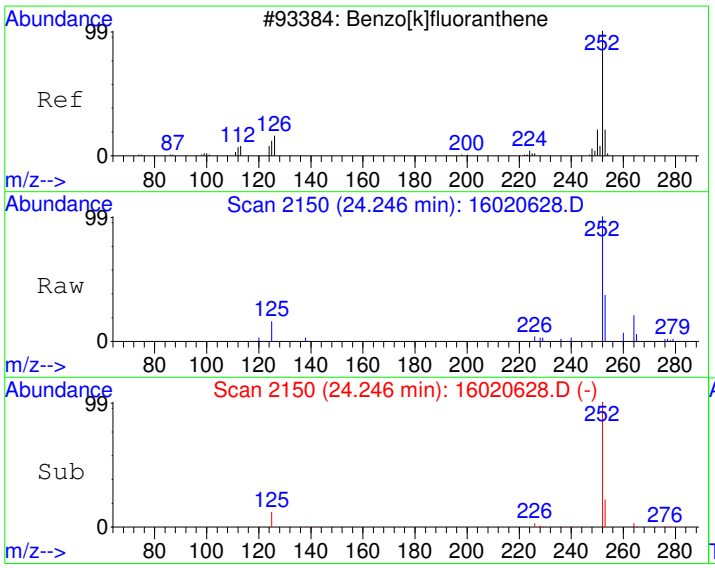


#21
Benzo[b]fluoranthene
Concen: 48.64 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:252 Resp: 29016

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	52.0
125	12.8	0.0	40.5

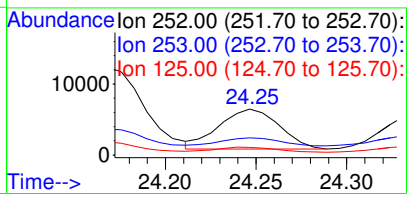


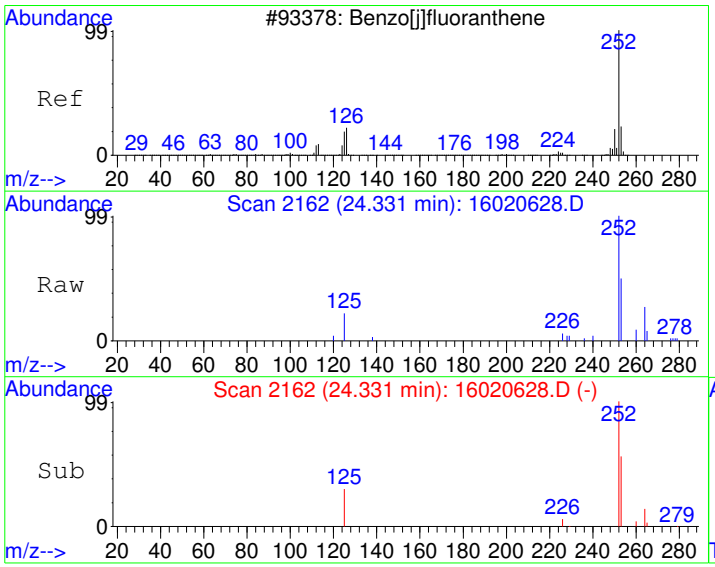


#22
Benzo[k]fluoranthene
Concen: 24.60 ug/kg
RT: 24.25 min Scan# 2150
Delta R.T. -0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:252 Resp: 13035

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	11.5	0.0	31.8

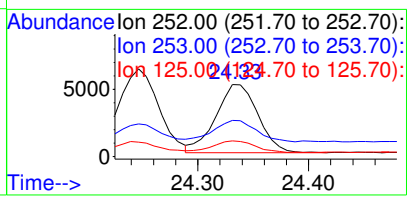


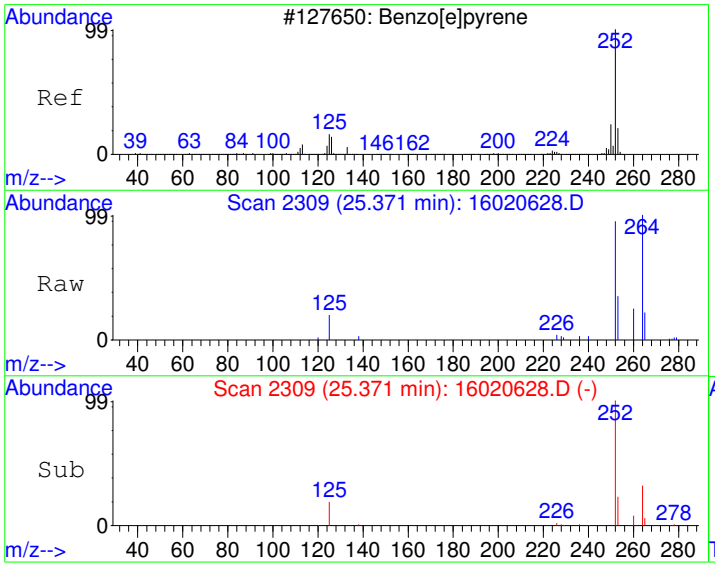


#23
Benzo(j)fluoranthene
Concen: 26.73 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:252 Resp: 13304

Ion	Ratio	Lower	Upper
252	100		
253	31.1	2.3	42.3
125	16.4	0.0	34.0

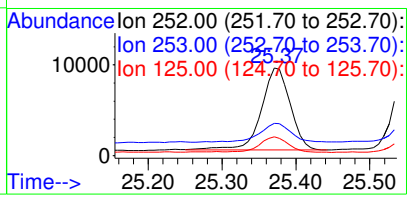


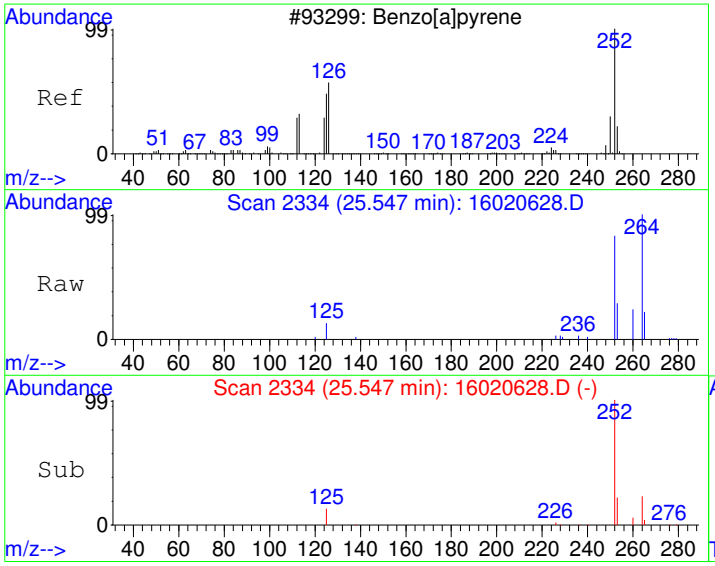


#24
Benzo[e]pyrene
Concen: 43.72 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:252 Resp: 24350

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	18.9	0.0	36.0

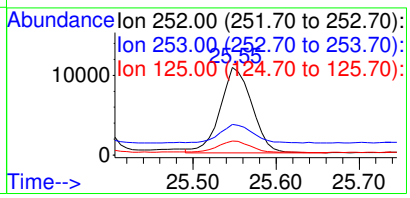


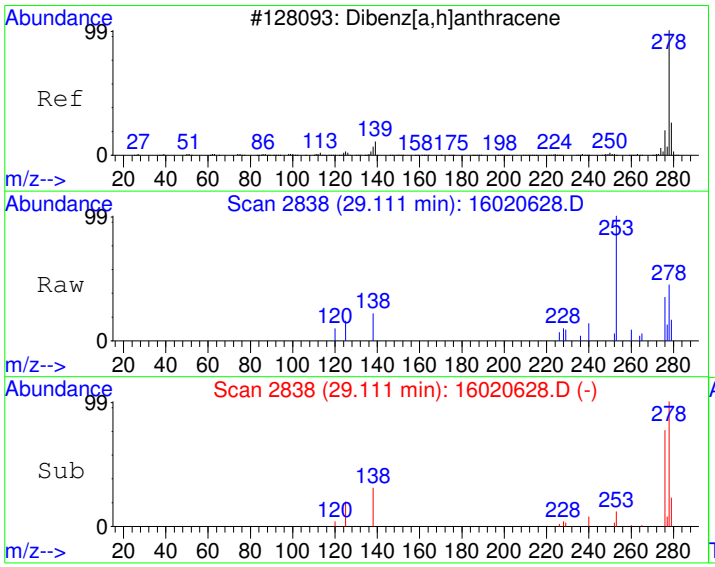


#25
Benzo[a]pyrene
Concen: 52.28 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:252 Resp: 28340

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	13.4	0.0	32.3

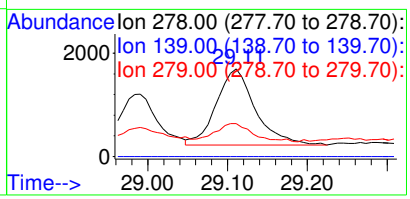


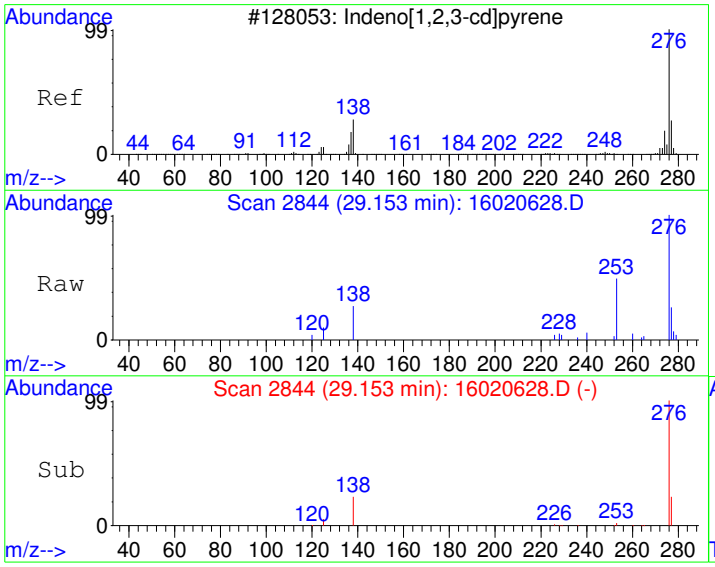


#26
Dibenz[a,h]anthracene
Concen: 9.96 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:278 Resp: 4993

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.3	3.8	43.8

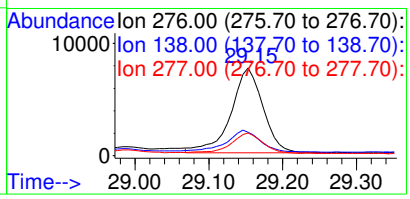


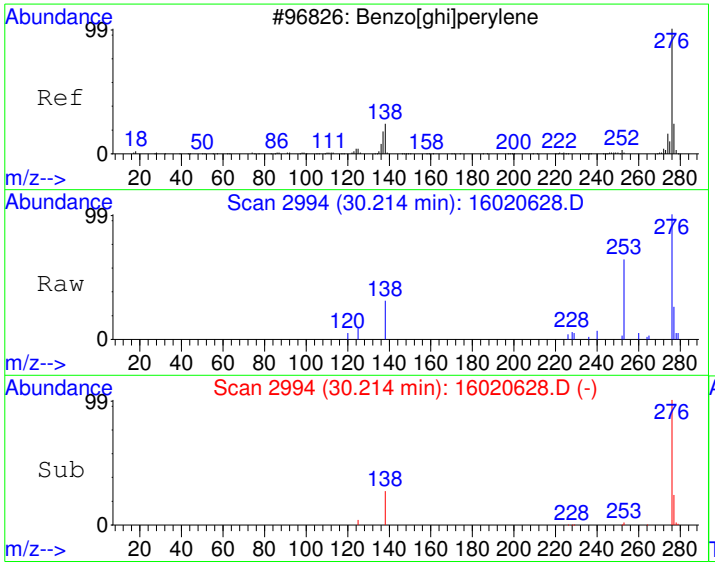


#27
Indeno[1,2,3-cd]pyrene
Concen: 37.32 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:276 Resp: 22799

Ion	Ratio	Lower	Upper
276	100		
138	23.4	2.1	42.1
277	24.2	4.2	44.2

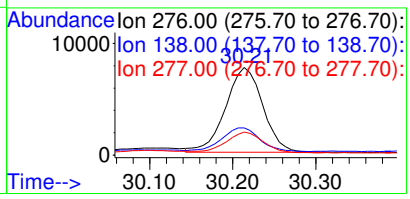




#28
Benzo[g,h,i]perylene
Concen: 45.98 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020628.D
Acq: 7 Feb 2016 3:38 am

Tgt Ion:276 Resp: 23572

Ion	Ratio	Lower	Upper
276	100		
138	27.7	3.9	43.9
277	24.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020629.D Vial: 29
Acq On : 7 Feb 2016 4:18 am Operator:
Sample : 1601231-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2452752	4000.00 ug/kg	117
5) Acenaphthene-d10	13.15	164	2028944	4000.00 ug/kg	111
11) Phenanthrene-d10	15.23	188	3907844	4000.00 ug/kg	120
17) Chrysene-d12	20.80	240	2745375	4000.00 ug/kg	95
20) Perylene-d12	25.87	264	2139847	4000.00 ug/kg	93

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	42512	72.32 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.81%#	
16) 4-Terphenyl-d14	17.65	244	50067	76.69 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#	

Target Compounds					Qvalue
12) Phenanthrene	15.26	178	19105	20.59 ug/kg	99
14) Fluoranthene	17.18	202	69969	76.03 ug/kg	99
15) Pyrene	17.75	202	63863	68.14 ug/kg	100
18) Benzo[a]anthracene	20.64	228	24846	39.25 ug/kg	99
19) Chrysene	20.89	228	35763	59.34 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	30251	53.02 ug/kg	98
22) Benzo[k]fluoranthene	24.25	252	13463	26.57 ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	14161	29.75 ug/kg	86
24) Benzo[e]pyrene	25.38	252	25770	48.38 ug/kg	98
25) Benzo[a]pyrene	25.56	252	29088	56.11 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	5160	10.76 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	24229	41.47 ug/kg	96
28) Benzo[g,h,i]perylene	30.21	276	25328	51.66 ug/kg	97

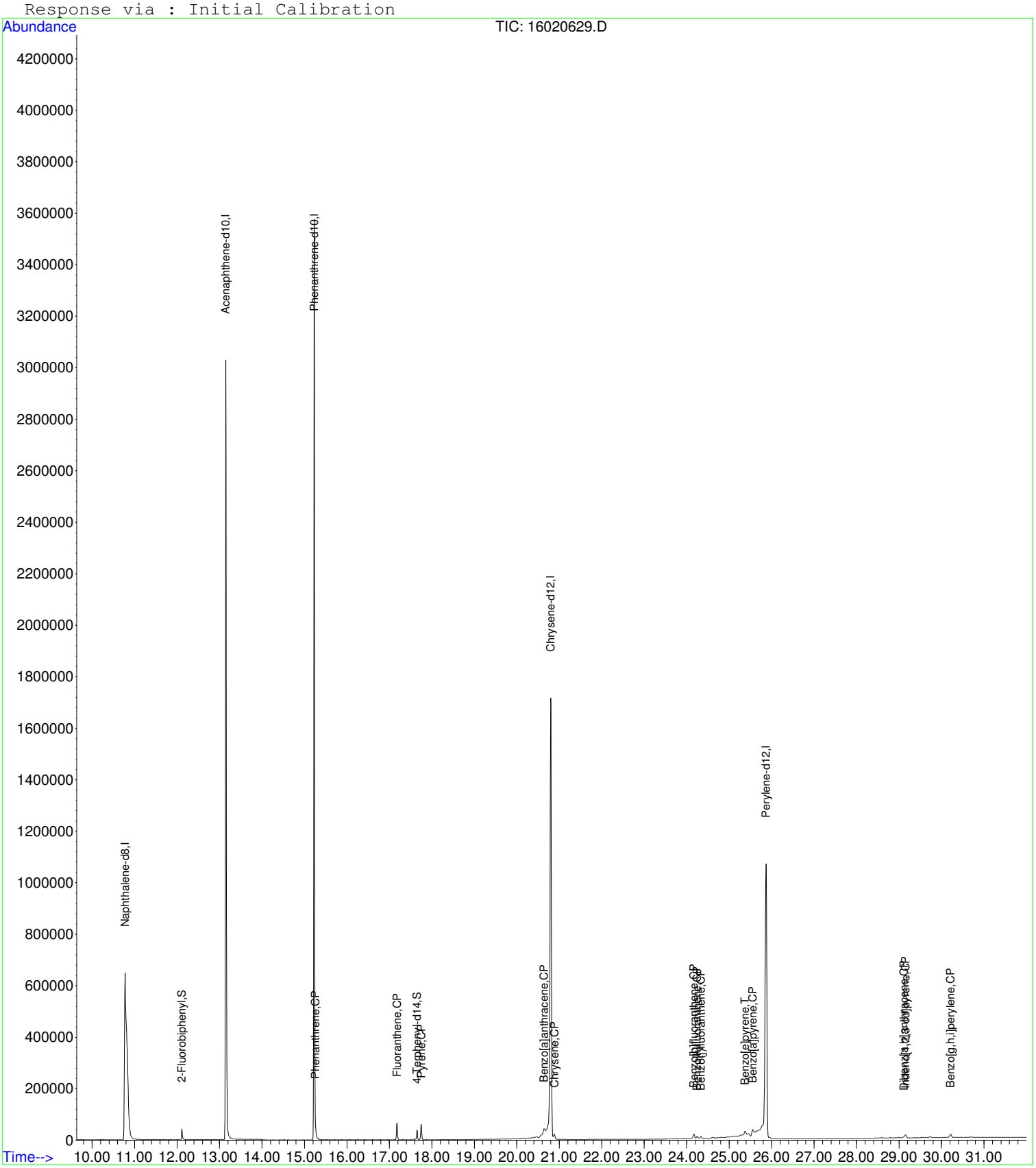
CONFIRMED
By Sherri Herschmann at 1:16:10 PM, 2/15/2016

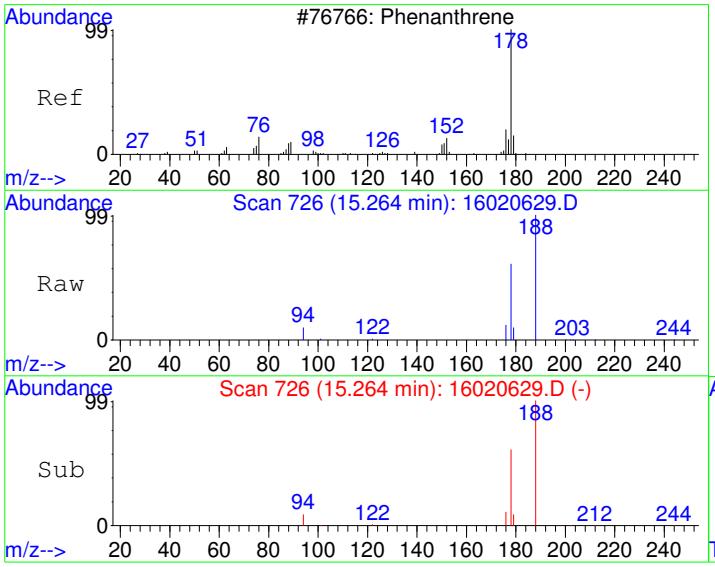
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020629.D Vial: 29
Acq On : 7 Feb 2016 4:18 am Operator:
Sample : 1601231-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

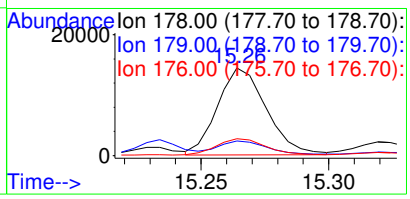


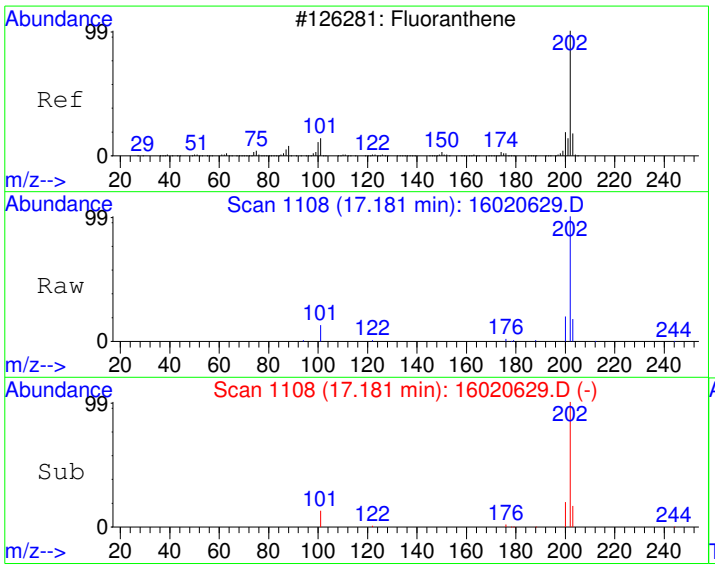


#12
Phenanthrene
Concen: 20.59 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:178 Resp: 19105

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	46.1
176	18.8	0.0	49.0

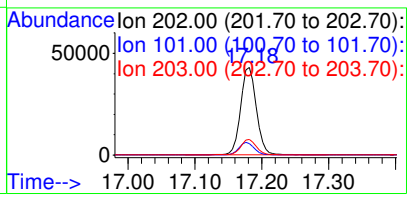


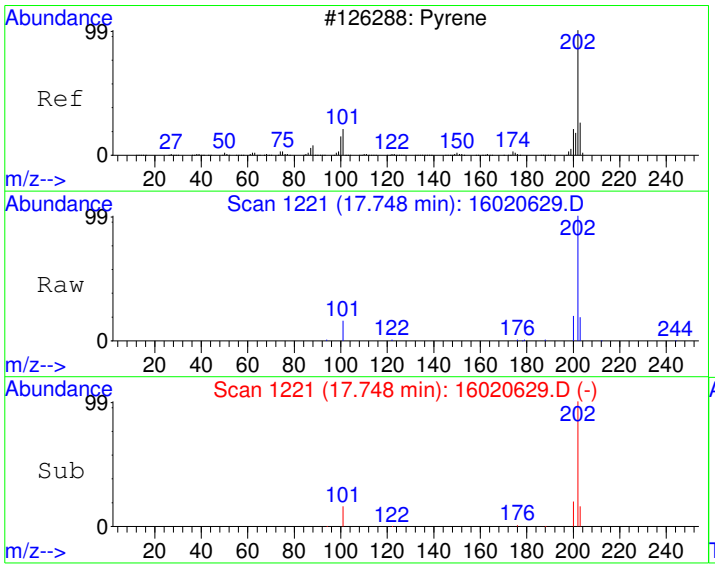


#14
Fluoranthene
Concen: 76.03 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:202 Resp: 69969

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	42.5
203	17.4	0.0	48.0

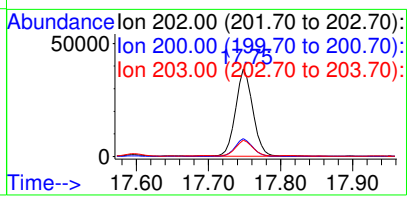


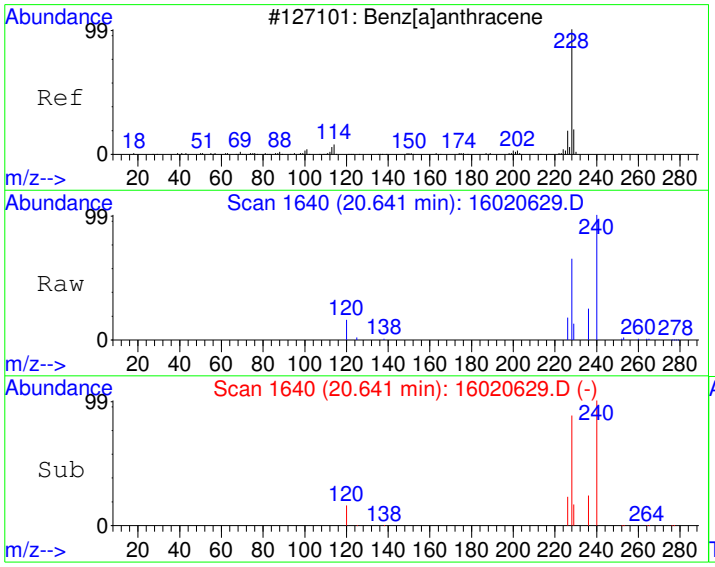


#15
Pyrene
Concen: 68.14 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:202 Resp: 63863

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	18.1	0.0	48.0

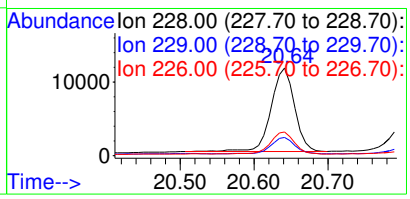


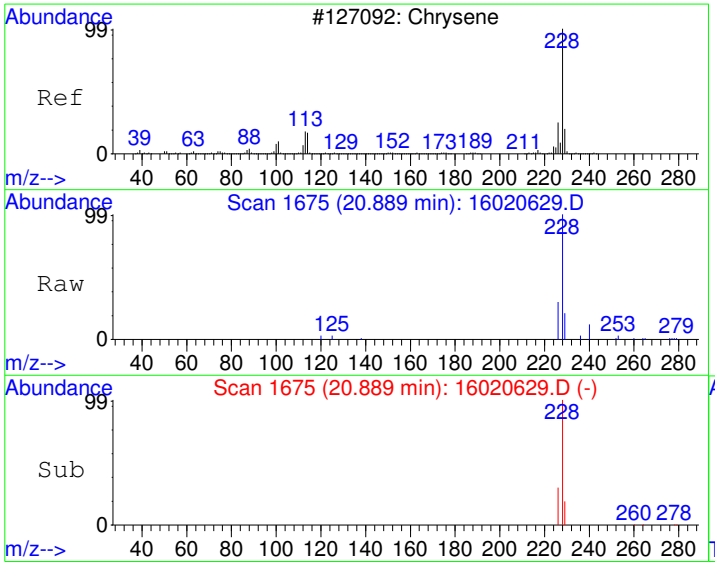


#18
Benzo[a]anthracene
Concen: 39.25 ug/kg
RT: 20.64 min Scan# 1640
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:228 Resp: 24846

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	50.0
226	26.5	0.0	56.4

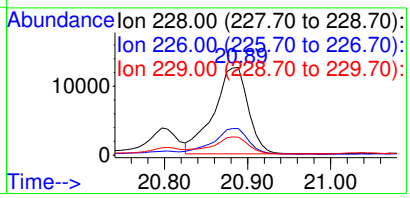


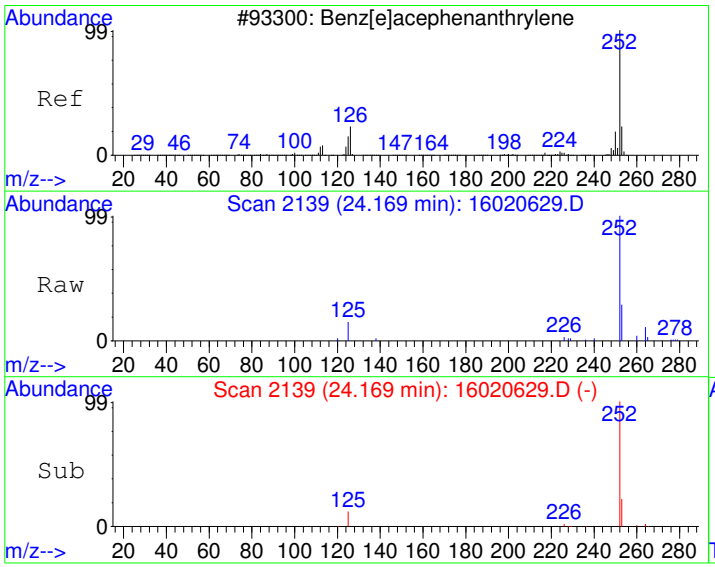


#19
Chrysene
Concen: 59.34 ug/kg
RT: 20.89 min Scan# 1675
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:228 Resp: 35763

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.5
229	19.4	0.0	50.1

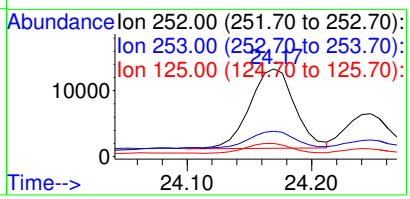


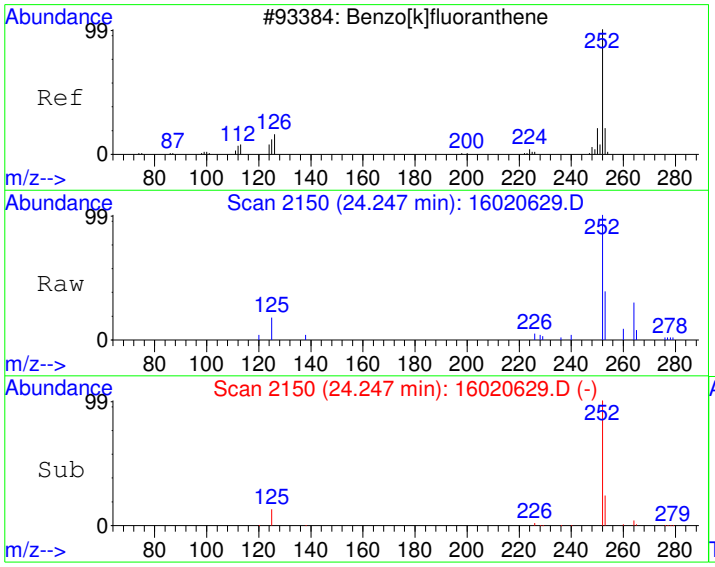


#21
Benzo[b]fluoranthene
Concen: 53.02 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:252 Resp: 30251

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	52.0
125	12.3	0.0	40.5

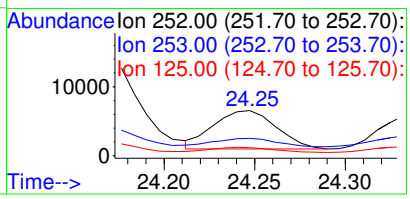


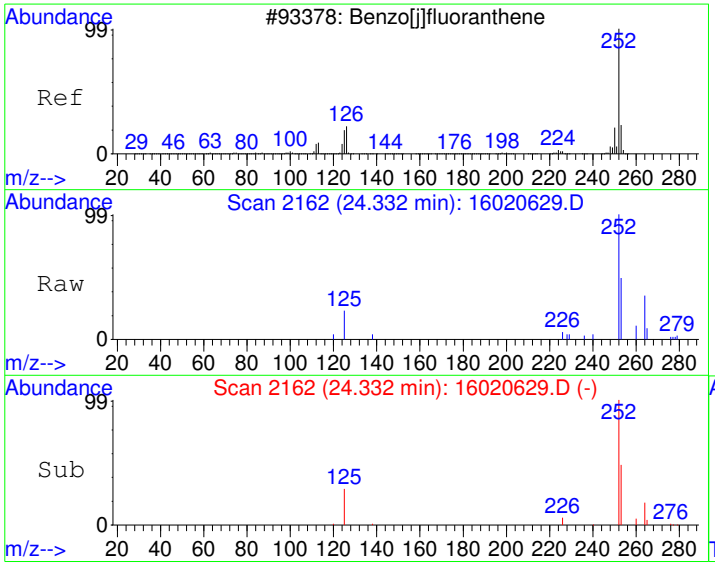


#22
Benzo[k]fluoranthene
Concen: 26.57 ug/kg
RT: 24.25 min Scan# 2150
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:252 Resp: 13463

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.2	42.2
125	12.7	0.0	31.8

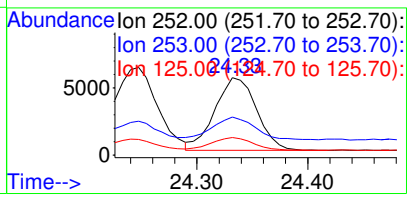


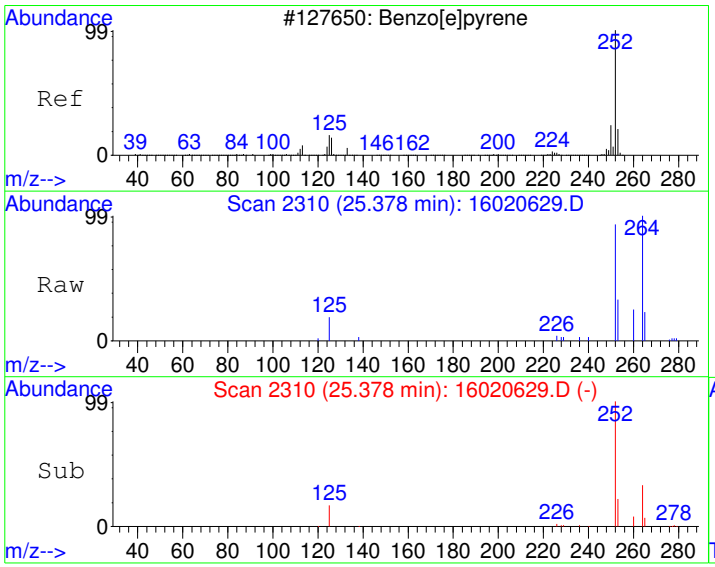


#23
Benzo(j)fluoranthene
Concen: 29.75 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:252 Resp: 14161

Ion	Ratio	Lower	Upper
252	100		
253	30.6	2.3	42.3
125	17.4	0.0	34.0

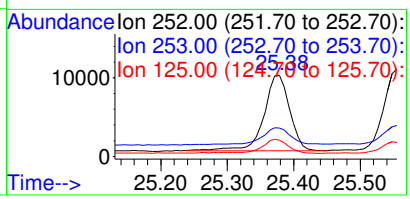


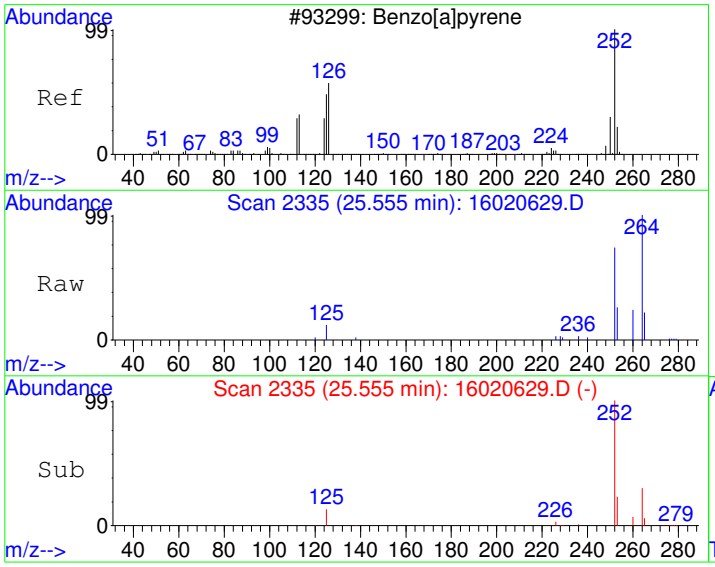


#24
Benzo[e]pyrene
Concen: 48.38 ug/kg
RT: 25.38 min Scan# 2310
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:252 Resp: 25770

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	17.3	0.0	36.0

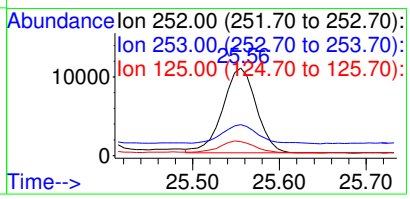


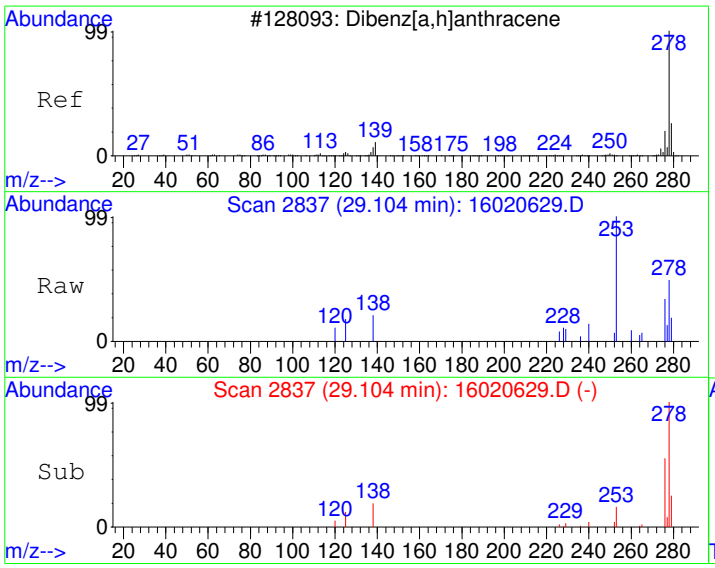


#25
Benzo[a]pyrene
Concen: 56.11 ug/kg
RT: 25.56 min Scan# 2335
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:252 Resp: 29088

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.0	42.0
125	12.7	0.0	32.3

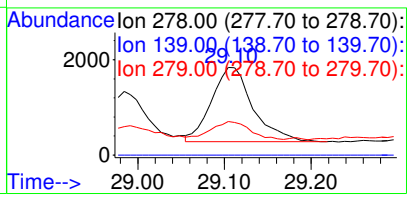


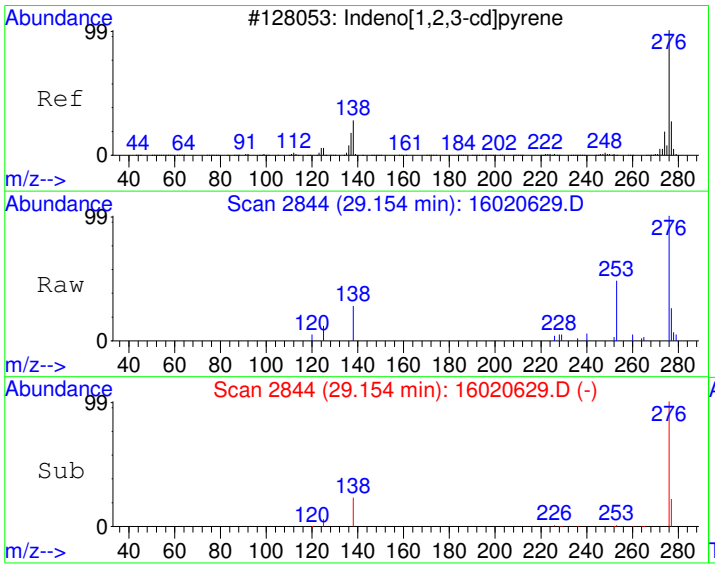


#26
Dibenz[a,h]anthracene
Concen: 10.76 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:278 Resp: 5160

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.4	3.8	43.8

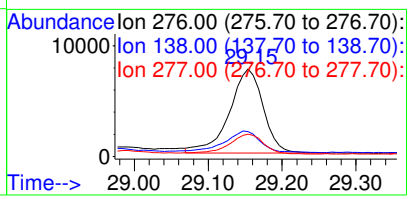


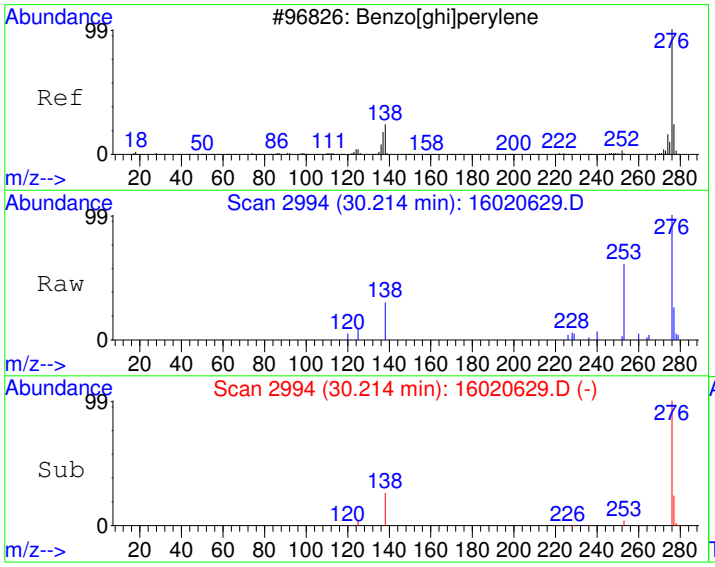


#27
Indeno[1,2,3-cd]pyrene
Concen: 41.47 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:276 Resp: 24229

Ion	Ratio	Lower	Upper
276	100		
138	24.7	2.1	42.1
277	23.4	4.2	44.2

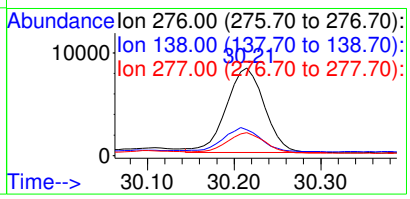




#28
Benzo[g,h,i]perylene
Concen: 51.66 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020629.D
Acq: 7 Feb 2016 4:18 am

Tgt Ion:276 Resp: 25328

Ion	Ratio	Lower	Upper
276	100		
138	26.2	3.9	43.9
277	24.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020630.D Vial: 30
Acq On : 7 Feb 2016 4:58 am Operator:
Sample : 1601231-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:58 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2116478	4000.00 ug/kg	101
5) Acenaphthene-d10	13.15	164	1898259	4000.00 ug/kg	104
11) Phenanthrene-d10	15.23	188	3720751	4000.00 ug/kg	114
17) Chrysene-d12	20.80	240	2937643	4000.00 ug/kg	102
20) Perylene-d12	25.87	264	2375659	4000.00 ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	39418	71.67 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.79%#		
16) 4-Terphenyl-d14	17.65	244	50536	81.30 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.03%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6174	~~12.91 ug/kg~~#	10
12) Phenanthrene	15.26	178	15951	18.05 ug/kg	99
14) Fluoranthene	17.18	202	54819	62.57 ug/kg	97
15) Pyrene	17.75	202	50836	56.96 ug/kg	100
18) Benzo[a]anthracene	20.64	228	23435	34.60 ug/kg	100
19) Chrysene	20.88	228	32156	49.86 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	30385	47.97 ug/kg	98
22) Benzo[k]fluoranthene	24.25	252	12827	22.80 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	13107	24.80 ug/kg	85
24) Benzo[e]pyrene	25.37	252	23479	39.70 ug/kg	96
25) Benzo[a]pyrene	25.56	252	27580	47.92 ug/kg	98
26) Dibenz[a,h]anthracene	29.11	278	4687	8.80 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.15	276	21897	33.76 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	22942	42.15 ug/kg	97

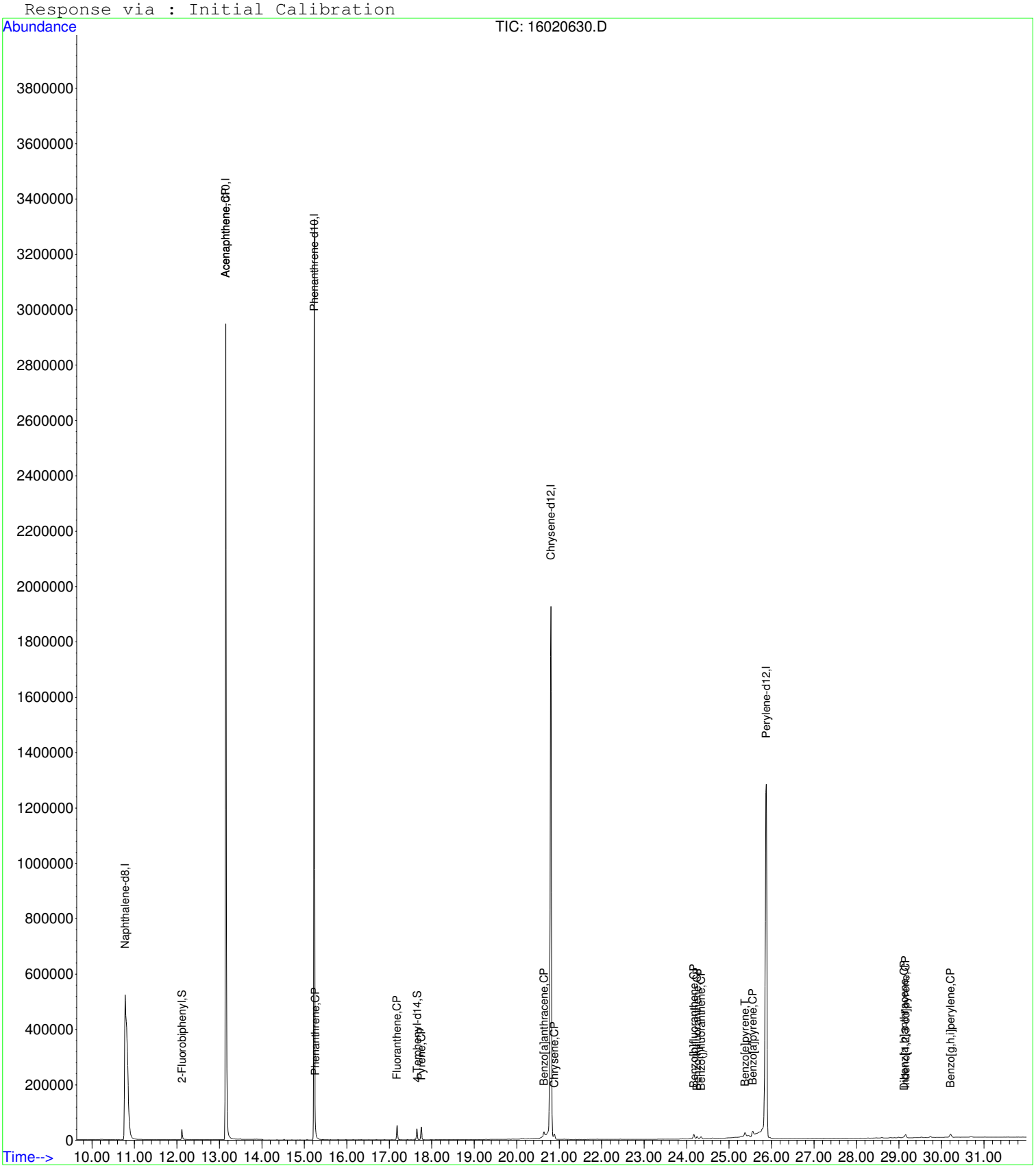
CONFIRMED
By Sherri Herschmann at 1:16:20 PM, 2/15/2016

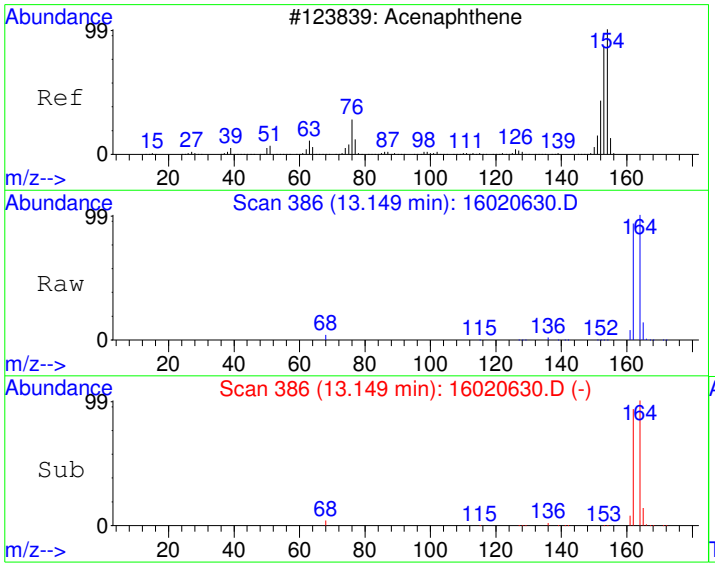
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020630.D Vial: 30
Acq On : 7 Feb 2016 4:58 am Operator:
Sample : 1601231-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:58 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

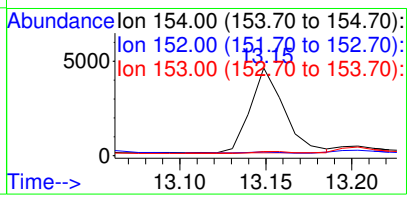


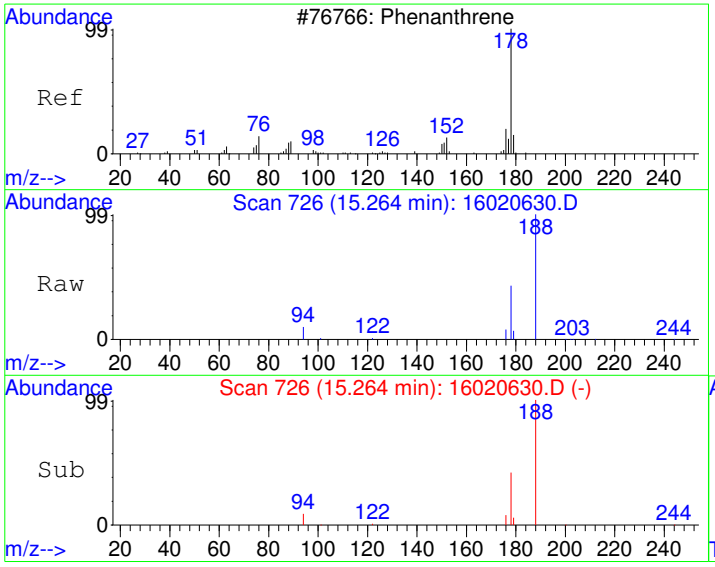


#9
Acenaphthene
Concen: 12.91 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:154 Resp: 6174

Ion	Ratio	Lower	Upper
154	100		
152	1.4	18.7	78.7#
153	2.4	74.4	134.4#

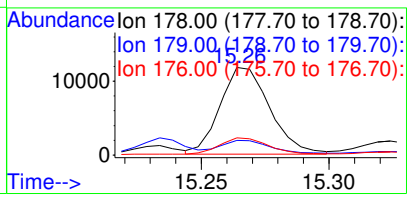


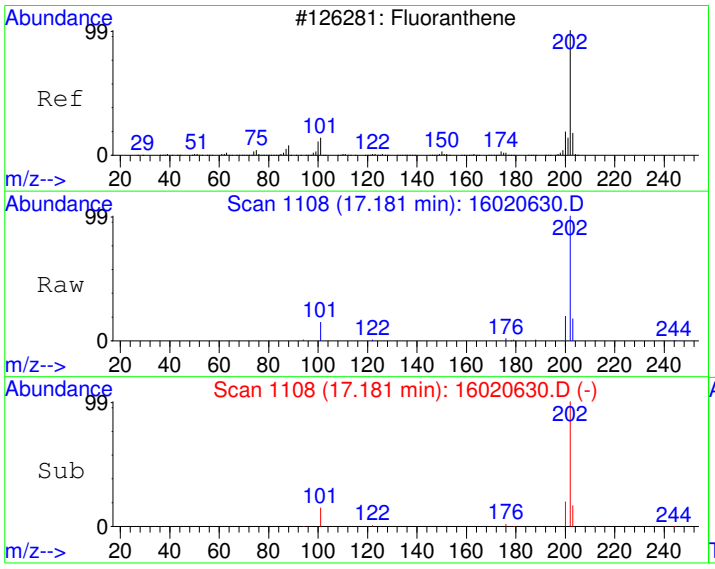


#12
Phenanthrene
Concen: 18.05 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:178 Resp: 15951

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.1
176	19.1	0.0	49.0

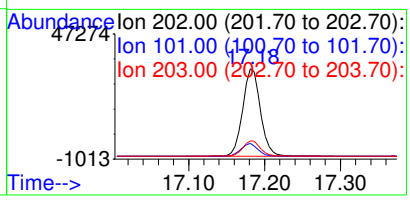


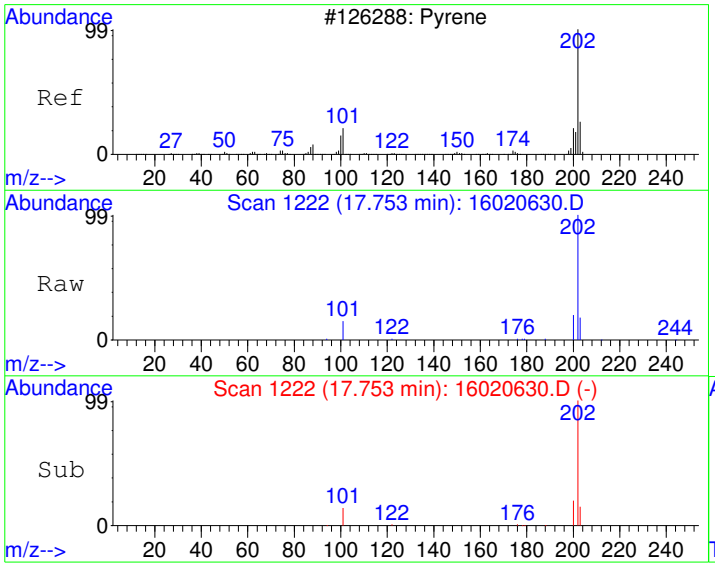


#14
Fluoranthene
Concen: 62.57 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:202 Resp: 54819

Ion	Ratio	Lower	Upper
202	100		
101	14.6	0.0	42.5
203	17.4	0.0	48.0

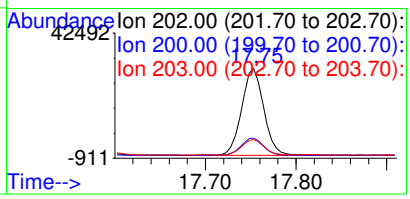


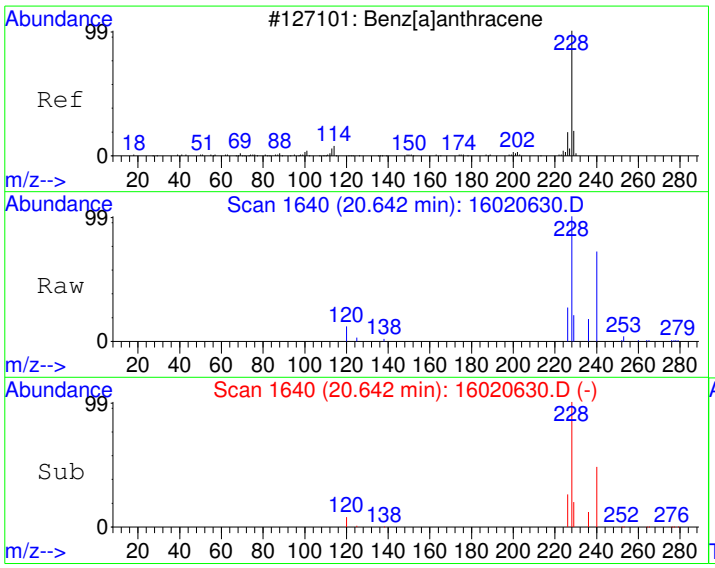


#15
Pyrene
Concen: 56.96 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:202 Resp: 50836

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.9	0.0	48.0

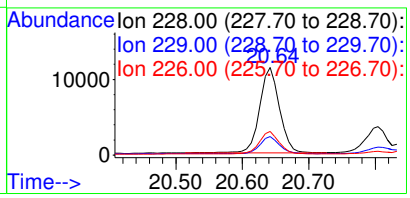


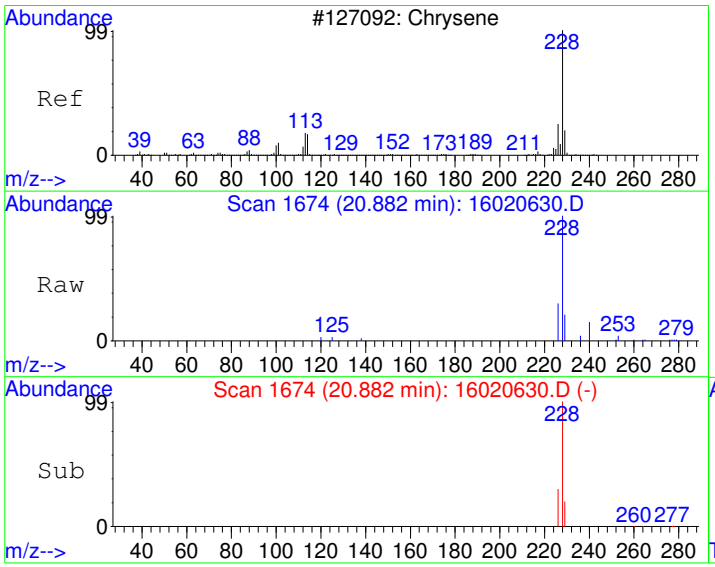


#18
Benzo[a]anthracene
Concen: 34.60 ug/kg
RT: 20.64 min Scan# 1640
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:228 Resp: 23435

Ion	Ratio	Lower	Upper
228	100		
229	20.1	0.0	50.0
226	26.4	0.0	56.4

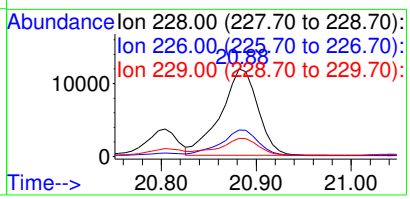


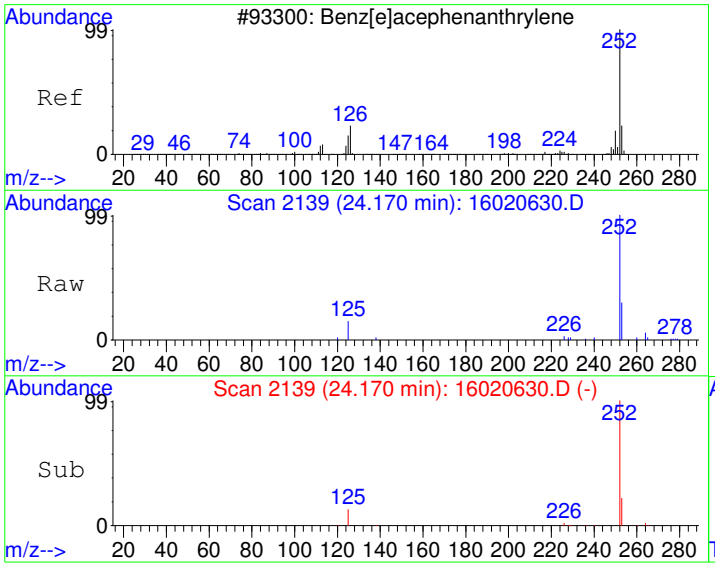


#19
Chrysene
Concen: 49.86 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:228 Resp: 32156

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.5
229	19.7	0.0	50.1

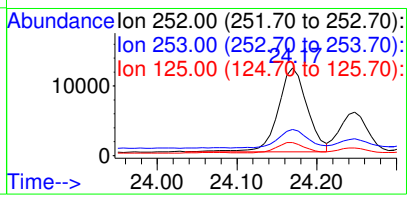


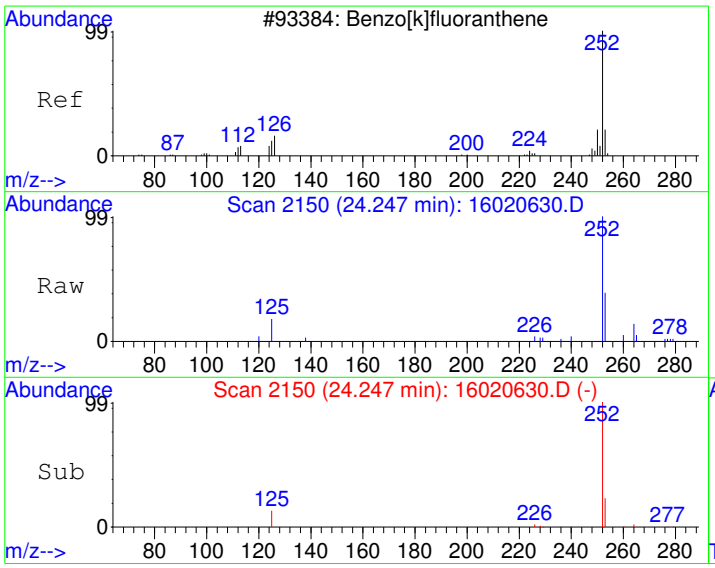


#21
Benzo[b]fluoranthene
Concen: 47.97 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:252 Resp: 30385

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	12.5	0.0	40.5

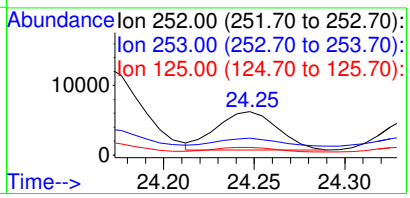


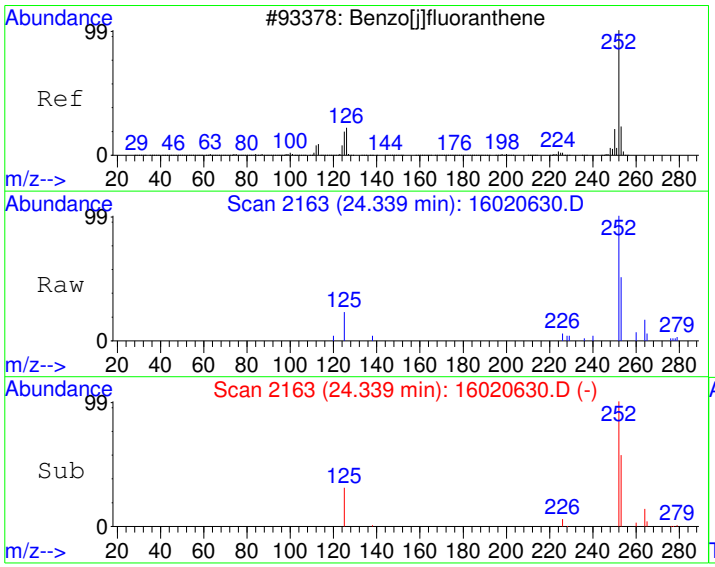


#22
Benzo[k]fluoranthene
Concen: 22.80 ug/kg
RT: 24.25 min Scan# 2150
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:252 Resp: 12827

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.2	42.2
125	12.1	0.0	31.8

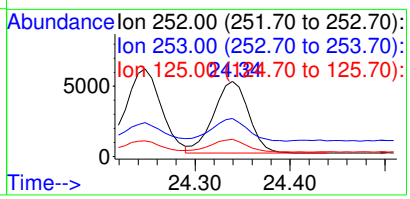


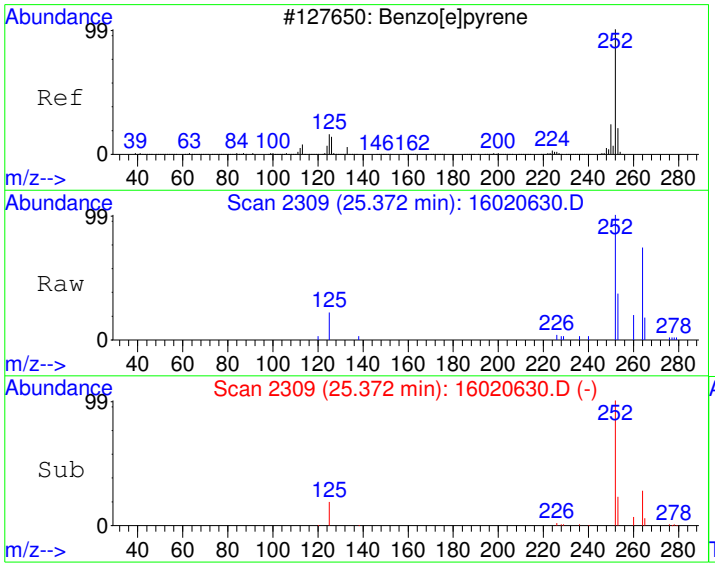


#23
Benzo(j)fluoranthene
Concen: 24.80 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:252 Resp: 13107

Ion	Ratio	Lower	Upper
252	100		
253	31.4	2.3	42.3
125	17.3	0.0	34.0

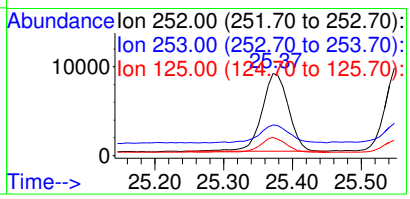


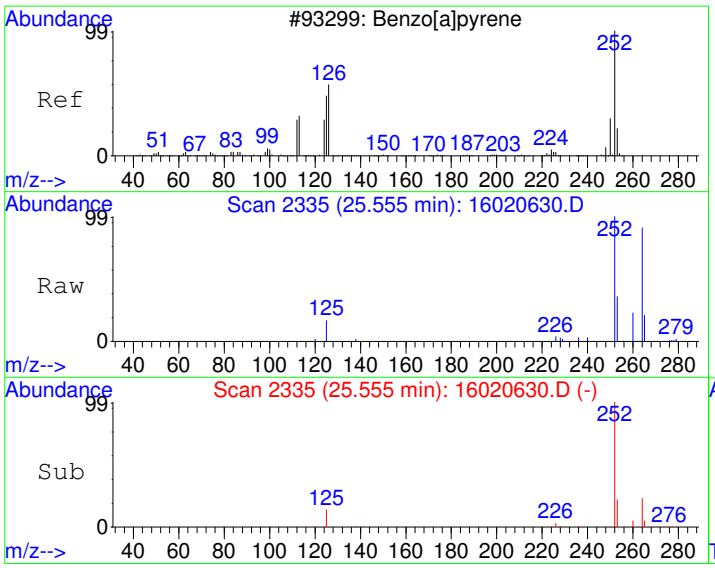


#24
Benzo[e]pyrene
Concen: 39.70 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:252 Resp: 23479

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	19.1	0.0	36.0

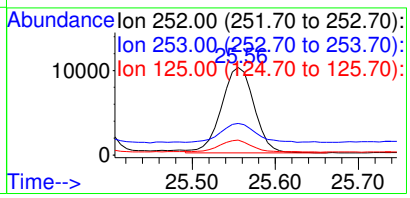


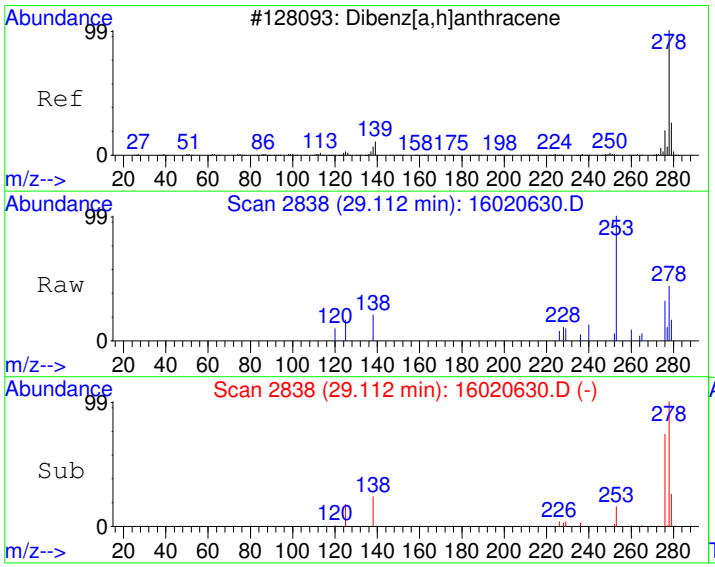


#25
Benzo[a]pyrene
Concen: 47.92 ug/kg
RT: 25.56 min Scan# 2335
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:252 Resp: 27580

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.0	42.0
125	13.8	0.0	32.3

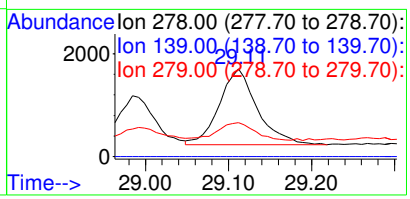


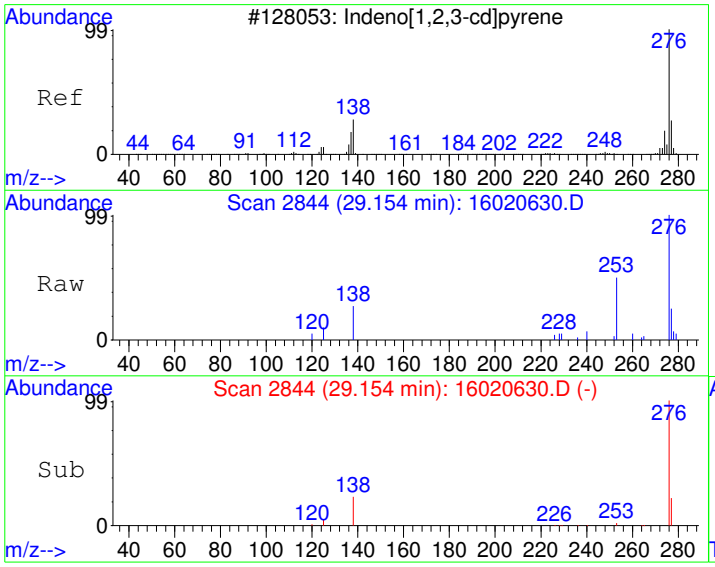


#26
Dibenz[a,h]anthracene
Concen: 8.80 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:278 Resp: 4687

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.3	3.8	43.8

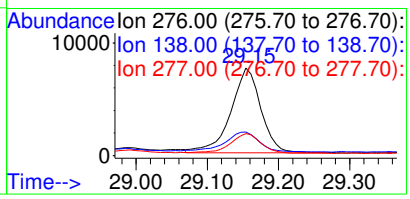


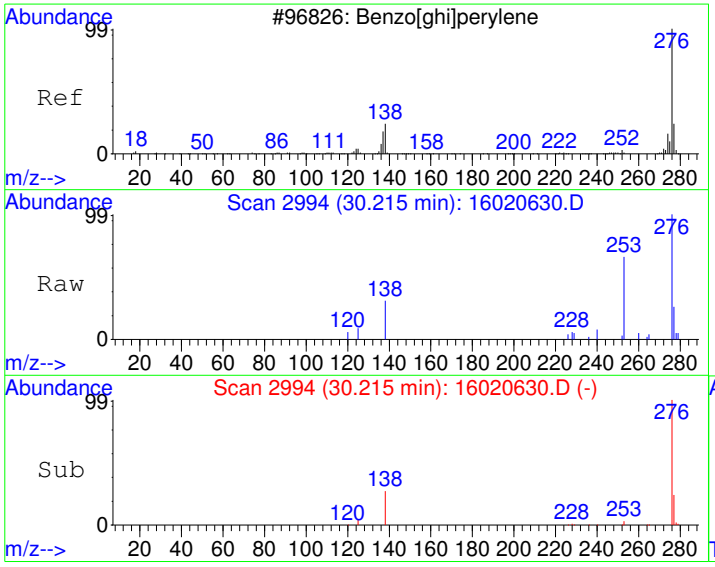


#27
Indeno[1,2,3-cd]pyrene
Concen: 33.76 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:276 Resp: 21897

Ion	Ratio	Lower	Upper
276	100		
138	23.6	2.1	42.1
277	23.1	4.2	44.2

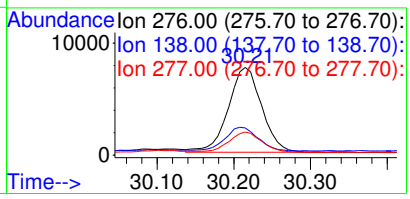




#28
Benzo[g,h,i]perylene
Concen: 42.15 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. 0.00 min
Lab File: 16020630.D
Acq: 7 Feb 2016 4:58 am

Tgt Ion:276 Resp: 22942

Ion	Ratio	Lower	Upper
276	100		
138	26.8	3.9	43.9
277	23.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020631.D Vial: 31
Acq On : 7 Feb 2016 5:38 am Operator:
Sample : CCV-160206 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2625905	4000.00 ug/kg	125
5) Acenaphthene-d10	13.15	164	2173683	4000.00 ug/kg	119
11) Phenanthrene-d10	15.23	188	4121793	4000.00 ug/kg	126
17) Chrysene-d12	20.80	240	3978936	4000.00 ug/kg	138
20) Perylene-d12	25.88	264	3461107	4000.00 ug/kg	150

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	551906	876.38 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.91%#		
16) 4-Terphenyl-d14	17.65	244	659876	958.29 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.96%#		

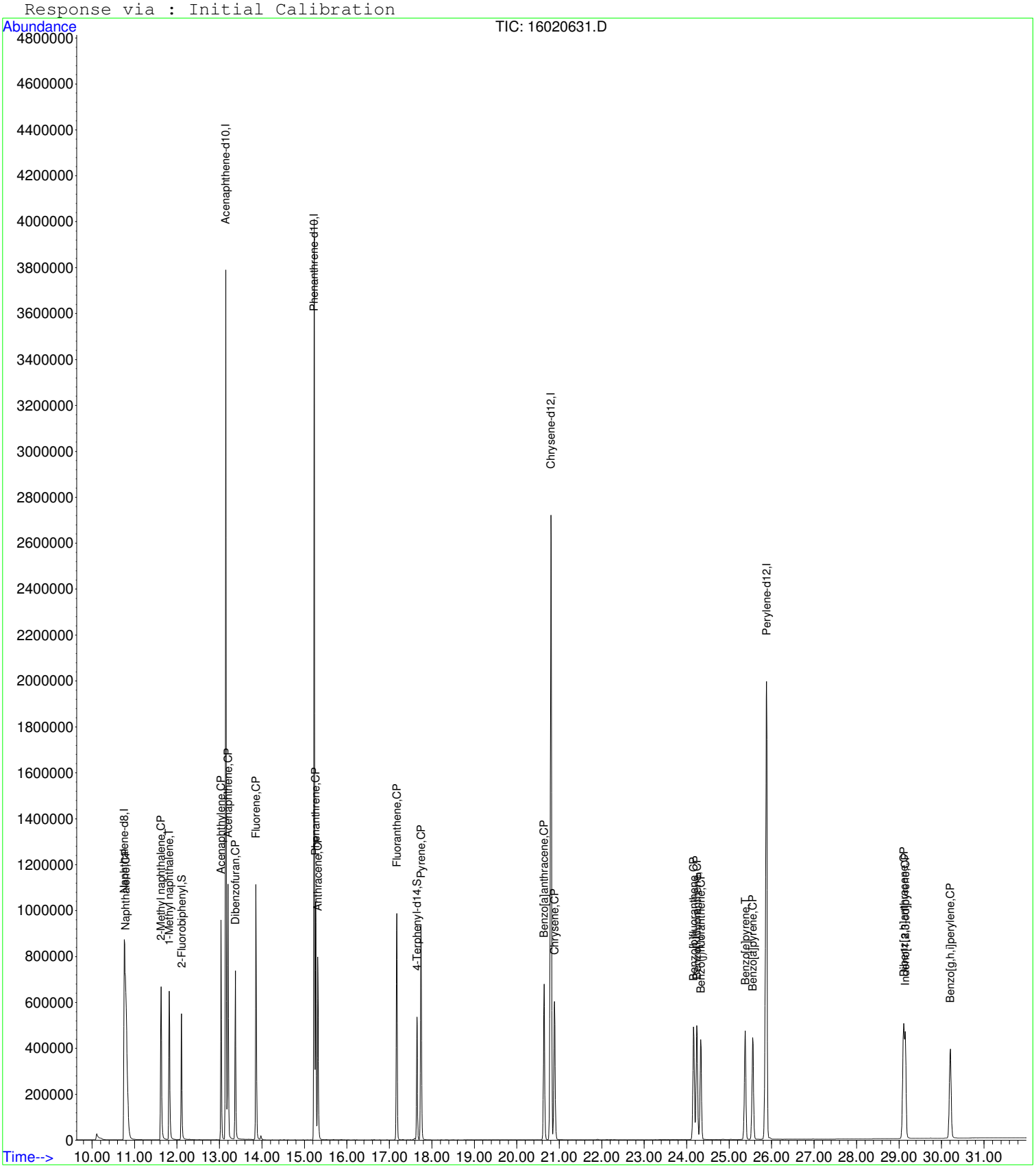
Target Compounds					Qvalue
2) Naphthalene	10.79	128	677004	1030.49 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	490589	948.40 ug/kg	98
4) 1-Methyl naphthalene	11.82	142	450281	922.38 ug/kg	96
6) Dibenzofuran	13.37	168	720599	1020.09 ug/kg	99
8) Acenaphthylene	13.04	152	865201	957.31 ug/kg	100
9) Acenaphthene	13.20	154	520357	950.22 ug/kg	99
10) Fluorene	13.86	166	662283	1025.12 ug/kg	98
12) Phenanthrene	15.26	178	896190	915.60 ug/kg	99
13) Anthracene	15.31	178	899023	938.77 ug/kg	99
14) Fluoranthene	17.18	202	974120	1003.62 ug/kg	100
15) Pyrene	17.74	202	995979	1007.45 ug/kg	99
18) Benzo[a]anthracene	20.64	228	905089	986.52 ug/kg	100
19) Chrysene	20.89	228	866547	992.00 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	897702	972.82 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	791597	965.71 ug/kg	100
23) Benzo(j)fluoranthene	24.33	252	741132	962.51 ug/kg	97
24) Benzo[e]pyrene	25.38	252	815289	946.31 ug/kg	97
25) Benzo[a]pyrene	25.56	252	810057	965.99 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	749079	965.62 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	895262	947.29 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	735281	927.25 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020631.D Vial: 31
Acq On : 7 Feb 2016 5:38 am Operator:
Sample : CCV-160206 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 7:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2527083	4000.00 ug/kg	120
5) Acenaphthene-d10	13.14	164	1929161	4000.00 ug/kg	106
11) Phenanthrene-d10	15.22	188	3555927	4000.00 ug/kg	109
17) Chrysene-d12	20.80	240	3400823	4000.00 ug/kg	118
20) Perylene-d12	25.87	264	2909872	4000.00 ug/kg	126

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	1143415	2045.78 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.14%	
16) 4-Terphenyl-d14	17.64	244	1299757	2187.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.70%	

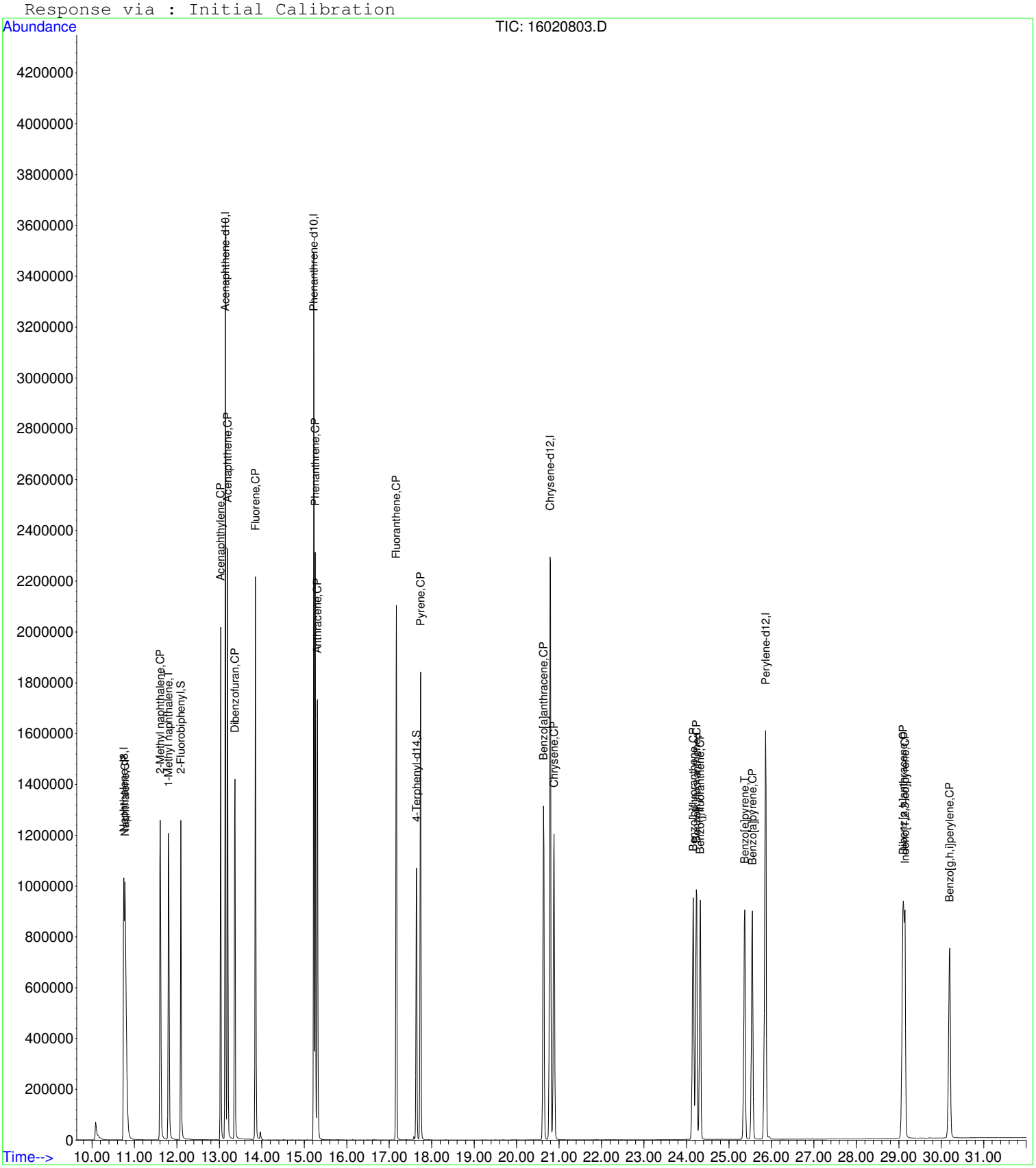
Target Compounds					Qvalue
2) Naphthalene	10.78	128	1373363	2172.20 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1002091	2012.98 ug/kg	98
4) 1-Methyl naphthalene	11.80	142	914692	1946.98 ug/kg	95
6) Dibenzofuran	13.37	168	1457810	2325.27 ug/kg	100
8) Acenaphthylene	13.03	152	1725812	2151.57 ug/kg	100
9) Acenaphthene	13.19	154	1046190	2152.60 ug/kg	99
10) Fluorene	13.85	166	1302650	2271.89 ug/kg	99
12) Phenanthrene	15.26	178	1848668	2189.26 ug/kg	99
13) Anthracene	15.31	178	1773873	2147.06 ug/kg	99
14) Fluoranthene	17.17	202	1926691	2300.93 ug/kg	99
15) Pyrene	17.74	202	1953580	2290.54 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1787608	2279.67 ug/kg	99
19) Chrysene	20.88	228	1724986	2310.40 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	1743910	2247.85 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	1607076	2331.96 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	1475613	2279.41 ug/kg	97
24) Benzo[e]pyrene	25.37	252	1600735	2209.96 ug/kg	98
25) Benzo[a]pyrene	25.55	252	1620393	2298.36 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	1473070	2258.62 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1757043	2211.34 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	1410617	2115.90 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

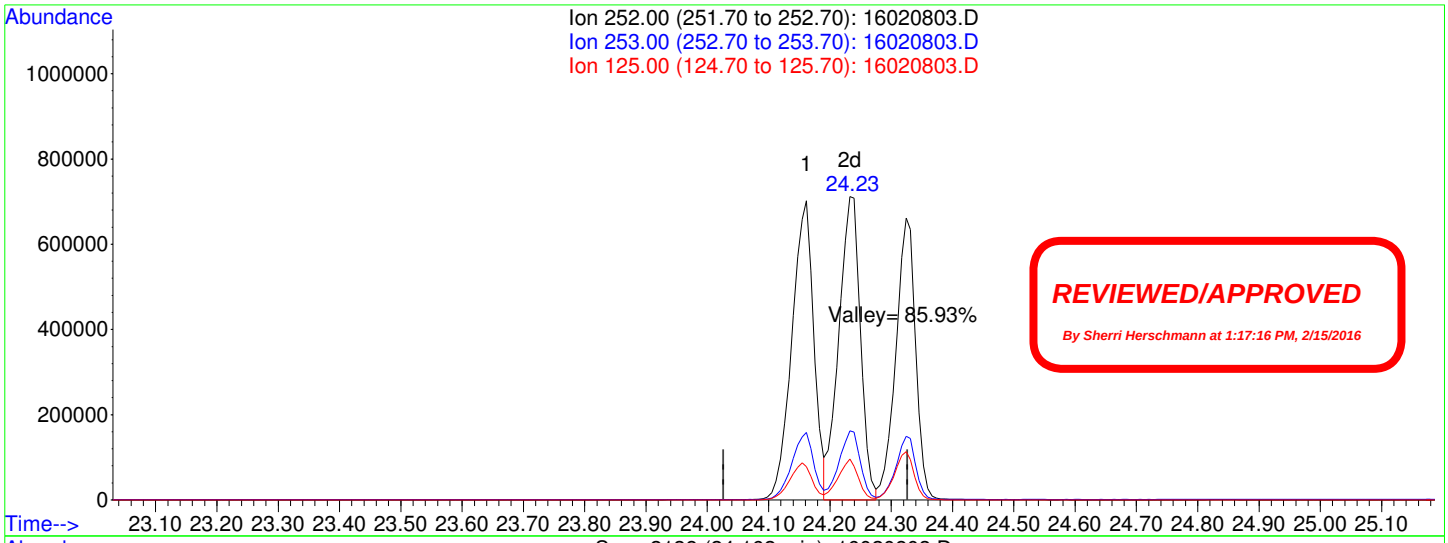
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

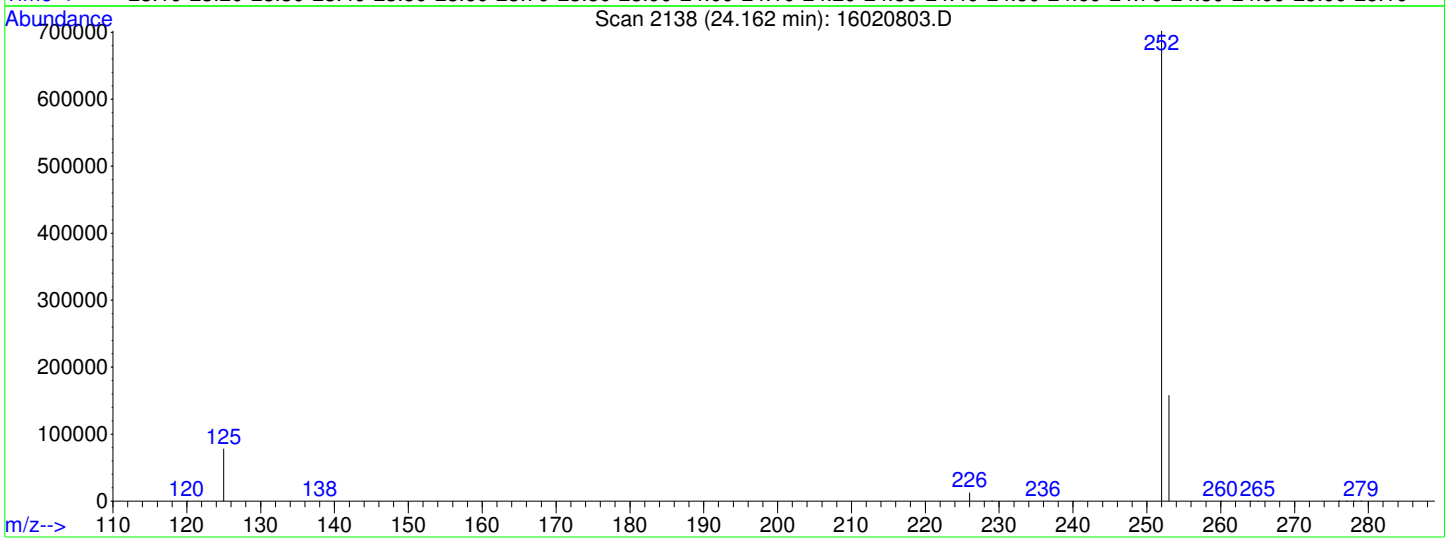
Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED

By Sherri Herschmann at 1:17:16 PM, 2/15/2016



TIC: 16020803.D

(21) Benzo[b]fluoranthene (CP)

24.16min 2247.85ug/kg

response 1743910

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.39
125.00	10.50	11.16
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020804.D Vial: 4
Acq On : 8 Feb 2016 9:43 am Operator:
Sample : LCS-73472 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2375845	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1659216	4000.00 ug/kg	91
11) Phenanthrene-d10	15.22	188	3088235	4000.00 ug/kg	94
17) Chrysene-d12	20.80	240	3622740	4000.00 ug/kg	125
20) Perylene-d12	25.87	264	3073639	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	394106	819.85 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.50%#	
16) 4-Terphenyl-d14	17.64	244	541567	1049.70 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	26.24%#	

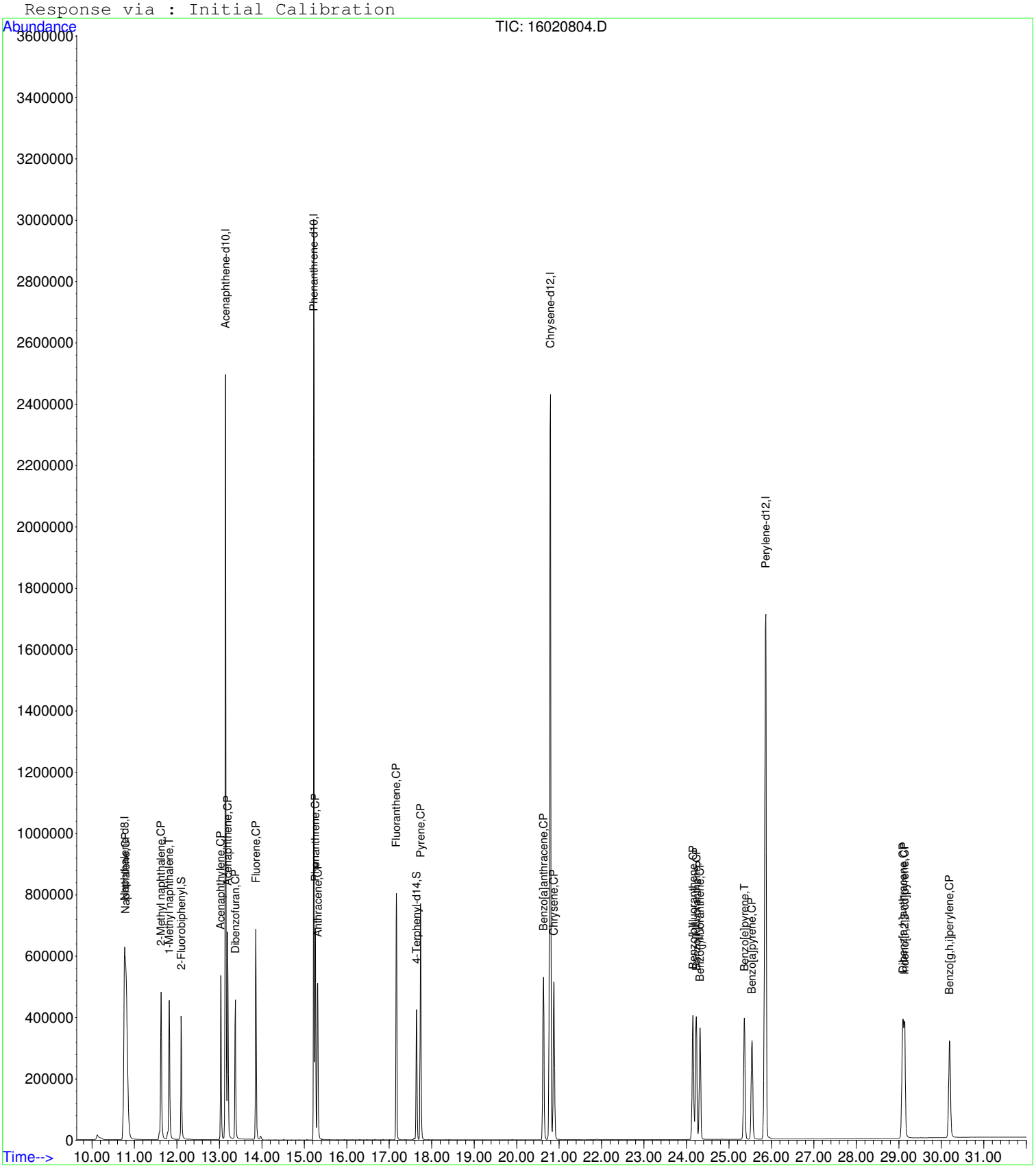
Target Compounds					Qvalue
2) Naphthalene	10.80	128	532286	895.49 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	373615	798.28 ug/kg	98
4) 1-Methyl naphthalene	11.82	142	337540	764.21 ug/kg	95
6) Dibenzofuran	13.38	168	496642	921.04 ug/kg	100
8) Acenaphthylene	13.03	152	598120	866.99 ug/kg	99
9) Acenaphthene	13.19	154	365391	874.13 ug/kg	98
10) Fluorene	13.86	166	435510	883.13 ug/kg	99
12) Phenanthrene	15.26	178	636824	868.36 ug/kg	99
13) Anthracene	15.31	178	596460	831.28 ug/kg	99
14) Fluoranthene	17.17	202	802260	1103.19 ug/kg	98
15) Pyrene	17.74	202	831971	1123.20 ug/kg	99
18) Benzo[a]anthracene	20.63	228	759026	908.66 ug/kg	100
19) Chrysene	20.87	228	742854	934.01 ug/kg	98
21) Benzo[b]fluoranthene	24.15	252	751821	917.44 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	665156	913.75 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	613064	896.55 ug/kg	96
24) Benzo[e]pyrene	25.36	252	678772	887.18 ug/kg	99
25) Benzo[a]pyrene	25.54	252	632931	849.91 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	618375	897.62 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	743488	885.87 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	611252	868.02 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020804.D Vial: 4
Acq On : 8 Feb 2016 9:43 am Operator:
Sample : LCS-73472 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020806.D Vial: 6
Acq On : 8 Feb 2016 11:02 am Operator:
Sample : ~~MB-73479~~ SBLK-160208 Inst : GC/MS #6
Misc : MBLK SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2086269	4000.00	ug/kg	99
5) Acenaphthene-d10	13.15	164	1641385	4000.00	ug/kg	90
11) Phenanthrene-d10	15.23	188	2845380	4000.00	ug/kg	87
17) Chrysene-d12	20.80	240	3661176	4000.00	ug/kg	127
20) Perylene-d12	25.87	264	3115802	4000.00	ug/kg	135

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	416786	876.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.91%#			
16) 4-Terphenyl-d14	17.64	244	554223	1165.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 29.15%#			

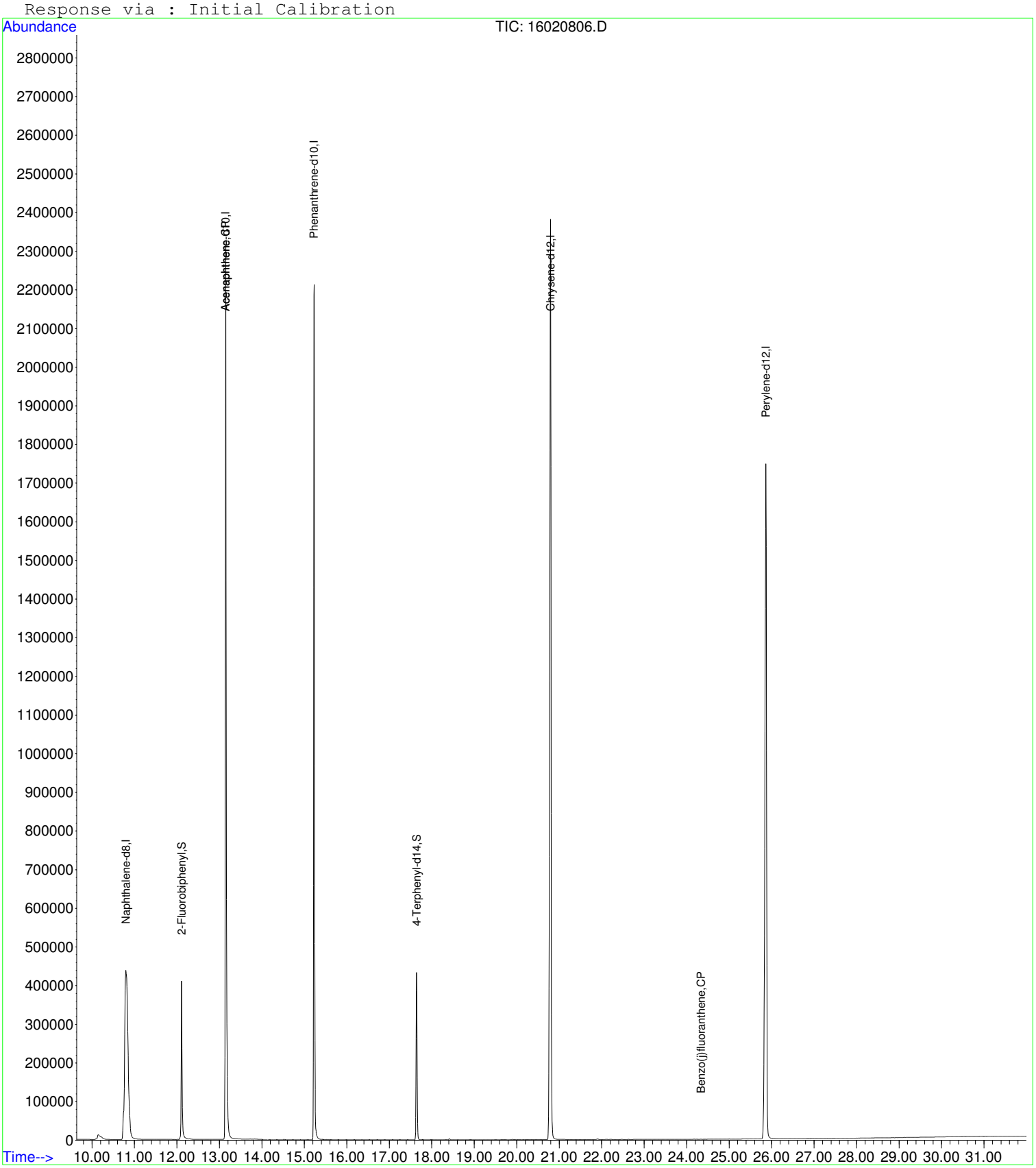
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	5714	13.82	ug/kg#	10
23) Benzo(j)fluoranthene	24.34	252	129	0.19	ug/kg	83

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020806.D Vial: 6
Acq On : 8 Feb 2016 11:02 am Operator:
Sample : MB-73479 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



GCMS6_160208A
For

DHL Work Order
1601231

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_160208A
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	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	
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.**

All samples in this work order are run at 10x due to brown extract color. 10x dilution meets project requirements and has been approved by project manager.

Analyst: Karyn Lane Date: 2/9/2016

Second-Level Review: Date: 02/15/2016

REVIEWED/APPROVED
By Sherri Herschmann at 2:36:33 PM, 2/15/2016

DHL Analytical, Inc.

Run ID: GCMS6_160208A **Run No.:** 84028

Analytical Run Date: 2/8/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160208	1	PAH_LL_SDOD1	TUNE	R84028	2/8/2016 8:26:00 AM		
ICV-160208	1	PAH_LL_SDOD1	ICV	R84028	2/8/2016 9:03:00 AM		
LCS-73479	1	PAH_LL_SDOD1	LCS	73479	2/8/2016 10:23:00 AM		
MB-73479	1	PAH_LL_SDOD1	MBLK	73479	2/8/2016 11:02:00 AM		
1601231-04A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 11:43:00 AM		
1601231-05A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 12:24:00 PM		
1601231-06A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 1:04:00 PM		
1601231-07A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 1:44:00 PM		
1601231-08A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 2:25:00 PM		
1601231-09A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 3:05:00 PM		
1601231-10A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 3:45:00 PM		
1601231-11A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 4:25:00 PM		
1601231-12A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 5:06:00 PM		
1601231-13A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 5:46:00 PM		
1601231-14A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 6:27:00 PM		
1601231-15A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 7:06:00 PM		
DFTPP2-160208	1	PAH_LL_SDOD1	TUNE	R84028	2/8/2016 7:46:00 PM		
ICV2-160208	1	PAH_LL_SDOD1	ICV	R84028	2/8/2016 8:22:00 PM		
SBLK-160208	1	PAH_LL_SDOD1	SBLK	73479	2/8/2016 9:03:00 PM		
1601231-16A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 9:43:00 PM		
1601231-17A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 10:23:00 PM		
1601231-18A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 11:03:00 PM		
1601231-19A	10	PAH_LL_SDOD1	SAMP	73479	2/8/2016 11:43:00 PM		
1601231-20A	10	PAH_LL_SDOD1	SAMP	73479	2/9/2016 12:23:00 AM		
1601231-21A	10	PAH_LL_SDOD1	SAMP	73479	2/9/2016 1:04:00 AM		
1601231-22A	10	PAH_LL_SDOD1	SAMP	73479	2/9/2016 1:44:00 AM		
1601231-23A	10	PAH_LL_SDOD1	SAMP	73479	2/9/2016 2:25:00 AM		
1601231-23AMS	10	PAH_LL_SDOD1	MS	73479	2/9/2016 3:05:00 AM		
1601231-23AMSD	10	PAH_LL_SDOD1	MSD	73479	2/9/2016 3:45:00 AM		
CCV1-160208	1	PAH_LL_SDOD1	CCV	R84028	2/9/2016 6:46:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

REVIEWED/APPROVED

By Sherri Herschmann at 2:36:53 PM, 2/15/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160208.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160206\
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	16020801	PP160126	SBLK
2	Sample	2	16020802	DFTPPPAH	DFTPP-160208
3	Sample	3	16020803	PP160126	ICV-160208
4	Sample	4	16020804	PP160126	LCS-73472
5	Sample	5	16020805	PP160126	LCS-73479
6	Sample	6	16020806	PP160126	MB-73479
7	Sample	7	16020807	PP160126	1601231-04A
8	Sample	8	16020808	PP160126	1601231-05A
9	Sample	9	16020809	PP160126	1601231-06A
10	Sample	10	16020810	PP160126	1601231-07A
11	Sample	11	16020811	PP160126	1601231-08A
12	Sample	12	16020812	PP160126	1601231-09A
13	Sample	13	16020813	PP160126	1601231-10A
14	Sample	14	16020814	PP160126	1601231-11A
15	Sample	15	16020815	PP160126	1601231-12A
16	Sample	16	16020816	PP160126	1601231-13A
17	Sample	17	16020817	PP160126	1601231-14A
18	Sample	18	16020818	PP160126	1601231-15A
19	Sample	19	16020819	DFTPPPAH	DFTPP2-160208
20	Sample	20	16020820	PP160126	ICV2-160208
21	Sample	21	16020821	PP160126	SBLK-160208
22	Sample	22	16020822	PP160126	1601231-16A
23	Sample	23	16020823	PP160126	1601231-17A
24	Sample	24	16020824	PP160126	1601231-18A
25	Sample	25	16020825	PP160126	1601231-19A
26	Sample	26	16020826	PP160126	1601231-20A
27	Sample	27	16020827	PP160126	1601231-21A
28	Sample	28	16020828	PP160126	1601231-22A
29	Sample	29	16020829	PP160126	1601231-23A
30	Sample	30	16020830	PP160126	1601231-23AMS
31	Sample	31	16020831	PP160126	1601231-23AMSD
32	Sample	32	16020832	PP160126	CCV1-160208

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601231-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	Sieved sample will be in 2-oz glass jar					
1601231-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-08A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15 /					
1601231-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-16A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-19A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601231-20A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					
1601231-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-27A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/3/2016 9:23:58 AM**
Digestion:
Prep End Date: **2/3/2016 12:30:00 PM**

Prep Batch **73479** 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 #
1601231-04A	Soil		10.63	10	0.941	1 of 1
1601231-05A	Soil		10.06	10	0.994	1 of 1
1601231-06A	Soil		10.2	10	0.980	1 of 1
1601231-07A	Soil		10.04	10	0.996	1 of 1
1601231-08A	Soil		10.13	10	0.987	1 of 1
1601231-09A	Soil		10.44	10	0.958	1 of 1
1601231-10A	Soil		10.57	10	0.946	1 of 1
1601231-11A	Soil		10.06	10	0.994	1 of 1
1601231-12A	Soil		10.17	10	0.983	1 of 1
1601231-13A	Soil		10.09	10	0.991	1 of 1
1601231-14A	Soil		10.83	10	0.923	1 of 1
/						
1601231-15A	Soil		10.14	10	0.986	1 of 1
1601231-16A	Soil		10.29	10	0.972	1 of 1
1601231-17A	Soil		10.59	10	0.944	1 of 1
1601231-18A	Soil		10.28	10	0.973	1 of 1
1601231-19A	Soil		10.84	10	0.923	1 of 1
1601231-20A	Soil		10.25	10	0.976	1 of 1
1601231-21A	Soil		10.36	10	0.965	1 of 1
1601231-22A	Soil		10.27	10	0.974	1 of 1
1601231-23A	Soil		10.04	10	0.996	1 of 1
1601231-23AMS	Soil		10.18	10	0.982	of
1601231-23AMSD	Soil		10.5	10	0.952	of
LCS-73479	Soil		10	10	1.000	of
MB-73479	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9604	Purified Sodium Sulfate	10	g	09/03/2025
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.25	04/20/2016

REVIEWED/APPROVED

By Sherri Herschmann at 2:37:39 PM, 2/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/3/2016 9:23:58 AM**
Digestion:
Prep End Date: 2/3/16 12:30PM

Prep Batch **73479** 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 #
1601231-04A	Soil		10.63	10	1.000	1 of 1
1601231-05A	Soil		10.06	10	1.000	1 of 1
1601231-06A	Soil		10.20	10	1.000	1 of 1
1601231-07A	Soil		10.04	10	1.000	1 of 1
1601231-08A	Soil		10.13	10	1.000	1 of 1
1601231-09A	Soil		10.44	10	1.000	1 of 1
1601231-10A	Soil		10.57	10	1.000	1 of 1
1601231-11A	Soil		10.06	10	1.000	1 of 1
1601231-12A	Soil		10.17	10	1.000	1 of 1
1601231-13A	Soil		10.09	10	1.000	1 of 1
1601231-14A	Soil		10.83	10	1.000	1 of 1
1601231-15A	Soil		10.14	10	1.000	1 of 1
1601231-16A	Soil		10.29	10	1.000	1 of 1
1601231-17A	Soil		10.59	10	1.000	1 of 1
1601231-18A	Soil		10.78	10	1.000	1 of 1
1601231-19A	Soil		10.84	10	1.000	1 of 1
1601231-20A	Soil		10.75	10	1.000	1 of 1
1601231-21A	Soil		10.36	10	1.000	1 of 1
1601231-22A	Soil		10.77	10	1.000	1 of 1
1601231-23A	Soil		10.04	10	1.000	1 of 1
1601231-23AMS	Soil		10.18	10	1.000	of
1601231-23AMSD	Soil		10.50	10	1.000	of
LCS-73479	Soil		10	10	1.000	of
MB-73479	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9604	Purified Sodium Sulfate	10	g	09/03/2025
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

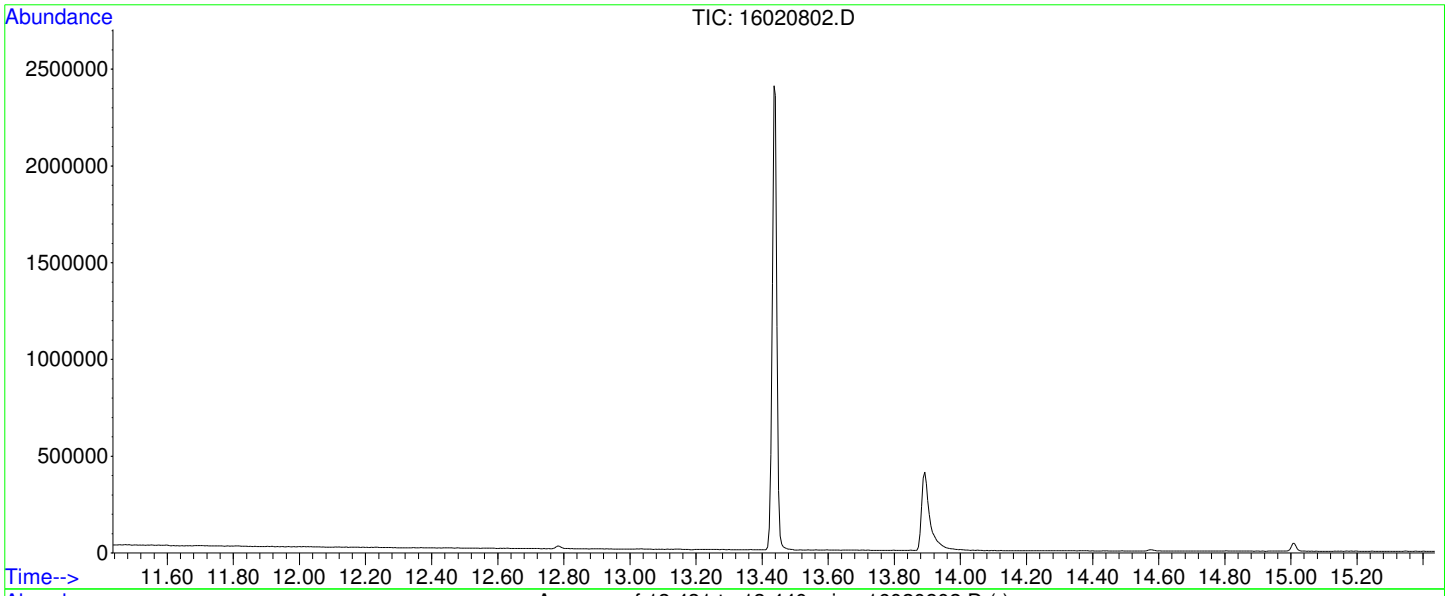
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.25	04/20/2016

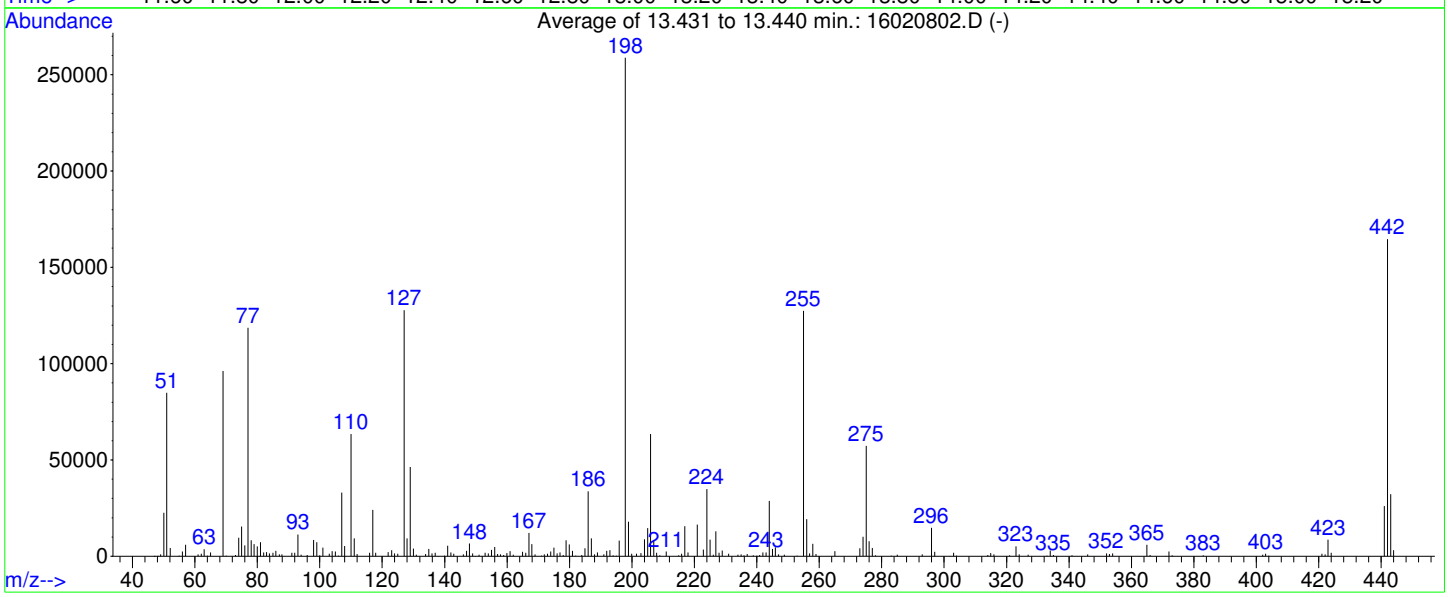
REVIEWED/APPROVED

By Sherri Herschmann at 2:38:35 PM, 2/15/2016

2/3/16

Data File : C:\HPCHEM\1\DATA\160206\16020802.D Vial: 2
Acq On : 8 Feb 2016 8:26 am Operator:
Sample : DFTPP-160208 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

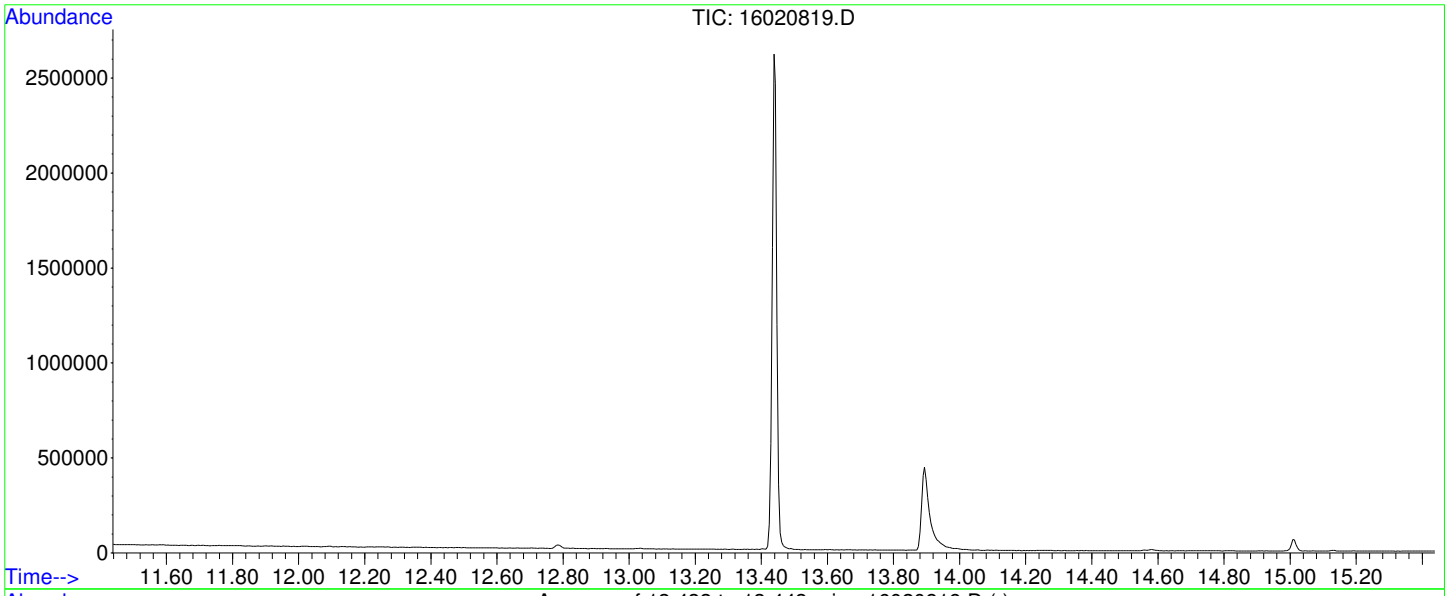


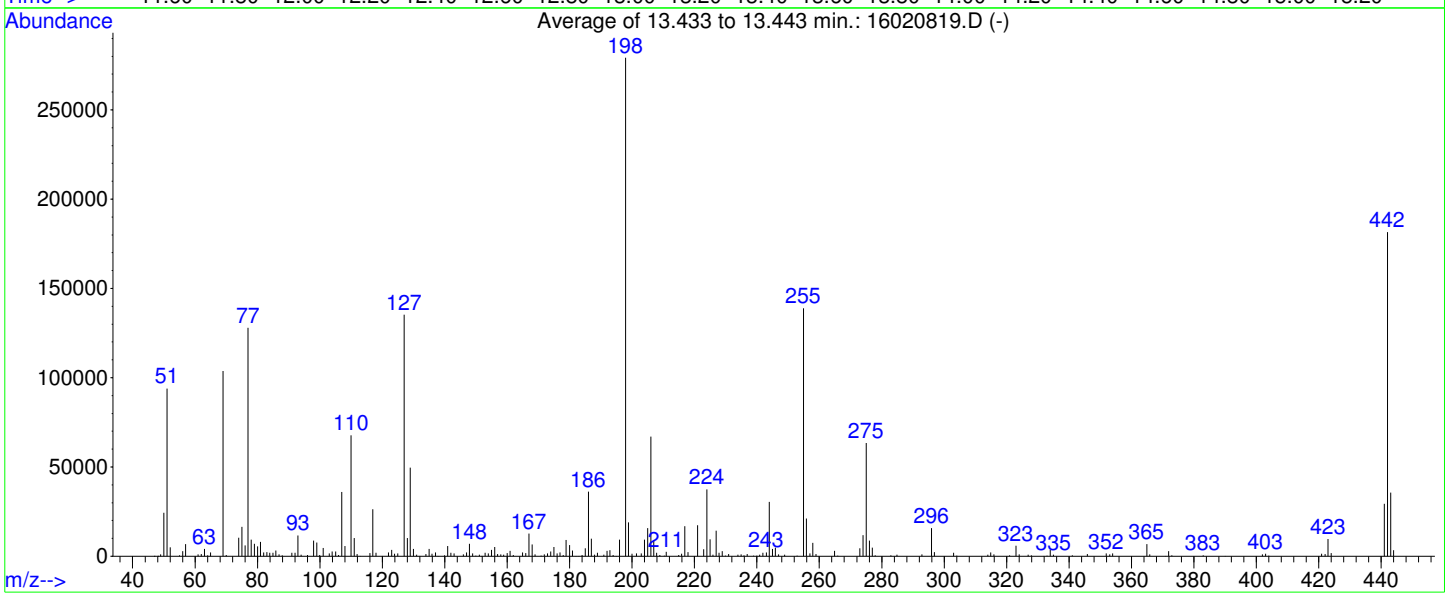


AutoFind: Scans 1561, 1562, 1563; Background Corrected with Scan 1555

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.8	84869	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.2	96267	PASS
70	69	0.00	2	0.4	386	PASS
127	198	10	80	49.3	127701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	258880	PASS
199	198	5	9	6.9	17928	PASS
275	198	10	60	22.1	57339	PASS
365	198	1	200	2.3	5932	PASS
441	442	0.01	24	15.8	26110	PASS
442	198	50	400	63.6	164736	PASS
443	442	15	24	19.6	32278	PASS

Data File : C:\HPCHEM\1\DATA\160206\16020819.D Vial: 19
Acq On : 8 Feb 2016 7:46 pm Operator:
Sample : DFTPP2-160208 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 1562, 1563, 1564; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.6	93938	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.1	103696	PASS
70	69	0.00	2	0.6	643	PASS
127	198	10	80	48.5	135304	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	279232	PASS
199	198	5	9	6.8	18961	PASS
275	198	10	60	22.7	63525	PASS
365	198	1	200	2.5	6870	PASS
441	442	0.01	24	16.2	29420	PASS
442	198	50	400	65.0	181517	PASS
443	442	15	24	19.7	35757	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2527083	4000.00 ug/kg	120
5) Acenaphthene-d10	13.14	164	1929161	4000.00 ug/kg	106
11) Phenanthrene-d10	15.22	188	3555927	4000.00 ug/kg	109
17) Chrysene-d12	20.80	240	3400823	4000.00 ug/kg	118
20) Perylene-d12	25.87	264	2909872	4000.00 ug/kg	126

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	1143415	2045.78 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.14%	
16) 4-Terphenyl-d14	17.64	244	1299757	2187.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.70%	

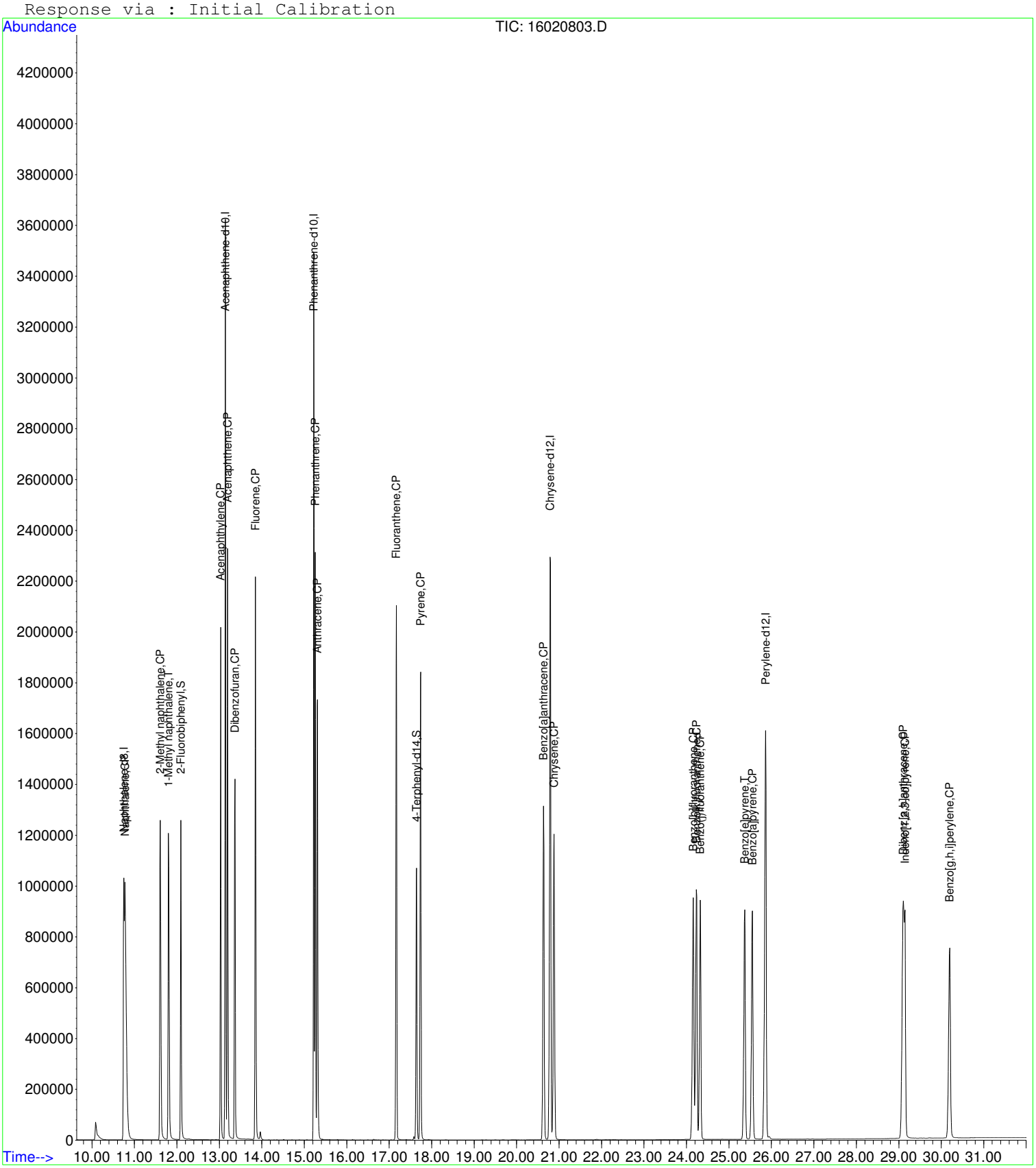
Target Compounds					Qvalue
2) Naphthalene	10.78	128	1373363	2172.20 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1002091	2012.98 ug/kg	98
4) 1-Methyl naphthalene	11.80	142	914692	1946.98 ug/kg	95
6) Dibenzofuran	13.37	168	1457810	2325.27 ug/kg	100
8) Acenaphthylene	13.03	152	1725812	2151.57 ug/kg	100
9) Acenaphthene	13.19	154	1046190	2152.60 ug/kg	99
10) Fluorene	13.85	166	1302650	2271.89 ug/kg	99
12) Phenanthrene	15.26	178	1848668	2189.26 ug/kg	99
13) Anthracene	15.31	178	1773873	2147.06 ug/kg	99
14) Fluoranthene	17.17	202	1926691	2300.93 ug/kg	99
15) Pyrene	17.74	202	1953580	2290.54 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1787608	2279.67 ug/kg	99
19) Chrysene	20.88	228	1724986	2310.40 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	1743910	2247.85 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	1607076	2331.96 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	1475613	2279.41 ug/kg	97
24) Benzo[e]pyrene	25.37	252	1600735	2209.96 ug/kg	98
25) Benzo[a]pyrene	25.55	252	1620393	2298.36 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	1473070	2258.62 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1757043	2211.34 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	1410617	2115.90 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

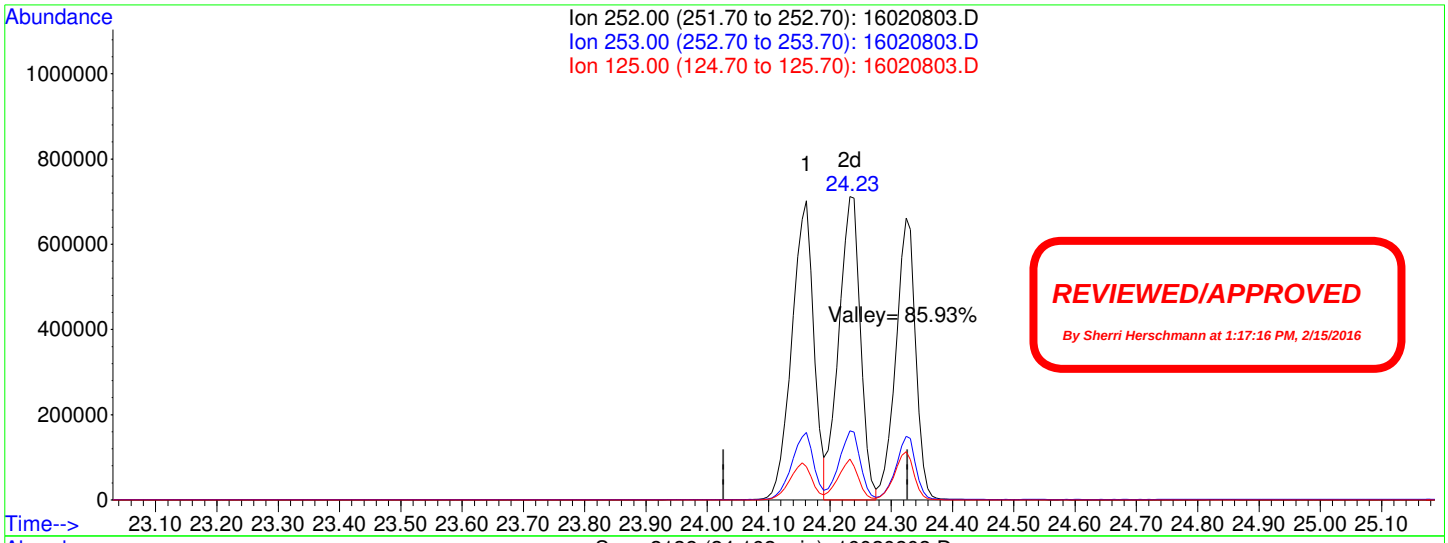
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

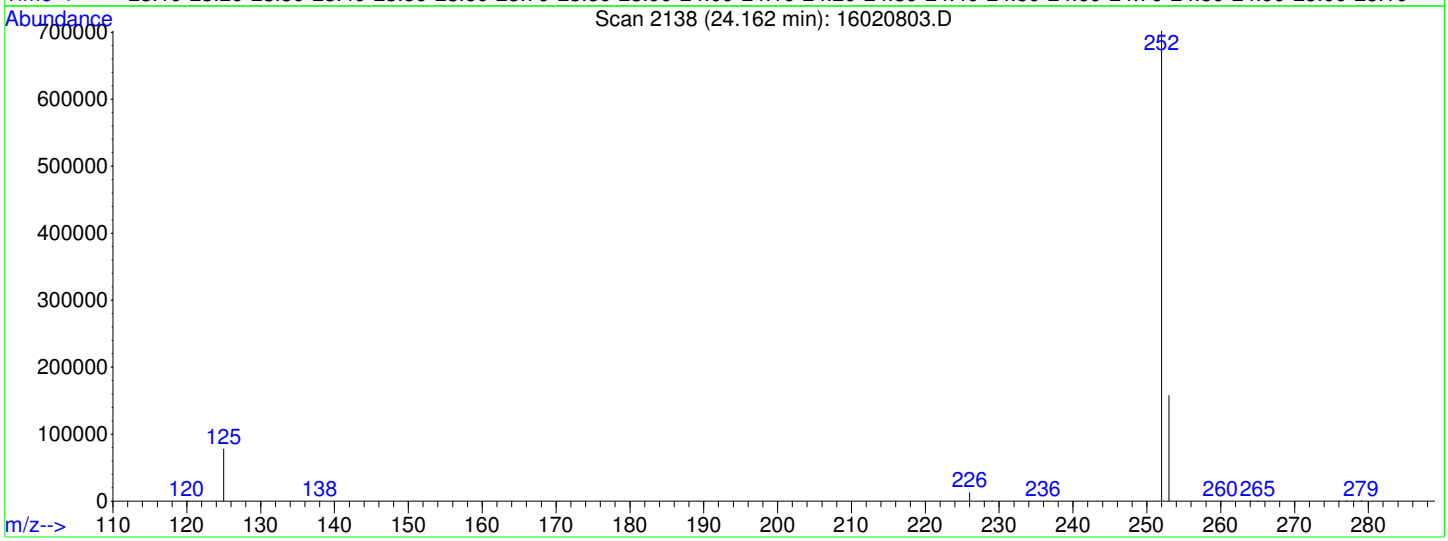
Data File : C:\HPCHEM\1\DATA\160206\16020803.D Vial: 3
Acq On : 8 Feb 2016 9:03 am Operator:
Sample : ICV-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED

By Sherri Herschmann at 1:17:16 PM, 2/15/2016



TIC: 16020803.D

(21) Benzo[b]fluoranthene (CP)

24.16min 2247.85ug/kg

response 1743910

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.39
125.00	10.50	11.16
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020805.D Vial: 5
Acq On : 8 Feb 2016 10:23 am Operator:
Sample : LCS-73479 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2180620	4000.00 ug/kg	104
5) Acenaphthene-d10	13.15	164	1620538	4000.00 ug/kg	89
11) Phenanthrene-d10	15.22	188	3096163	4000.00 ug/kg	95
17) Chrysene-d12	20.79	240	3445949	4000.00 ug/kg	119
20) Perylene-d12	25.86	264	2914138	4000.00 ug/kg	126

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	390392	831.51 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.79%#		
16) 4-Terphenyl-d14	17.64	244	560819	1084.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 27.11%#		

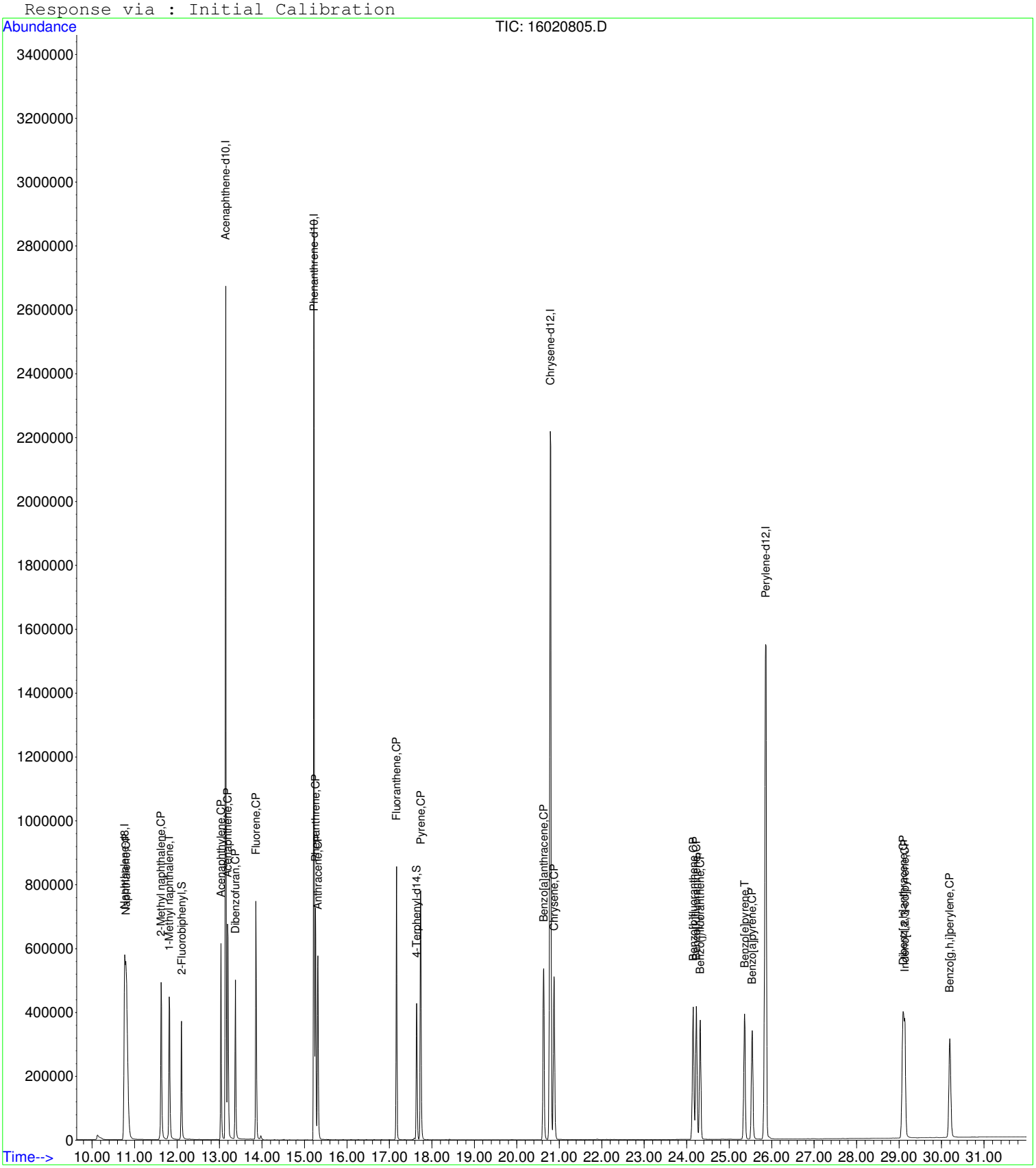
Target Compounds					Qvalue
2) Naphthalene	10.80	128	509382	933.68 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	374389	871.55 ug/kg	98
4) 1-Methyl naphthalene	11.82	142	343430	847.16 ug/kg	93
6) Dibenzofuran	13.37	168	514060	976.10 ug/kg	100
8) Acenaphthylene	13.04	152	620647	921.12 ug/kg	99
9) Acenaphthene	13.19	154	369971	906.21 ug/kg	96
10) Fluorene	13.86	166	467623	970.88 ug/kg	98
12) Phenanthrene	15.26	178	686314	933.45 ug/kg	99
13) Anthracene	15.31	178	645605	897.46 ug/kg	99
14) Fluoranthene	17.17	202	834471	1144.54 ug/kg	98
15) Pyrene	17.74	202	866454	1166.76 ug/kg	100
18) Benzo[a]anthracene	20.63	228	779372	980.89 ug/kg	100
19) Chrysene	20.87	228	753507	996.01 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	769927	990.96 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	672974	975.09 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	623326	961.45 ug/kg	96
24) Benzo[e]pyrene	25.36	252	694728	957.73 ug/kg	98
25) Benzo[a]pyrene	25.54	252	648121	917.95 ug/kg	98
26) Dibenz[a,h]anthracene	29.09	278	629198	963.32 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	756636	950.88 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	621923	931.51 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020805.D Vial: 5
Acq On : 8 Feb 2016 10:23 am Operator:
Sample : LCS-73479 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:36 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020806.D Vial: 6
Acq On : 8 Feb 2016 11:02 am Operator:
Sample : MB-73479 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2086269	4000.00 ug/kg	99
5) Acenaphthene-d10	13.15	164	1641385	4000.00 ug/kg	90
11) Phenanthrene-d10	15.23	188	2845380	4000.00 ug/kg	87
17) Chrysene-d12	20.80	240	3661176	4000.00 ug/kg	127
20) Perylene-d12	25.87	264	3115802	4000.00 ug/kg	135

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	416786	876.45 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	21.91%#	
16) 4-Terphenyl-d14	17.64	244	554223	1165.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	29.15%#	

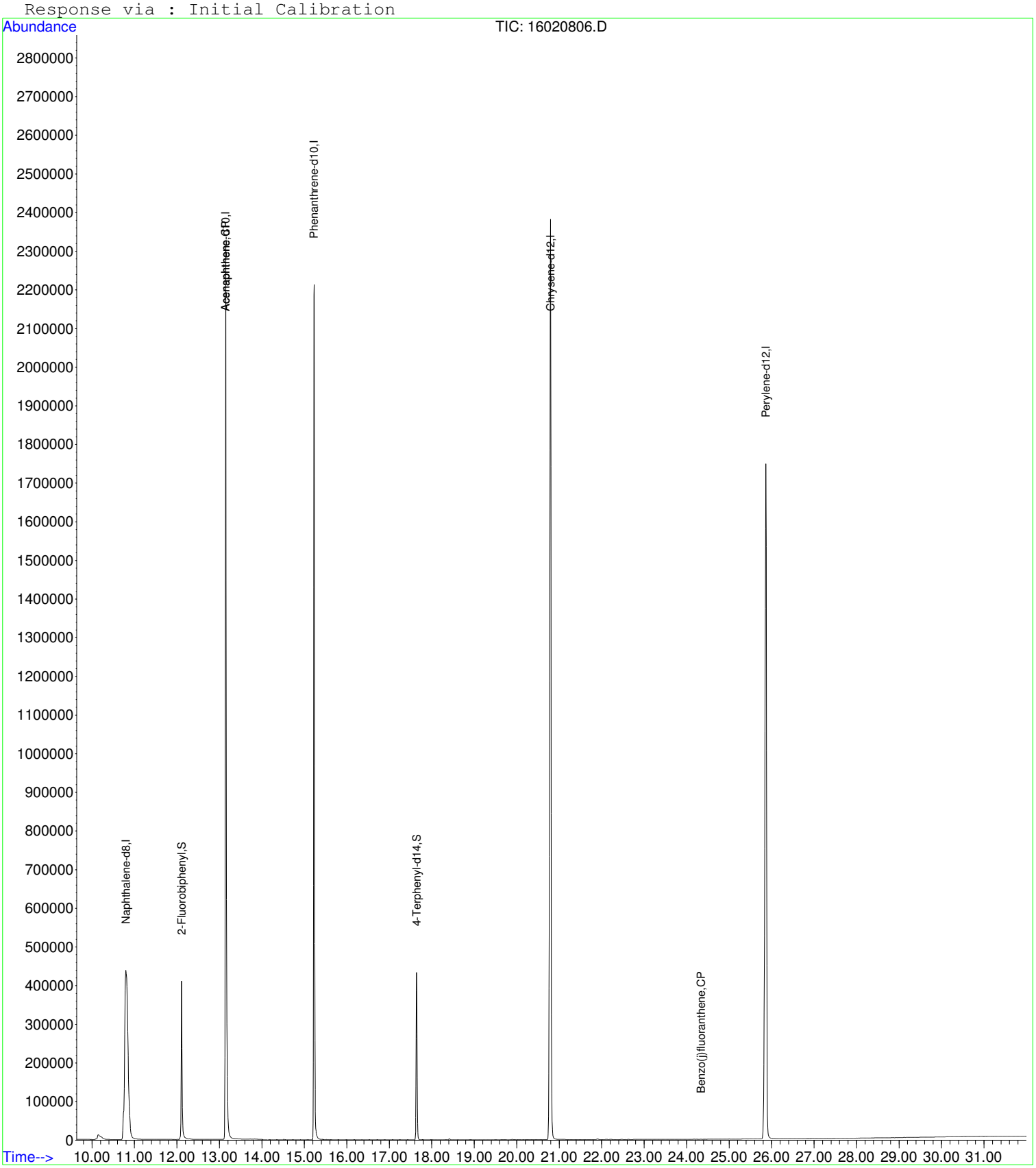
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5714	~~13.82 ug/kg#~~	10
23) Benzo(j)fluoranthene	24.34	252	129	0.19 ug/kg	83

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020806.D Vial: 6
Acq On : 8 Feb 2016 11:02 am Operator:
Sample : MB-73479 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 11:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020807.D Vial: 7
Acq On : 8 Feb 2016 11:43 am Operator:
Sample : 1601231-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2738657	4000.00 ug/kg	131
5) Acenaphthene-d10	13.15	164	2017828	4000.00 ug/kg	111
11) Phenanthrene-d10	15.23	188	3597823	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	3157715	4000.00 ug/kg	109
20) Perylene-d12	25.86	264	2677450	4000.00 ug/kg	116

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44892	76.79 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#	
16) 4-Terphenyl-d14	17.65	244	46477	77.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7399	~~14.55 ug/kg#~~	10
12) Phenanthrene	15.26	178	8225	9.63 ug/kg	99
14) Fluoranthene	17.19	202	24626	29.07 ug/kg	99
15) Pyrene	17.75	202	23012	26.67 ug/kg	99
18) Benzo[a]anthracene	20.63	228	12275	16.86 ug/kg	99
19) Chrysene	20.87	228	16279	23.48 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	16202	22.70 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	7199	11.35 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	7288	12.24 ug/kg	89
24) Benzo[e]pyrene	25.36	252	12797	19.20 ug/kg	96
25) Benzo[a]pyrene	25.55	252	15343	23.65 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	3022	5.04 ug/kg	88
27) Indeno[1,2,3-cd]pyrene	29.16	276	11951	16.35 ug/kg	97
28) Benzo[g,h,i]perylene	30.22	276	12459	20.31 ug/kg	99

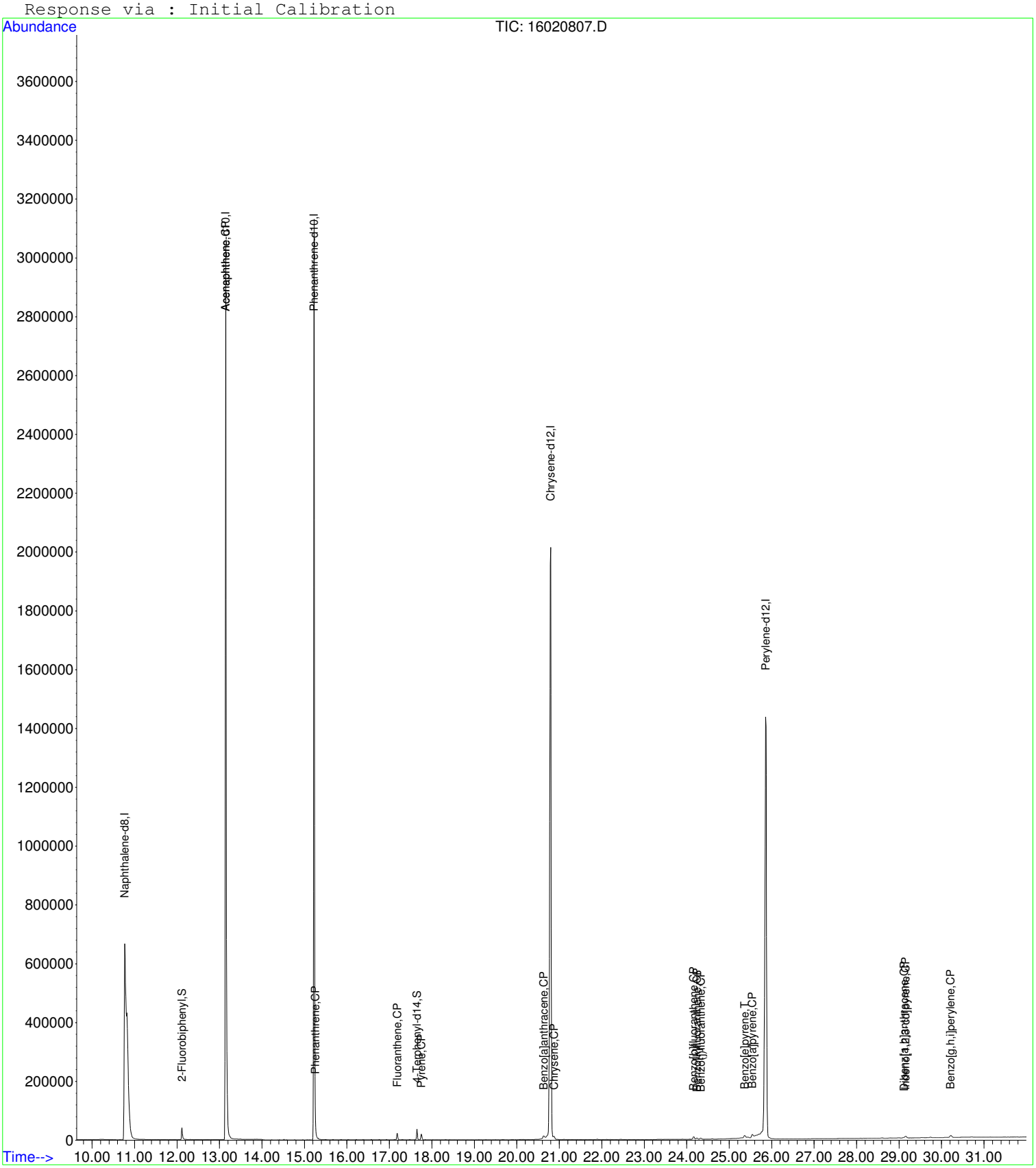
CONFIRMED
By Sherri Herschmann at 2:42:28 PM, 2/15/2016

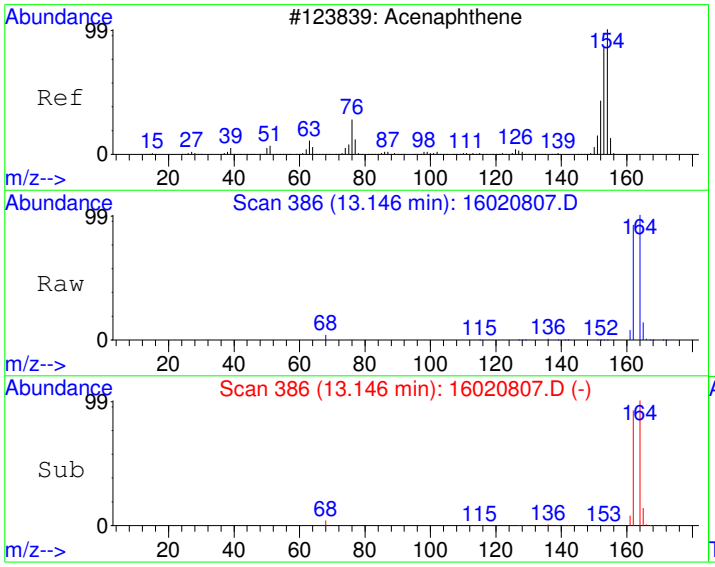
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020807.D Vial: 7
Acq On : 8 Feb 2016 11:43 am Operator:
Sample : 1601231-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

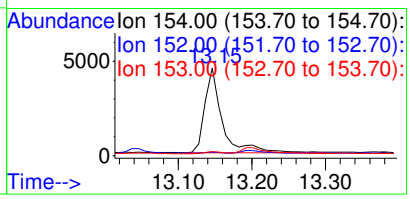


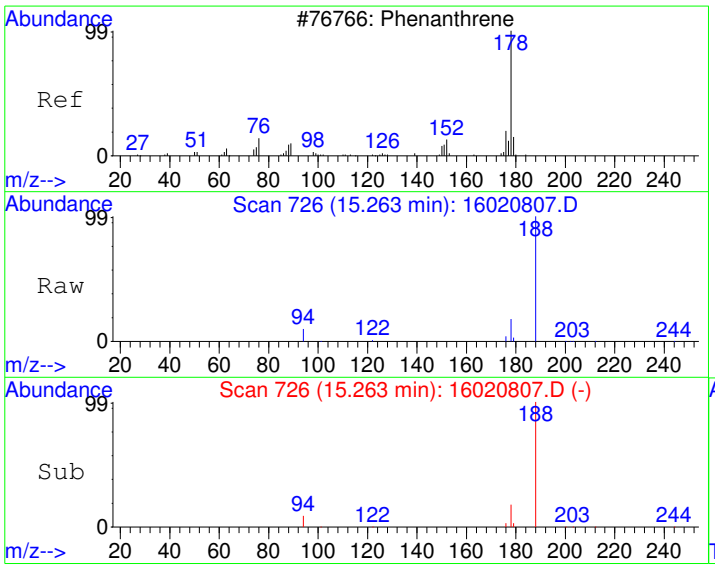


#9
Acenaphthene
Concen: 14.55 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:154 Resp: 7399

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.6	74.4	134.4#

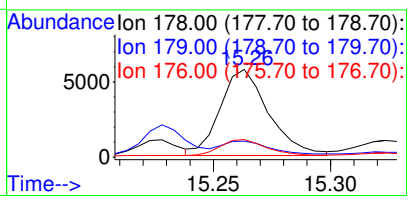


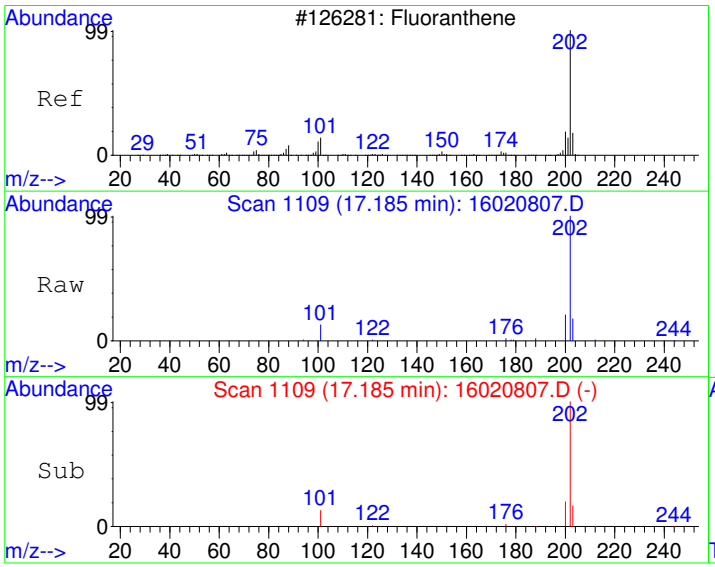


#12
Phenanthrene
Concen: 9.63 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:178 Resp: 8225

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.1
176	19.4	0.0	49.0

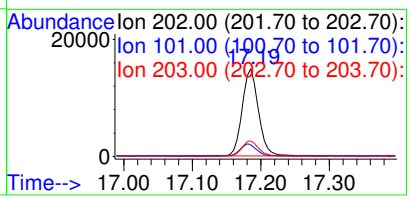


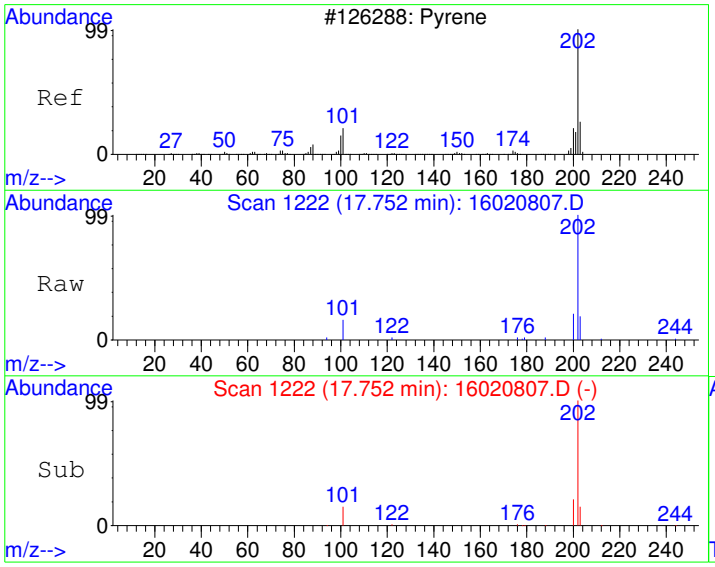


#14
Fluoranthene
Concen: 29.07 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:202 Resp: 24626

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	42.5
203	17.3	0.0	48.0

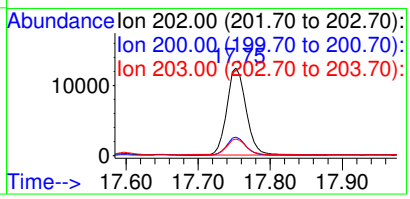


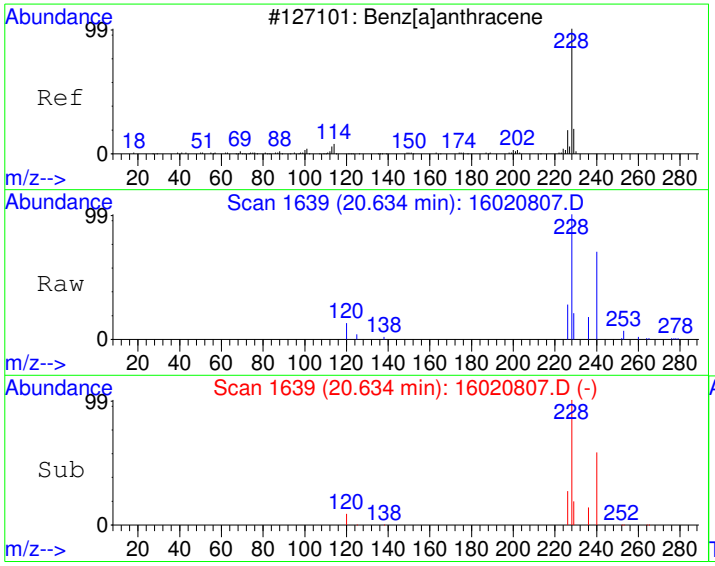


#15
Pyrene
Concen: 26.67 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.00 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:202 Resp: 23012

Ion	Ratio	Lower	Upper
202	100		
200	20.7	0.0	50.0
203	18.2	0.0	48.0

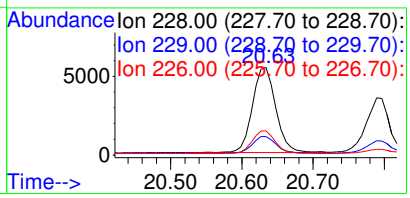


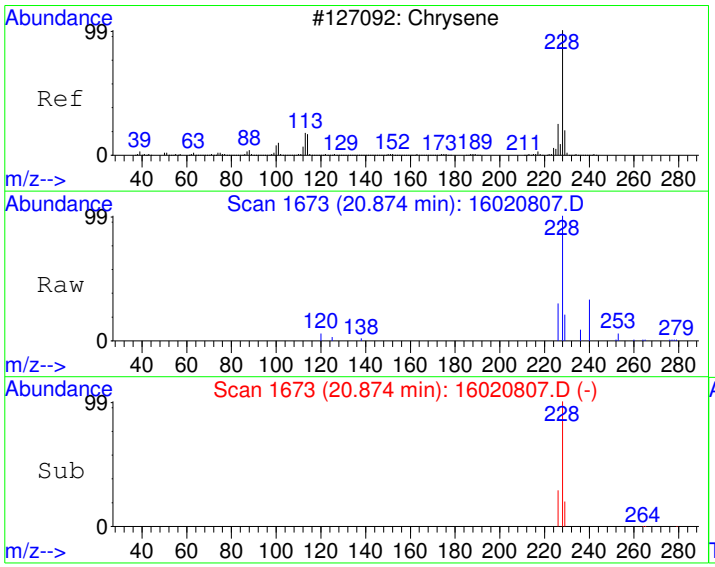


#18
Benzo[a]anthracene
Concen: 16.86 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:228 Resp: 12275

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	50.0
226	26.6	0.0	56.4

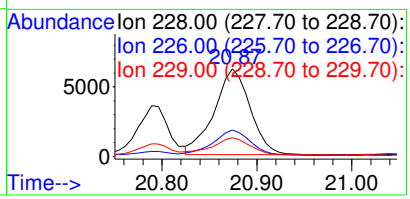


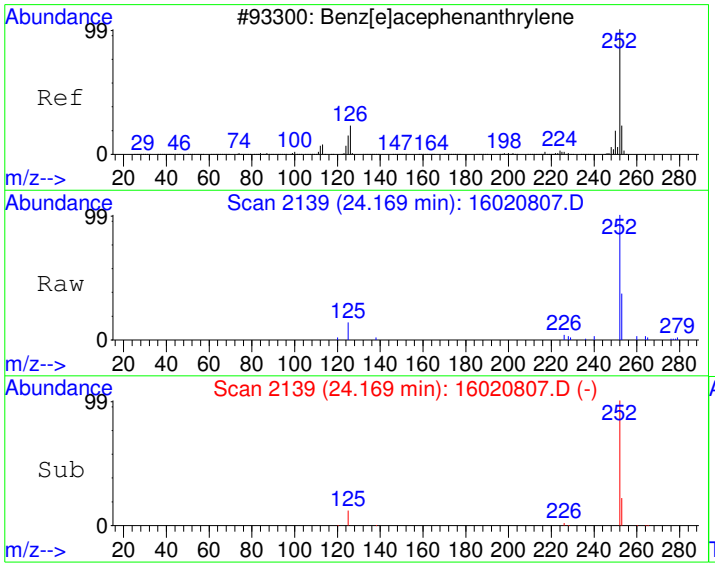


#19
Chrysene
Concen: 23.48 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:228 Resp: 16279

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.5
229	20.0	0.0	50.1

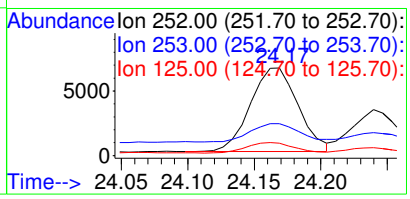


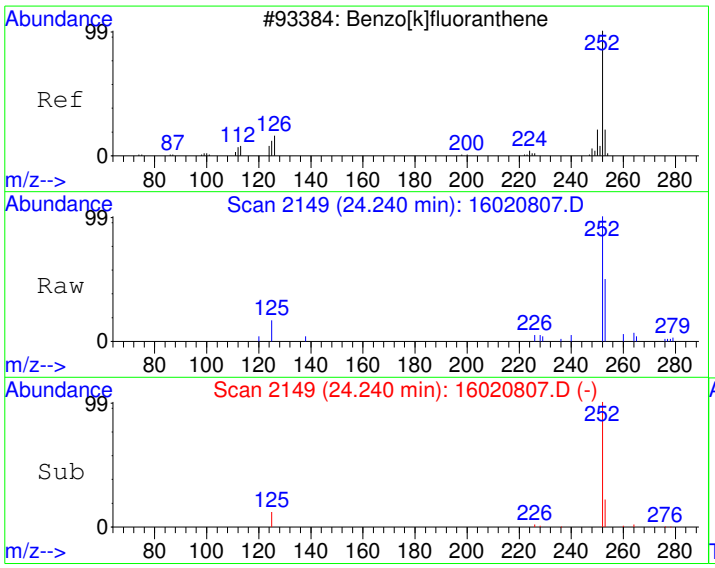


#21
Benzo[b]fluoranthene
Concen: 22.70 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:252 Resp: 16202

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	52.0
125	11.4	0.0	40.5

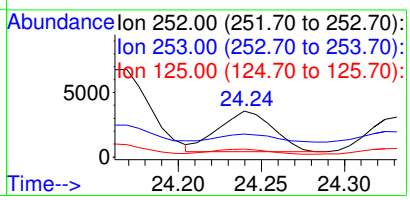


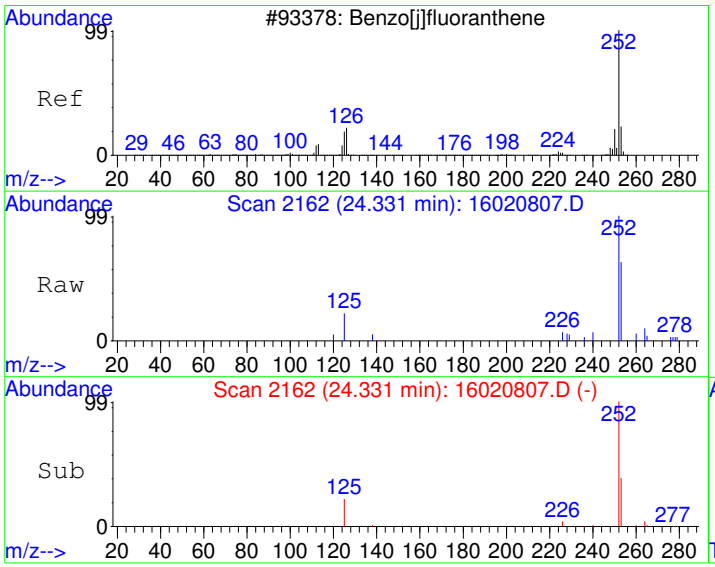


#22
Benzo[k]fluoranthene
Concen: 11.35 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:252 Resp: 7199

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.2	42.2
125	11.8	0.0	31.8

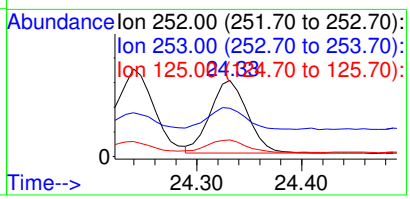


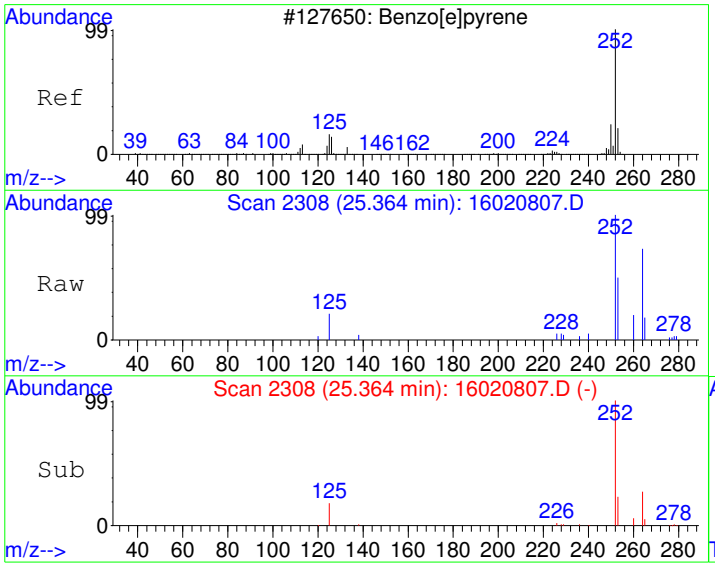


#23
Benzo(j)fluoranthene
Concen: 12.24 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:252 Resp: 7288

Ion	Ratio	Lower	Upper
252	100		
253	28.2	2.3	42.3
125	17.4	0.0	34.0

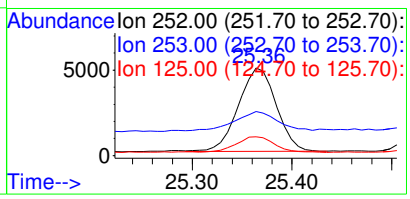


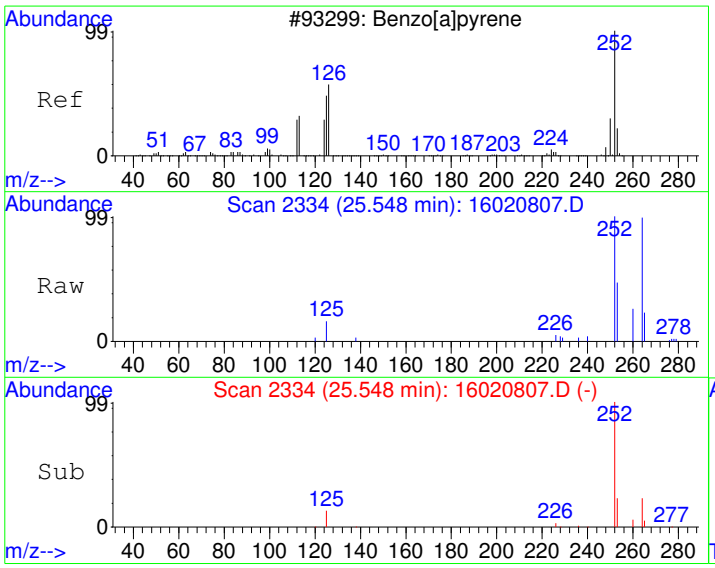


#24
Benzo[e]pyrene
Concen: 19.20 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:252 Resp: 12797

Ion	Ratio	Lower	Upper
252	100		
253	23.2	2.2	42.2
125	18.6	0.0	36.0

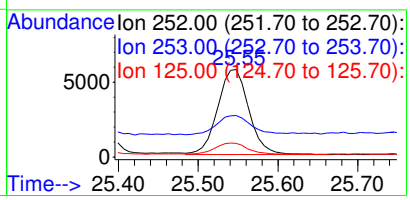


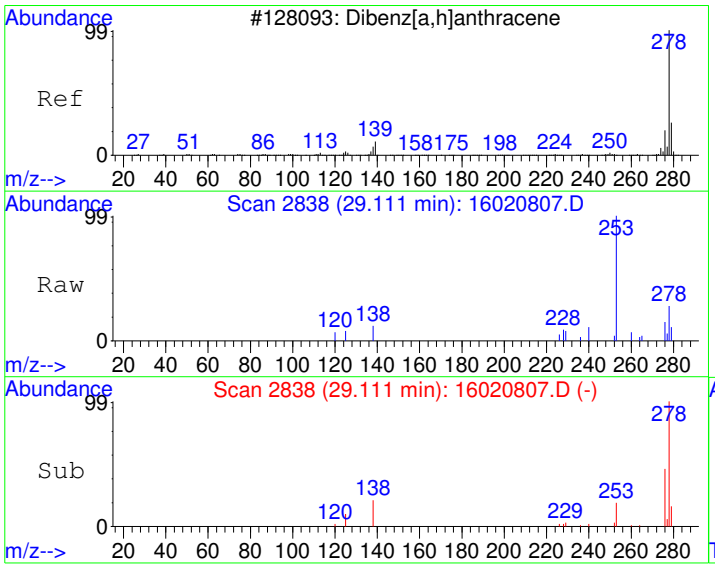


#25
Benzo[a]pyrene
Concen: 23.65 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:252 Resp: 15343

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.0	42.0
125	13.0	0.0	32.3

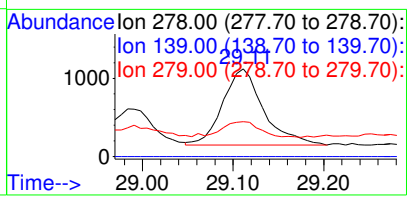


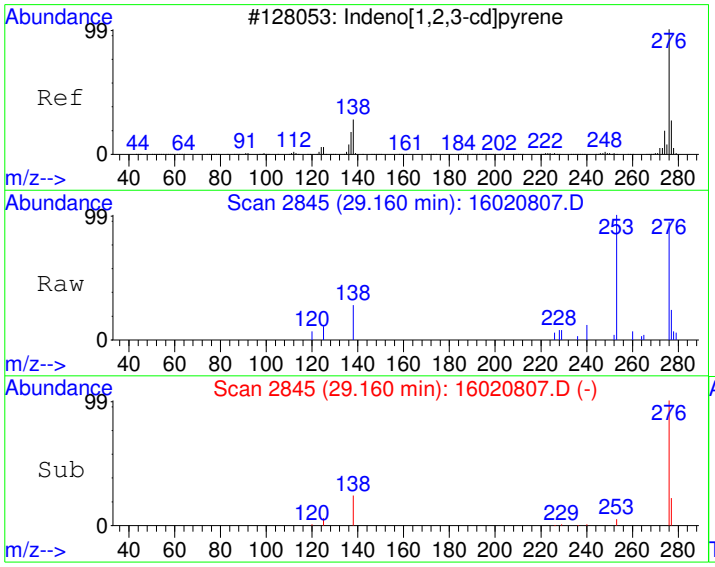


#26
Dibenz[a,h]anthracene
Concen: 5.04 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:278 Resp: 3022

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	18.0	3.8	43.8

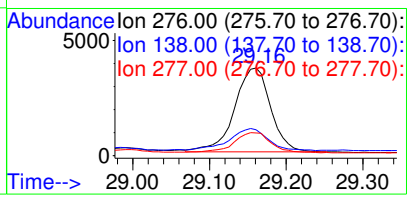


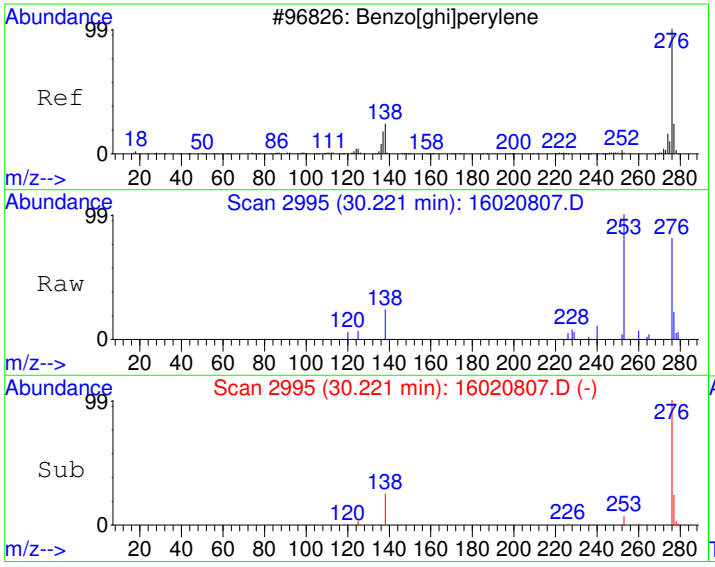


#27
Indeno[1,2,3-cd]pyrene
Concen: 16.35 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:276 Resp: 11951

Ion	Ratio	Lower	Upper
276	100		
138	24.4	2.1	42.1
277	23.3	4.2	44.2

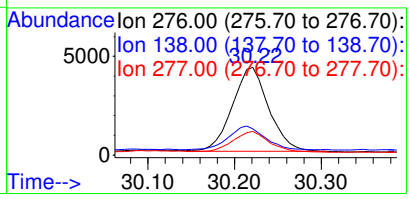




#28
Benzo[g,h,i]perylene
Concen: 20.31 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020807.D
Acq: 8 Feb 2016 11:43 am

Tgt Ion:276 Resp: 12459

Ion	Ratio	Lower	Upper
276	100		
138	24.9	3.9	43.9
277	24.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020808.D Vial: 8
Acq On : 8 Feb 2016 12:24 pm Operator:
Sample : 1601231-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2865978	4000.00 ug/kg	137
5) Acenaphthene-d10	13.15	164	2016445	4000.00 ug/kg	111
11) Phenanthrene-d10	15.23	188	3597810	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	2963196	4000.00 ug/kg	103
20) Perylene-d12	25.87	264	2514588	4000.00 ug/kg	109

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45594	78.04 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#	
16) 4-Terphenyl-d14	17.65	244	45573	75.82 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6466	~~12.73 ug/kg~~#	10
12) Phenanthrene	15.26	178	9245	10.82 ug/kg	99
14) Fluoranthene	17.18	202	26801	31.63 ug/kg	98
15) Pyrene	17.75	202	24638	28.55 ug/kg	99
18) Benzo[a]anthracene	20.63	228	13118	19.20 ug/kg	100
19) Chrysene	20.88	228	16738	25.73 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	16030	23.91 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	7308	12.27 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	7215	12.90 ug/kg	89
24) Benzo[e]pyrene	25.36	252	13343	21.32 ug/kg	97
25) Benzo[a]pyrene	25.55	252	15529	25.49 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	2999	5.32 ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.15	276	12100	17.62 ug/kg	97
28) Benzo[g,h,i]perylene	30.22	276	13074	22.69 ug/kg	98

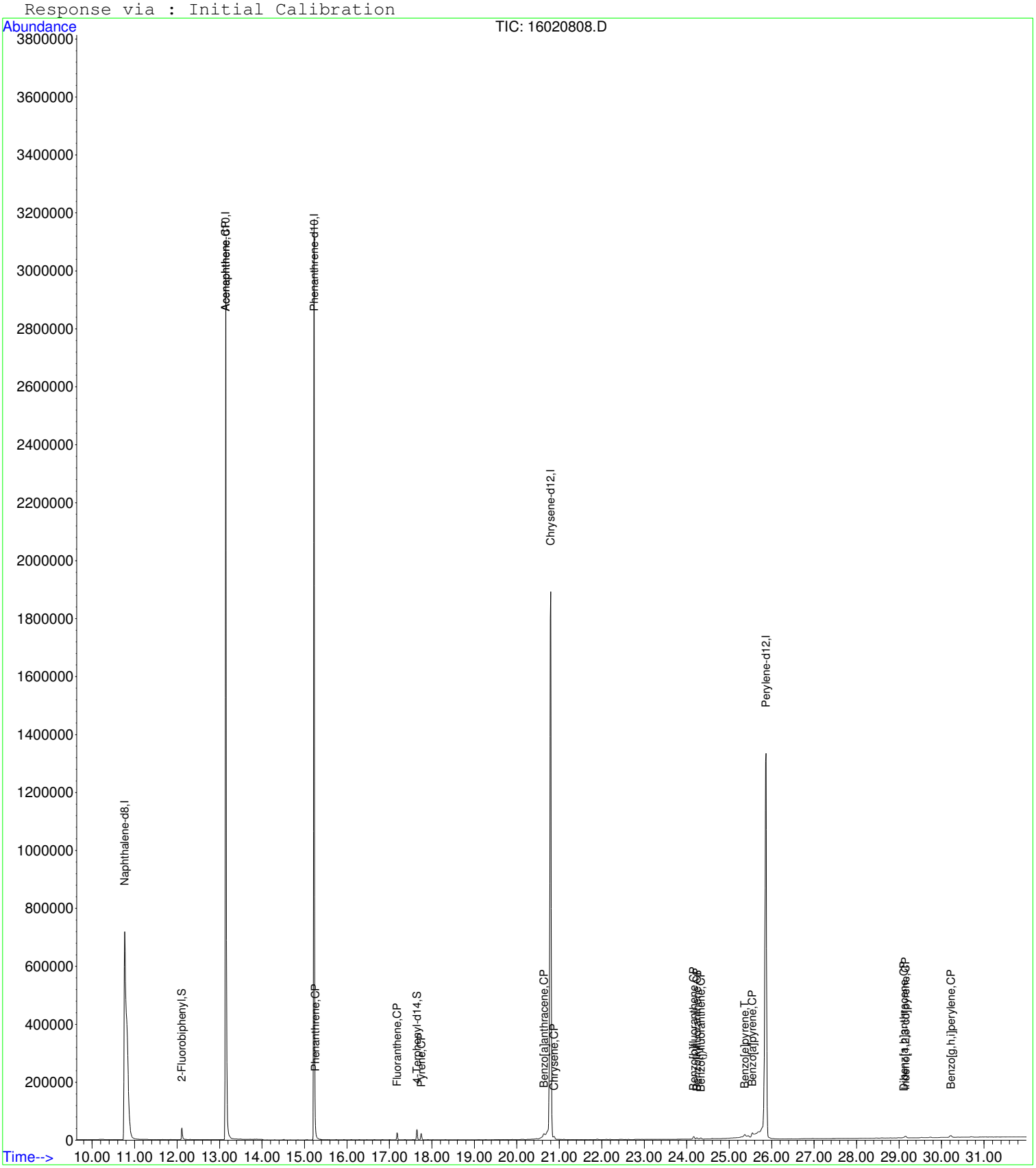
CONFIRMED
By Sherri Herschmann at 2:42:46 PM, 2/15/2016

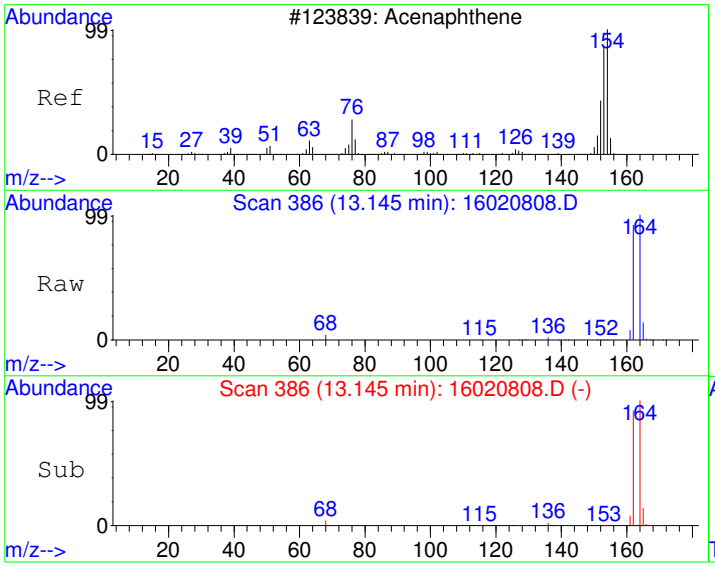
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020808.D Vial: 8
Acq On : 8 Feb 2016 12:24 pm Operator:
Sample : 1601231-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

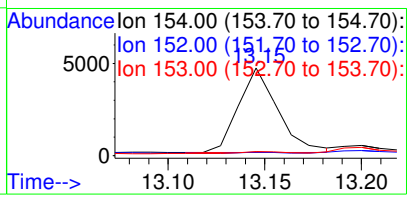


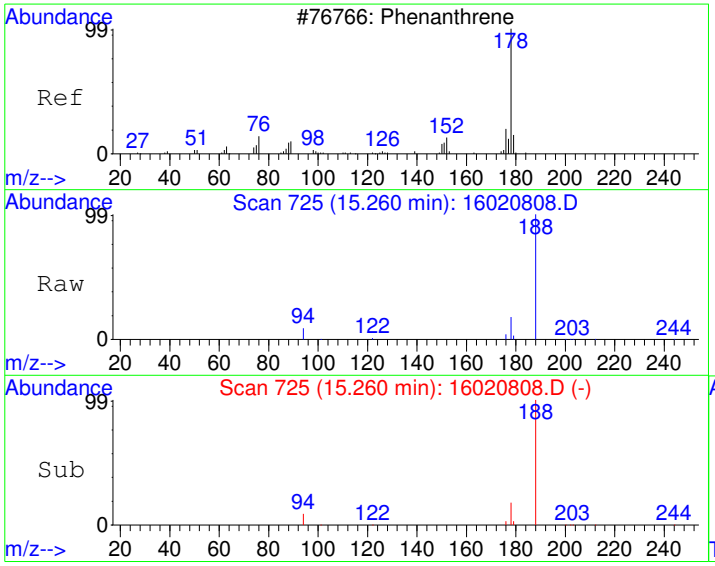


#9
Acenaphthene
Concen: 12.73 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:154 Resp: 6466

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.1	74.4	134.4#

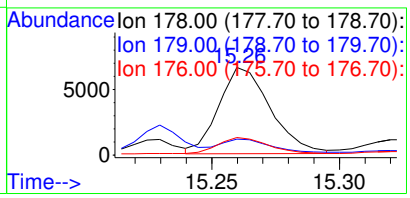


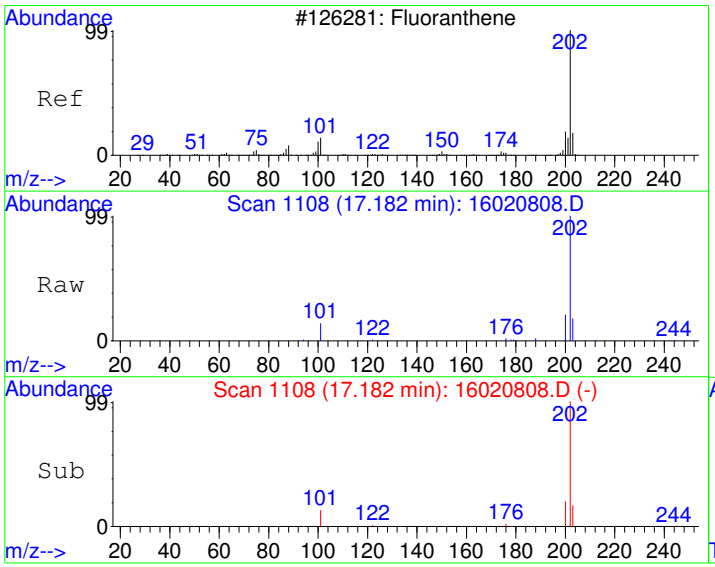


#12
Phenanthrene
Concen: 10.82 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.00 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:178 Resp: 9245

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.1
176	19.3	0.0	49.0

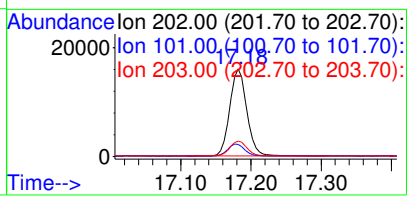


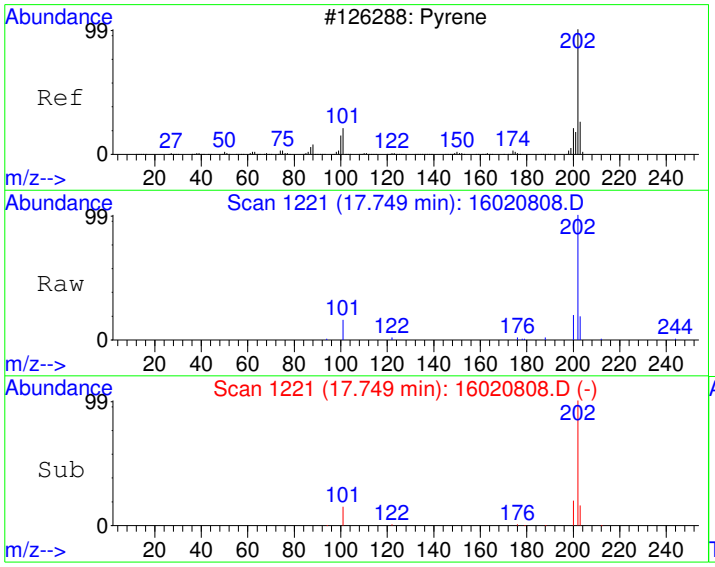


#14
Fluoranthene
Concen: 31.63 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:202 Resp: 26801

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.0	0.0	48.0

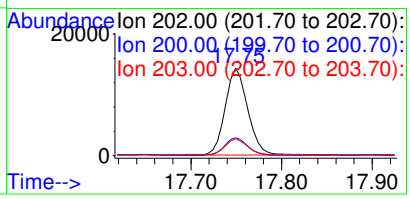


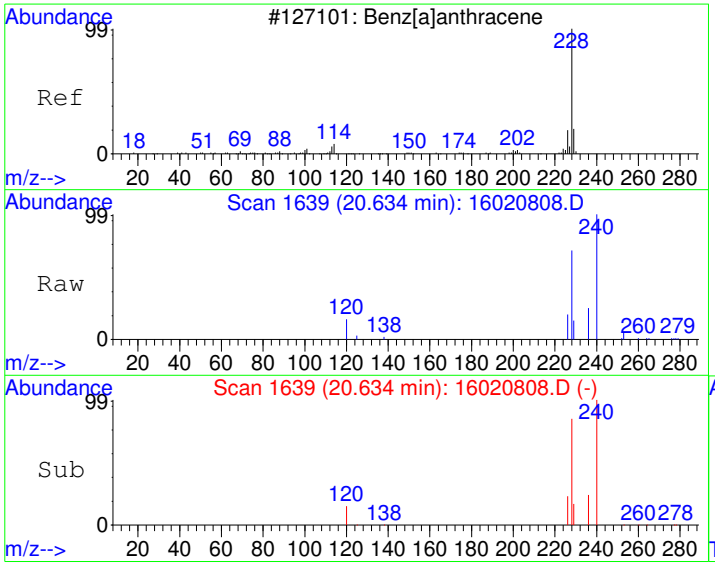


#15
Pyrene
Concen: 28.55 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:202 Resp: 24638

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	18.7	0.0	48.0

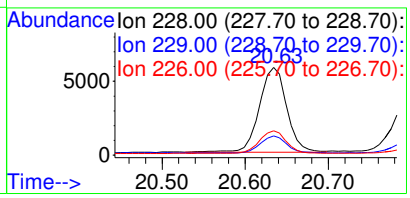


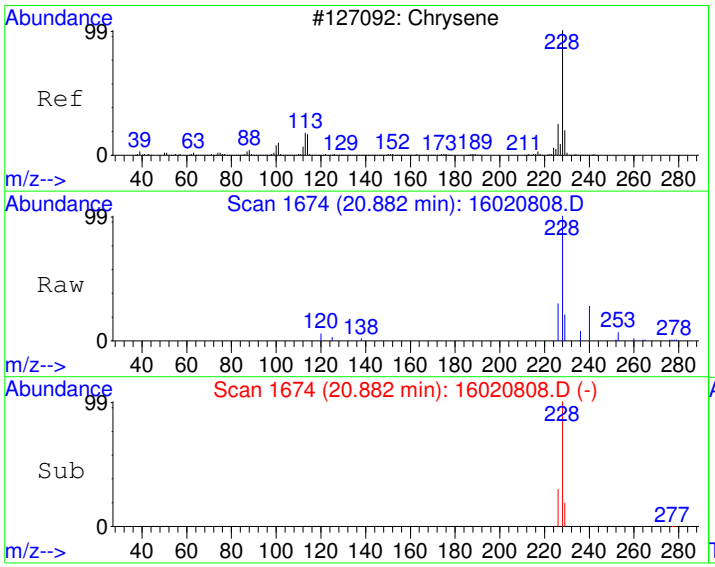


#18
Benzo[a]anthracene
Concen: 19.20 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:228 Resp: 13118

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.0
226	26.6	0.0	56.4

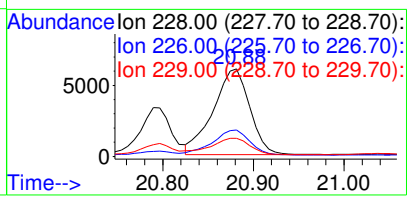


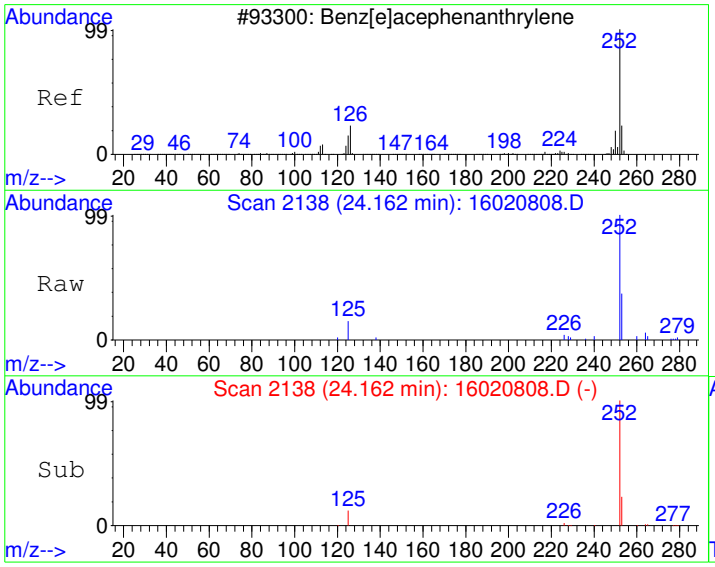


#19
Chrysene
Concen: 25.73 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:228 Resp: 16738

Ion	Ratio	Lower	Upper
228	100		
226	29.5	0.0	58.5
229	19.3	0.0	50.1

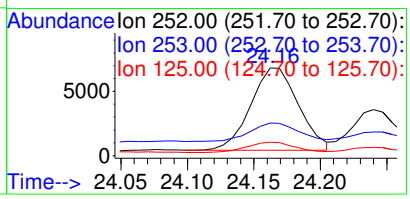


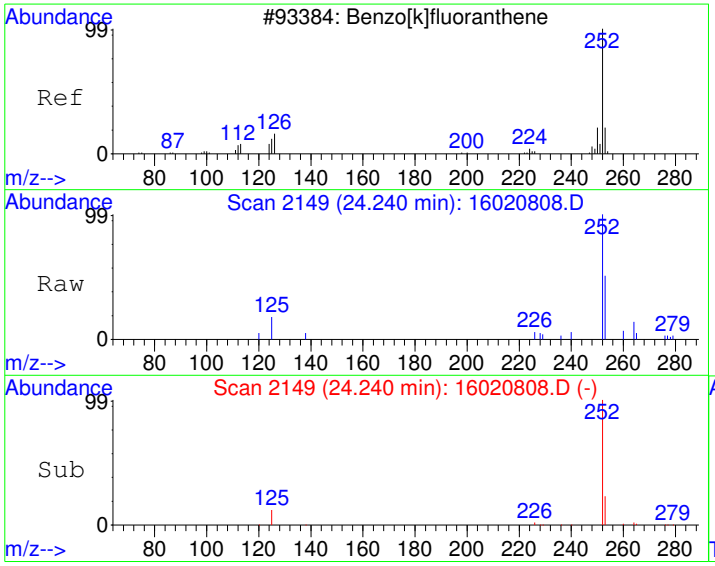


#21
Benzo[b]fluoranthene
Concen: 23.91 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:252 Resp: 16030

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.0
125	12.4	0.0	40.5

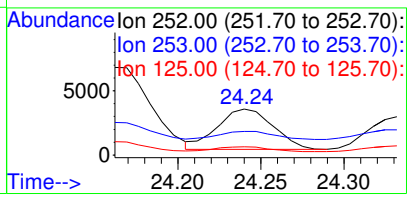


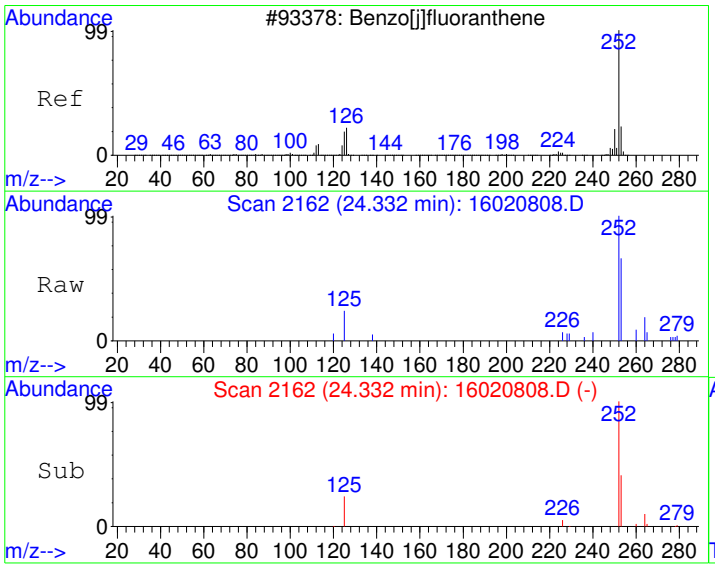


#22
Benzo[k]fluoranthene
Concen: 12.27 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:252 Resp: 7308

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	12.2	0.0	31.8

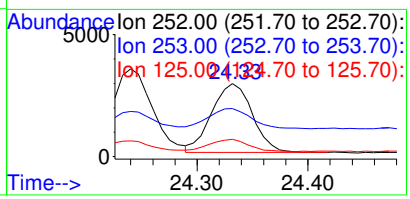


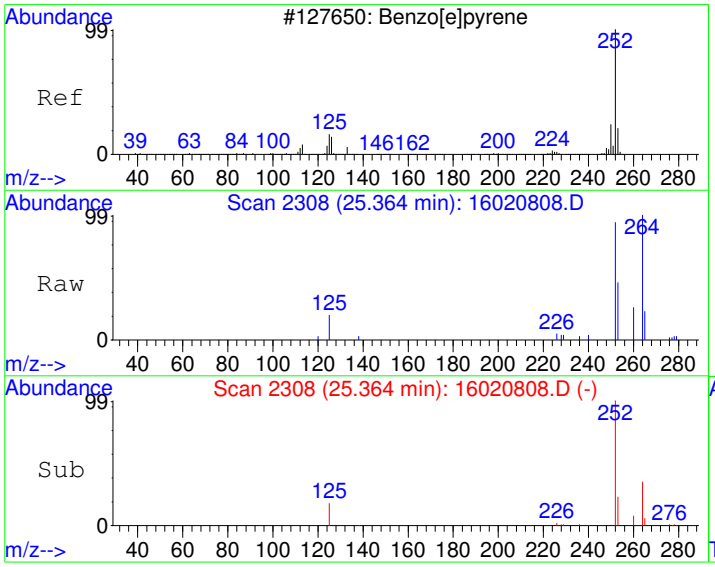


#23
Benzo(j)fluoranthene
Concen: 12.90 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:252 Resp: 7215

Ion	Ratio	Lower	Upper
252	100		
253	28.6	2.3	42.3
125	17.1	0.0	34.0

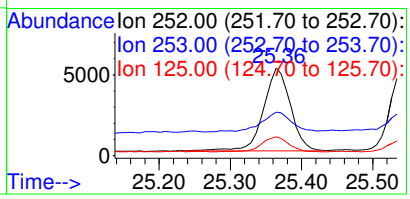


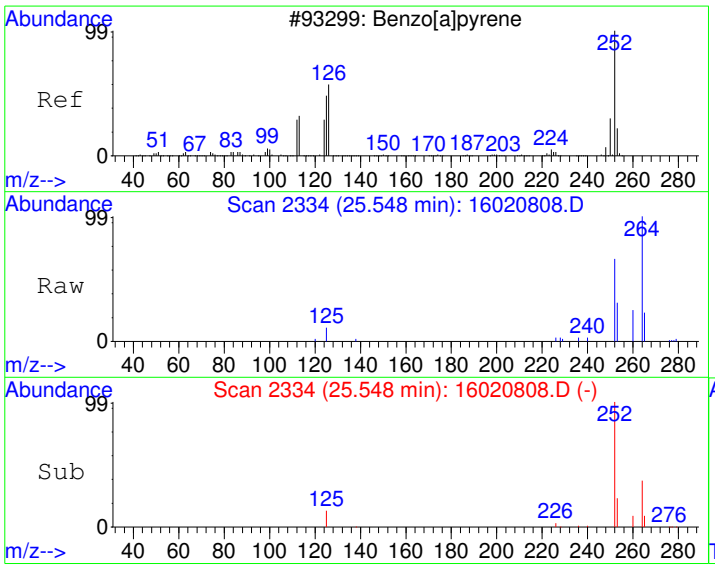


#24
Benzo[e]pyrene
Concen: 21.32 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:252 Resp: 13343

Ion	Ratio	Lower	Upper
252	100		
253	23.5	2.2	42.2
125	17.9	0.0	36.0

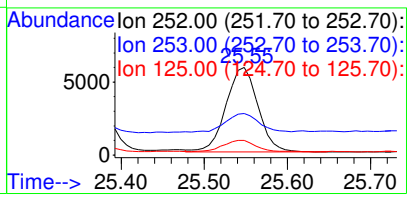


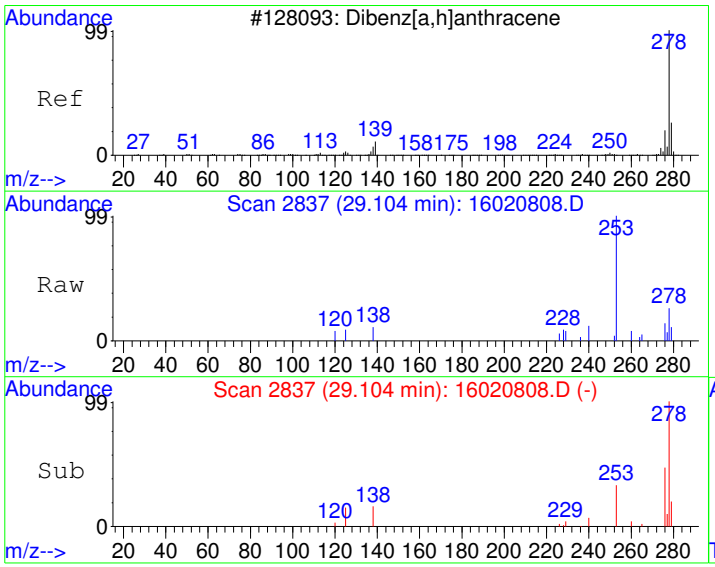


#25
Benzo[a]pyrene
Concen: 25.49 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:252 Resp: 15529

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.0	42.0
125	13.2	0.0	32.3

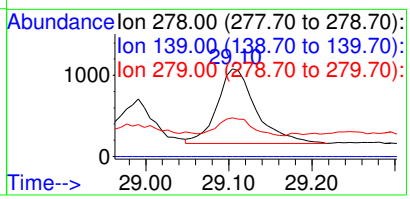


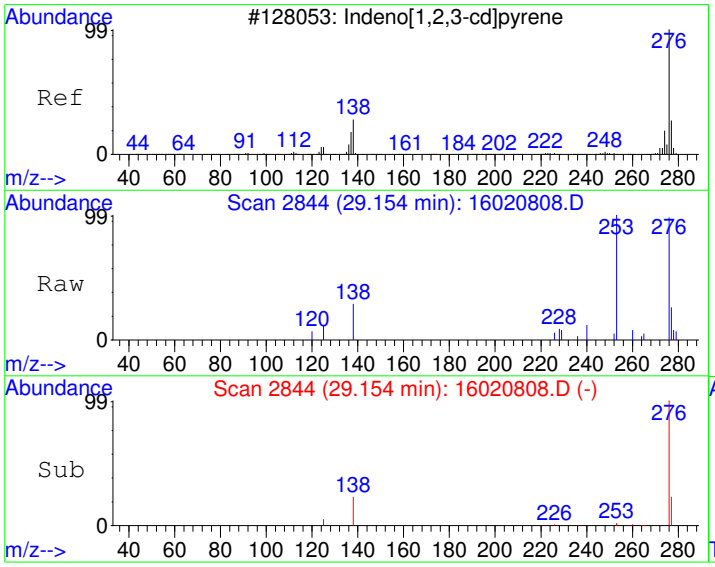


#26
Dibenz[a,h]anthracene
Concen: 5.32 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:278 Resp: 2999

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.8	3.8	43.8

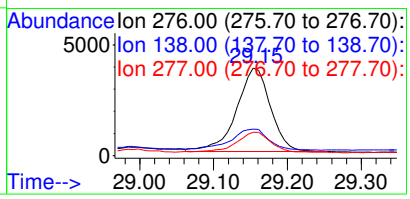


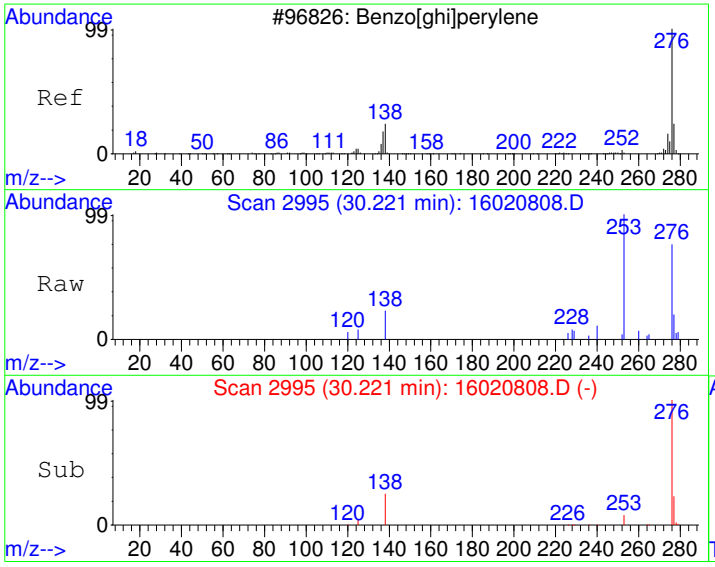


#27
Indeno[1,2,3-cd]pyrene
Concen: 17.62 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:276 Resp: 12100

Ion	Ratio	Lower	Upper
276	100		
138	24.9	2.1	42.1
277	23.8	4.2	44.2

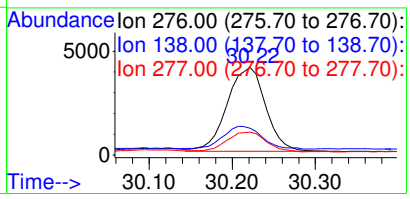




#28
Benzo[g,h,i]perylene
Concen: 22.69 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020808.D
Acq: 8 Feb 2016 12:24 pm

Tgt Ion:276 Resp: 13074

Ion	Ratio	Lower	Upper
276	100		
138	24.7	3.9	43.9
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020809.D Vial: 9
Acq On : 8 Feb 2016 1:04 pm Operator:
Sample : 1601231-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2288376	4000.00 ug/kg	109
5) Acenaphthene-d10	13.15	164	2127258	4000.00 ug/kg	117
11) Phenanthrene-d10	15.23	188	3676076	4000.00 ug/kg	112
17) Chrysene-d12	20.80	240	3183397	4000.00 ug/kg	110
20) Perylene-d12	25.87	264	2617895	4000.00 ug/kg	113

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	44137	71.62 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.79%#		
16) 4-Terphenyl-d14	17.65	244	48735	79.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.98%#		

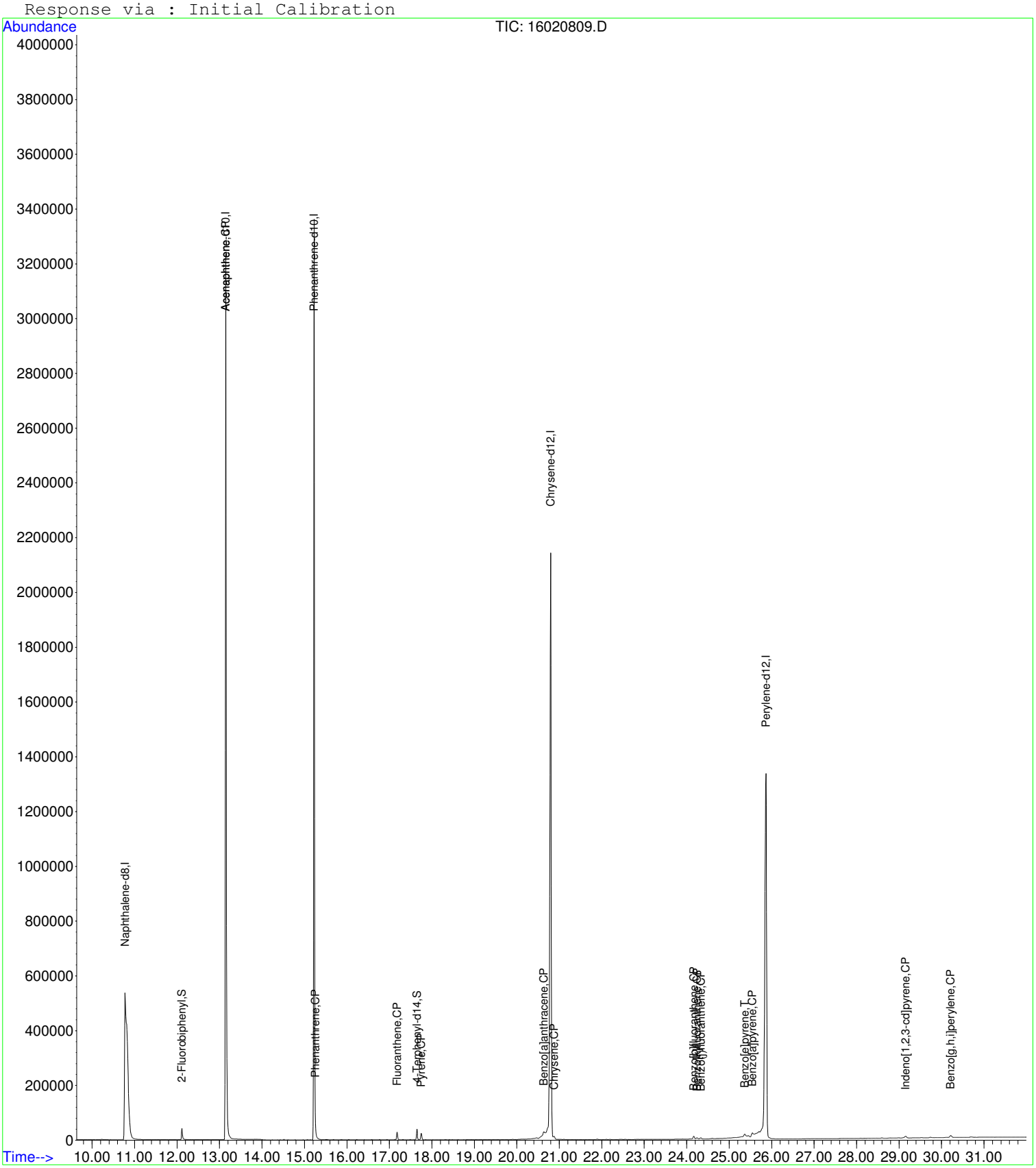
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7596	~~14.17 ug/kg~~#	10
12) Phenanthrene	15.26	178	10367	11.88 ug/kg	100
14) Fluoranthene	17.18	202	30176	34.86 ug/kg	98
15) Pyrene	17.75	202	27617	31.32 ug/kg	99
18) Benzo[a]anthracene	20.63	228	14412	19.63 ug/kg	99
19) Chrysene	20.87	228	18122	25.93 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	18071	25.89 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	7778	12.55 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	7775	13.35 ug/kg	90
24) Benzo[e]pyrene	25.36	252	14249	21.87 ug/kg	96
25) Benzo[a]pyrene	25.55	252	16734	26.38 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	13043	18.25 ug/kg	94
28) Benzo[g,h,i]perylene	30.22	276	14033	23.40 ug/kg	99

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

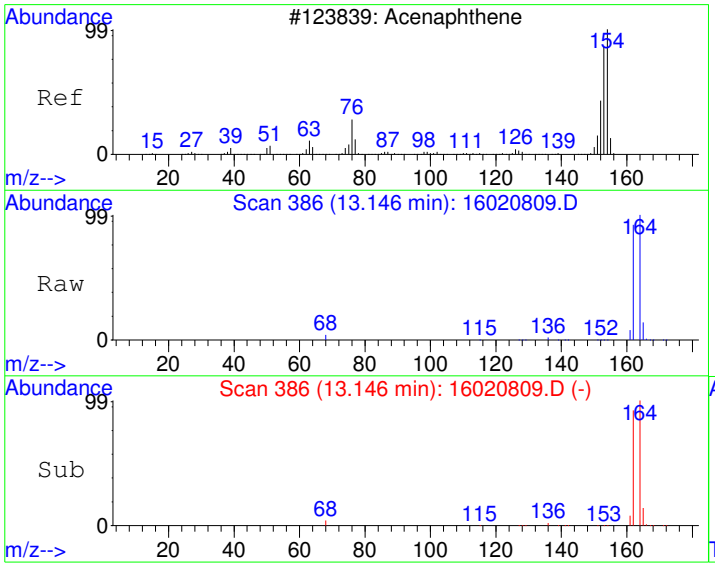
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020809.D Vial: 9
Acq On : 8 Feb 2016 1:04 pm Operator:
Sample : 1601231-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



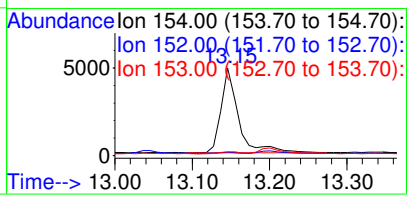
16020809.D PP160126.M Tue Feb 09 06:53:52 2016 Page 2

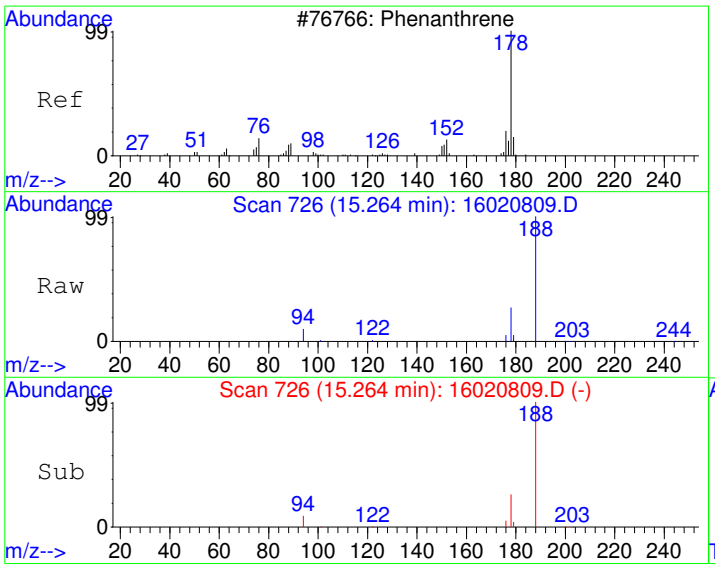


#9
Acenaphthene
Concen: 14.17 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:154 Resp: 7596

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.2	74.4	134.4#

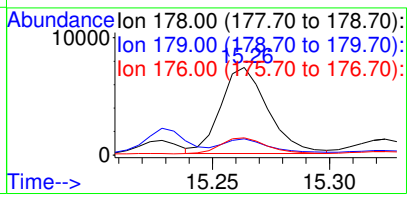


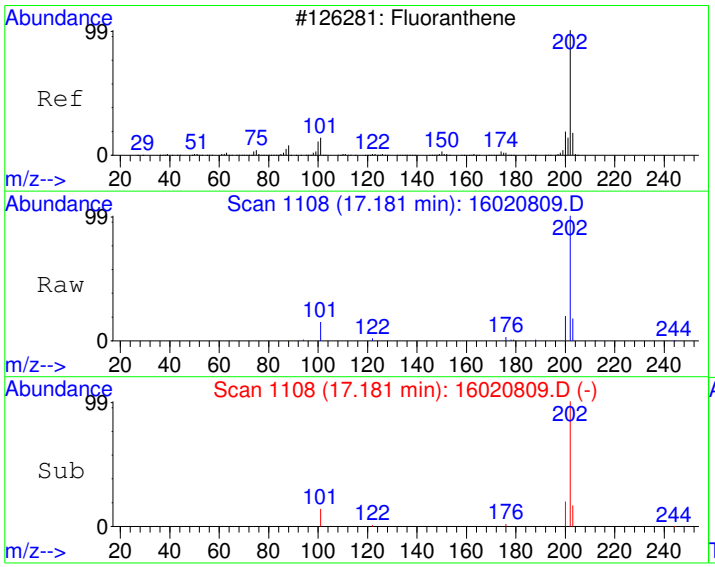


#12
Phenanthrene
Concen: 11.88 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:178 Resp: 10367

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	46.1
176	19.3	0.0	49.0

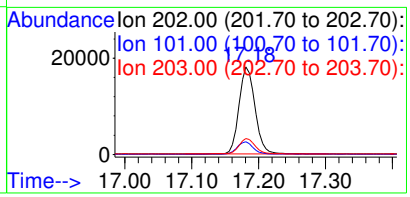


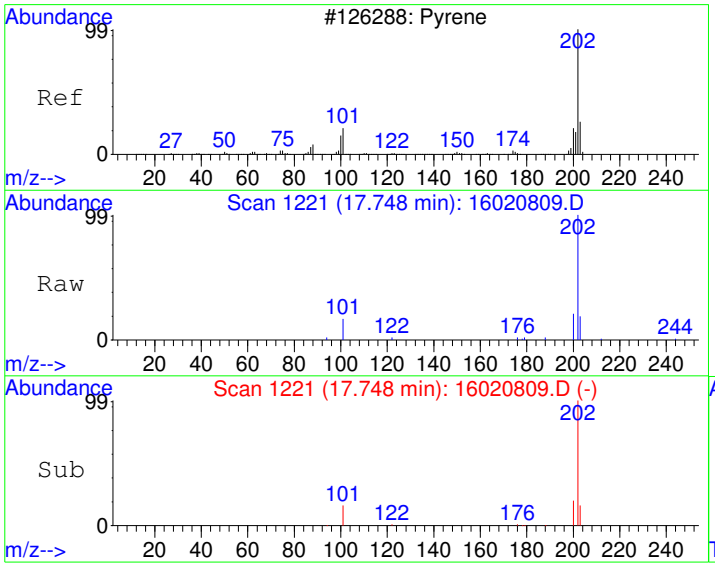


#14
Fluoranthene
Concen: 34.86 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.00 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:202 Resp: 30176

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	42.5
203	17.5	0.0	48.0

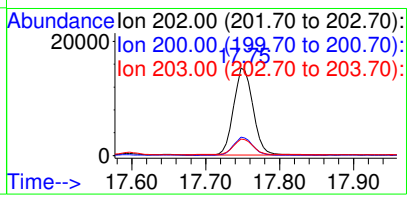


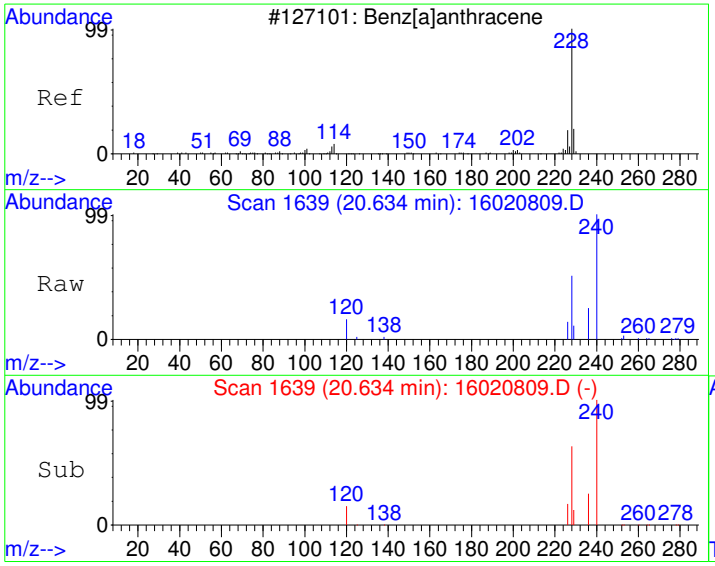


#15
Pyrene
Concen: 31.32 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. -0.00 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:202 Resp: 27617

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.0
203	18.2	0.0	48.0

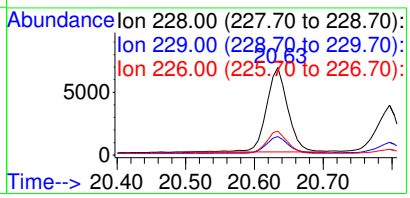


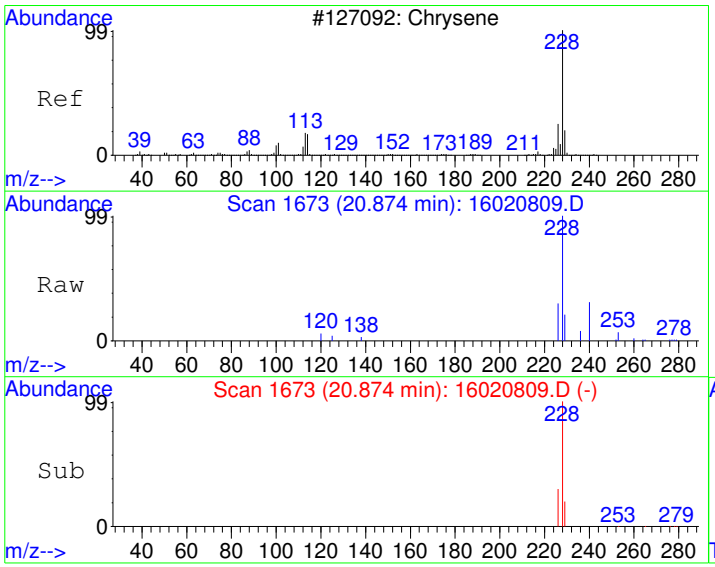


#18
Benzo[a]anthracene
Concen: 19.63 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:228 Resp: 14412

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	50.0
226	26.6	0.0	56.4

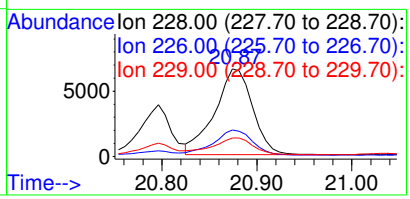


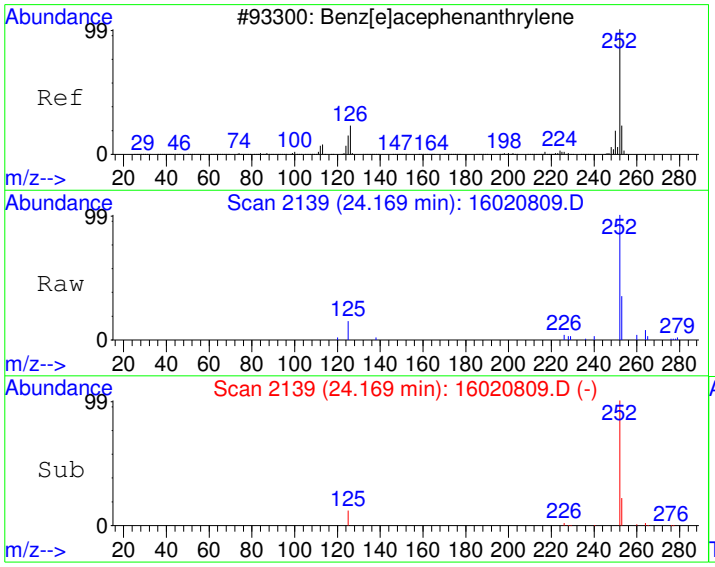


#19
Chrysene
Concen: 25.93 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:228 Resp: 18122

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.5	0.0	50.1

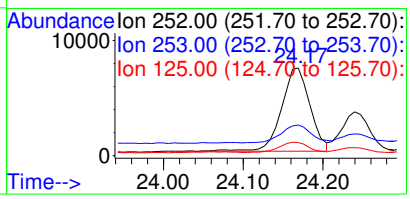


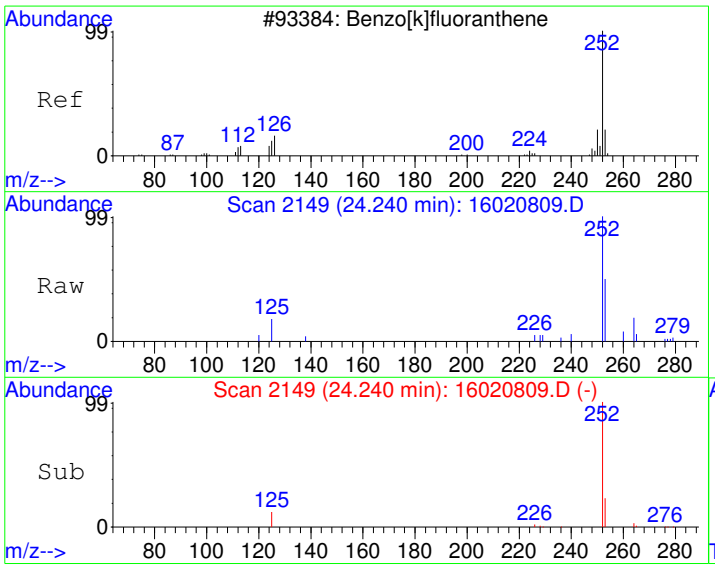


#21
Benzo[b]fluoranthene
Concen: 25.89 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:252 Resp: 18071

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	11.6	0.0	40.5

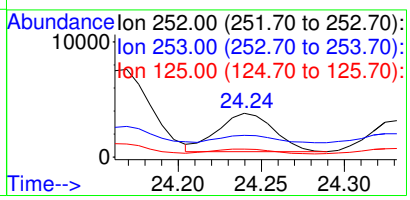


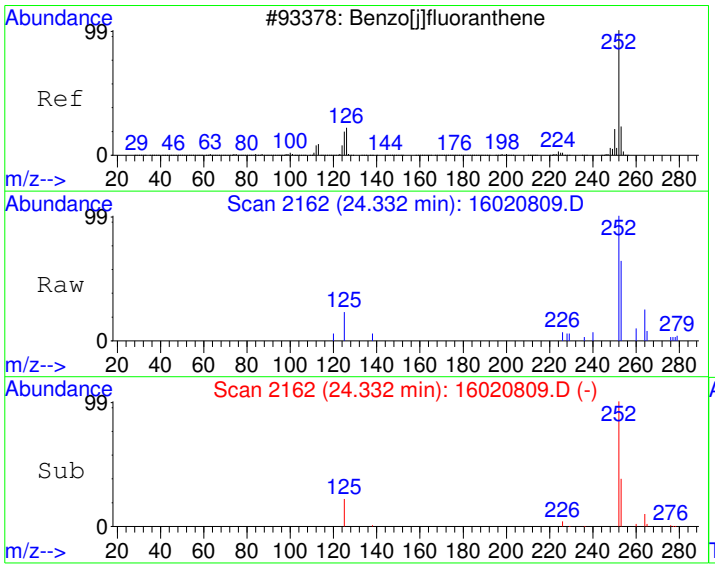


#22
Benzo[k]fluoranthene
Concen: 12.55 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:252 Resp: 7778

Ion	Ratio	Lower	Upper
252	100		
253	19.5	2.2	42.2
125	11.7	0.0	31.8

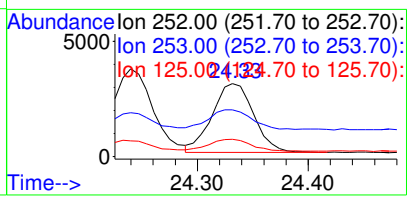


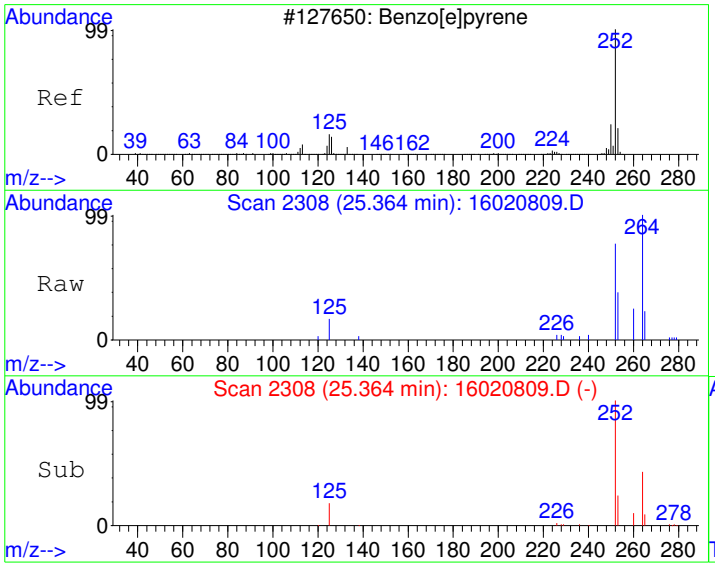


#23
Benzo(j)fluoranthene
Concen: 13.35 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:252 Resp: 7775

Ion	Ratio	Lower	Upper
252	100		
253	28.3	2.3	42.3
125	17.0	0.0	34.0

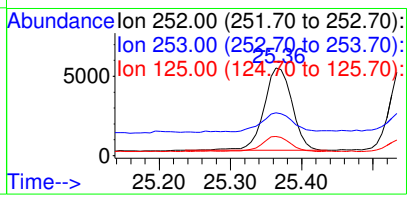


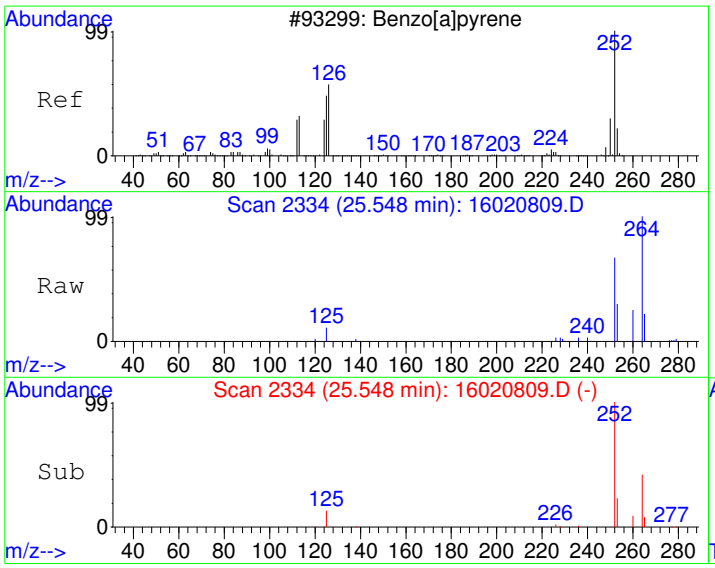


#24
Benzo[e]pyrene
Concen: 21.87 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:252 Resp: 14249

Ion	Ratio	Lower	Upper
252	100		
253	23.6	2.2	42.2
125	18.1	0.0	36.0

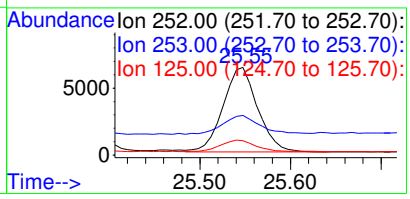


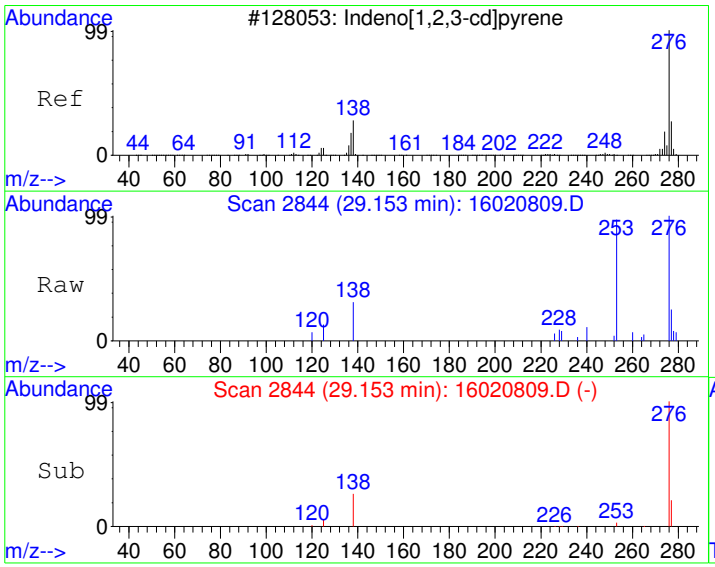


#25
Benzo[a]pyrene
Concen: 26.38 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:252 Resp: 16734

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.2	0.0	32.3

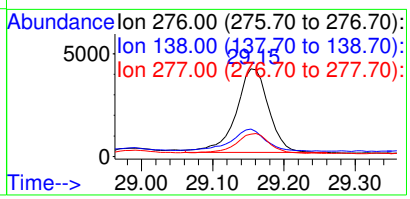


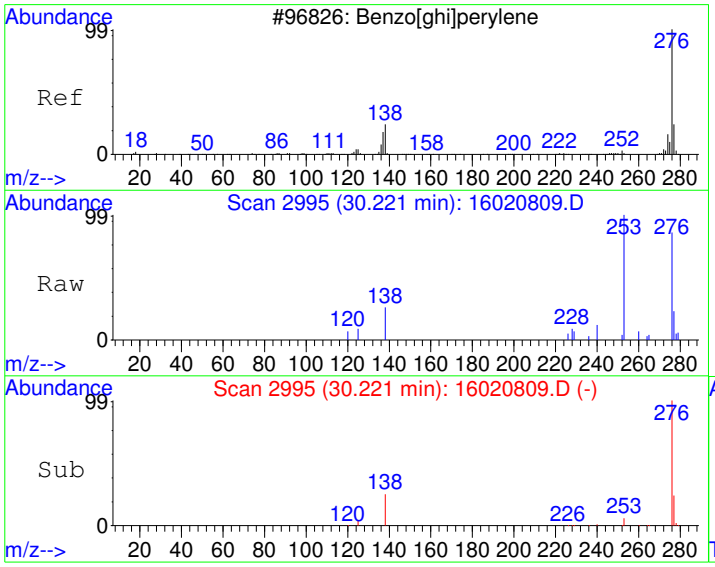


#27
Indeno[1,2,3-cd]pyrene
Concen: 18.25 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:276 Resp: 13043

Ion	Ratio	Lower	Upper
276	100		
138	26.4	2.1	42.1
277	22.9	4.2	44.2

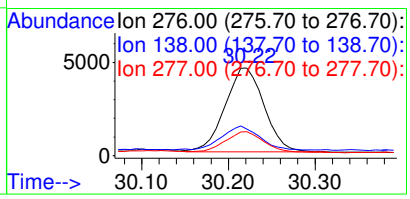




#28
Benzo[g,h,i]perylene
Concen: 23.40 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020809.D
Acq: 8 Feb 2016 1:04 pm

Tgt Ion:276 Resp: 14033

Ion	Ratio	Lower	Upper
276	100		
138	24.7	3.9	43.9
277	24.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020810.D Vial: 10
Acq On : 8 Feb 2016 1:44 pm Operator:
Sample : 1601231-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2490980	4000.00 ug/kg	119
5) Acenaphthene-d10	13.15	164	2092304	4000.00 ug/kg	115
11) Phenanthrene-d10	15.23	188	3756263	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	3144545	4000.00 ug/kg	109
20) Perylene-d12	25.87	264	2602700	4000.00 ug/kg	113

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	45376	74.86 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.87%#		
16) 4-Terphenyl-d14	17.65	244	49296	78.56 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#		

Target Compounds					Qvalue
12) Phenanthrene	15.26	178	32774	36.74 ug/kg	99
13) Anthracene	15.32	178	6111	7.00 ug/kg	98
14) Fluoranthene	17.18	202	98337	111.17 ug/kg	97
15) Pyrene	17.75	202	91739	101.83 ug/kg	100
18) Benzo[a]anthracene	20.63	228	47896	66.06 ug/kg	99
19) Chrysene	20.88	228	60910	88.23 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	61167	88.15 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	26055	42.27 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	26068	45.02 ug/kg	88
24) Benzo[e]pyrene	25.37	252	47174	72.81 ug/kg	99
25) Benzo[a]pyrene	25.55	252	59754	94.76 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	9557	16.38 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	43441	61.13 ug/kg	96
28) Benzo[g,h,i]perylene	30.21	276	46122	77.35 ug/kg	96

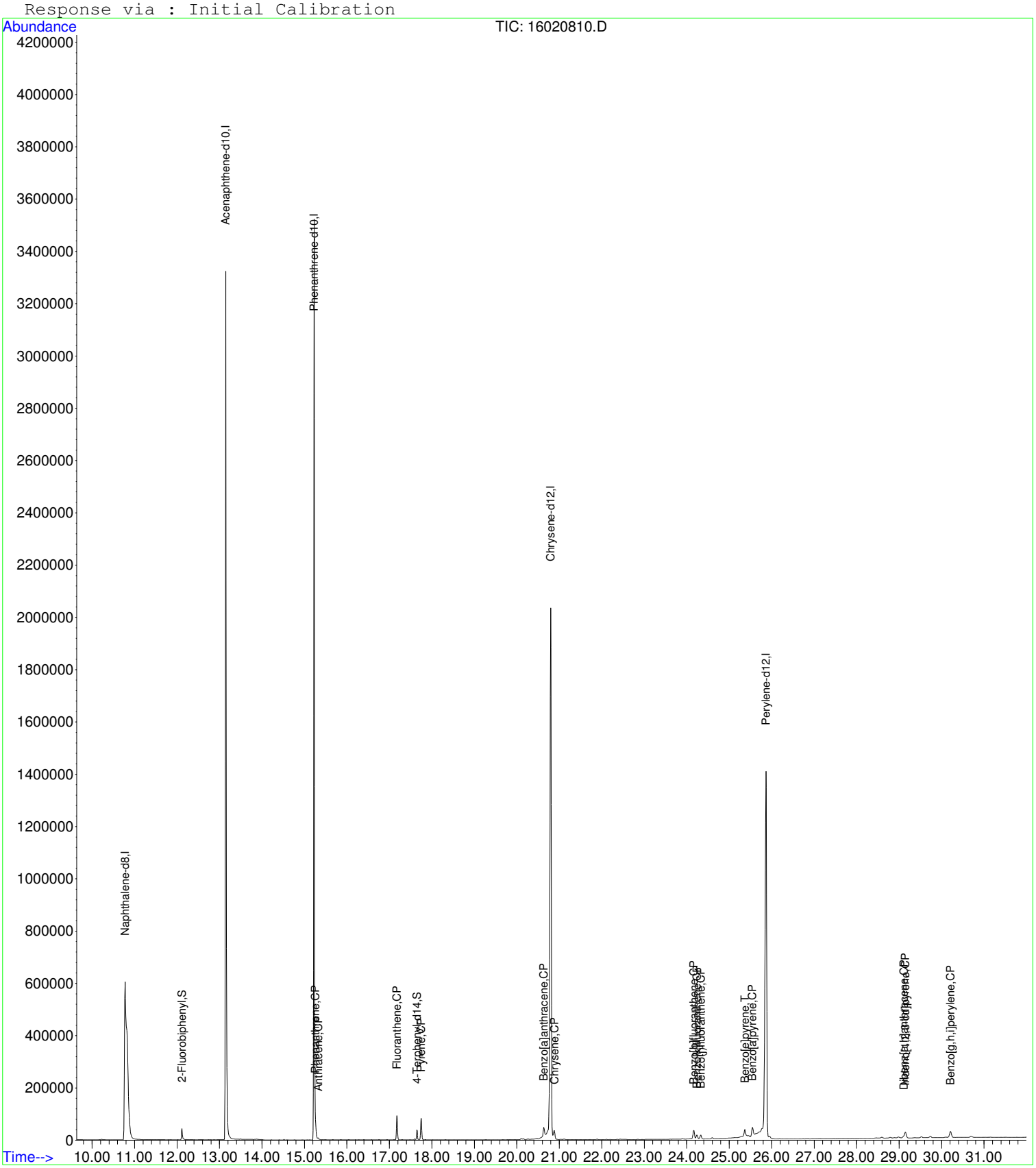
CONFIRMED
By Sherri Herschmann at 2:43:18 PM, 2/15/2016

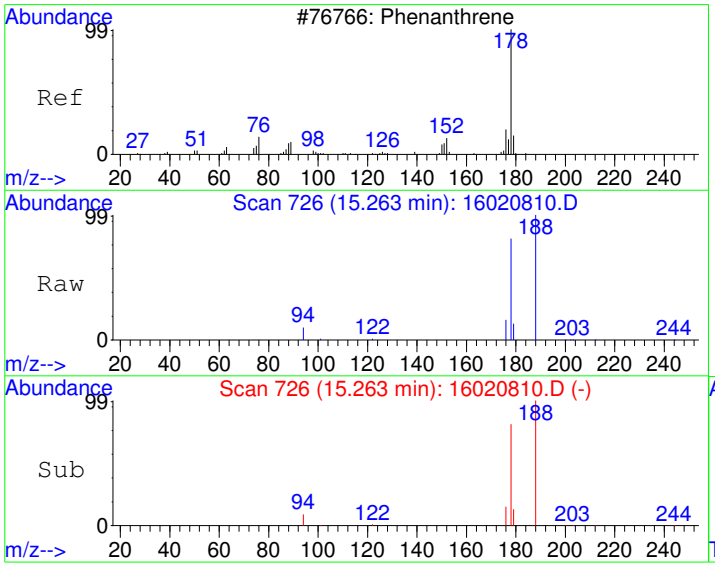
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020810.D Vial: 10
Acq On : 8 Feb 2016 1:44 pm Operator:
Sample : 1601231-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

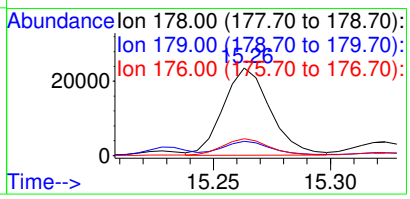


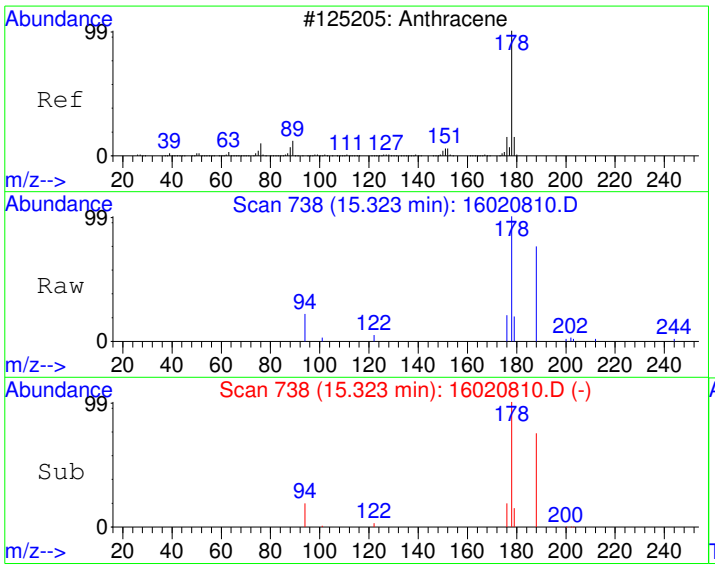


#12
Phenanthrene
Concen: 36.74 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:178 Resp: 32774

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	46.1
176	19.4	0.0	49.0

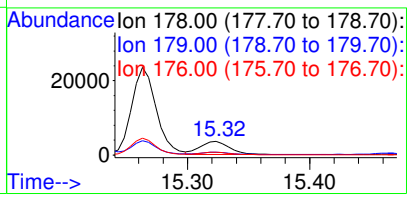


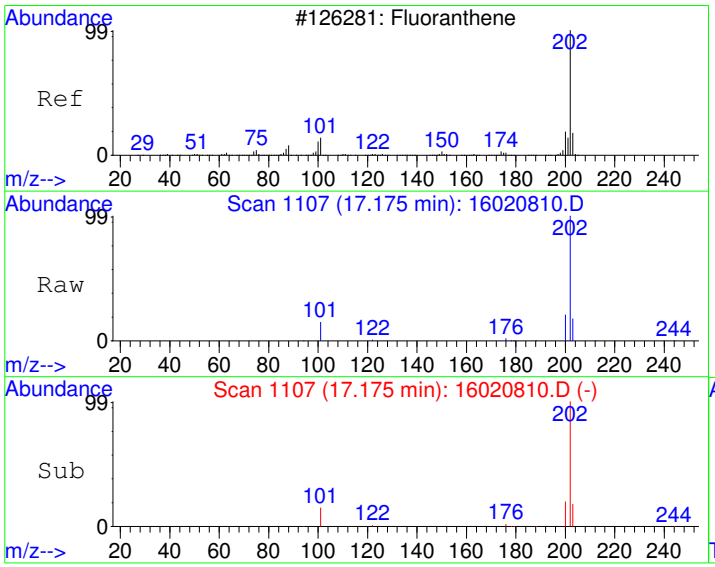


#13
Anthracene
Concen: 7.00 ug/kg
RT: 15.32 min Scan# 738
Delta R.T. 0.01 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:178 Resp: 6111

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	46.0
176	19.1	0.0	48.6

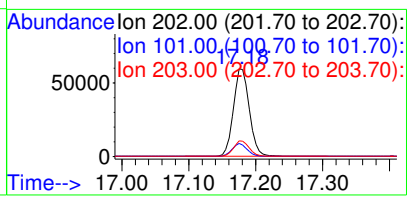


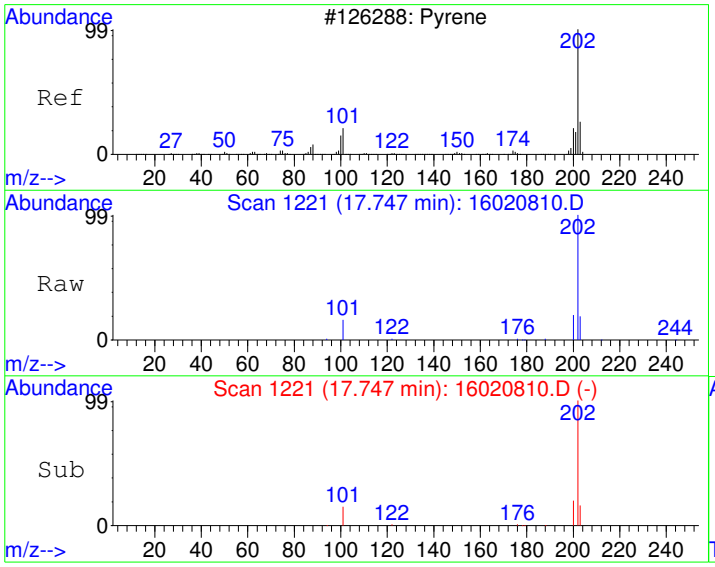


#14
Fluoranthene
Concen: 111.17 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. -0.00 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:202 Resp: 98337

Ion	Ratio	Lower	Upper
202	100		
101	14.8	0.0	42.5
203	17.5	0.0	48.0

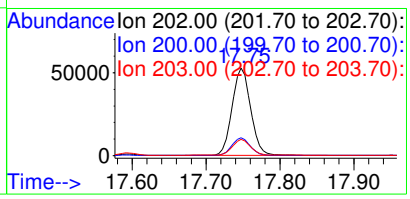


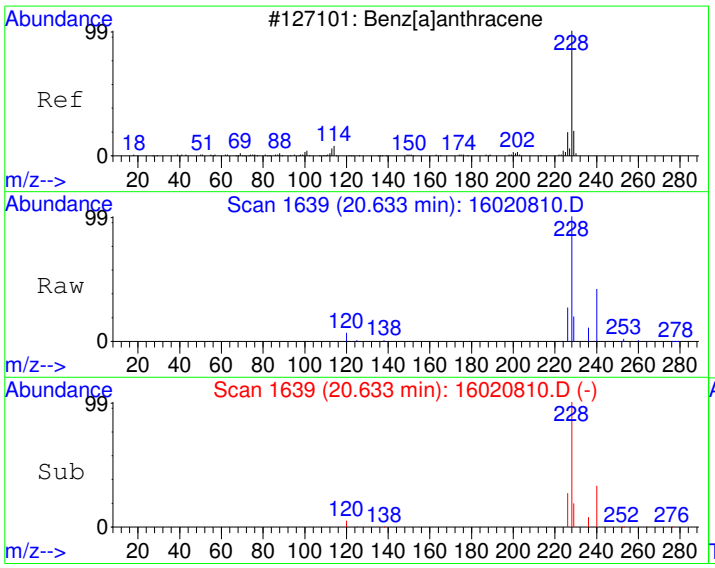


#15
Pyrene
Concen: 101.83 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. -0.00 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:202 Resp: 91739

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	18.3	0.0	48.0

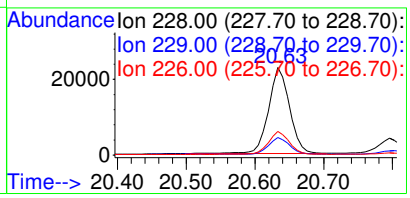


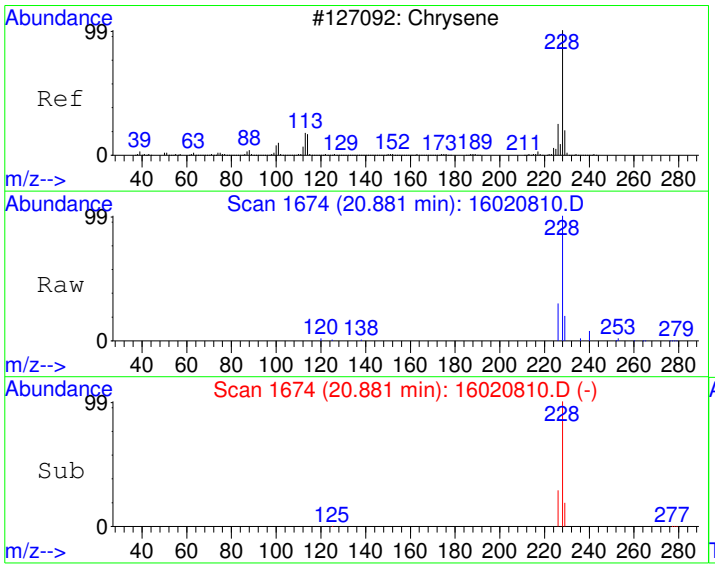


#18
Benzo[a]anthracene
Concen: 66.06 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:228 Resp: 47896

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.0
226	26.6	0.0	56.4

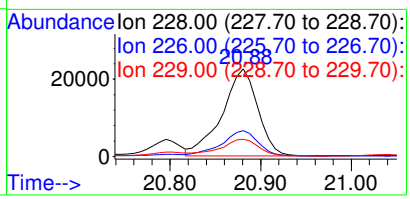


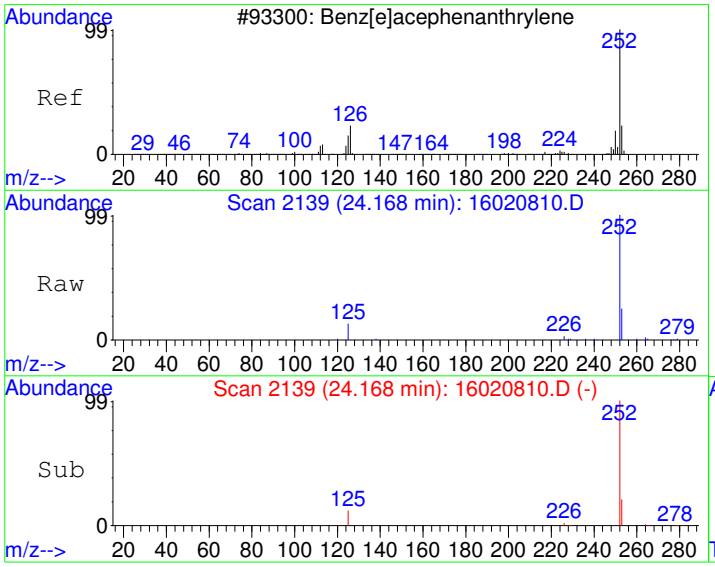


#19
Chrysene
Concen: 88.23 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:228 Resp: 60910

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.2	0.0	50.1

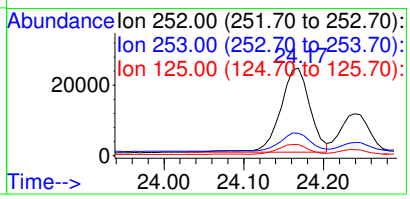


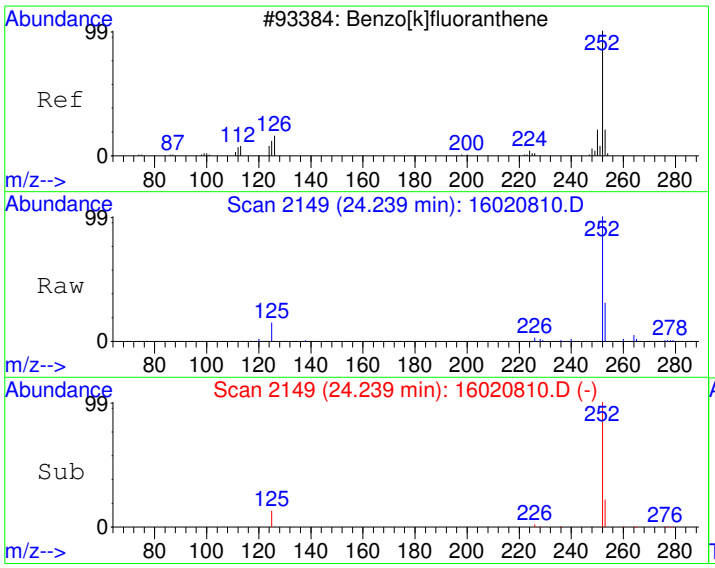


#21
Benzo[b]fluoranthene
Concen: 88.15 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:252 Resp: 61167

Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	52.0
125	11.9	0.0	40.5

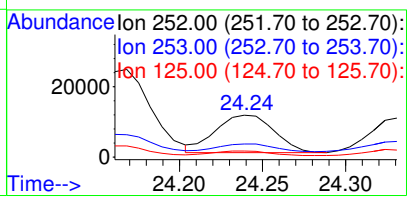


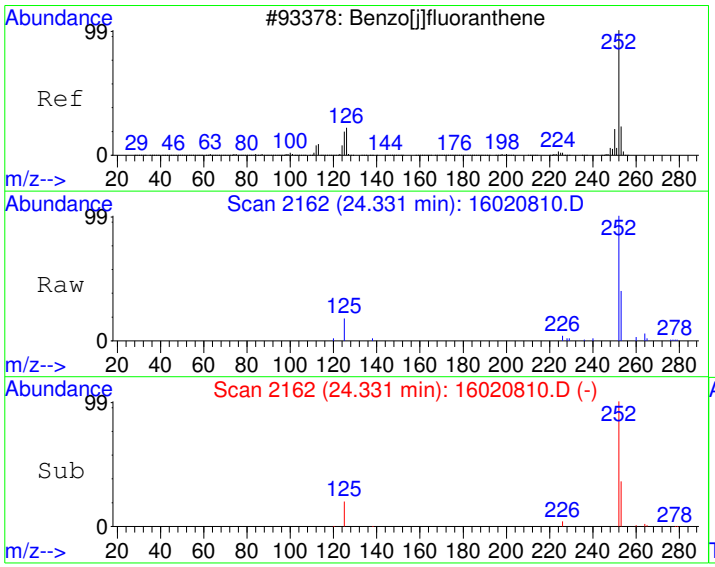


#22
Benzo[k]fluoranthene
Concen: 42.27 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:252 Resp: 26055

Ion	Ratio	Lower	Upper
252	100		
253	19.5	2.2	42.2
125	12.2	0.0	31.8

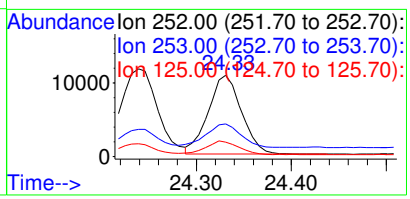


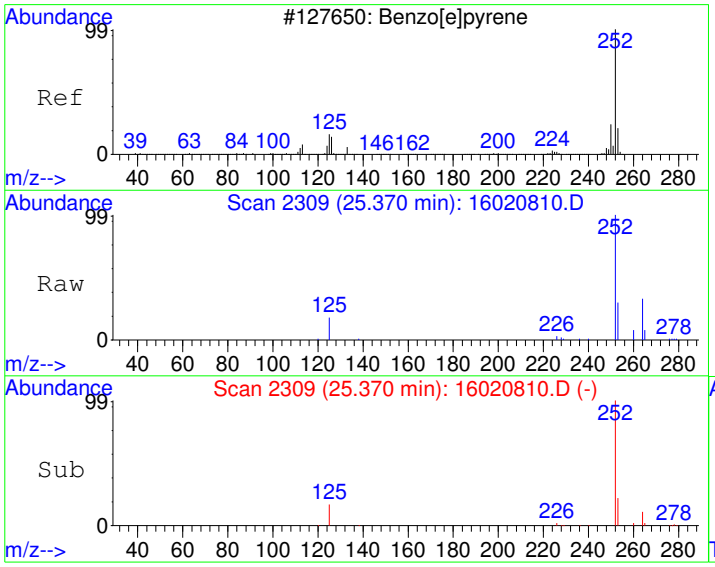


#23
Benzo(j)fluoranthene
Concen: 45.02 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:252 Resp: 26068

Ion	Ratio	Lower	Upper
252	100		
253	30.1	2.3	42.3
125	15.9	0.0	34.0

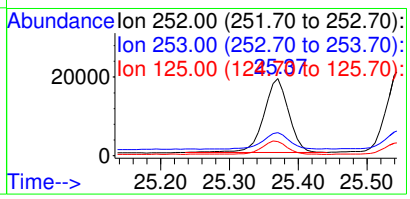


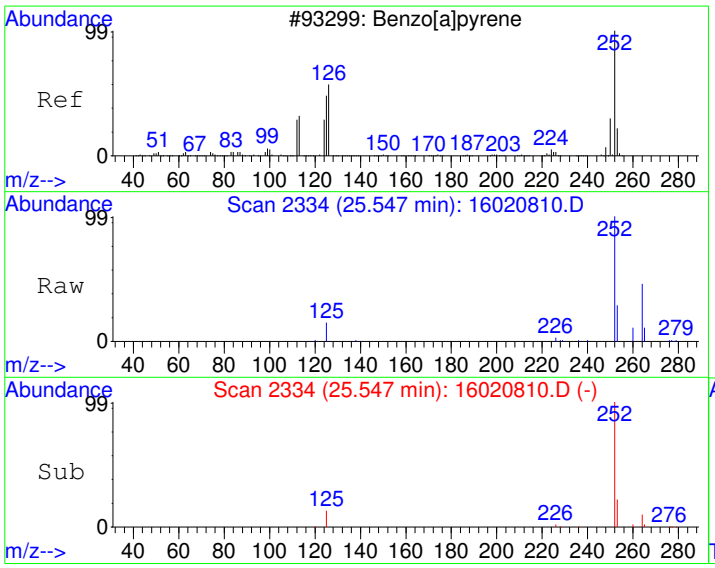


#24
Benzo[e]pyrene
Concen: 72.81 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:252 Resp: 47174

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	17.1	0.0	36.0

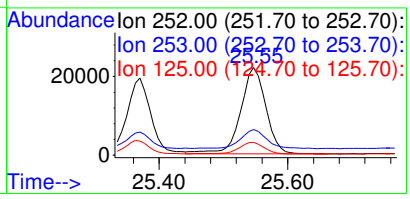


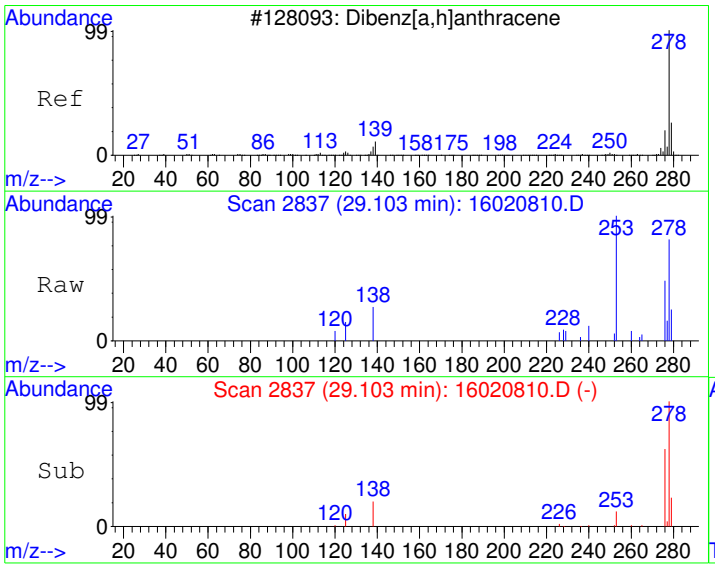


#25
Benzo[a]pyrene
Concen: 94.76 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:252 Resp: 59754

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	13.5	0.0	32.3

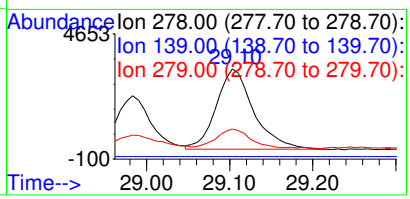


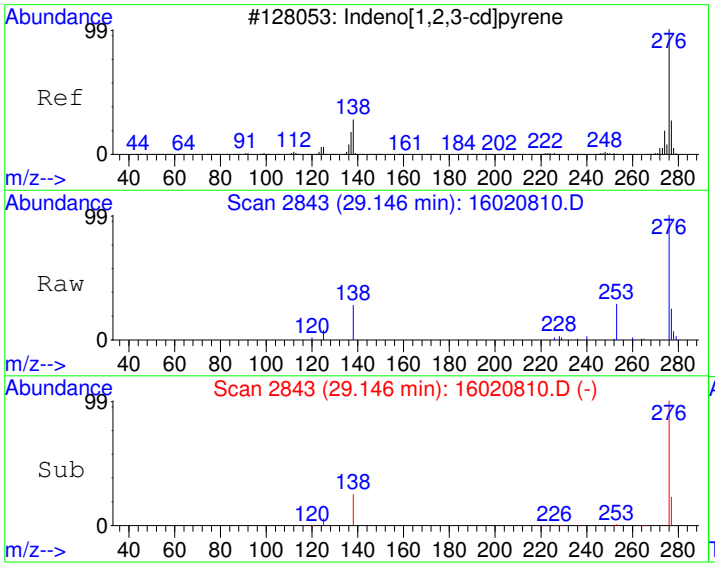


#26
Dibenz[a,h]anthracene
Concen: 16.38 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:278 Resp: 9557

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.4	3.8	43.8

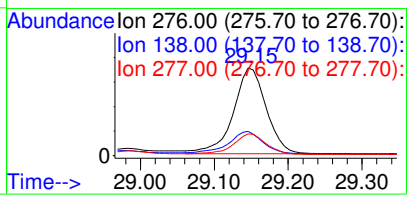


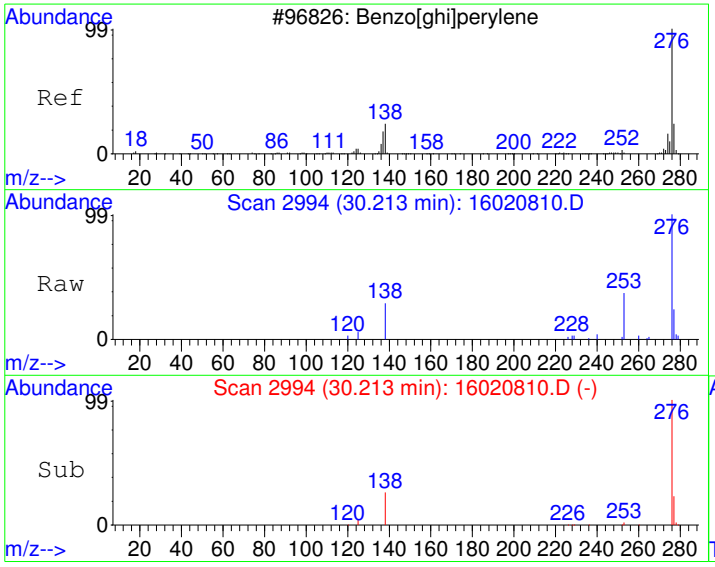


#27
Indeno[1,2,3-cd]pyrene
Concen: 61.13 ug/kg
RT: 29.15 min Scan# 2843
Delta R.T. -0.02 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:276 Resp: 43441

Ion	Ratio	Lower	Upper
276	100		
138	25.8	2.1	42.1
277	24.0	4.2	44.2

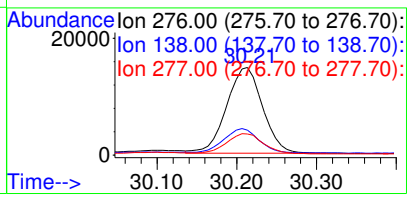




#28
Benzo[g,h,i]perylene
Concen: 77.35 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020810.D
Acq: 8 Feb 2016 1:44 pm

Tgt Ion:276 Resp: 46122

Ion	Ratio	Lower	Upper
276	100		
138	26.7	3.9	43.9
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020811.D Vial: 11
Acq On : 8 Feb 2016 2:25 pm Operator:
Sample : 1601231-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2800348	4000.00 ug/kg	133
5) Acenaphthene-d10	13.15	164	2014422	4000.00 ug/kg	111
11) Phenanthrene-d10	15.23	188	3566018	4000.00 ug/kg	109
17) Chrysene-d12	20.80	240	2882687	4000.00 ug/kg	100
20) Perylene-d12	25.87	264	2417843	4000.00 ug/kg	105

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44494	76.24 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.91%#		
16) 4-Terphenyl-d14	17.65	244	45479	76.34 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.91%#		

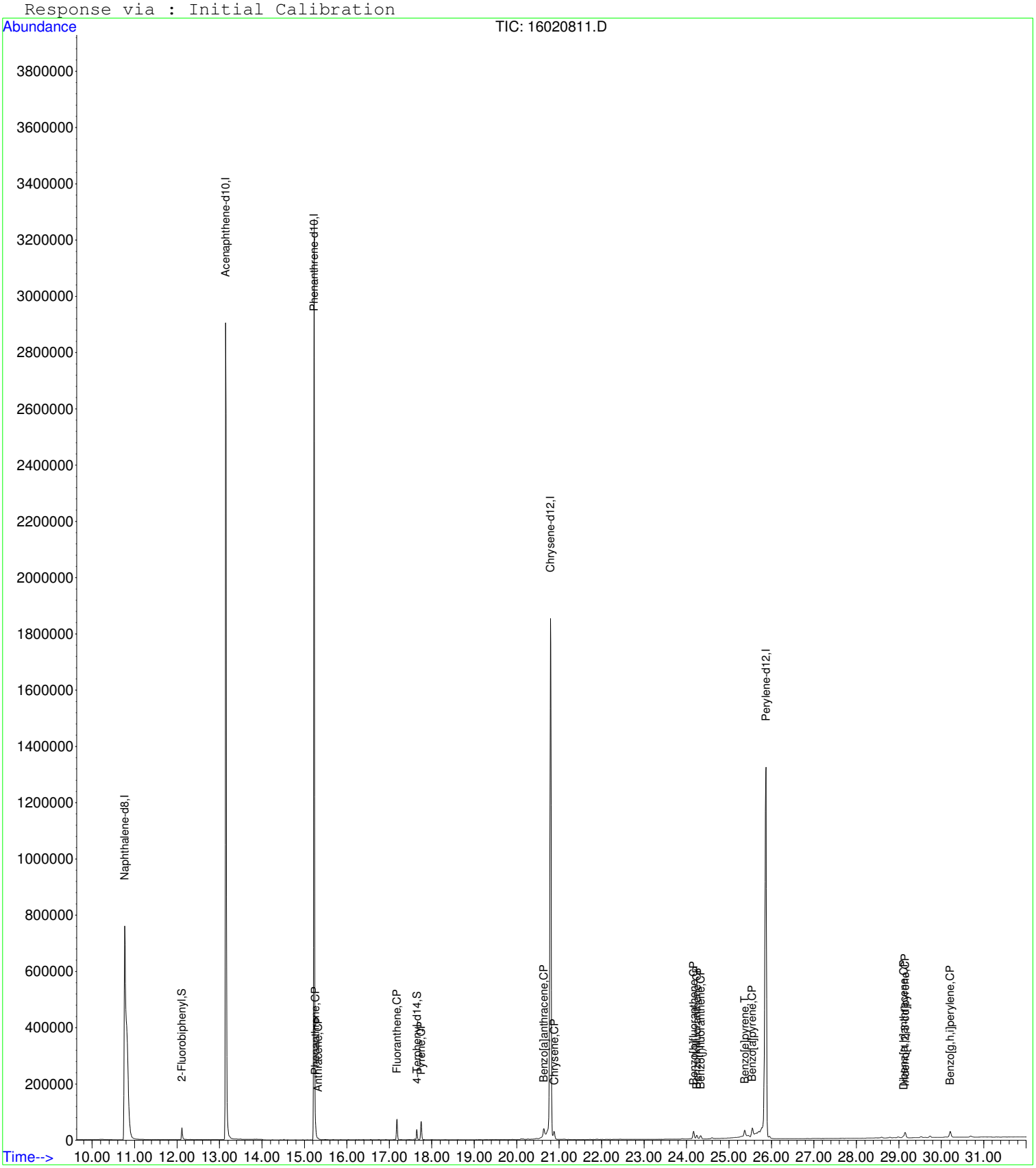
Target Compounds					Qvalue
12) Phenanthrene	15.26	178	26342	31.11 ug/kg	99
13) Anthracene	15.32	178	4617	5.57 ug/kg	98
14) Fluoranthene	17.18	202	78637	93.65 ug/kg	99
15) Pyrene	17.75	202	72924	85.26 ug/kg	99
18) Benzo[a]anthracene	20.64	228	39257	59.06 ug/kg	100
19) Chrysene	20.88	228	49640	78.44 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	48545	75.31 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	20681	36.12 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	21245	39.50 ug/kg	86
24) Benzo[e]pyrene	25.37	252	38897	64.63 ug/kg	97
25) Benzo[a]pyrene	25.55	252	47843	81.67 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	7852	14.49 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.15	276	36367	55.08 ug/kg	96
28) Benzo[g,h,i]perylene	30.21	276	38802	70.05 ug/kg	99

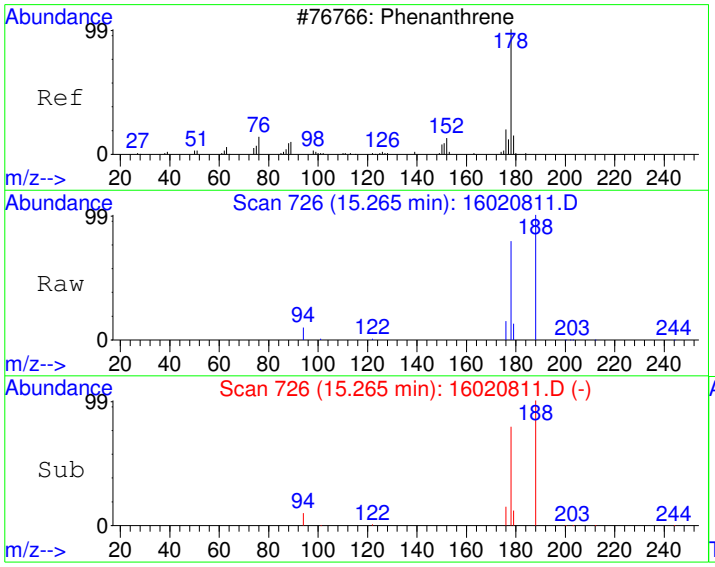
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020811.D Vial: 11
Acq On : 8 Feb 2016 2:25 pm Operator:
Sample : 1601231-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

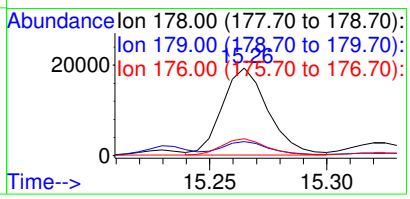


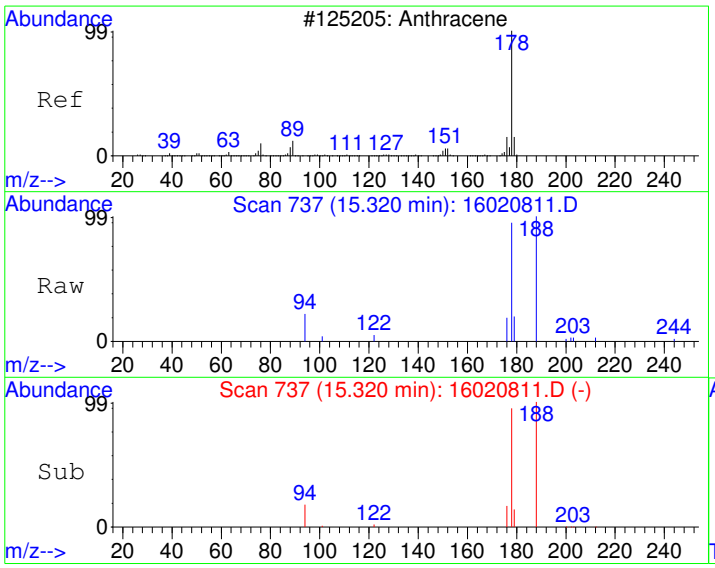


#12
Phenanthrene
Concen: 31.11 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:178 Resp: 26342

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	46.1
176	19.2	0.0	49.0

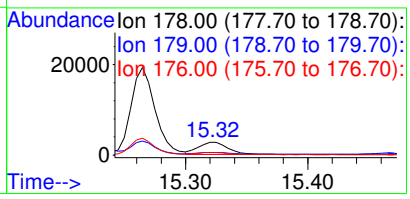


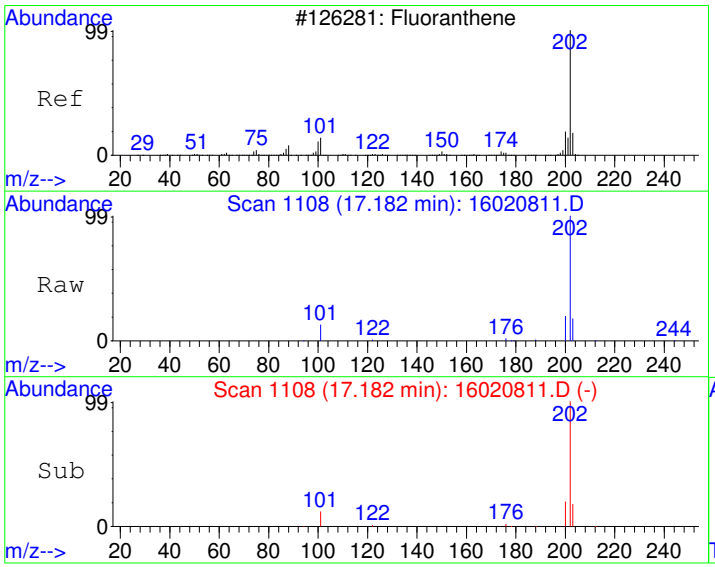


#13
Anthracene
Concen: 5.57 ug/kg
RT: 15.32 min Scan# 737
Delta R.T. 0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:178 Resp: 4617

Ion	Ratio	Lower	Upper
178	100		
179	14.5	0.0	46.0
176	17.9	0.0	48.6

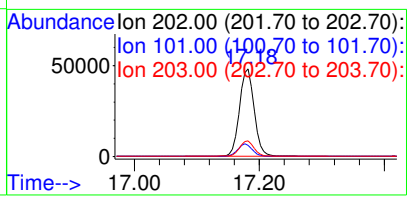


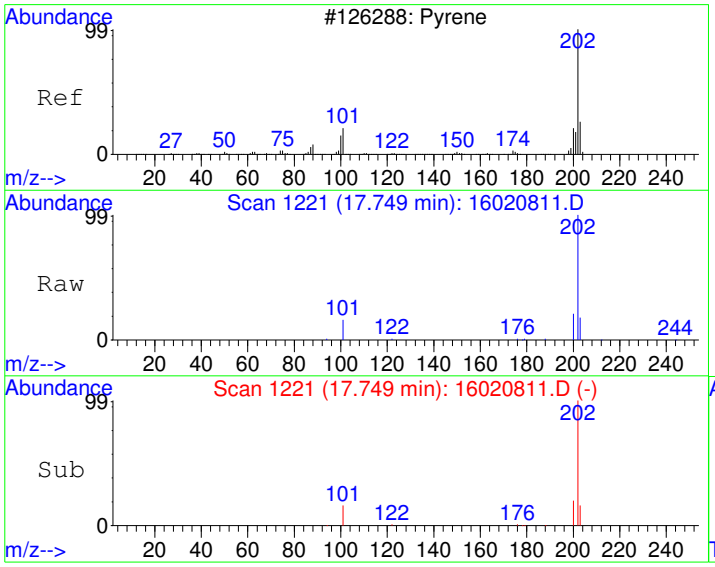


#14
Fluoranthene
Concen: 93.65 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:202 Resp: 78637

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	42.5
203	17.6	0.0	48.0

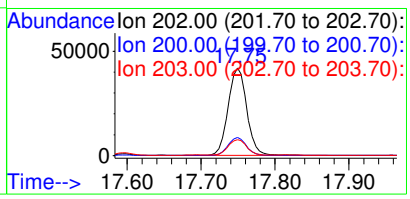


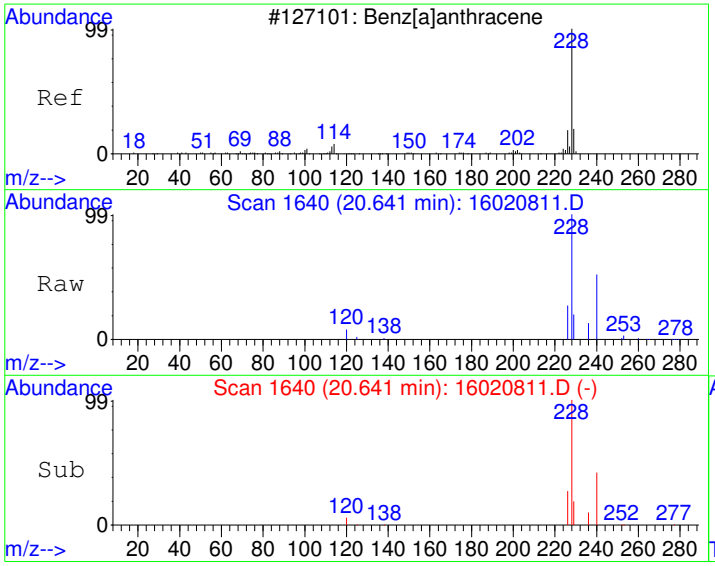


#15
Pyrene
Concen: 85.26 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:202 Resp: 72924

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.1	0.0	48.0

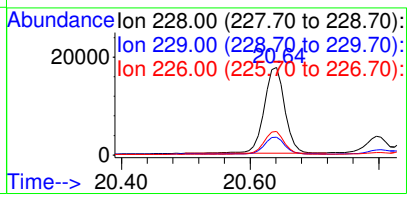


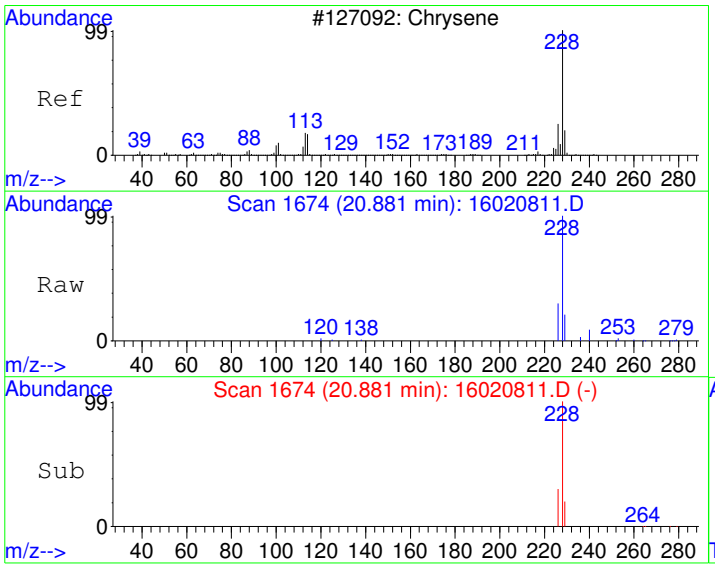


#18
Benzo[a]anthracene
Concen: 59.06 ug/kg
RT: 20.64 min Scan# 1640
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:228 Resp: 39257

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.6	0.0	56.4

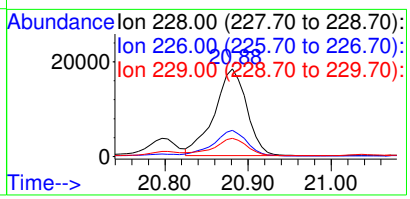


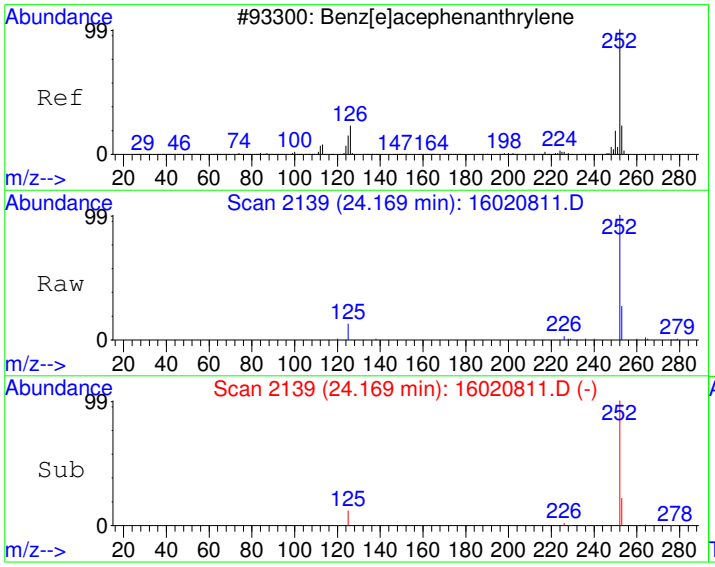


#19
Chrysene
Concen: 78.44 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:228 Resp: 49640

Ion	Ratio	Lower	Upper
228	100		
226	29.4	0.0	58.5
229	20.1	0.0	50.1

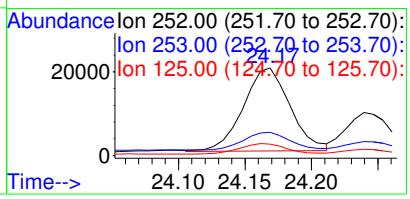


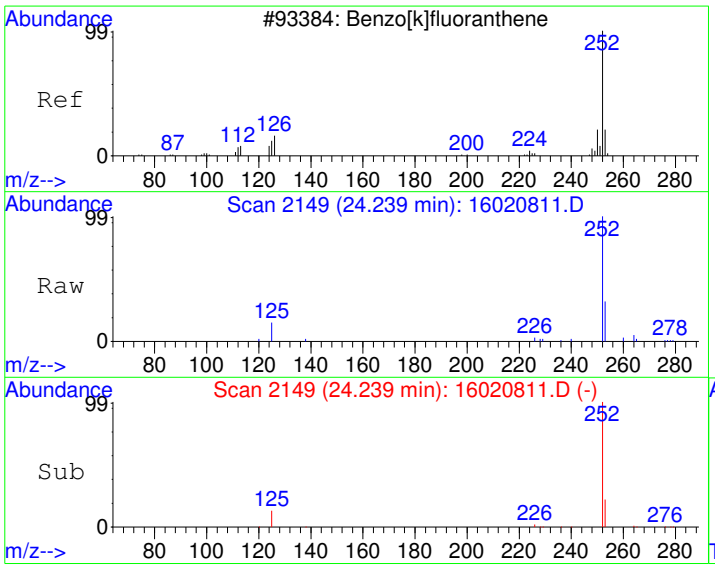


#21
Benzo[b]fluoranthene
Concen: 75.31 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:252 Resp: 48545

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	52.0
125	12.1	0.0	40.5

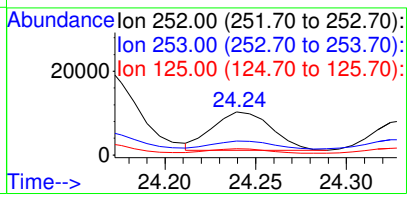


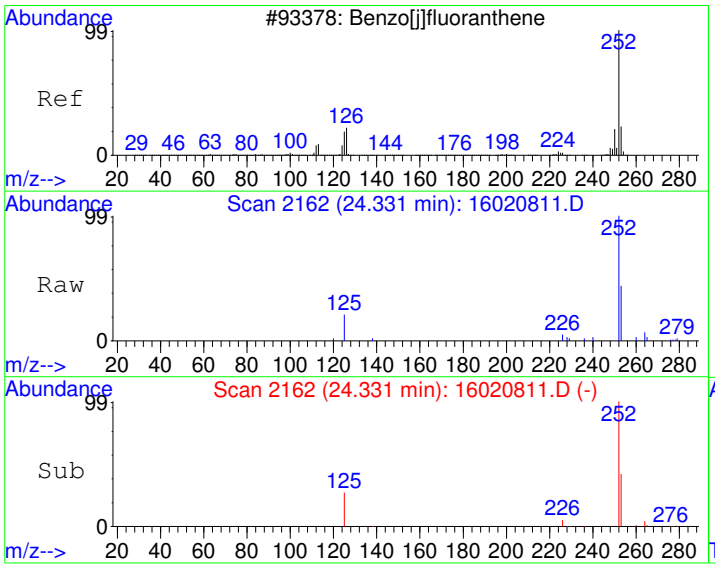


#22
Benzo[k]fluoranthene
Concen: 36.12 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:252 Resp: 20681

Ion	Ratio	Lower	Upper
252	100		
253	19.5	2.2	42.2
125	12.2	0.0	31.8

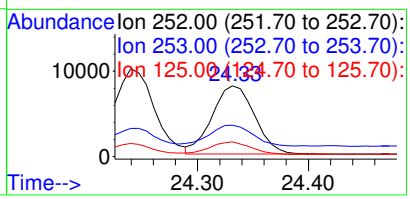


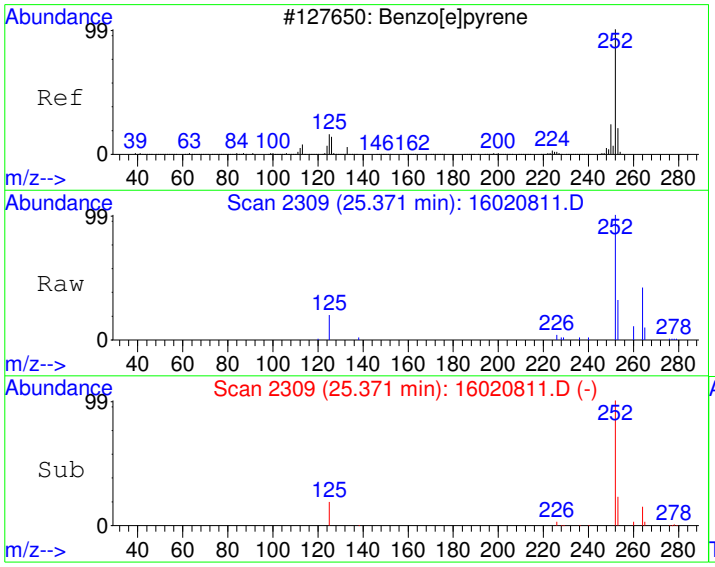


#23
Benzo(j)fluoranthene
Concen: 39.50 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:252 Resp: 21245

Ion	Ratio	Lower	Upper
252	100		
253	30.1	2.3	42.3
125	17.9	0.0	34.0

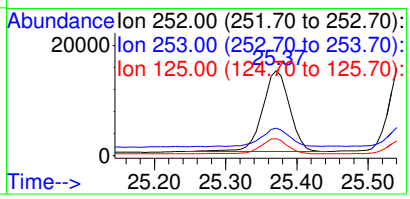


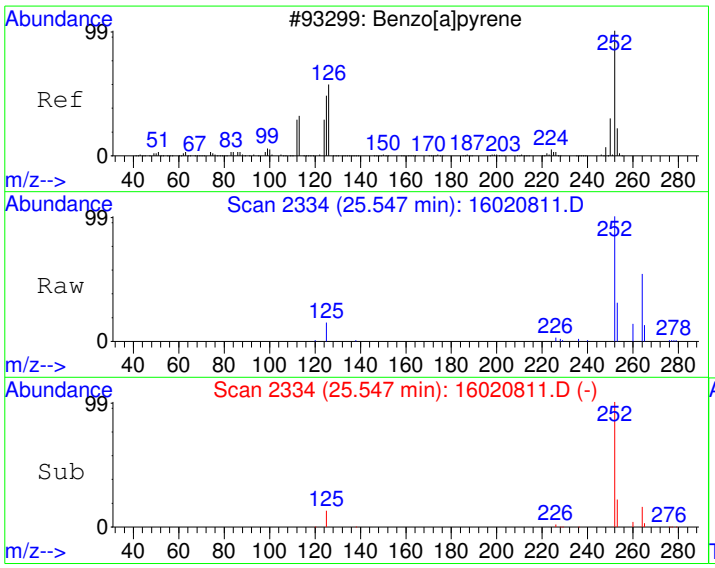


#24
Benzo[e]pyrene
Concen: 64.63 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:252 Resp: 38897

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	18.7	0.0	36.0

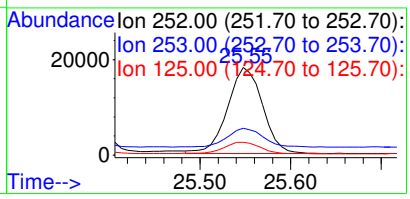


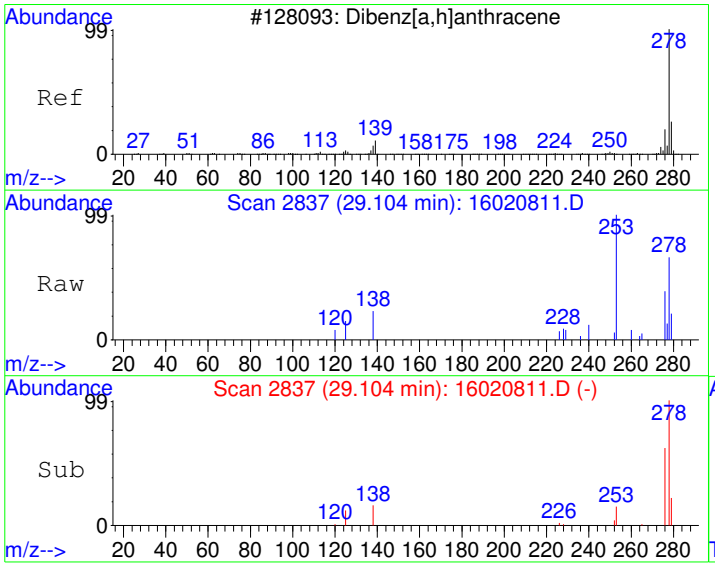


#25
Benzo[a]pyrene
Concen: 81.67 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:252 Resp: 47843

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.0	42.0
125	13.2	0.0	32.3

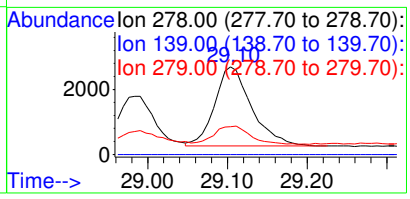


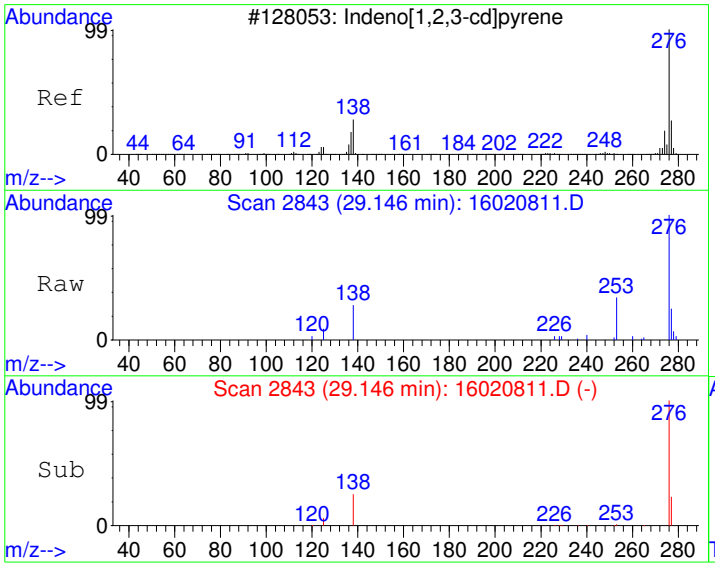


#26
Dibenz[a,h]anthracene
Concen: 14.49 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:278 Resp: 7852

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.4	3.8	43.8

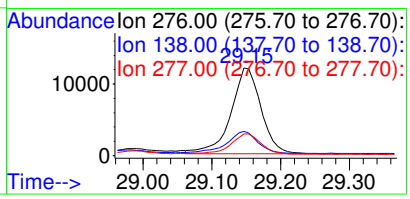


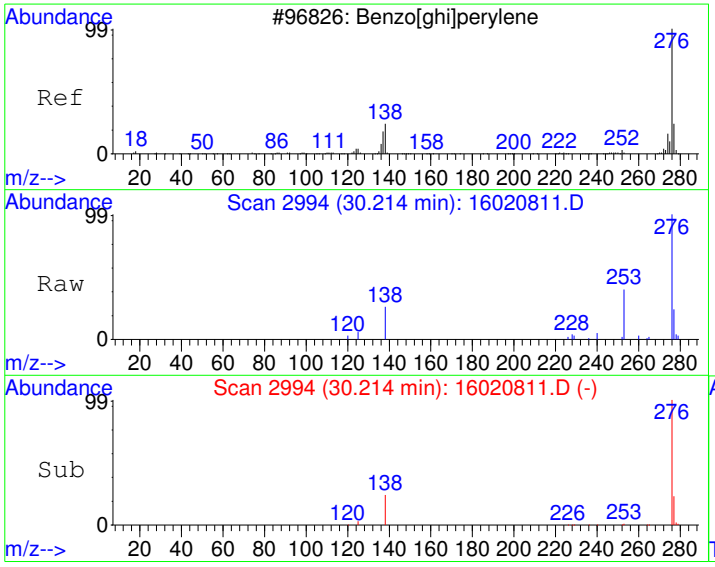


#27
Indeno[1,2,3-cd]pyrene
Concen: 55.08 ug/kg
RT: 29.15 min Scan# 2843
Delta R.T. -0.01 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:276 Resp: 36367

Ion	Ratio	Lower	Upper
276	100		
138	25.9	2.1	42.1
277	23.8	4.2	44.2

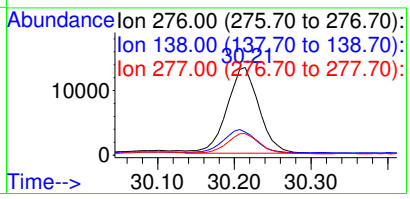




#28
Benzo[g,h,i]perylene
Concen: 70.05 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020811.D
Acq: 8 Feb 2016 2:25 pm

Tgt Ion:276 Resp: 38802

Ion	Ratio	Lower	Upper
276	100		
138	24.1	3.9	43.9
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020812.D Vial: 12
Acq On : 8 Feb 2016 3:05 pm Operator:
Sample : 1601231-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2361721	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	2193594	4000.00 ug/kg	120
11) Phenanthrene-d10	15.23	188	3751427	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	2804724	4000.00 ug/kg	97
20) Perylene-d12	25.87	264	2062841	4000.00 ug/kg	89

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	44814	70.51 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.76%#		
16) 4-Terphenyl-d14	17.65	244	49019	78.22 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#		

Target Compounds					Qvalue
12) Phenanthrene	15.26	178	28473	31.96 ug/kg	99
13) Anthracene	15.32	178	5068	5.81 ug/kg	99
14) Fluoranthene	17.18	202	89368	101.16 ug/kg	98
15) Pyrene	17.75	202	84097	93.46 ug/kg	100
18) Benzo[a]anthracene	20.64	228	39822	61.58 ug/kg	100
19) Chrysene	20.88	228	50780	82.47 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	48191	87.62 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	19691	40.31 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	20378	44.40 ug/kg	87
24) Benzo[e]pyrene	25.37	252	38526	75.03 ug/kg	98
25) Benzo[a]pyrene	25.55	252	46435	92.91 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	7974	17.25 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.15	276	35941	63.81 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	39363	83.29 ug/kg	96

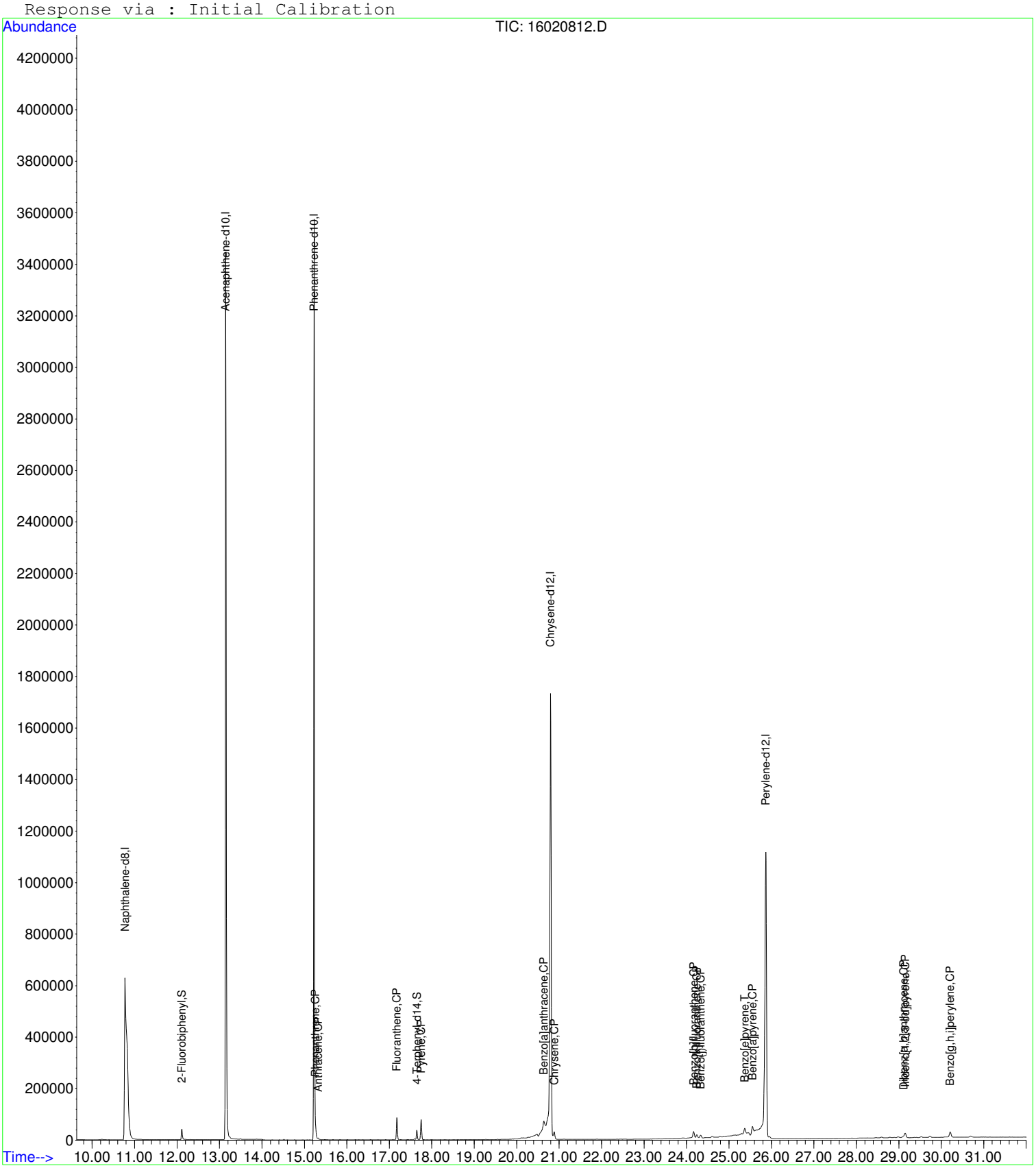
CONFIRMED
By Sherri Herschmann at 2:43:38 PM, 2/15/2016

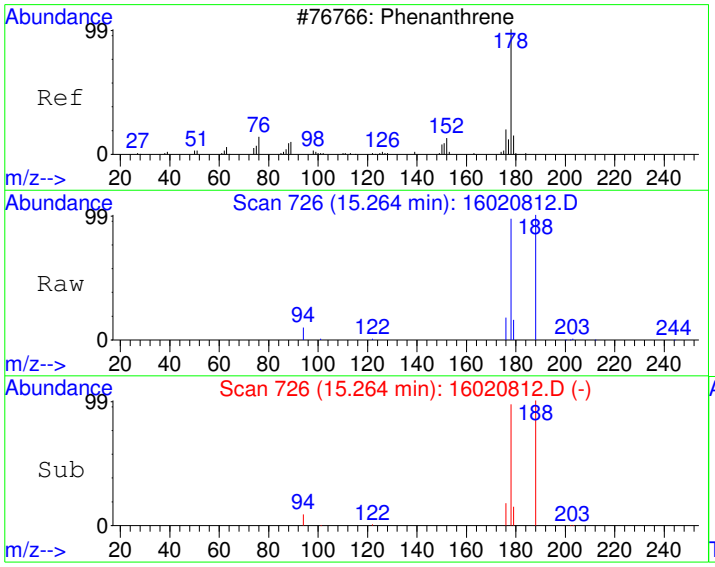
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020812.D Vial: 12
Acq On : 8 Feb 2016 3:05 pm Operator:
Sample : 1601231-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

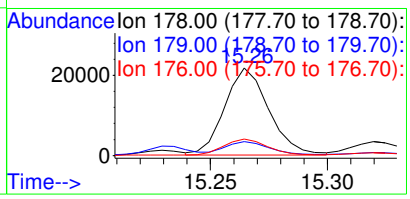


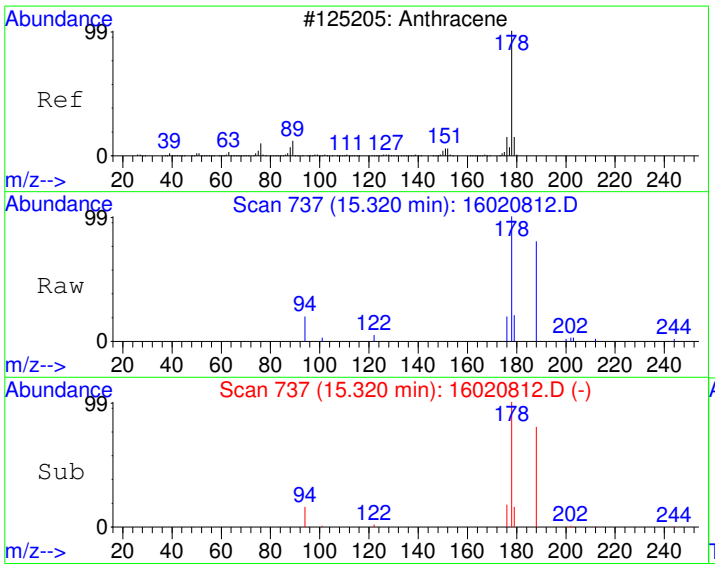


#12
Phenanthrene
Concen: 31.96 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:178 Resp: 28473

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	46.1
176	18.9	0.0	49.0

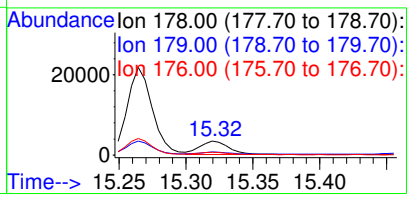


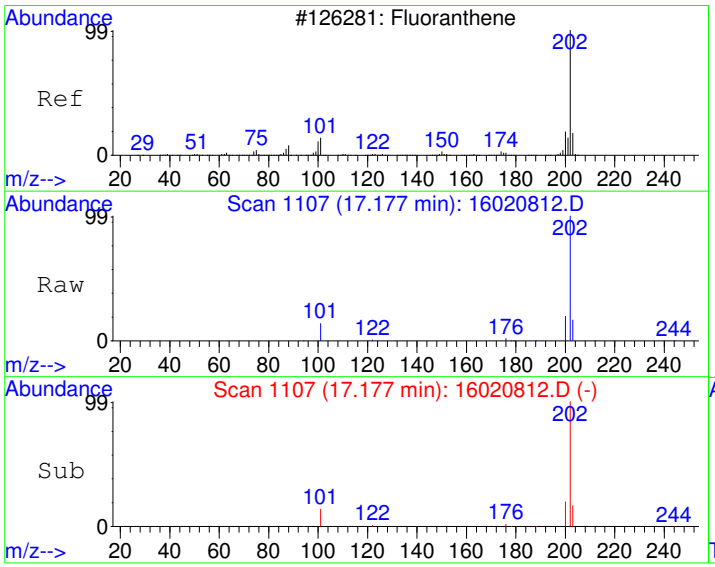


#13
Anthracene
Concen: 5.81 ug/kg
RT: 15.32 min Scan# 737
Delta R.T. 0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:178 Resp: 5068

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	46.0
176	17.6	0.0	48.6

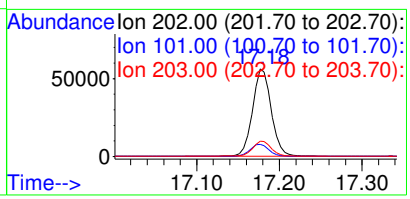


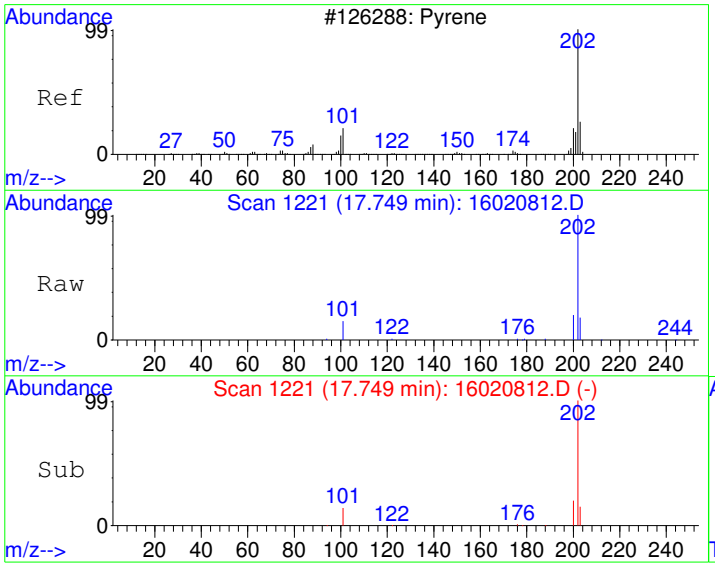


#14
Fluoranthene
Concen: 101.16 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. 0.00 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:202 Resp: 89368

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	42.5
203	17.2	0.0	48.0

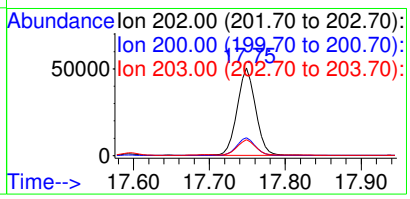


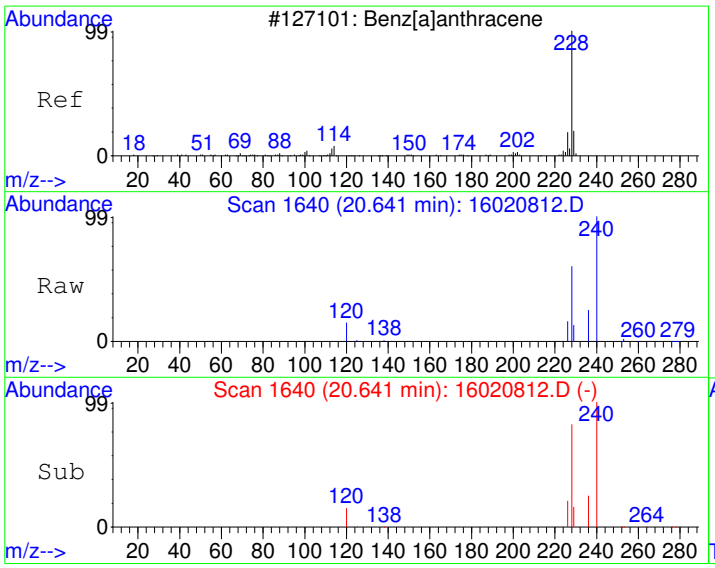


#15
Pyrene
Concen: 93.46 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:202 Resp: 84097

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	17.8	0.0	48.0

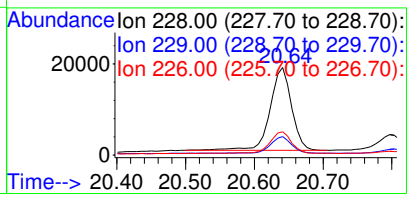


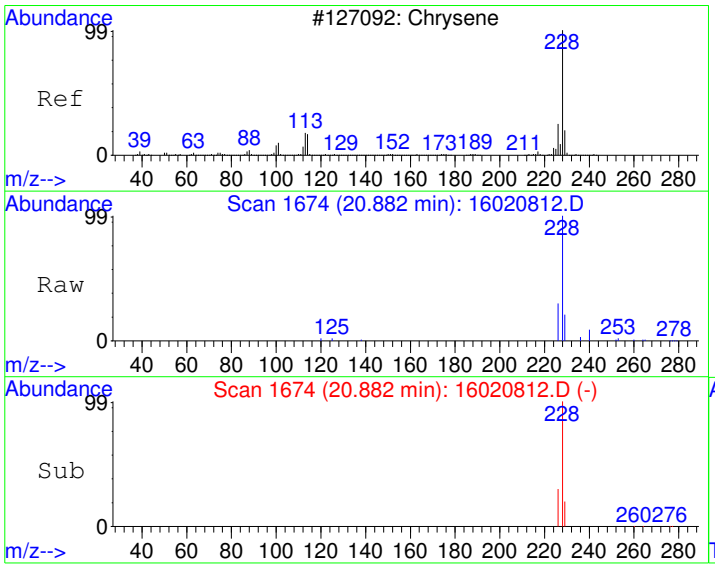


#18
Benzo[a]anthracene
Concen: 61.58 ug/kg
RT: 20.64 min Scan# 1640
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:228 Resp: 39822

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.0
226	26.1	0.0	56.4

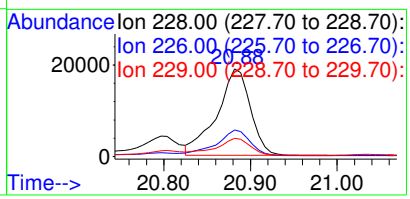


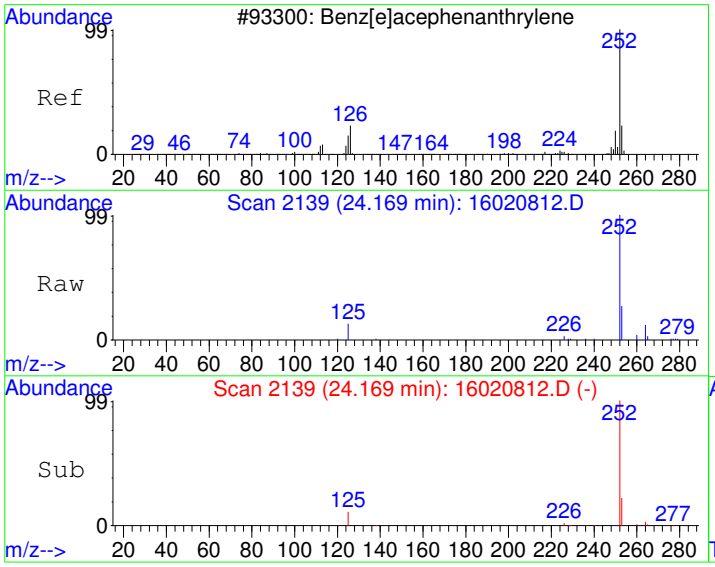


#19
Chrysene
Concen: 82.47 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:228 Resp: 50780

Ion	Ratio	Lower	Upper
228	100		
226	29.7	0.0	58.5
229	19.8	0.0	50.1

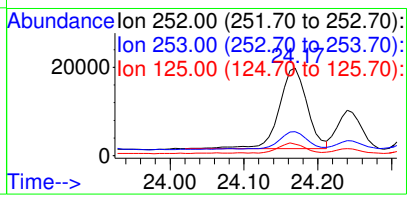


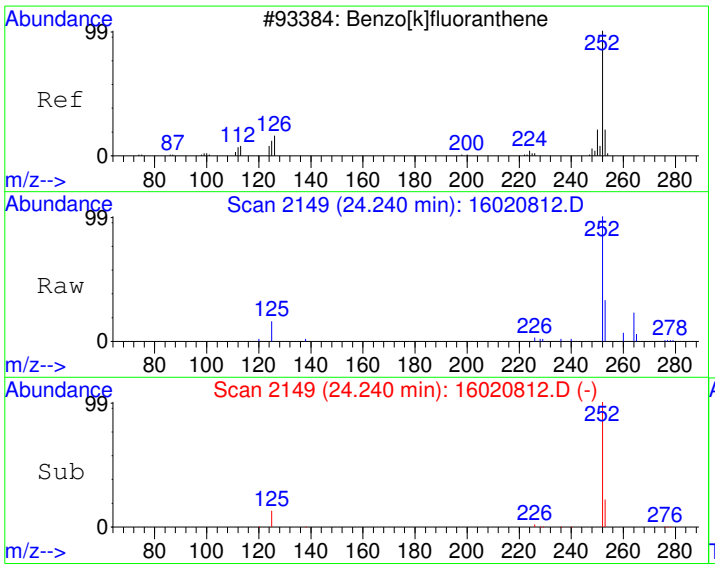


#21
Benzo[b]fluoranthene
Concen: 87.62 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:252 Resp: 48191

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	11.4	0.0	40.5

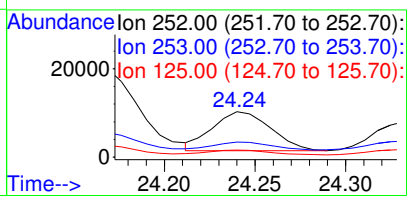


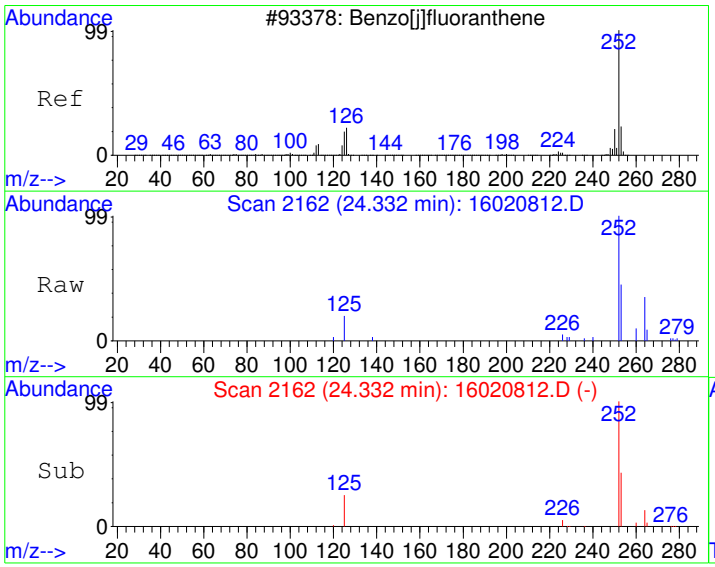


#22
Benzo[k]fluoranthene
Concen: 40.31 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:252 Resp: 19691

Ion	Ratio	Lower	Upper
252	100		
253	19.3	2.2	42.2
125	12.4	0.0	31.8

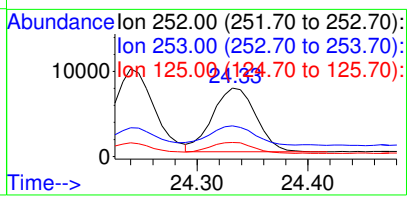


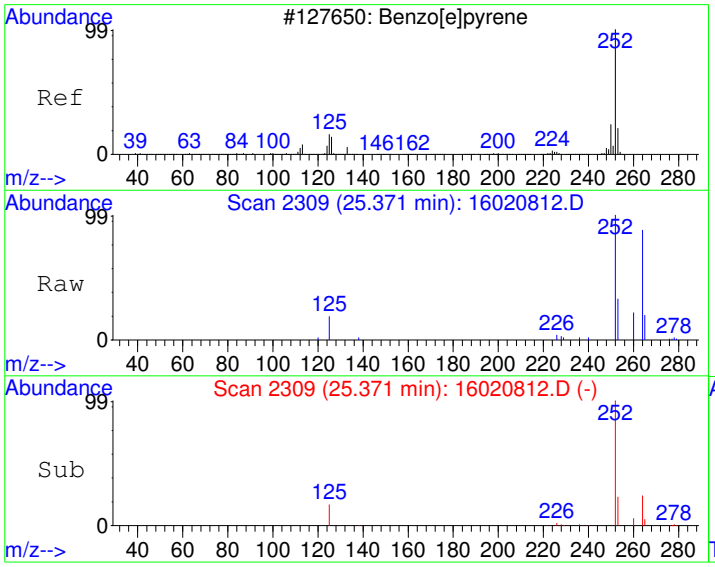


#23
Benzo(j)fluoranthene
Concen: 44.40 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:252 Resp: 20378

Ion	Ratio	Lower	Upper
252	100		
253	30.3	2.3	42.3
125	16.9	0.0	34.0

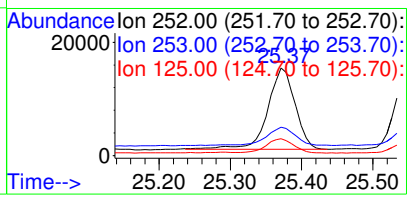


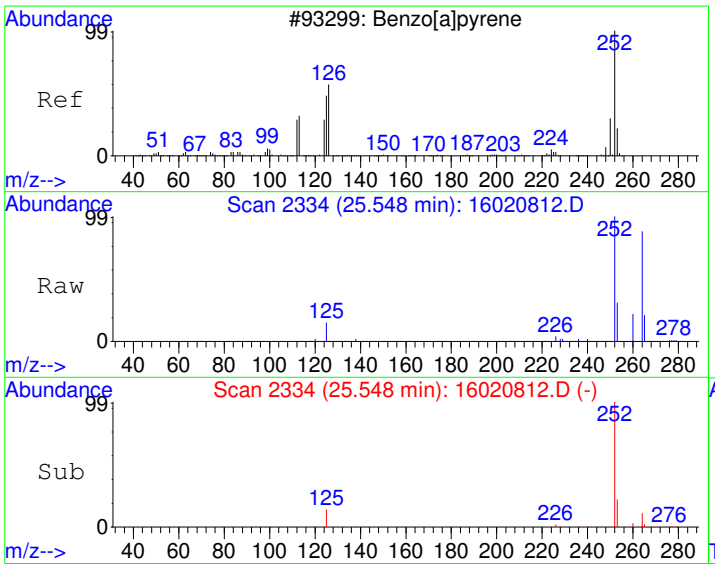


#24
Benzo[e]pyrene
Concen: 75.03 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:252 Resp: 38526

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	17.7	0.0	36.0

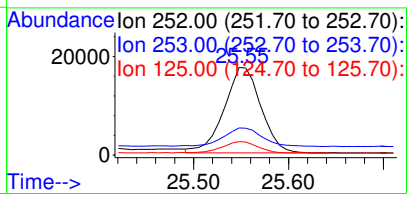


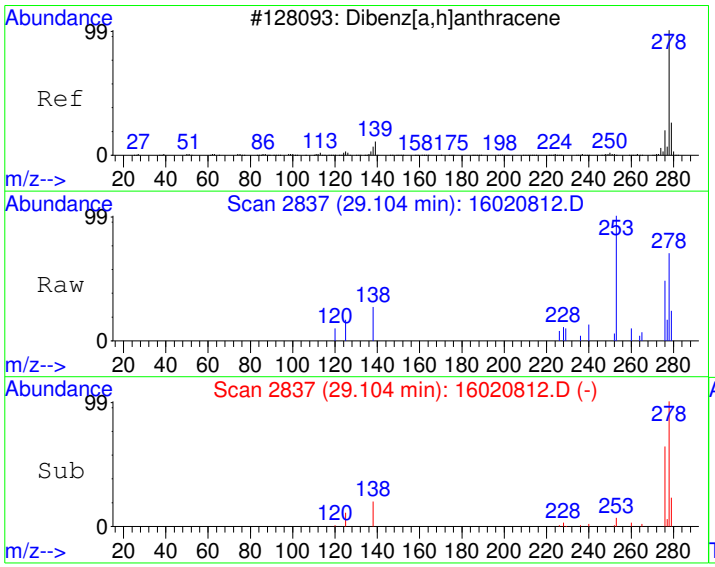


#25
Benzo[a]pyrene
Concen: 92.91 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:252 Resp: 46435

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	13.5	0.0	32.3

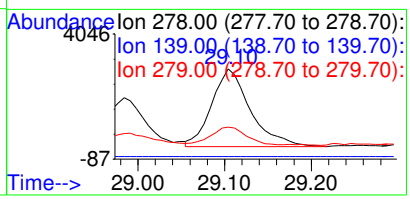


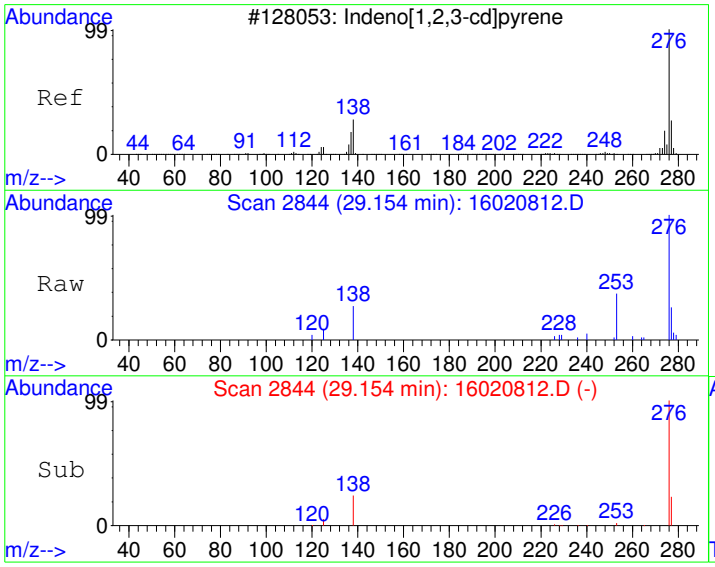


#26
Dibenz[a,h]anthracene
Concen: 17.25 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:278 Resp: 7974

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	3.8	43.8

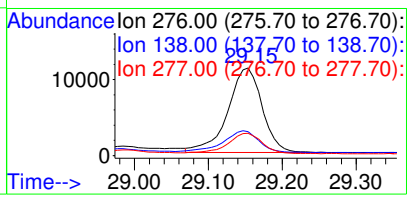


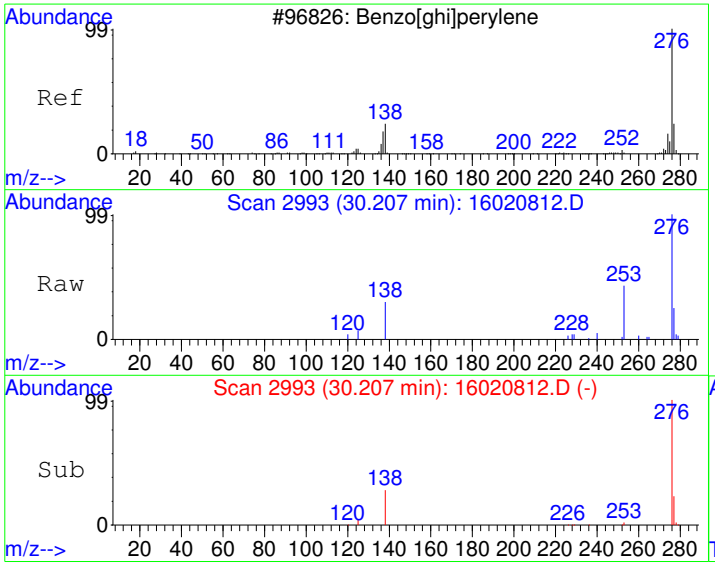


#27
Indeno[1,2,3-cd]pyrene
Concen: 63.81 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:276 Resp: 35941

Ion	Ratio	Lower	Upper
276	100		
138	24.8	2.1	42.1
277	24.2	4.2	44.2

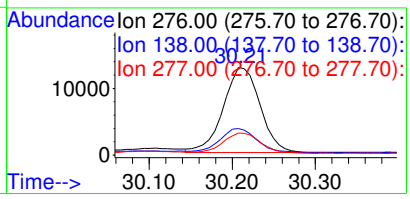




#28
Benzo[g,h,i]perylene
Concen: 83.29 ug/kg
RT: 30.21 min Scan# 2993
Delta R.T. -0.01 min
Lab File: 16020812.D
Acq: 8 Feb 2016 3:05 pm

Tgt Ion:276 Resp: 39363

Ion	Ratio	Lower	Upper
276	100		
138	27.8	3.9	43.9
277	23.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020813.D Vial: 13
Acq On : 8 Feb 2016 3:45 pm Operator:
Sample : 1601231-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2563971	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	2145452	4000.00 ug/kg	118
11) Phenanthrene-d10	15.23	188	3763005	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	3646048	4000.00 ug/kg	126
20) Perylene-d12	25.88	264	3106129	4000.00 ug/kg	134

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	42978	69.14 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#	
16) 4-Terphenyl-d14	17.65	244	49342	78.49 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	

Target Compounds

					Qvalue
9) Acenaphthene	13.15	154	7354	~~13.61 ug/kg#~~	10
14) Fluoranthene	17.20	202	4791	5.41 ug/kg	99
23) Benzo(j)fluoranthene	24.35	252	1532	2.22 ug/kg	87

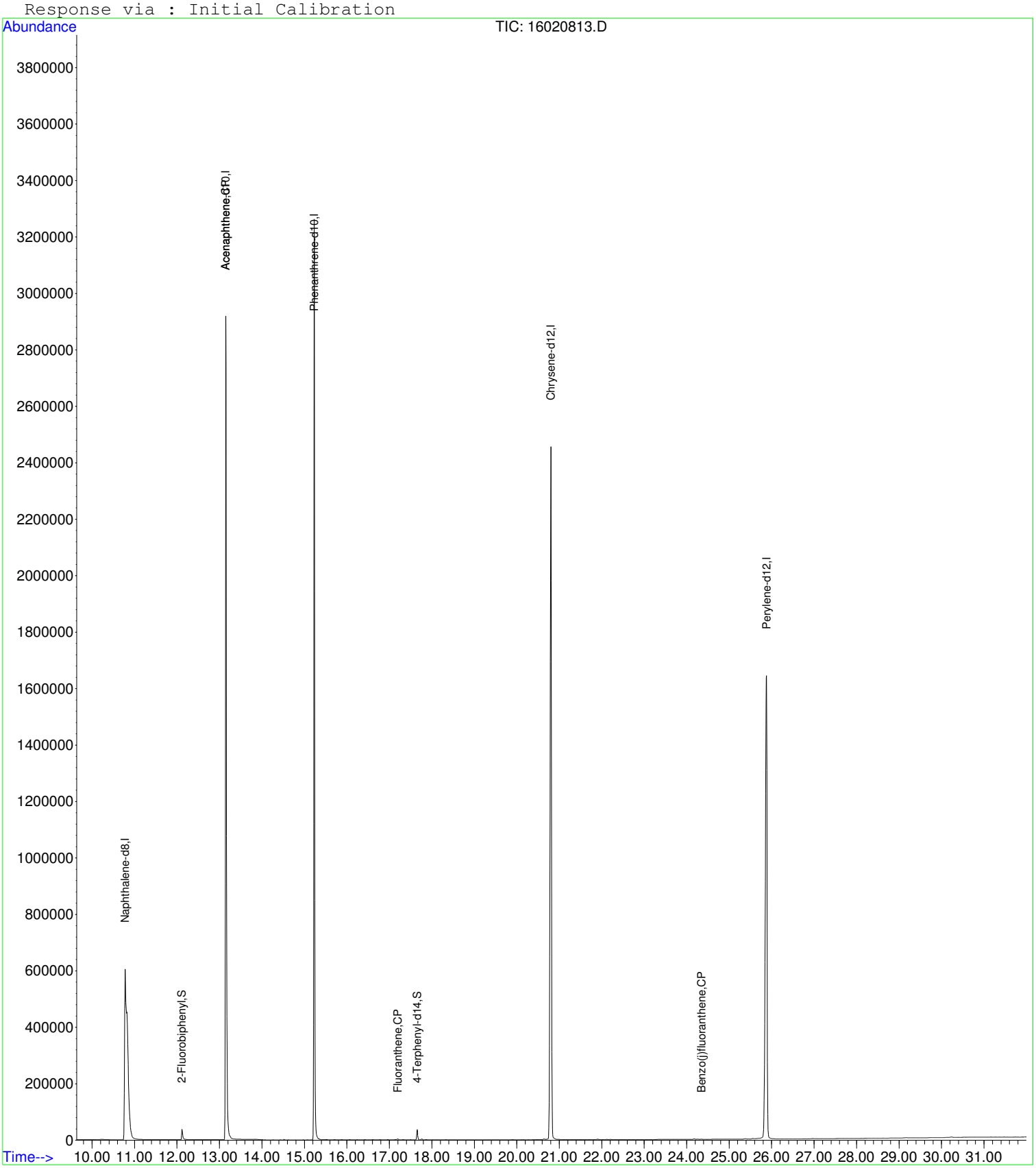
CONFIRMED
By Sherri Herschmann at 2:43:57 PM, 2/15/2016

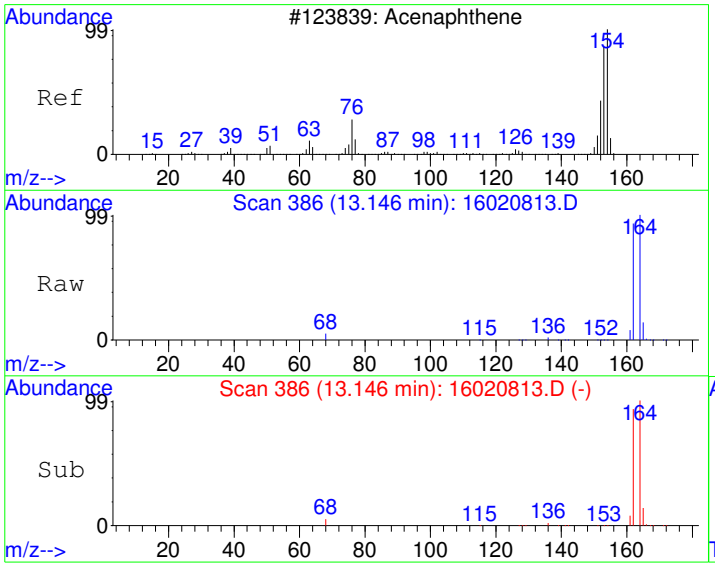
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020813.D Vial: 13
Acq On : 8 Feb 2016 3:45 pm Operator:
Sample : 1601231-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

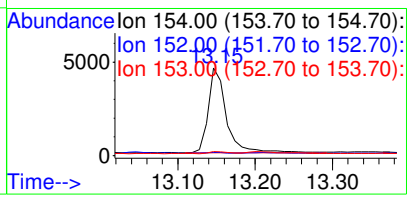


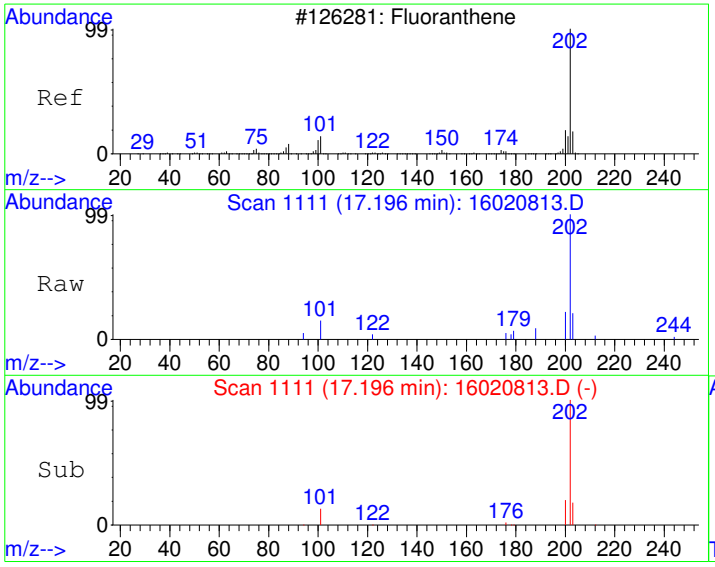


#9
Acenaphthene
Concen: 13.61 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020813.D
Acq: 8 Feb 2016 3:45 pm

Tgt Ion:154 Resp: 7354

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.3	74.4	134.4#

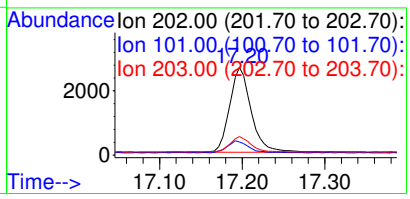


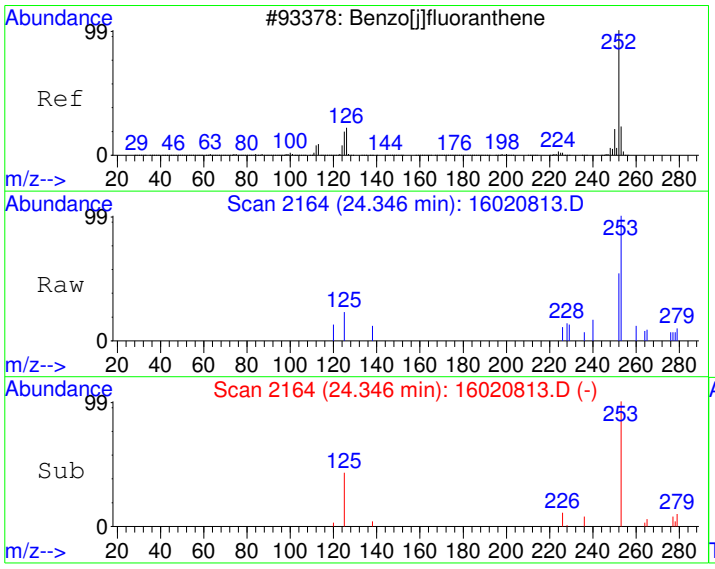


#14
Fluoranthene
Concen: 5.41 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020813.D
Acq: 8 Feb 2016 3:45 pm

Tgt Ion:202 Resp: 4791

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	42.5
203	18.4	0.0	48.0

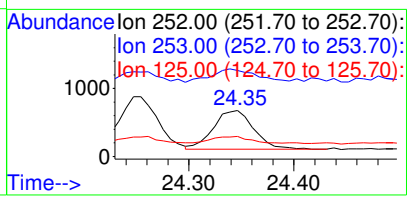




#23
Benzo(j)fluoranthene
Concen: 2.22 ug/kg
RT: 24.35 min Scan# 2164
Delta R.T. -0.00 min
Lab File: 16020813.D
Acq: 8 Feb 2016 3:45 pm

Tgt Ion:252 Resp: 1532

Ion	Ratio	Lower	Upper
252	100		
253	30.6	2.3	42.3
125	16.8	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020814.D Vial: 14
Acq On : 8 Feb 2016 4:25 pm Operator:
Sample : 1601231-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2279644	4000.00 ug/kg	109
5) Acenaphthene-d10	13.15	164	2098615	4000.00 ug/kg	115
11) Phenanthrene-d10	15.23	188	3602460	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	3604837	4000.00 ug/kg	125
20) Perylene-d12	25.87	264	3086839	4000.00 ug/kg	134

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44865	73.79 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.84%#		
16) 4-Terphenyl-d14	17.65	244	52178	86.70 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.17%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7157	13.54 ug/kg#	10
14) Fluoranthene	17.20	202	6955	8.20 ug/kg	98
15) Pyrene	17.76	202	6412	7.42 ug/kg	98
19) Chrysene	20.88	228	4541	5.74 ug/kg	99
21) Benzo[b]fluoranthene	24.18	252	4964	6.03 ug/kg	96
23) Benzo(j)fluoranthene	24.34	252	2030	2.96 ug/kg	85
25) Benzo[a]pyrene	25.55	252	4285	5.73 ug/kg	97
28) Benzo[g,h,i]perylene	30.24	276	3746	5.30 ug/kg	97

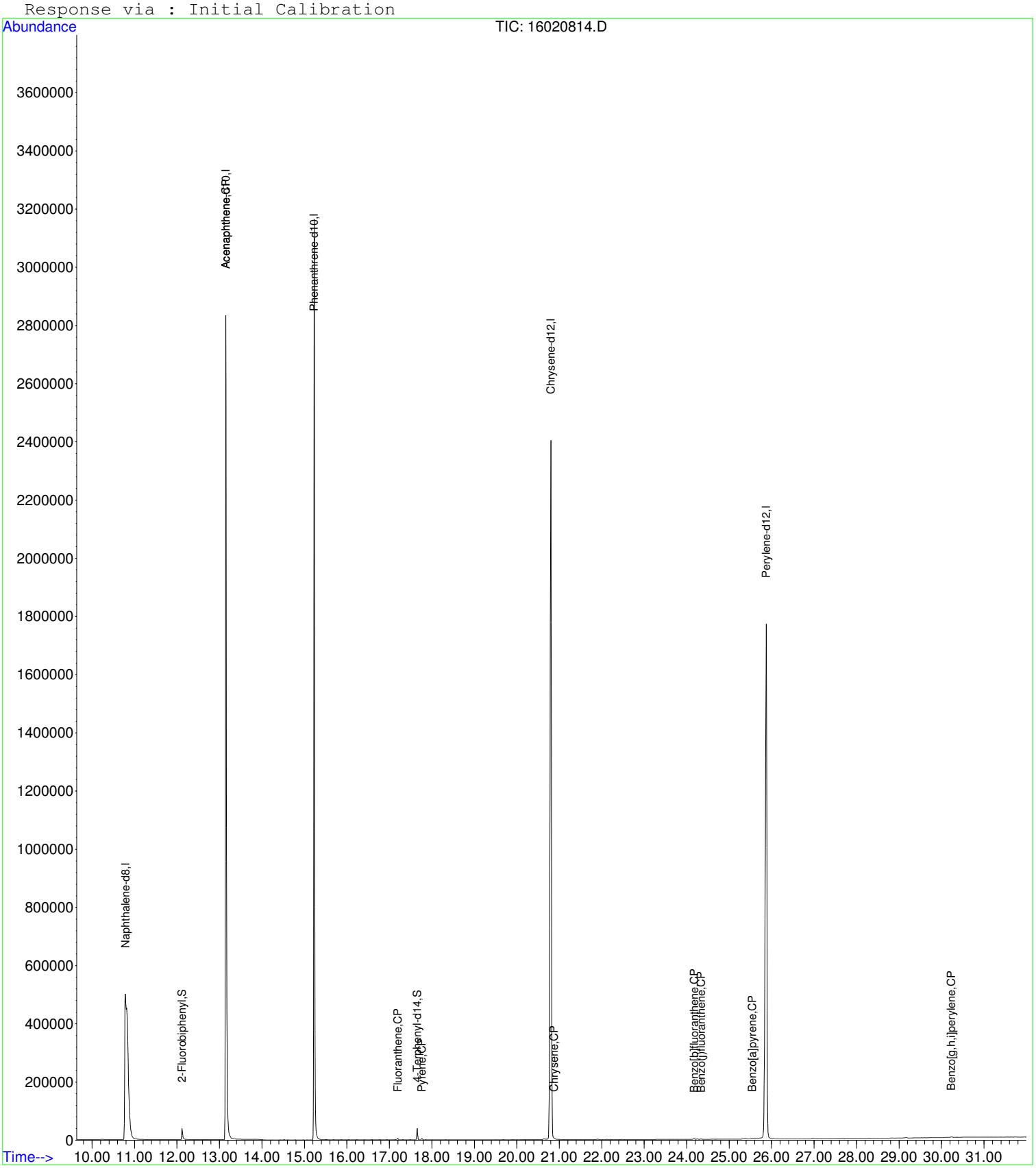
CONFIRMED
By Sherri Herschmann at 2:44:08 PM, 2/15/2016

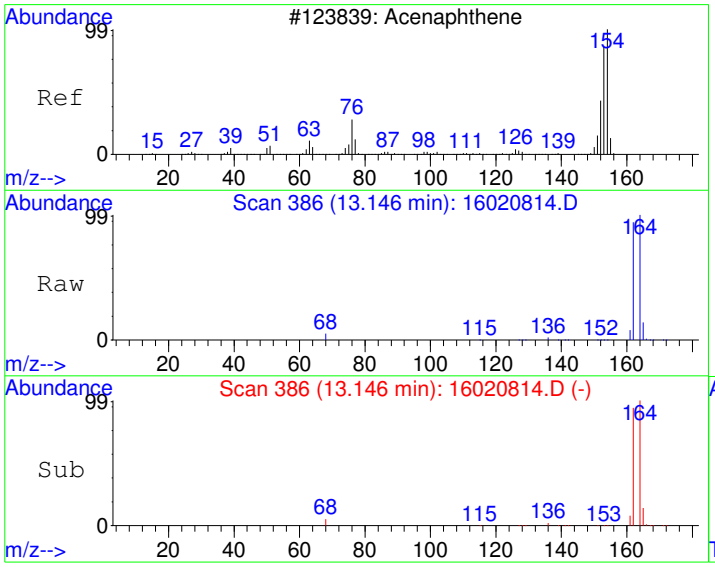
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020814.D Vial: 14
Acq On : 8 Feb 2016 4:25 pm Operator:
Sample : 1601231-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

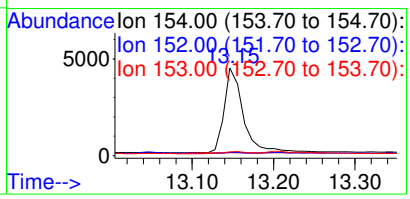


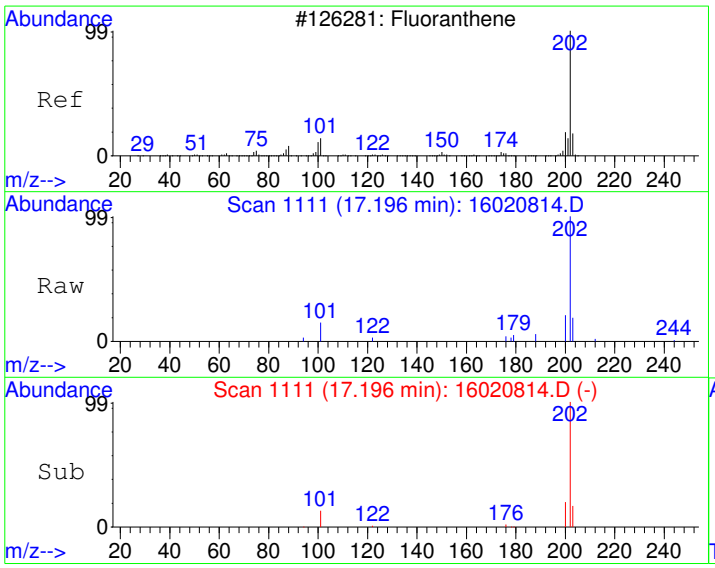


#9
Acenaphthene
Concen: 13.54 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:154 Resp: 7157

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.1	74.4	134.4#

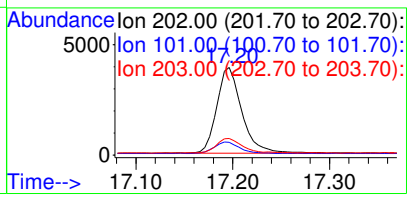


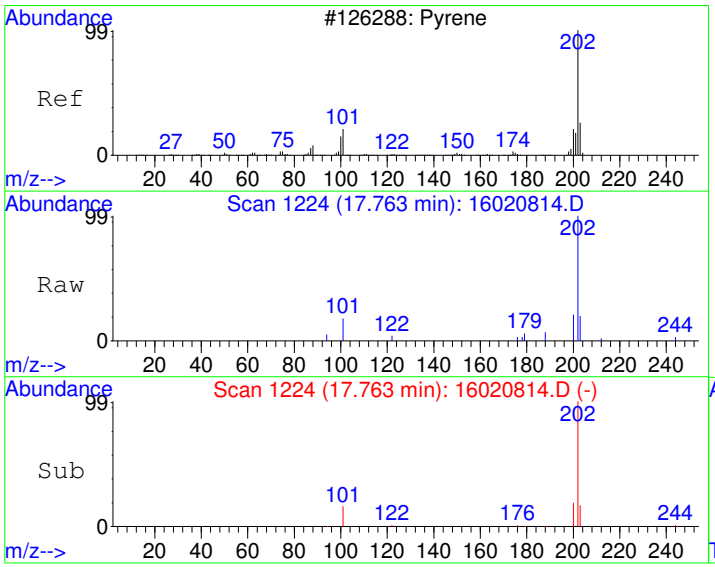


#14
Fluoranthene
Concen: 8.20 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:202 Resp: 6955

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.0	0.0	48.0

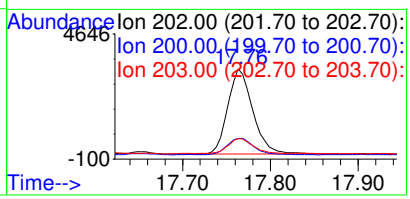


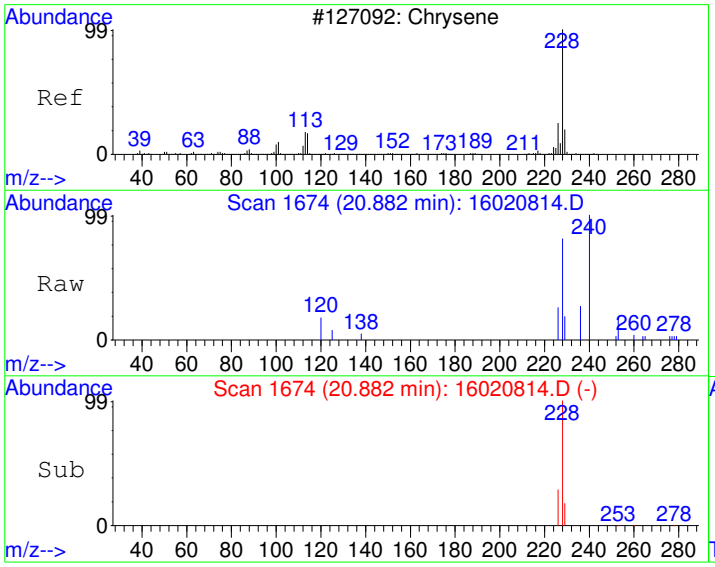


#15
Pyrene
Concen: 7.42 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:202 Resp: 6412

Ion	Ratio	Lower	Upper
202	100		
200	18.9	0.0	50.0
203	17.7	0.0	48.0

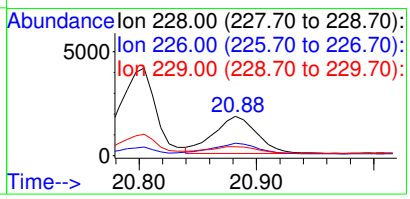


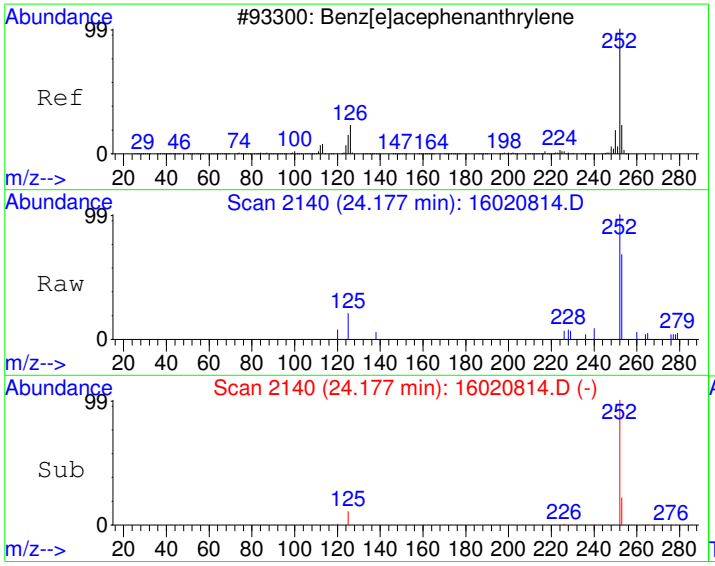


#19
Chrysene
Concen: 5.74 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:228 Resp: 4541

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.5
229	18.6	0.0	50.1

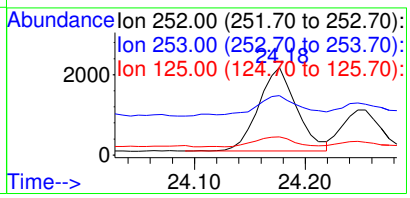


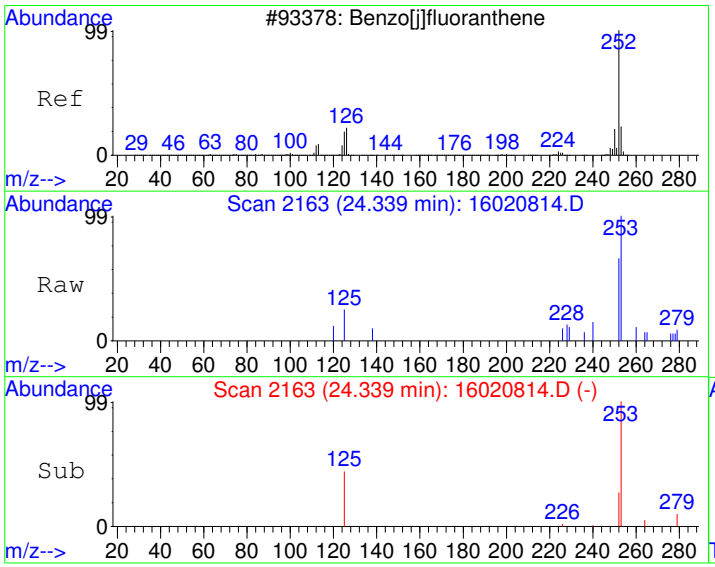


#21
Benzo[b]fluoranthene
Concen: 6.03 ug/kg
RT: 24.18 min Scan# 2140
Delta R.T. 0.00 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:252 Resp: 4964

Ion	Ratio	Lower	Upper
252	100		
253	24.6	0.0	52.0
125	10.2	0.0	40.5

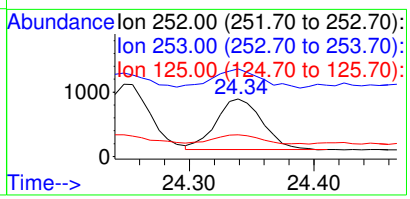


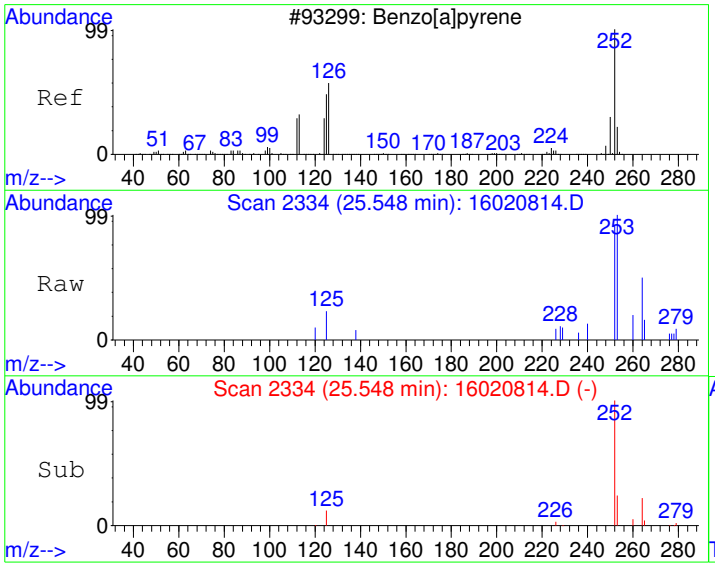


#23
Benzo(j)fluoranthene
Concen: 2.96 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:252 Resp: 2030

Ion	Ratio	Lower	Upper
252	100		
253	32.0	2.3	42.3
125	16.5	0.0	34.0

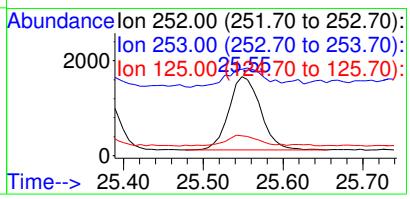


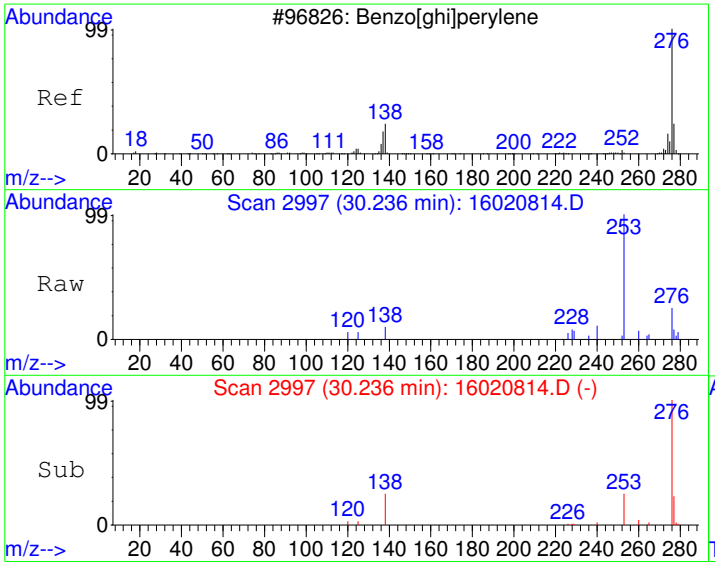


#25
Benzo[a]pyrene
Concen: 5.73 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:252 Resp: 4285

Ion	Ratio	Lower	Upper
252	100		
253	23.9	2.0	42.0
125	13.1	0.0	32.3

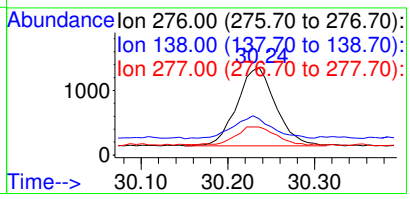




#28
Benzo[g,h,i]perylene
Concen: 5.30 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16020814.D
Acq: 8 Feb 2016 4:25 pm

Tgt Ion:276 Resp: 3746

Ion	Ratio	Lower	Upper
276	100		
138	26.2	3.9	43.9
277	23.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020815.D Vial: 15
Acq On : 8 Feb 2016 5:06 pm Operator:
Sample : 1601231-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2522370	4000.00 ug/kg	120
5) Acenaphthene-d10	13.15	164	2178029	4000.00 ug/kg	120
11) Phenanthrene-d10	15.23	188	3780344	4000.00 ug/kg	116
17) Chrysene-d12	20.80	240	3692999	4000.00 ug/kg	128
20) Perylene-d12	25.87	264	3175344	4000.00 ug/kg	137

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	47648	75.51 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.89%#		
16) 4-Terphenyl-d14	17.65	244	52590	83.27 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.08%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7495	~~13.66 ug/kg~~#	10
14) Fluoranthene	17.20	202	6528	7.33 ug/kg	98
15) Pyrene	17.76	202	6070	6.69 ug/kg	99
19) Chrysene	20.88	228	4516	5.57 ug/kg	98
21) Benzo[b]fluoranthene	24.18	252	4911	5.80 ug/kg	98
23) Benzo(j)fluoranthene	24.35	252	2045	2.89 ug/kg	86
25) Benzo[a]pyrene	25.55	252	4480	5.82 ug/kg	96
28) Benzo[g,h,i]perylene	30.24	276	3664	5.04 ug/kg	100

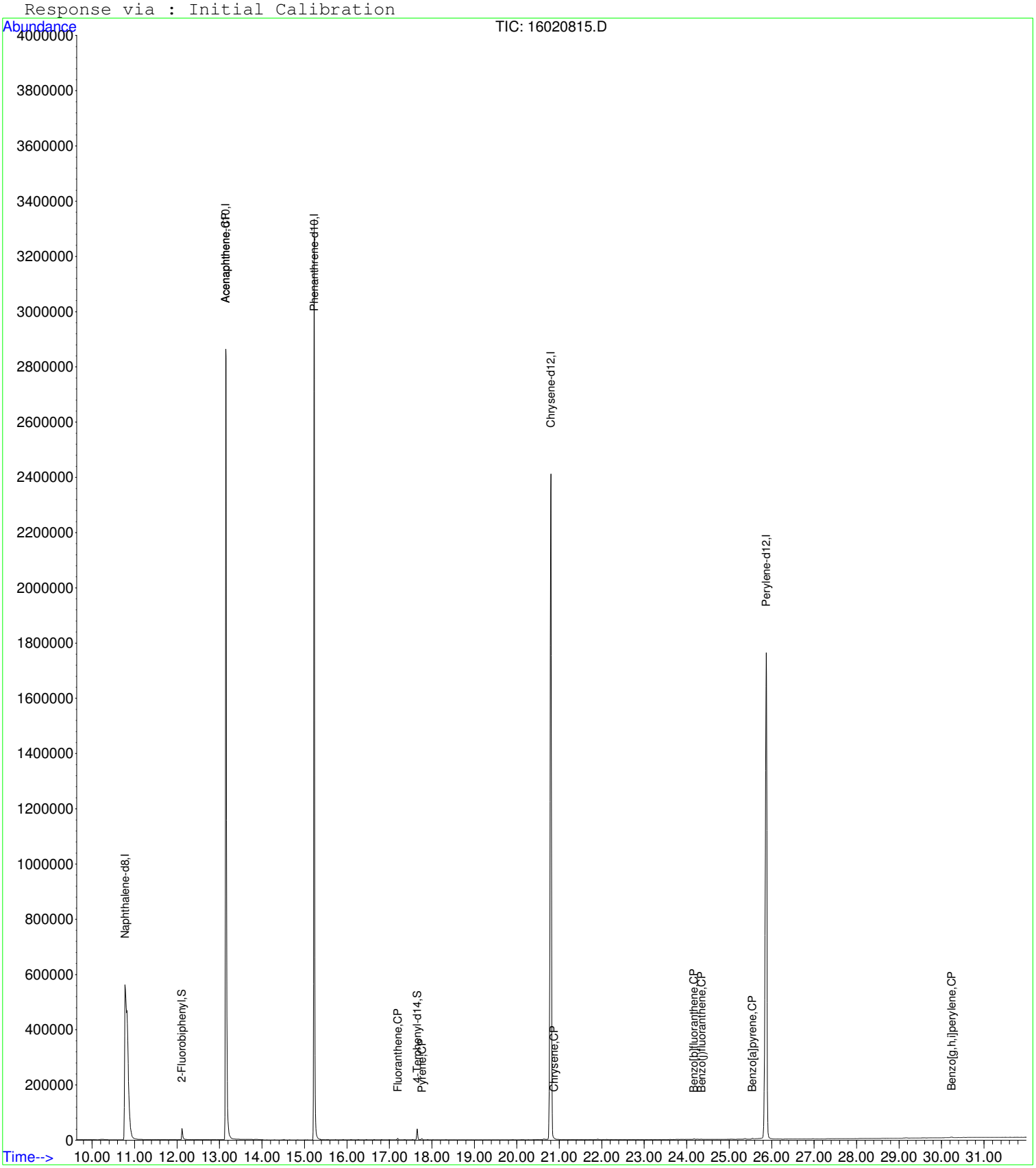
CONFIRMED
By Sherri Herschmann at 2:44:28 PM, 2/15/2016

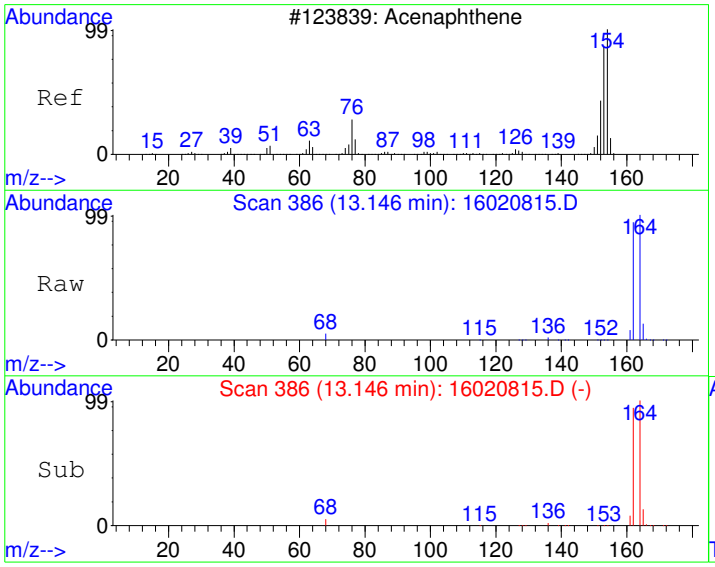
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020815.D Vial: 15
Acq On : 8 Feb 2016 5:06 pm Operator:
Sample : 1601231-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

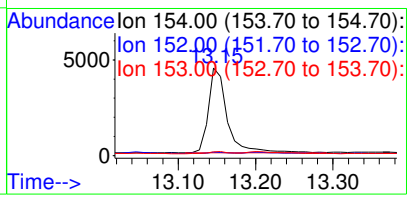


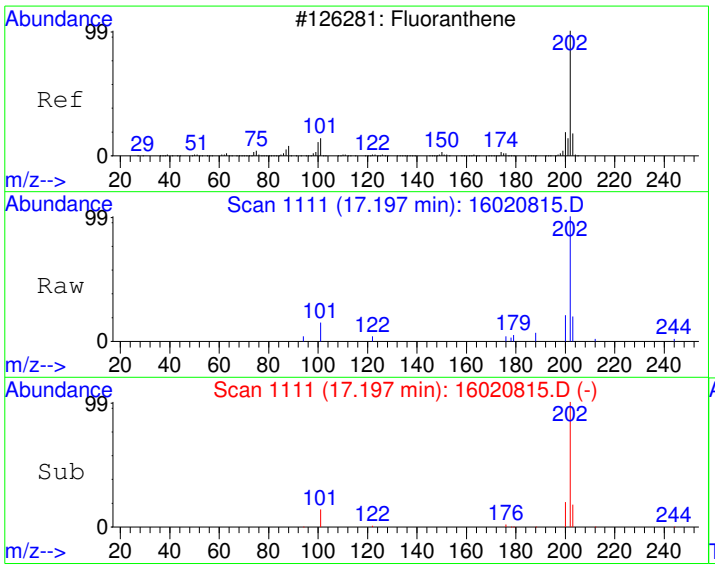


#9
Acenaphthene
Concen: 13.66 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:154 Resp: 7495

Ion	Ratio	Lower	Upper
154	100		
152	1.4	18.7	78.7#
153	2.5	74.4	134.4#

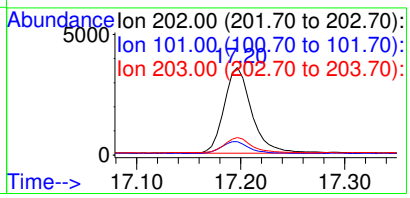


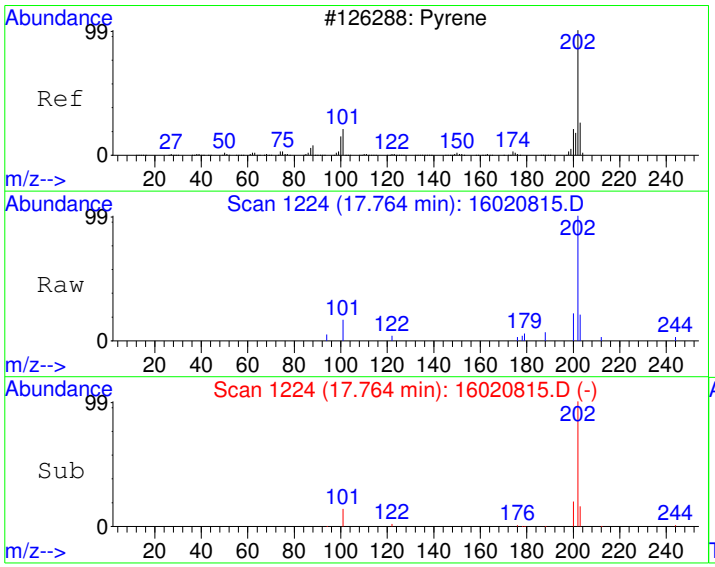


#14
Fluoranthene
Concen: 7.33 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:202 Resp: 6528

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	17.6	0.0	48.0

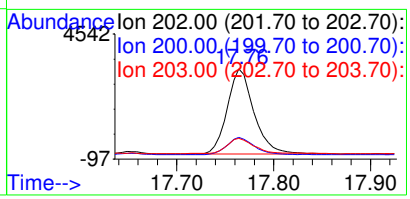


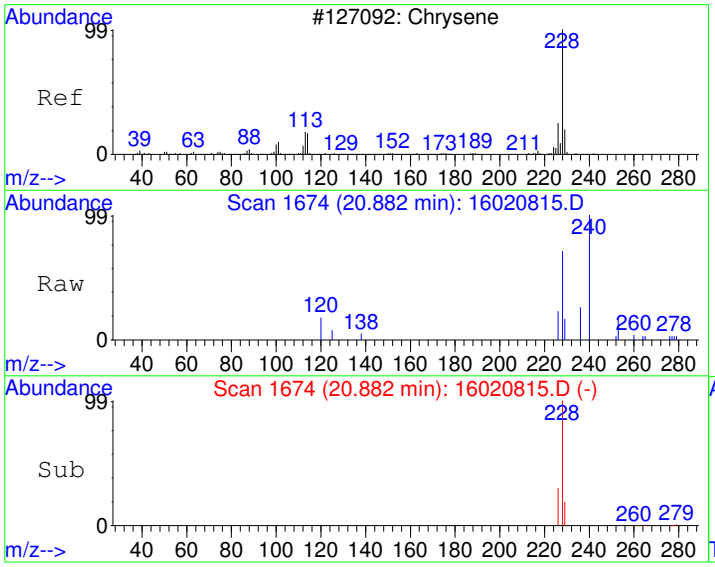


#15
Pyrene
Concen: 6.69 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:202 Resp: 6070

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	17.8	0.0	48.0

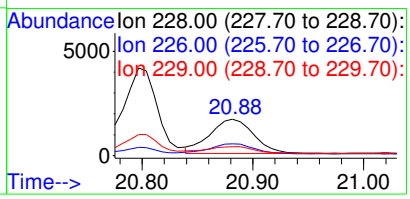


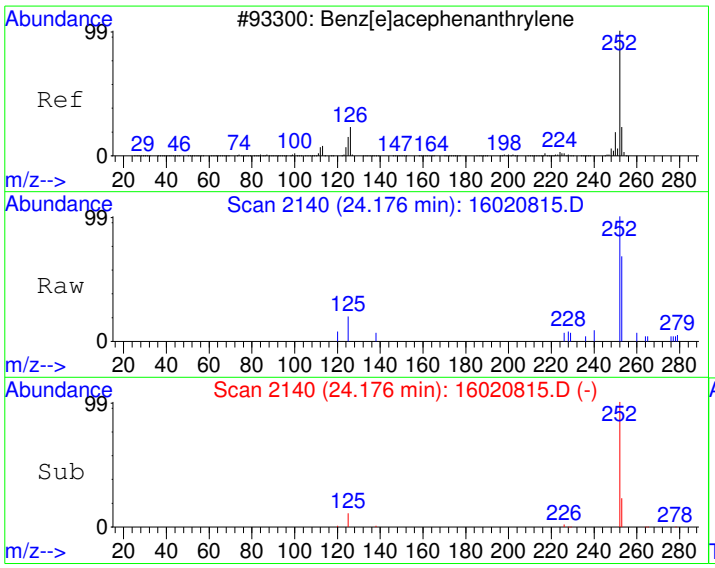


#19
Chrysene
Concen: 5.57 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:228 Resp: 4516

Ion	Ratio	Lower	Upper
228	100		
226	29.4	0.0	58.5
229	19.2	0.0	50.1

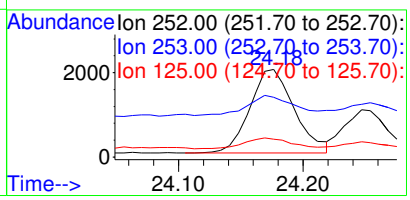


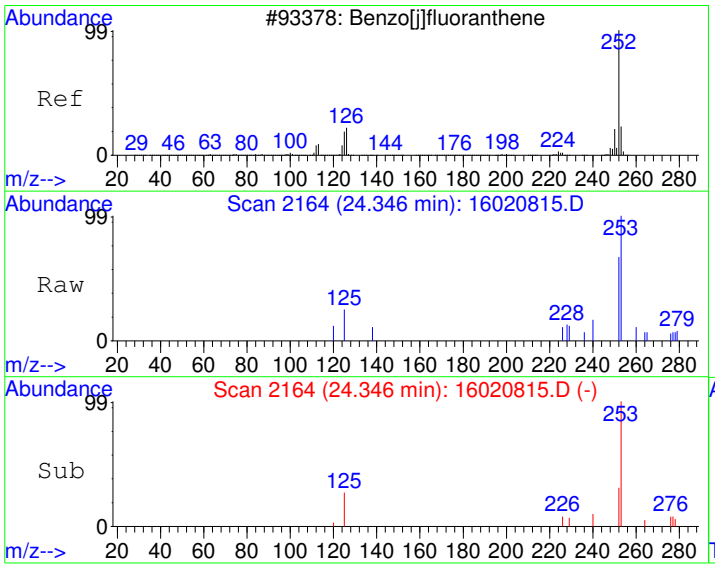


#21
Benzo[b]fluoranthene
Concen: 5.80 ug/kg
RT: 24.18 min Scan# 2140
Delta R.T. -0.00 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:252 Resp: 4911

Ion	Ratio	Lower	Upper
252	100		
253	20.4	0.0	52.0
125	10.5	0.0	40.5

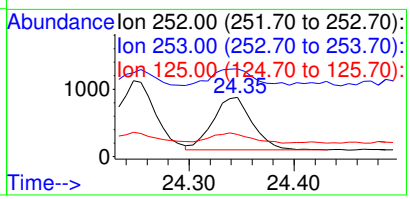


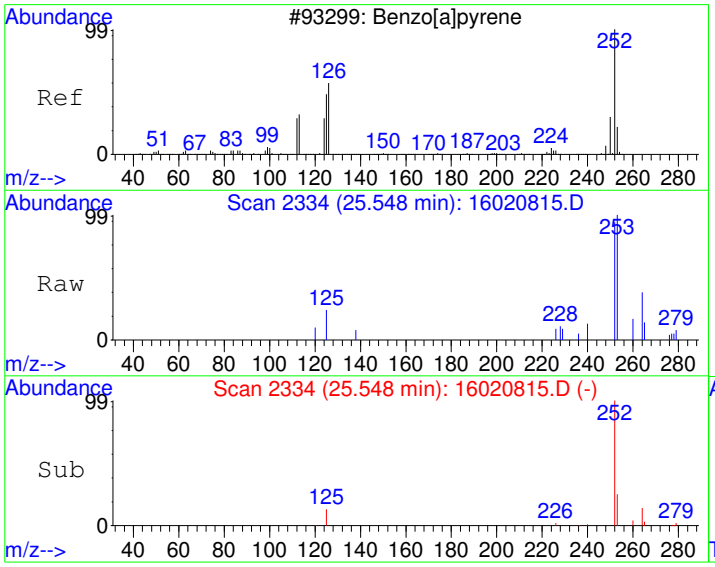


#23
Benzo(j)fluoranthene
Concen: 2.89 ug/kg
RT: 24.35 min Scan# 2164
Delta R.T. -0.00 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:252 Resp: 2045

Ion	Ratio	Lower	Upper
252	100		
253	31.4	2.3	42.3
125	16.3	0.0	34.0

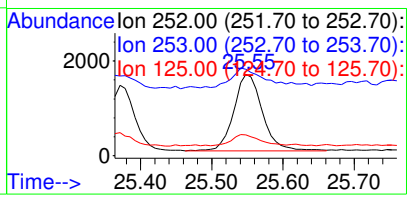


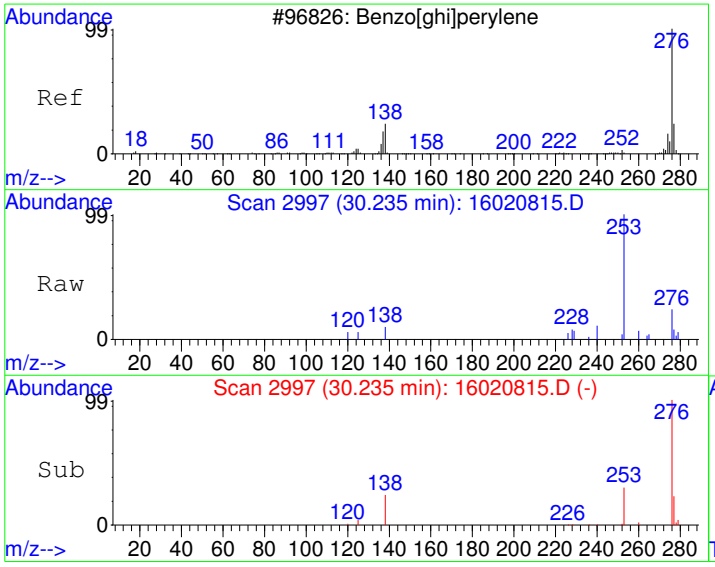


#25
Benzo[a]pyrene
Concen: 5.82 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:252 Resp: 4480

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.0	42.0
125	13.6	0.0	32.3

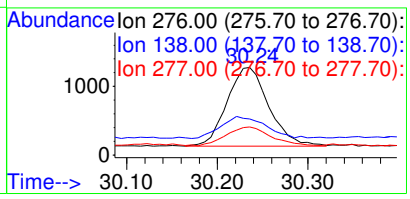




#28
Benzo[g,h,i]perylene
Concen: 5.04 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16020815.D
Acq: 8 Feb 2016 5:06 pm

Tgt Ion:276 Resp: 3664

Ion	Ratio	Lower	Upper
276	100		
138	23.9	3.9	43.9
277	23.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020816.D Vial: 16
Acq On : 8 Feb 2016 5:46 pm Operator:
Sample : 1601231-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2317124	4000.00 ug/kg	110
5) Acenaphthene-d10	13.15	164	2139582	4000.00 ug/kg	117
11) Phenanthrene-d10	15.23	188	3654648	4000.00 ug/kg	112
17) Chrysene-d12	20.80	240	3485187	4000.00 ug/kg	121
20) Perylene-d12	25.87	264	3077035	4000.00 ug/kg	133

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	46153	74.46 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.86%#		
16) 4-Terphenyl-d14	17.65	244	52479	85.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.15%#		

Target Compounds					Qvalue
12) Phenanthrene	15.27	178	45887	52.87 ug/kg	99
13) Anthracene	15.33	178	8196	9.65 ug/kg	99
14) Fluoranthene	17.18	202	144376	167.76 ug/kg	98
15) Pyrene	17.75	202	132875	151.59 ug/kg	100
18) Benzo[a]anthracene	20.63	228	72093	89.71 ug/kg	100
19) Chrysene	20.88	228	92026	120.27 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	96676	117.84 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	41274	56.64 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	41880	61.18 ug/kg	86
24) Benzo[e]pyrene	25.37	252	73647	96.15 ug/kg	98
25) Benzo[a]pyrene	25.55	252	88933	119.29 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	15027	21.79 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	66571	79.23 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	71483	101.40 ug/kg	97

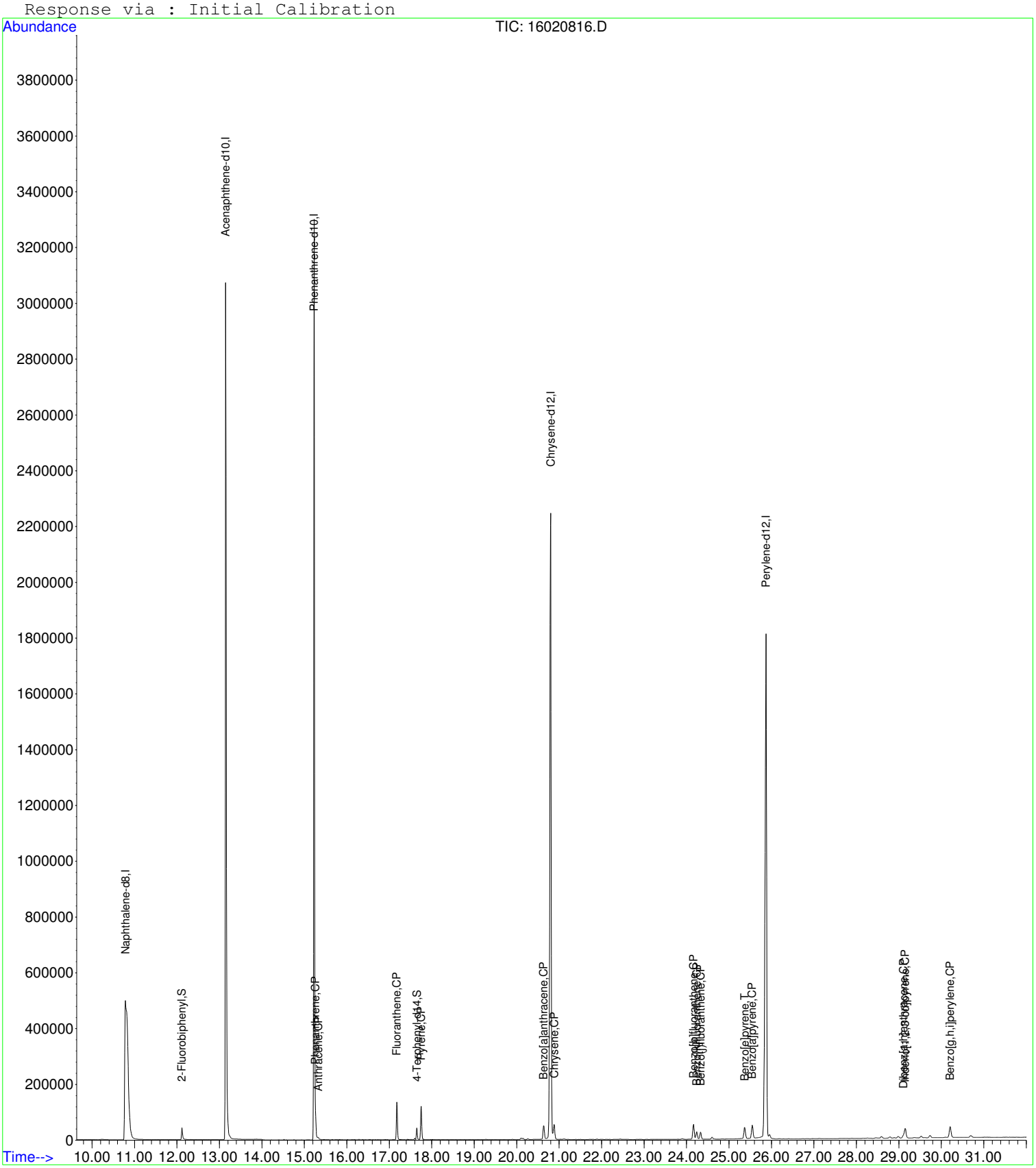
CONFIRMED
By Sherri Herschmann at 2:44:38 PM, 2/15/2016

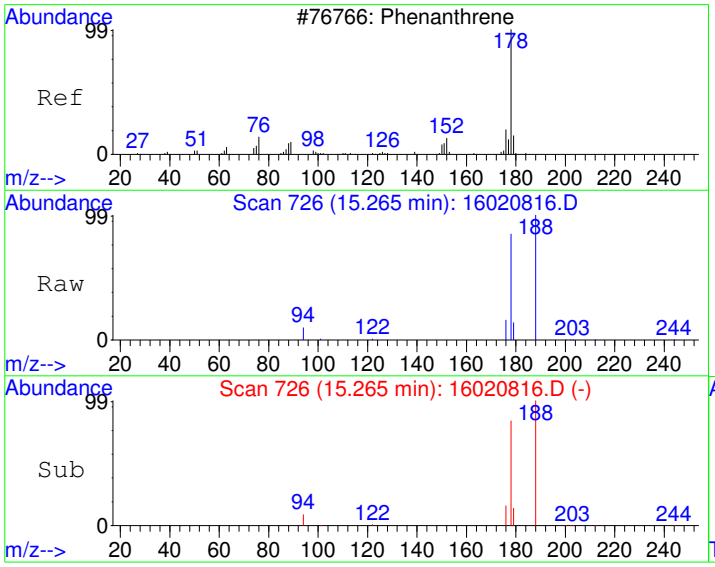
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020816.D Vial: 16
Acq On : 8 Feb 2016 5:46 pm Operator:
Sample : 1601231-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

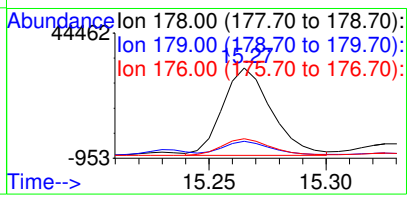


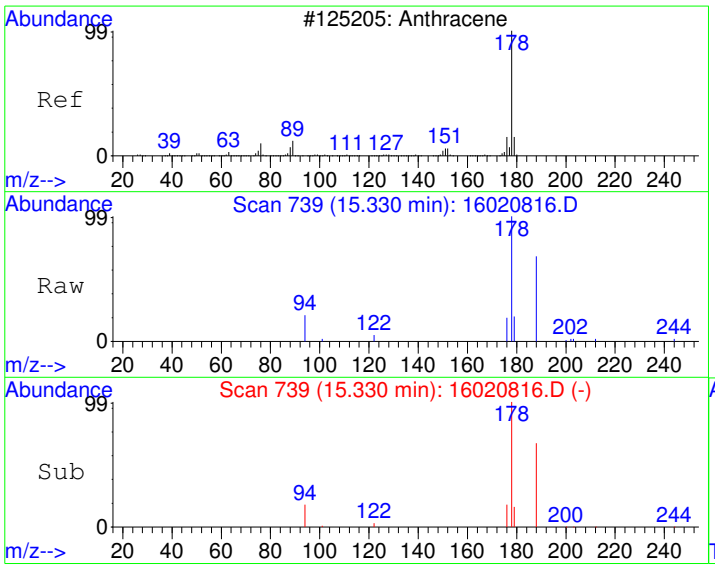


#12
Phenanthrene
Concen: 52.87 ug/kg
RT: 15.27 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:178 Resp: 45887

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.1
176	19.2	0.0	49.0

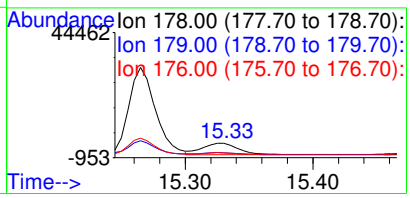


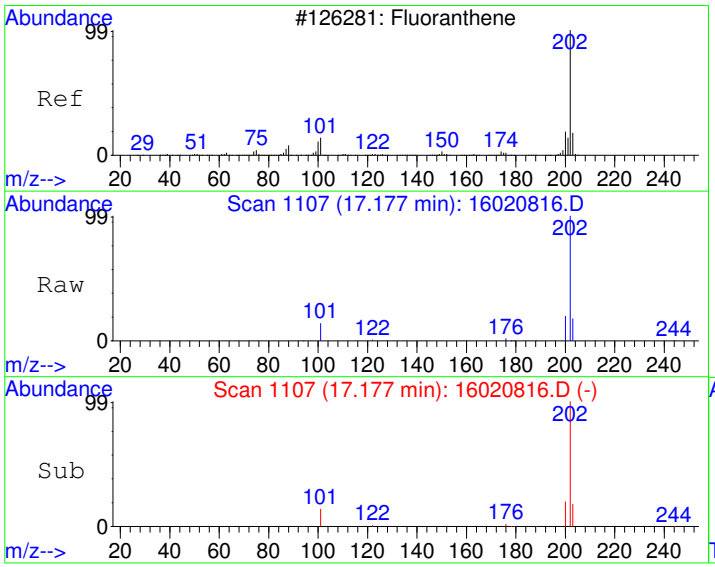


#13
Anthracene
Concen: 9.65 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.02 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:178 Resp: 8196

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.0
176	17.9	0.0	48.6

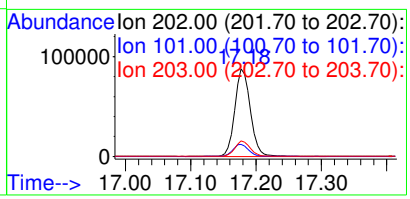


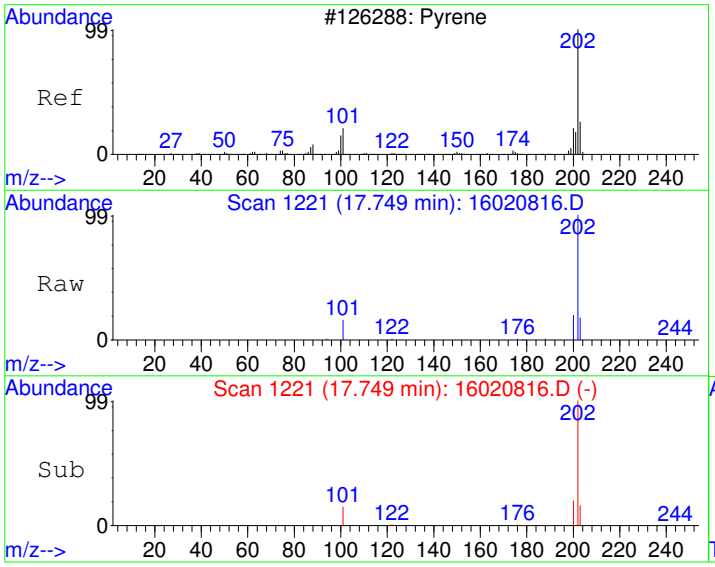


#14
Fluoranthene
Concen: 167.76 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. 0.00 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:202 Resp: 144376

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	17.5	0.0	48.0

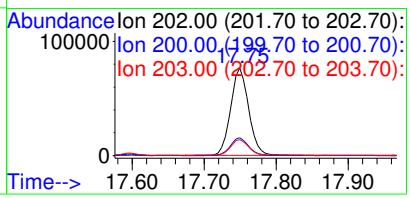


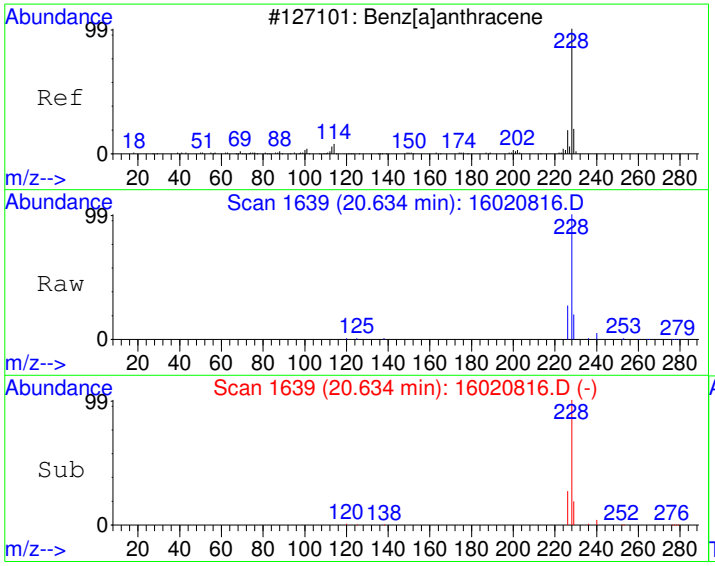


#15
Pyrene
Concen: 151.59 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:202 Resp: 132875

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.0	0.0	48.0

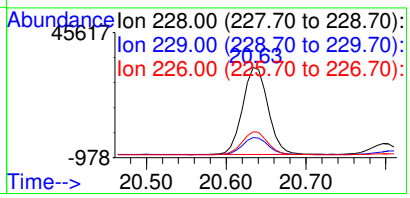


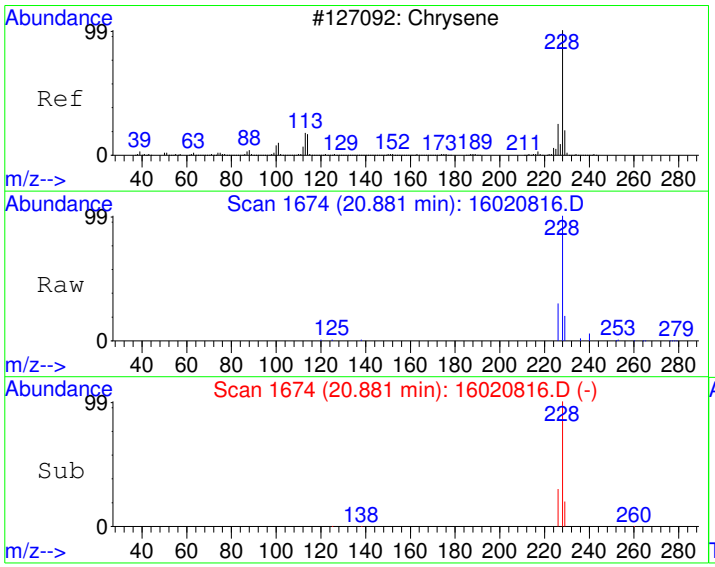


#18
Benzo[a]anthracene
Concen: 89.71 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:228 Resp: 72093

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.5	0.0	56.4

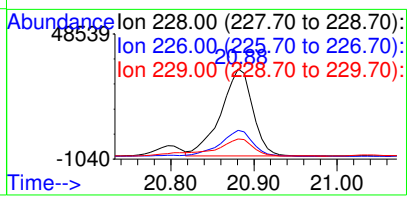


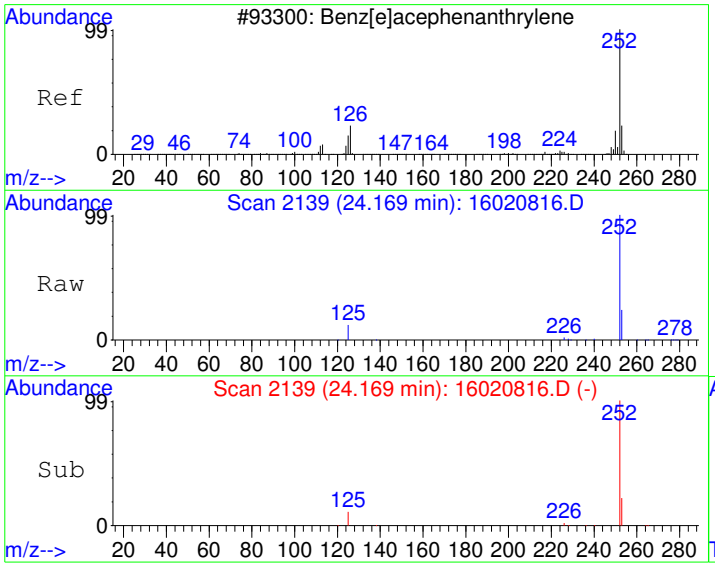


#19
Chrysene
Concen: 120.27 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:228 Resp: 92026

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.5
229	19.5	0.0	50.1

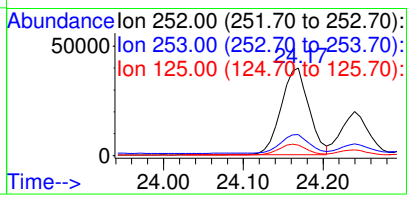


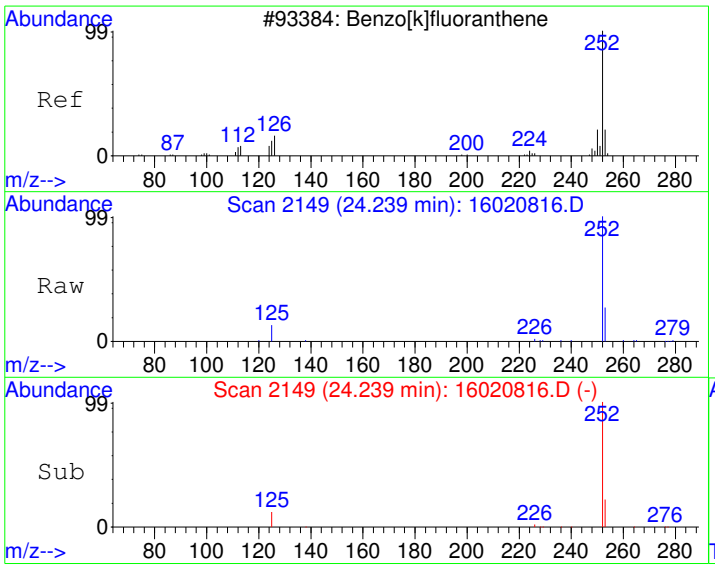


#21
Benzo[b]fluoranthene
Concen: 117.84 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:252 Resp: 96676

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	11.2	0.0	40.5

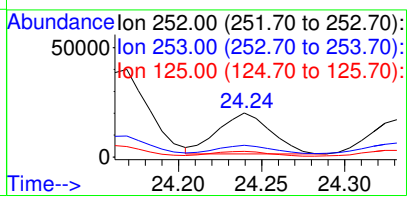


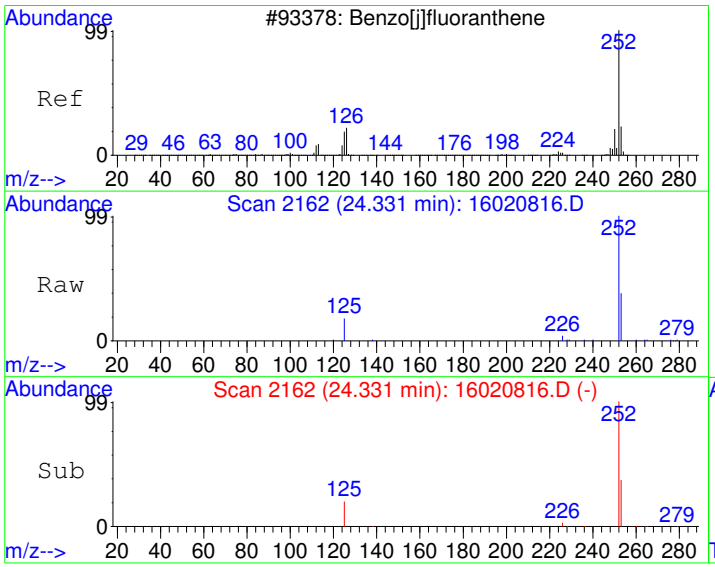


#22
Benzo[k]fluoranthene
Concen: 56.64 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:252 Resp: 41274

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	11.4	0.0	31.8

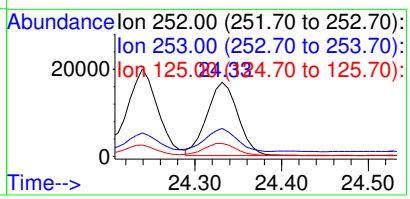


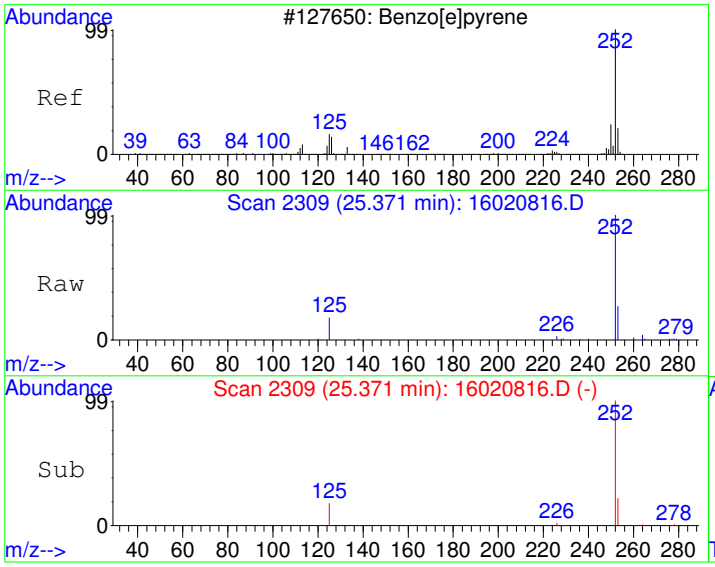


#23
Benzo(j)fluoranthene
Concen: 61.18 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:252 Resp: 41880

Ion	Ratio	Lower	Upper
252	100		
253	31.5	2.3	42.3
125	16.4	0.0	34.0

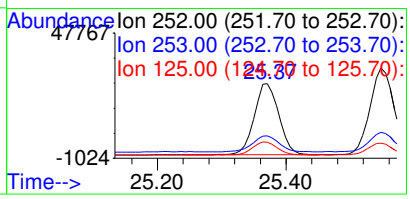


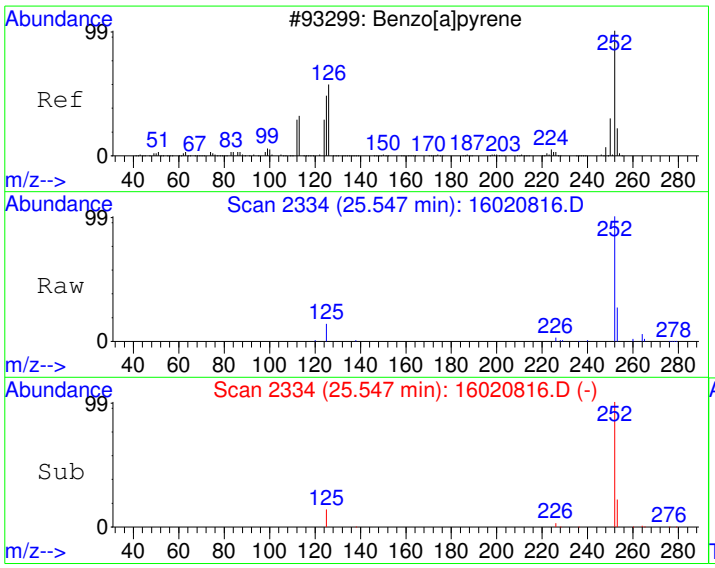


#24
Benzo[e]pyrene
Concen: 96.15 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:252 Resp: 73647

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	17.7	0.0	36.0

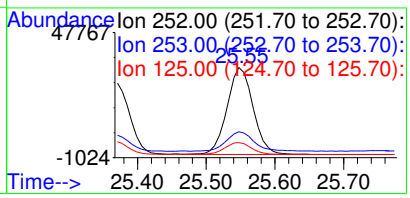


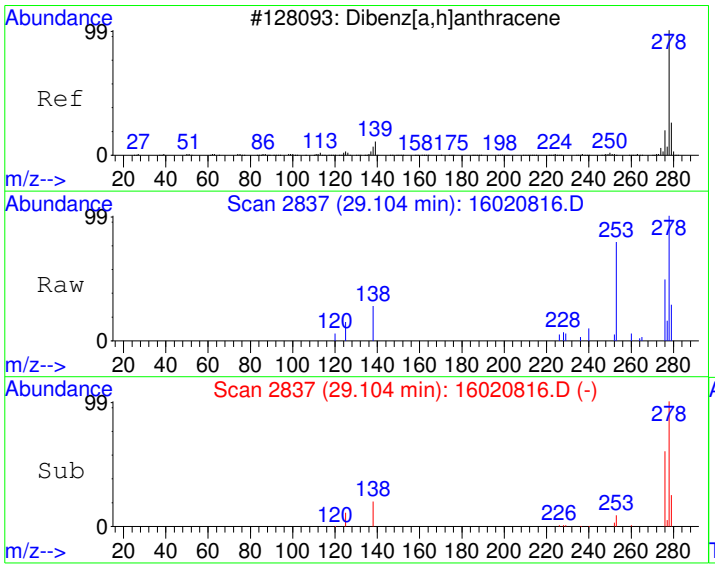


#25
Benzo[a]pyrene
Concen: 119.29 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:252 Resp: 88933

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.7	0.0	32.3

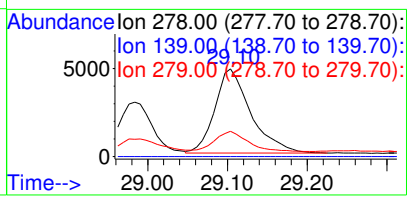


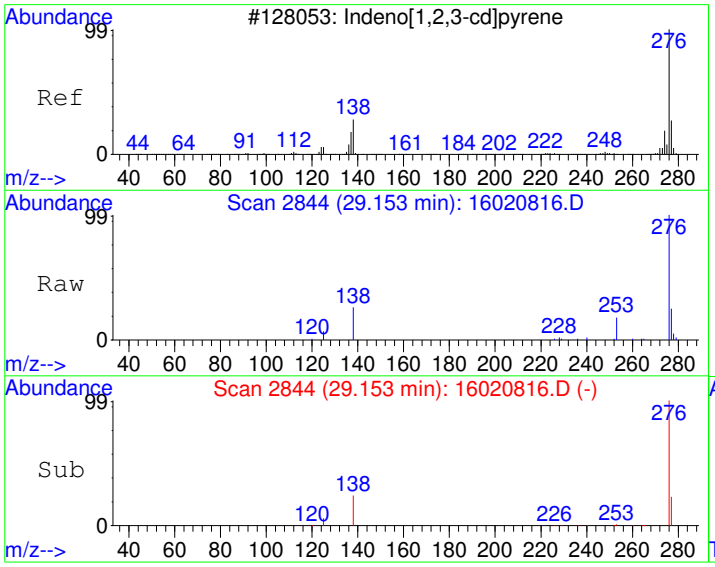


#26
Dibenz[a,h]anthracene
Concen: 21.79 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:278 Resp: 15027

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.6	3.8	43.8

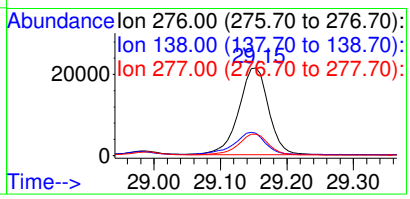


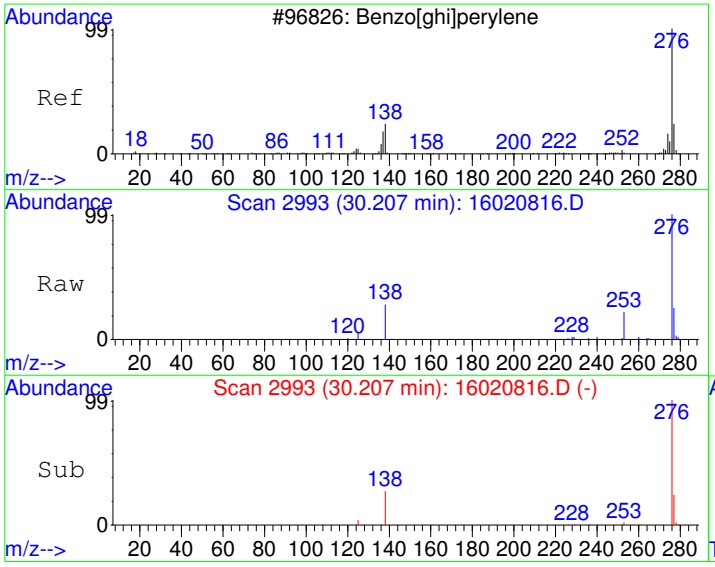


#27
Indeno[1,2,3-cd]pyrene
Concen: 79.23 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:276 Resp: 66571

Ion	Ratio	Lower	Upper
276	100		
138	24.6	2.1	42.1
277	24.1	4.2	44.2

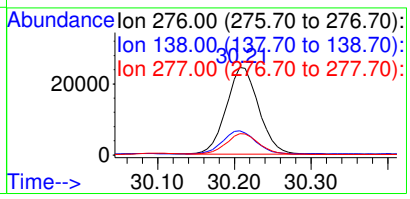




#28
Benzo[g,h,i]perylene
Concen: 101.40 ug/kg
RT: 30.21 min Scan# 2993
Delta R.T. -0.01 min
Lab File: 16020816.D
Acq: 8 Feb 2016 5:46 pm

Tgt Ion:276 Resp: 71483

Ion	Ratio	Lower	Upper
276	100		
138	27.0	3.9	43.9
277	24.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020817.D Vial: 17
Acq On : 8 Feb 2016 6:27 pm Operator:
Sample : 1601231-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2638030	4000.00 ug/kg	126
5) Acenaphthene-d10	13.15	164	2177865	4000.00 ug/kg	120
11) Phenanthrene-d10	15.23	188	3724567	4000.00 ug/kg	114
17) Chrysene-d12	20.80	240	3455961	4000.00 ug/kg	120
20) Perylene-d12	25.87	264	3046671	4000.00 ug/kg	132

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46985	74.46 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.86%#		
16) 4-Terphenyl-d14	17.65	244	50349	80.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6958	~~12.68 ug/kg#~~	10
12) Phenanthrene	15.26	178	23869	26.99 ug/kg	99
13) Anthracene	15.33	178	5223	6.04 ug/kg	99
14) Fluoranthene	17.18	202	74840	85.33 ug/kg	98
15) Pyrene	17.75	202	69085	77.33 ug/kg	99
18) Benzo[a]anthracene	20.63	228	37841	47.49 ug/kg	100
19) Chrysene	20.88	228	50124	66.06 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	52962	65.20 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	22670	31.42 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	23088	34.06 ug/kg	87
24) Benzo[e]pyrene	25.37	252	40868	53.89 ug/kg	99
25) Benzo[a]pyrene	25.55	252	48085	65.14 ug/kg	97
26) Dibenz[a,h]anthracene	29.10	278	8421	12.33 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	39179	47.09 ug/kg	99
28) Benzo[g,h,i]perylene	30.21	276	43330	62.08 ug/kg	97

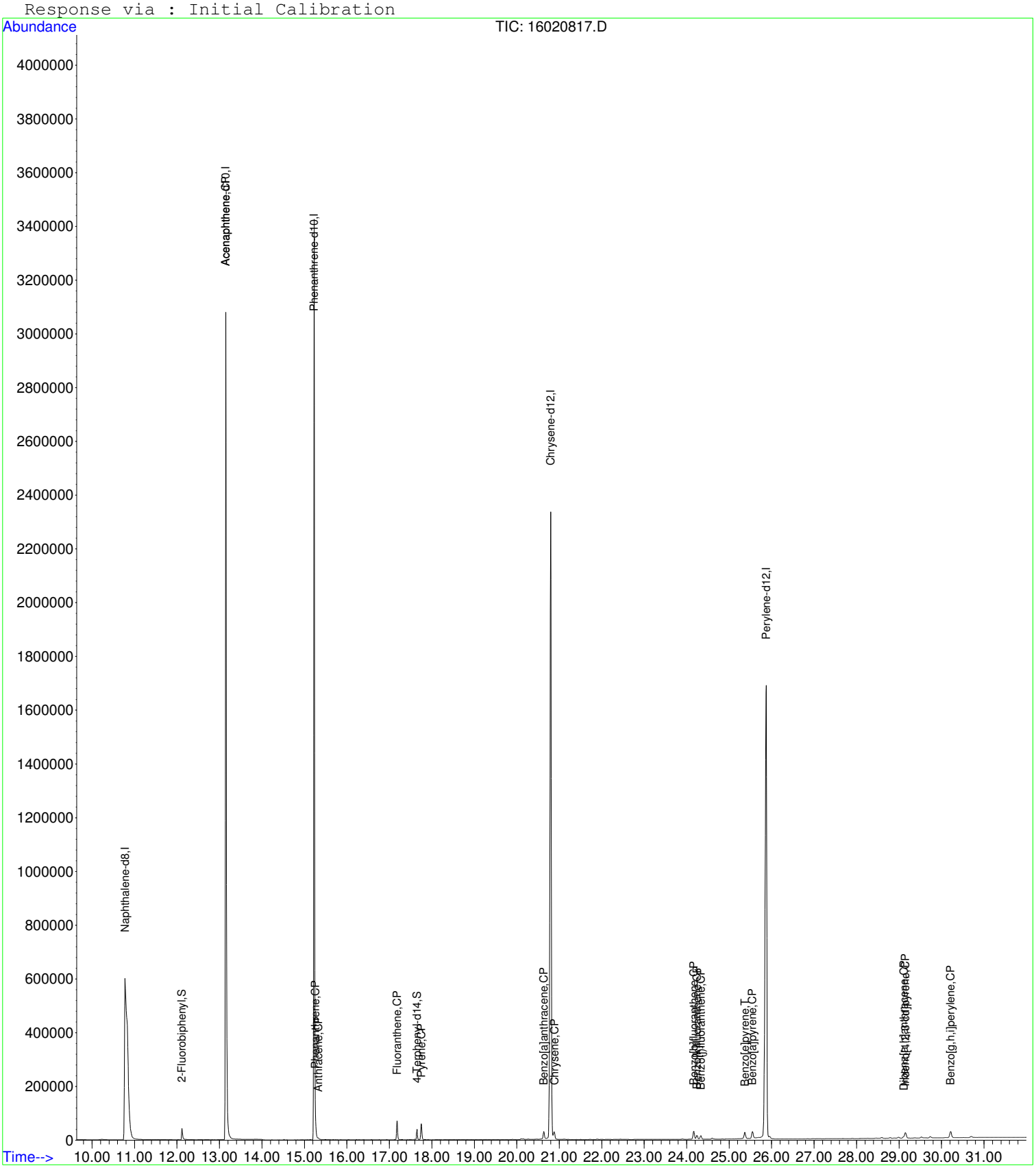
CONFIRMED
By Sherri Herschmann at 2:44:51 PM, 2/15/2016

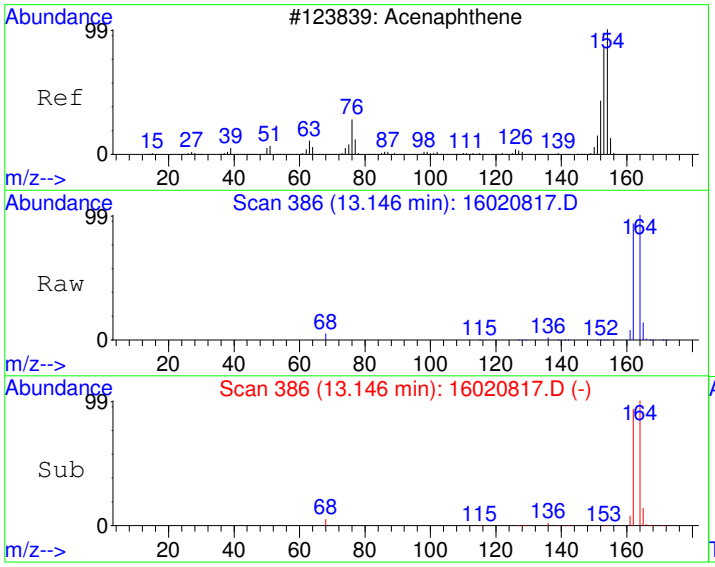
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020817.D Vial: 17
Acq On : 8 Feb 2016 6:27 pm Operator:
Sample : 1601231-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

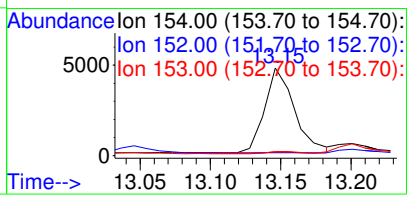


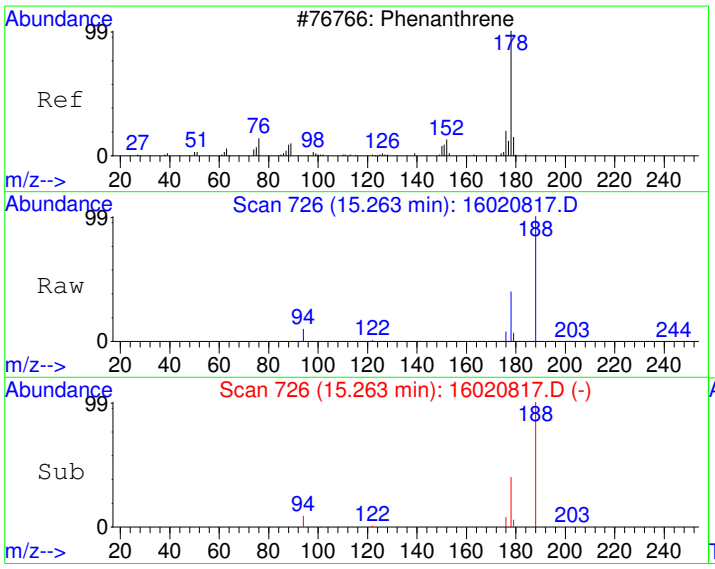


#9
Acenaphthene
Concen: 12.68 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:154 Resp: 6958

Ion	Ratio	Lower	Upper
154	100		
152	0.7	18.7	78.7#
153	2.4	74.4	134.4#

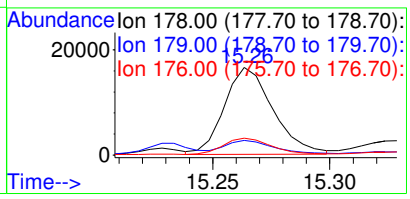


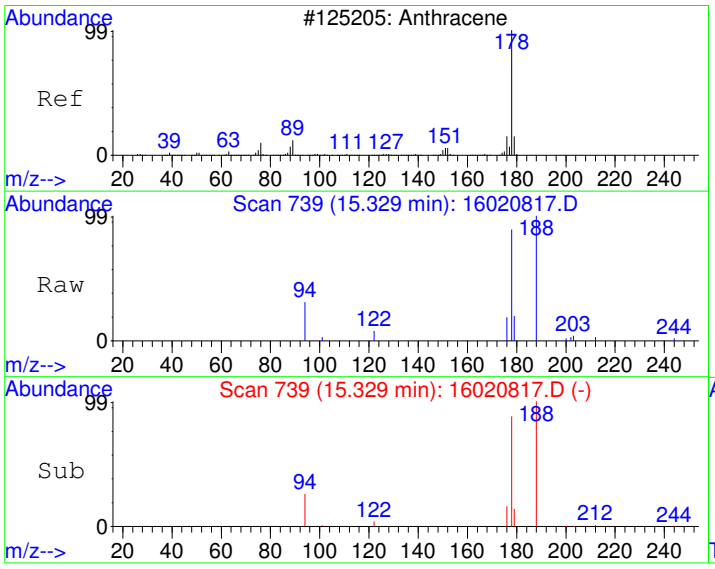


#12
Phenanthrene
Concen: 26.99 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:178 Resp: 23869

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.1
176	19.3	0.0	49.0

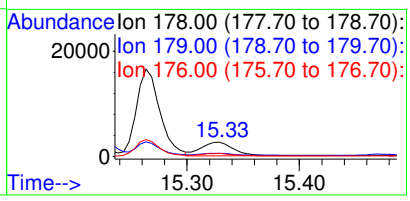


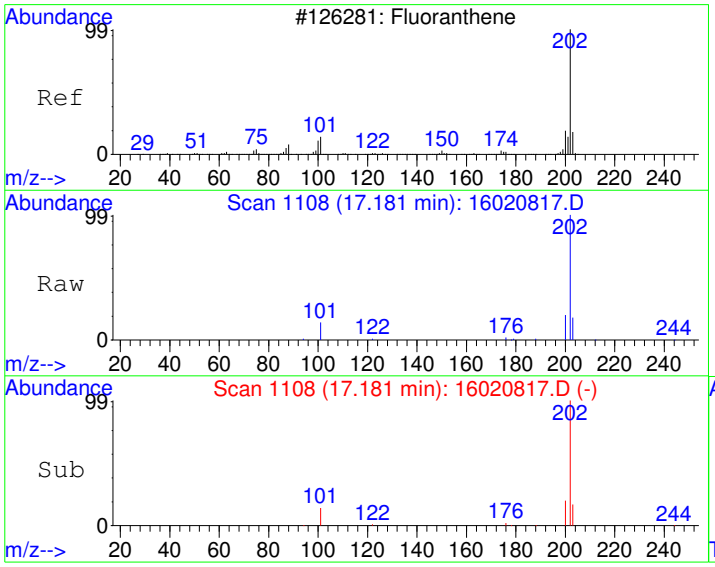


#13
Anthracene
Concen: 6.04 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:178 Resp: 5223

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	46.0
176	18.4	0.0	48.6

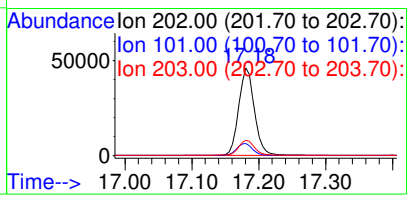


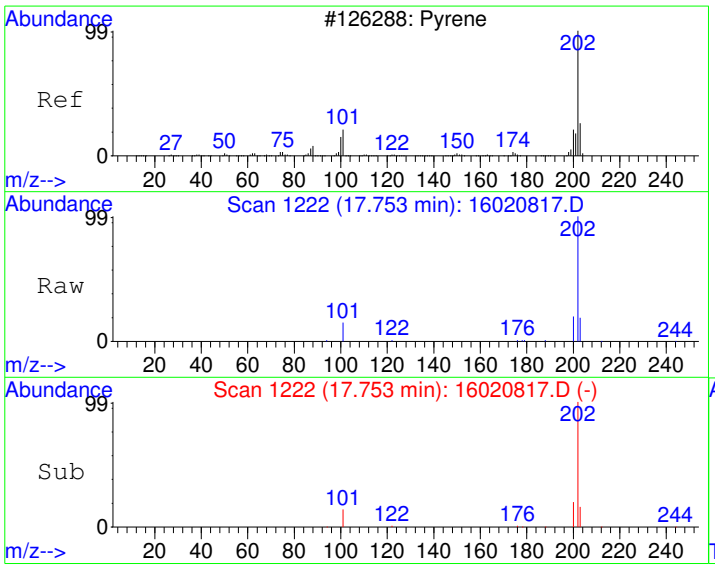


#14
Fluoranthene
Concen: 85.33 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.00 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:202 Resp: 74840

Ion	Ratio	Lower	Upper
202	100		
101	13.6	0.0	42.5
203	17.3	0.0	48.0

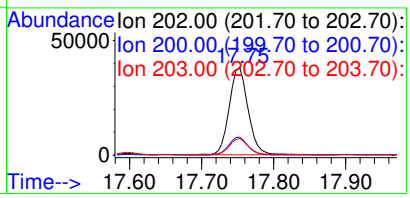


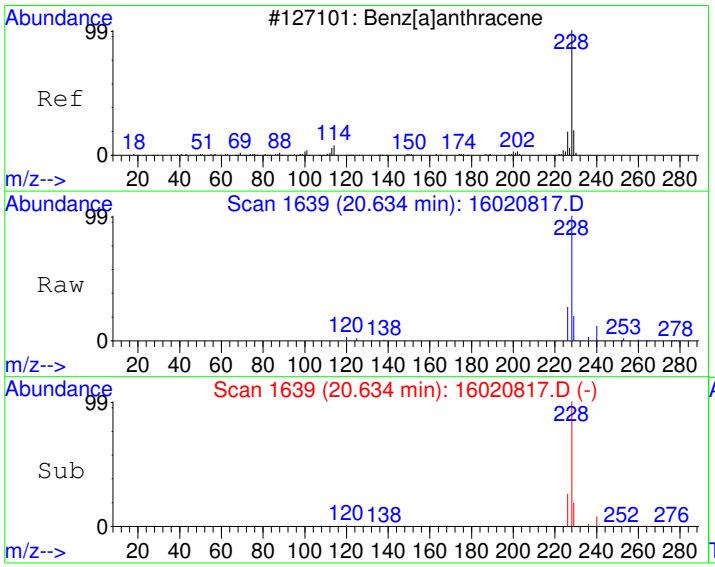


#15
Pyrene
Concen: 77.33 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.00 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:202 Resp: 69085

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.4	0.0	48.0

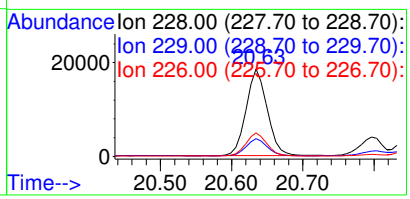


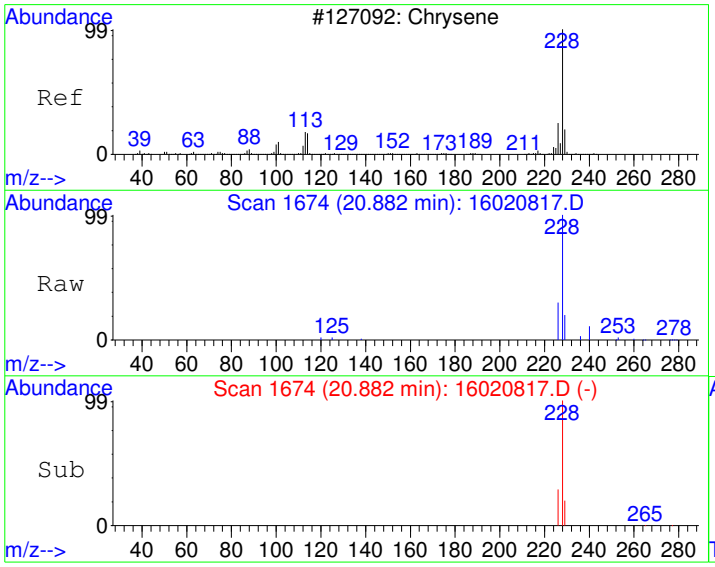


#18
Benzo[a]anthracene
Concen: 47.49 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:228 Resp: 37841

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.5	0.0	56.4

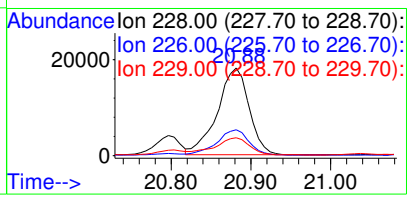


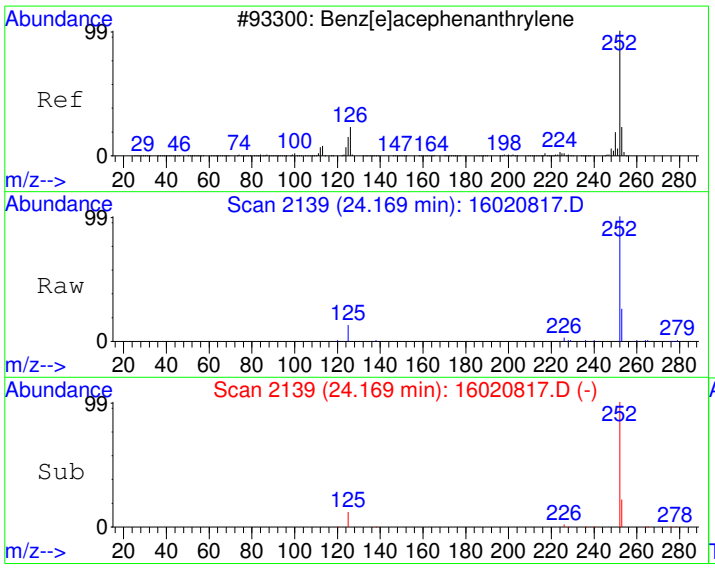


#19
Chrysene
Concen: 66.06 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:228 Resp: 50124

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.5
229	19.8	0.0	50.1

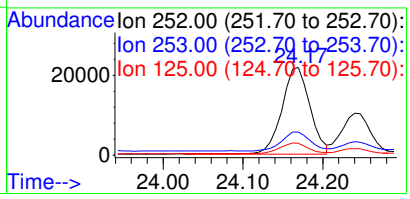


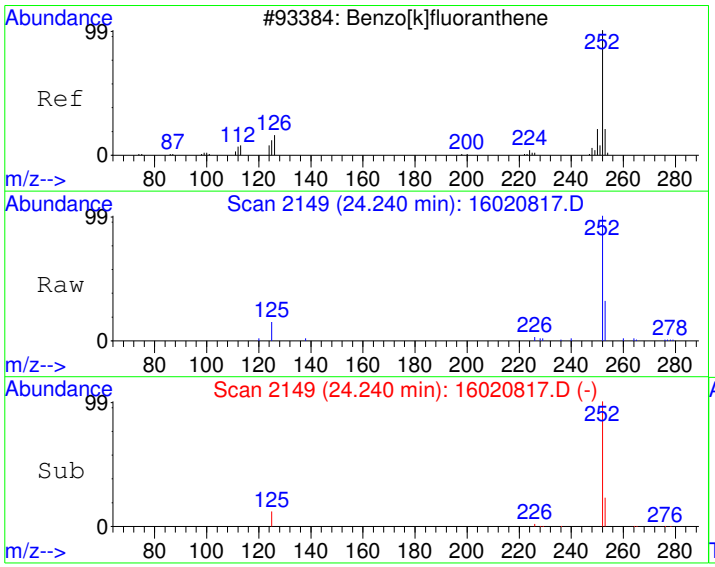


#21
Benzo[b]fluoranthene
Concen: 65.20 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:252 Resp: 52962

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	11.8	0.0	40.5

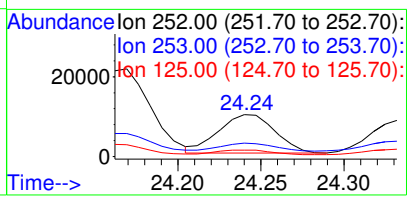


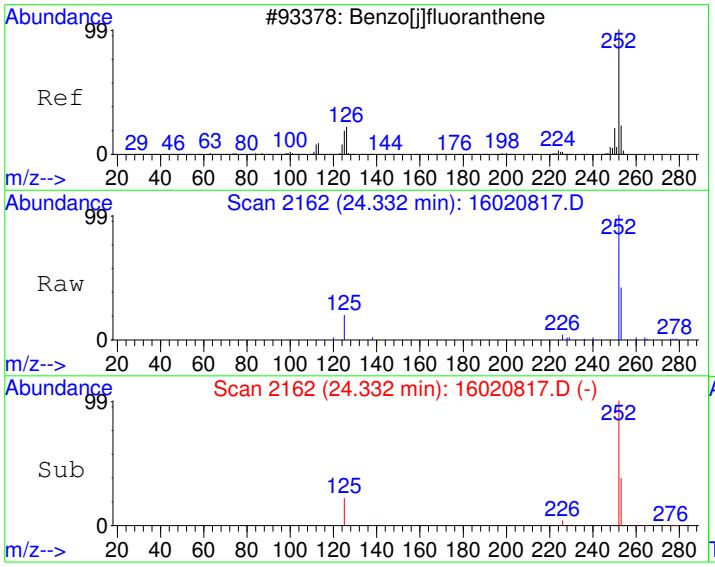


#22
Benzo[k]fluoranthene
Concen: 31.42 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:252 Resp: 22670

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.2	42.2
125	12.0	0.0	31.8

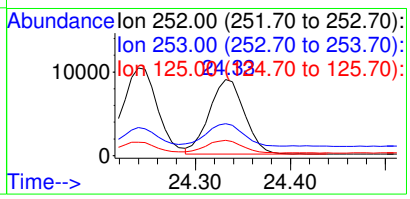


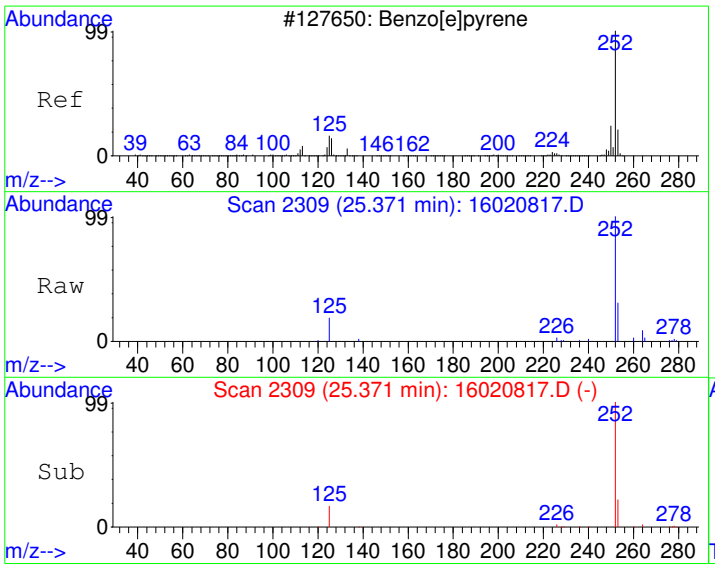


#23
Benzo(j)fluoranthene
Concen: 34.06 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:252 Resp: 23088

Ion	Ratio	Lower	Upper
252	100		
253	30.0	2.3	42.3
125	16.8	0.0	34.0

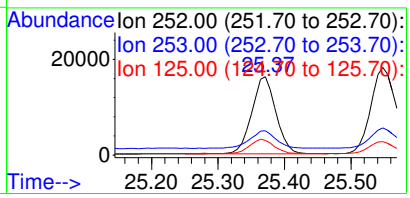


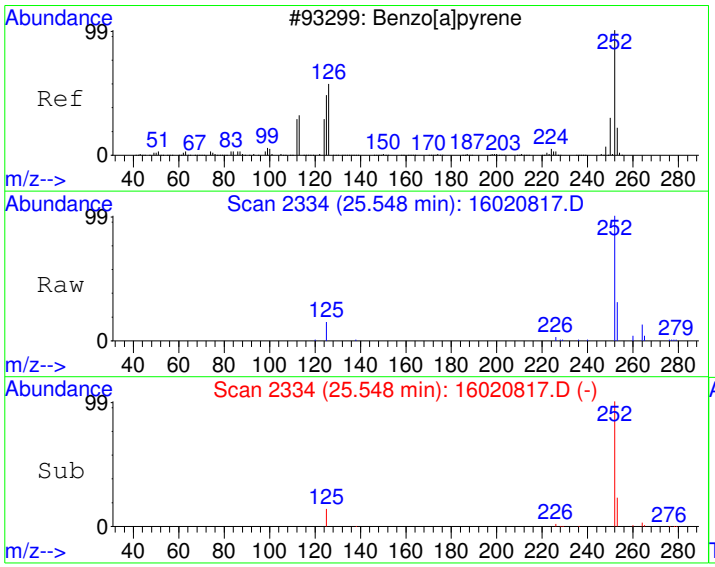


#24
Benzo[e]pyrene
Concen: 53.89 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:252 Resp: 40868

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	17.0	0.0	36.0

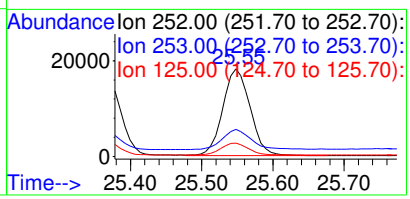


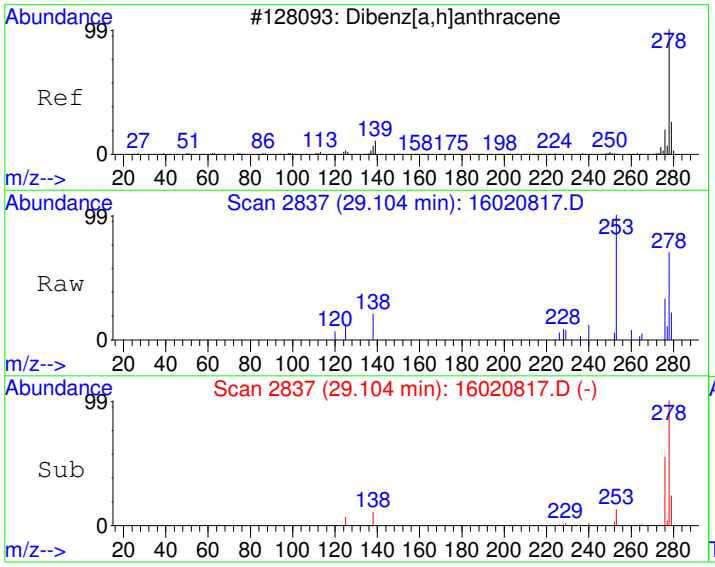


#25
Benzo[a]pyrene
Concen: 65.14 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:252 Resp: 48085

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.0	42.0
125	13.7	0.0	32.3

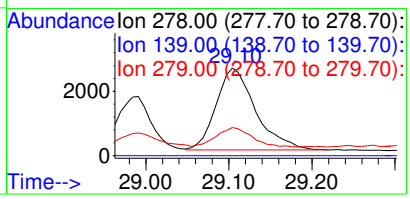


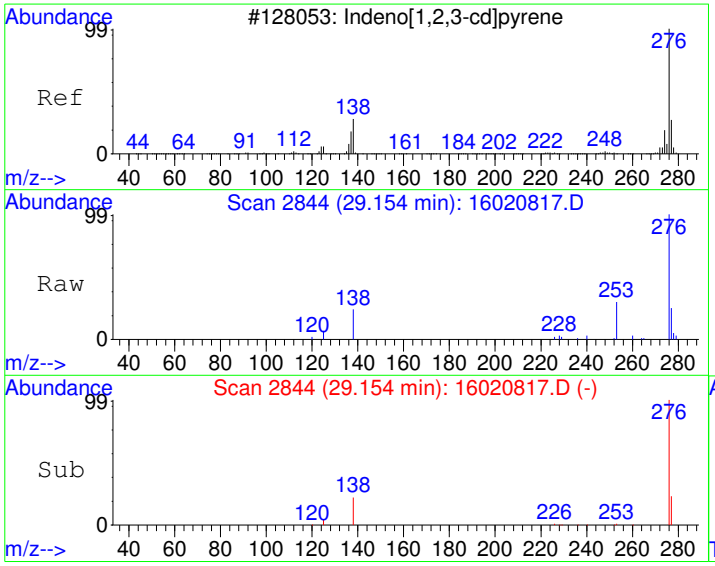


#26
Dibenz[a,h]anthracene
Concen: 12.33 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:278 Resp: 8421

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.2	3.8	43.8

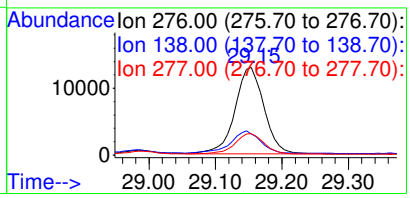


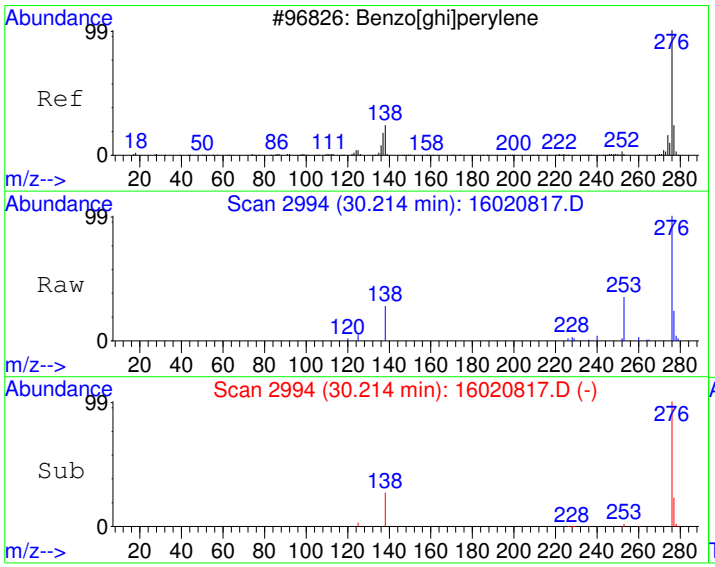


#27
Indeno[1,2,3-cd]pyrene
Concen: 47.09 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:276 Resp: 39179

Ion	Ratio	Lower	Upper
276	100		
138	22.6	2.1	42.1
277	23.8	4.2	44.2

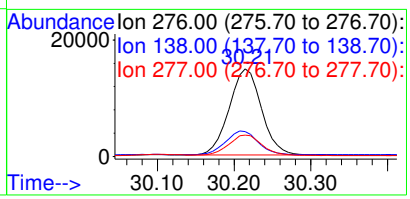




#28
Benzo[g,h,i]perylene
Concen: 62.08 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020817.D
Acq: 8 Feb 2016 6:27 pm

Tgt Ion:276 Resp: 43330

Ion	Ratio	Lower	Upper
276	100		
138	26.9	3.9	43.9
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020818.D Vial: 18
Acq On : 8 Feb 2016 7:06 pm Operator:
Sample : 1601231-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2227516	4000.00 ug/kg	106
5) Acenaphthene-d10	13.15	164	2134224	4000.00 ug/kg	117
11) Phenanthrene-d10	15.23	188	3616588	4000.00 ug/kg	111
17) Chrysene-d12	20.80	240	3624494	4000.00 ug/kg	126
20) Perylene-d12	25.87	264	3155591	4000.00 ug/kg	137

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	44105	71.33 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.78%#		
16) 4-Terphenyl-d14	17.65	244	51010	84.43 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.11%#		

Target Compounds					Qvalue
12) Phenanthrene	15.26	178	36295	42.26 ug/kg	99
13) Anthracene	15.33	178	6102	7.26 ug/kg	97
14) Fluoranthene	17.18	202	111964	131.47 ug/kg	98
15) Pyrene	17.75	202	103899	119.78 ug/kg	99
18) Benzo[a]anthracene	20.63	228	57148	68.38 ug/kg	100
19) Chrysene	20.88	228	74601	93.75 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	77848	92.53 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	33655	45.03 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	34477	49.11 ug/kg	88
24) Benzo[e]pyrene	25.37	252	60020	76.41 ug/kg	98
25) Benzo[a]pyrene	25.55	252	70802	92.61 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	11898	16.82 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	53594	62.20 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	57240	79.17 ug/kg	96

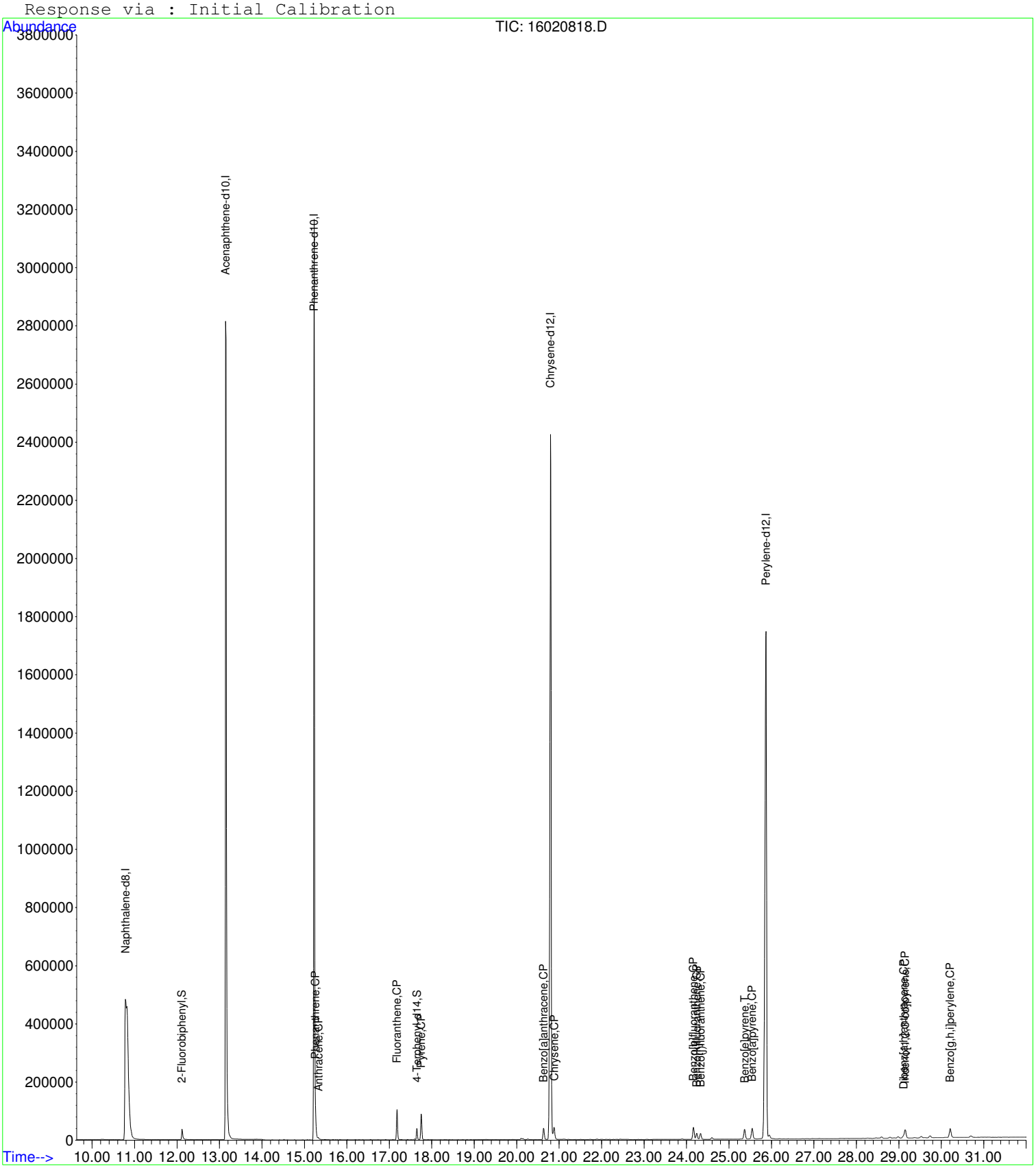
CONFIRMED
By Sherri Herschmann at 2:44:59 PM, 2/15/2016

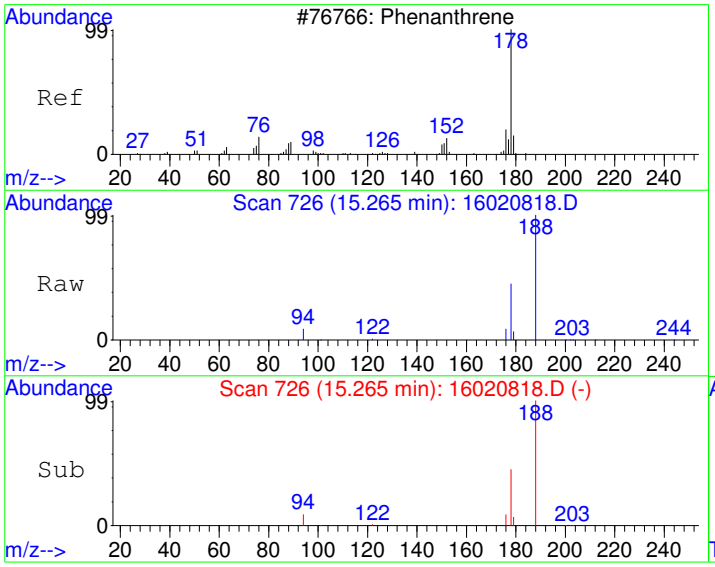
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020818.D Vial: 18
Acq On : 8 Feb 2016 7:06 pm Operator:
Sample : 1601231-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

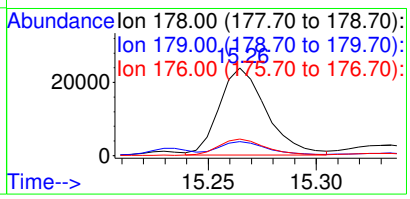


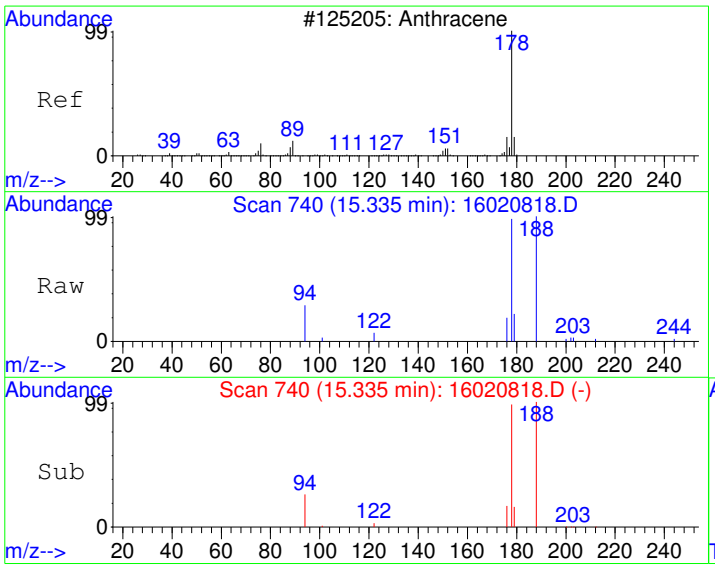


#12
Phenanthrene
Concen: 42.26 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:178 Resp: 36295

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.1
176	19.1	0.0	49.0

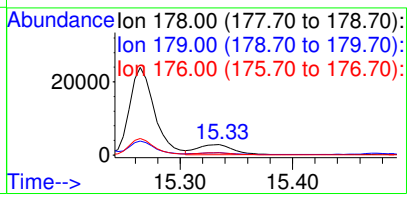


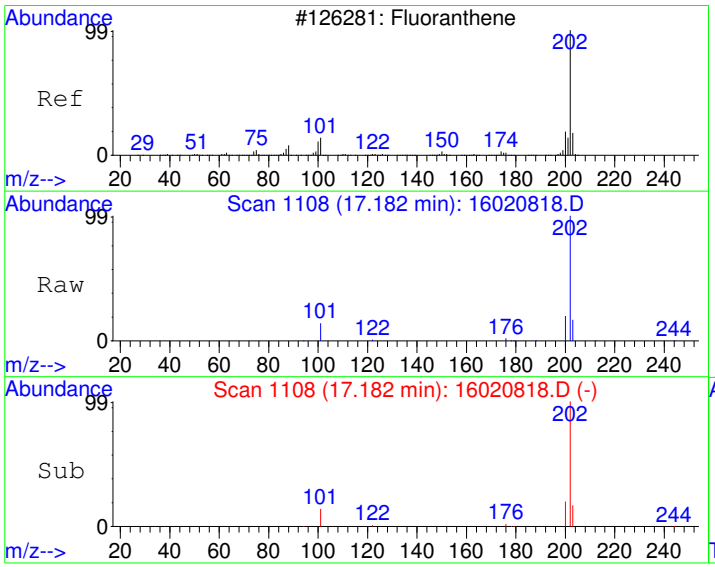


#13
Anthracene
Concen: 7.26 ug/kg
RT: 15.33 min Scan# 740
Delta R.T. 0.02 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:178 Resp: 6102

Ion	Ratio	Lower	Upper
178	100		
179	17.2	0.0	46.0
176	17.6	0.0	48.6

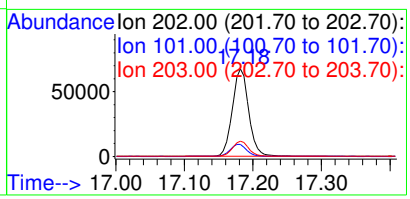


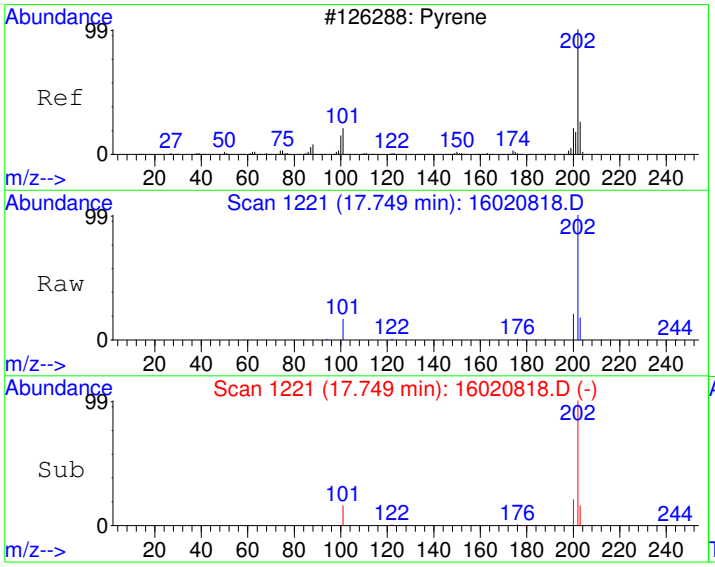


#14
Fluoranthene
Concen: 131.47 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:202 Resp: 111964

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	42.5
203	17.3	0.0	48.0

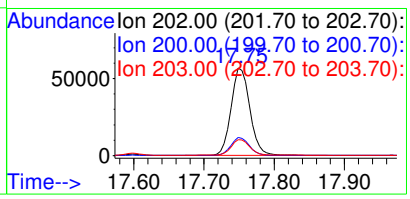


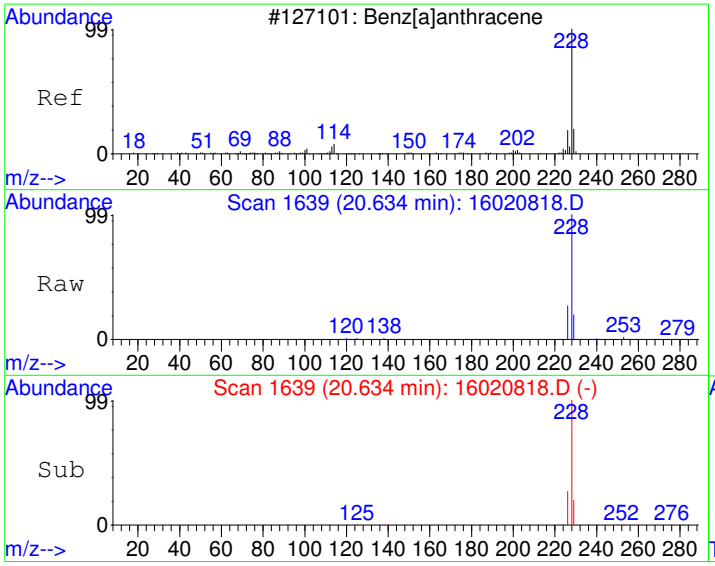


#15
Pyrene
Concen: 119.78 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:202 Resp: 103899

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.0
203	18.1	0.0	48.0

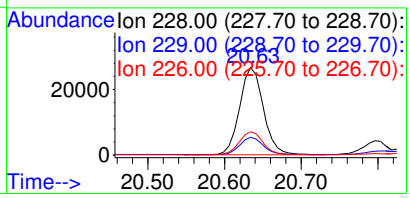


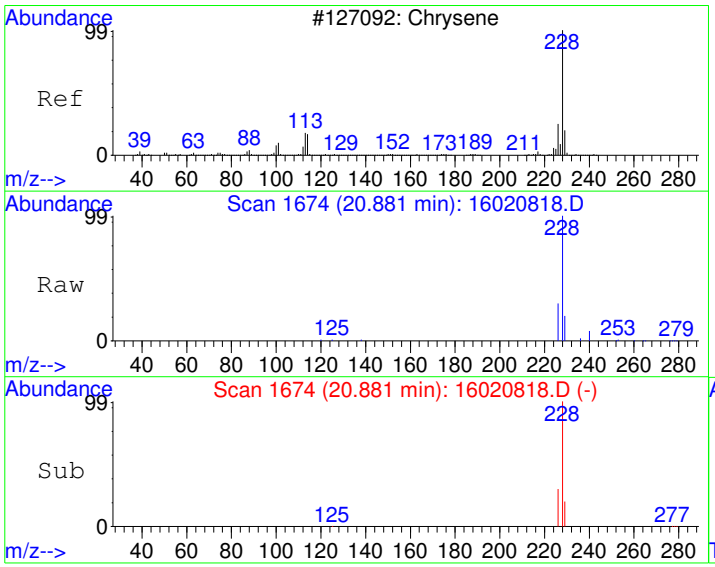


#18
Benzo[a]anthracene
Concen: 68.38 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:228 Resp: 57148

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.0
226	26.6	0.0	56.4

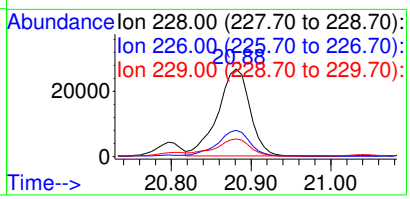


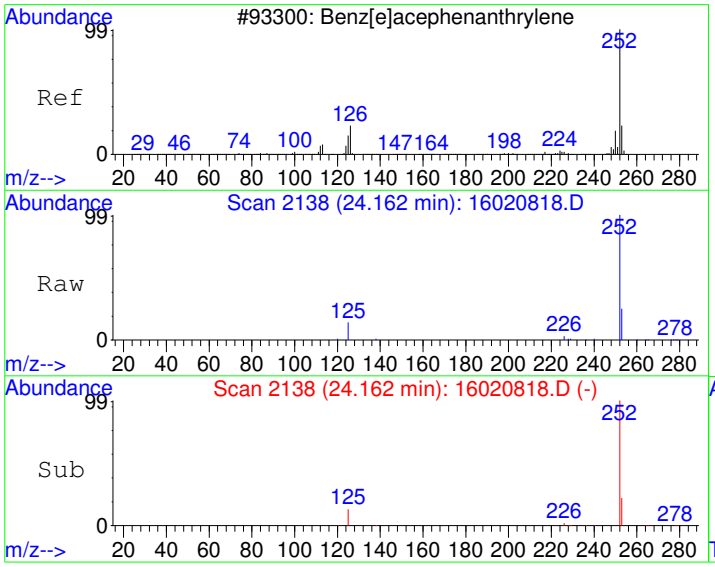


#19
Chrysene
Concen: 93.75 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:228 Resp: 74601

Ion	Ratio	Lower	Upper
228	100		
226	29.5	0.0	58.5
229	19.7	0.0	50.1

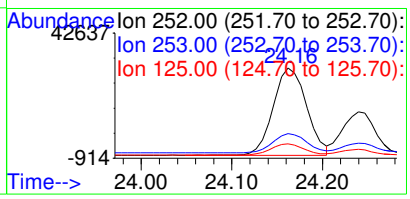


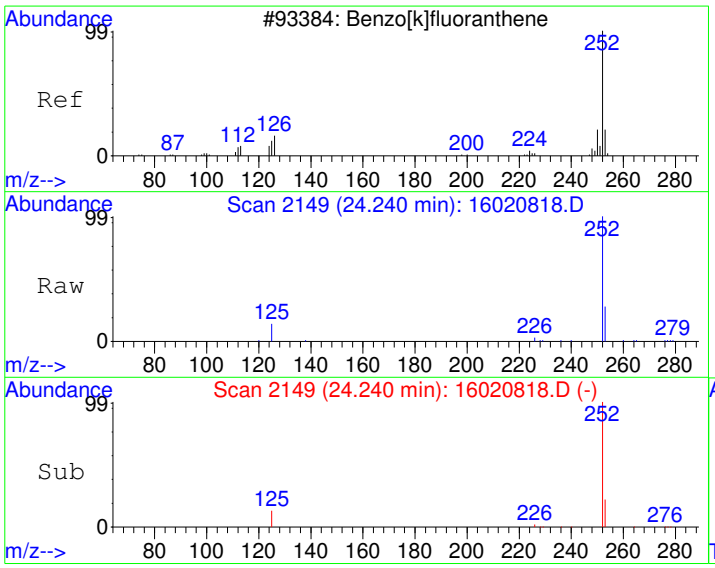


#21
Benzo[b]fluoranthene
Concen: 92.53 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:252 Resp: 77848

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	12.8	0.0	40.5

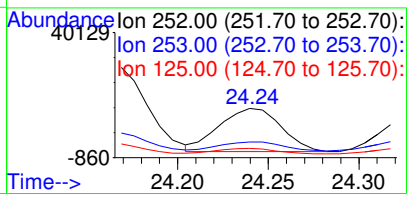


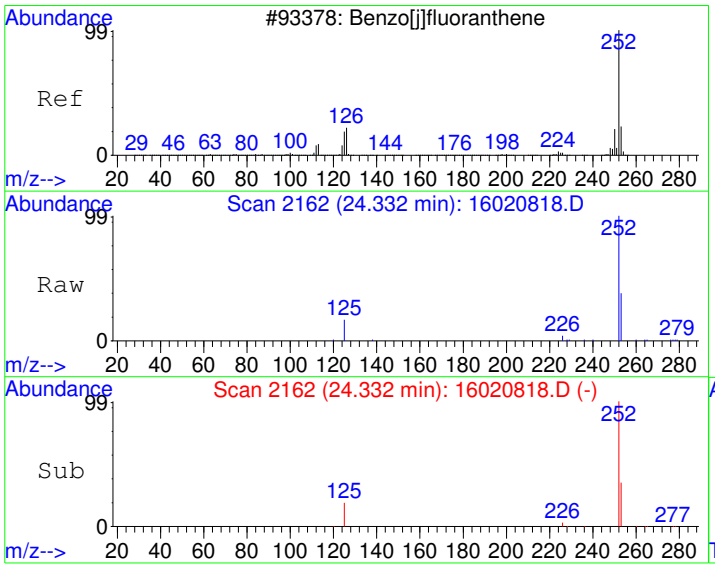


#22
Benzo[k]fluoranthene
Concen: 45.03 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:252 Resp: 33655

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	12.9	0.0	31.8

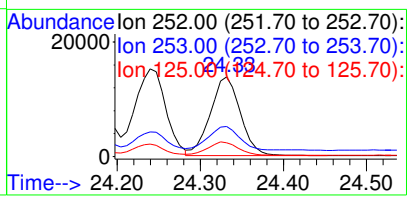


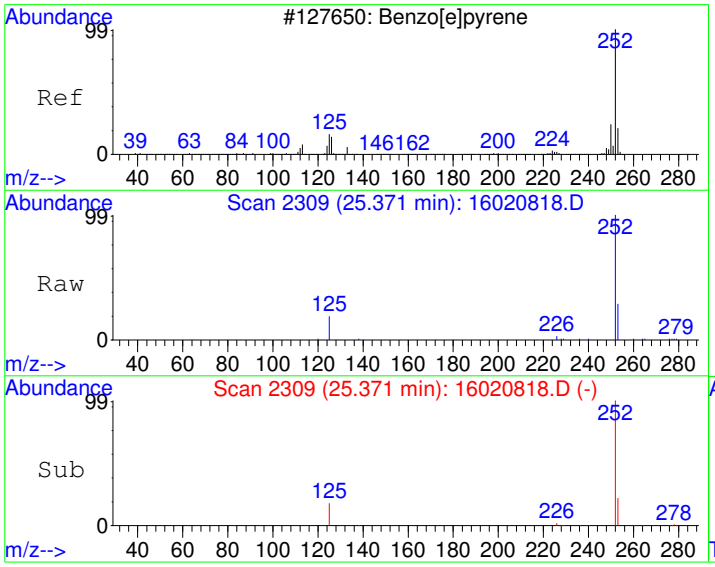


#23
Benzo(j)fluoranthene
Concen: 49.11 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:252 Resp: 34477

Ion	Ratio	Lower	Upper
252	100		
253	30.5	2.3	42.3
125	15.9	0.0	34.0

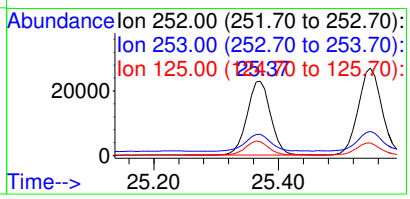


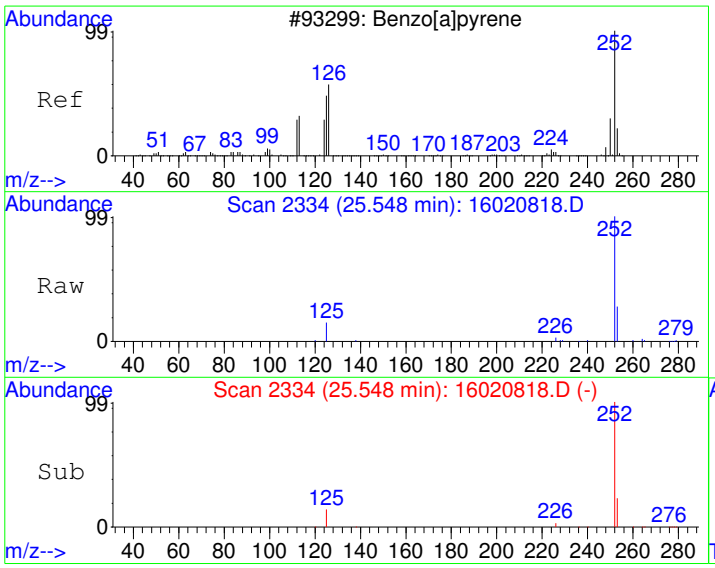


#24
Benzo[e]pyrene
Concen: 76.41 ug/kg
RT: 25.37 min Scan# 2309
Delta R.T. -0.02 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:252 Resp: 60020

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	17.8	0.0	36.0

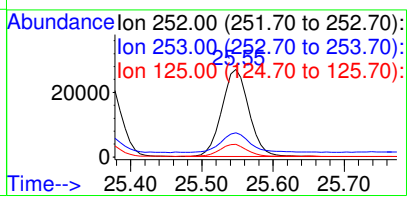


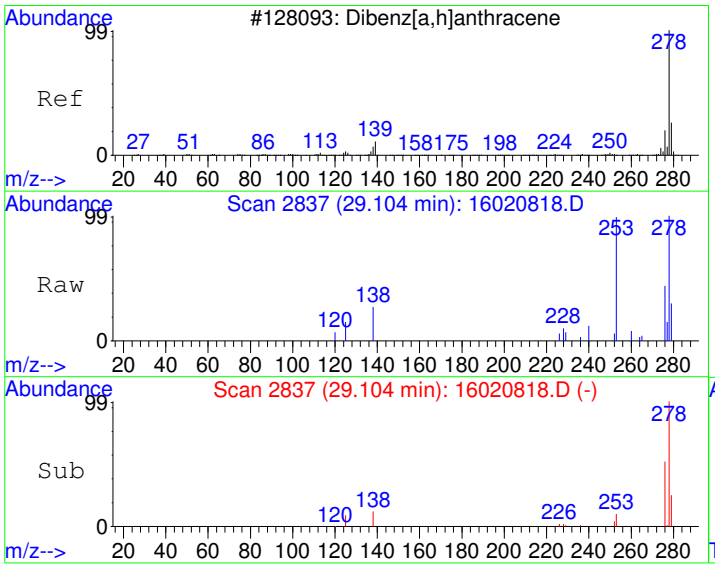


#25
Benzo[a]pyrene
Concen: 92.61 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:252 Resp: 70802

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.9	0.0	32.3

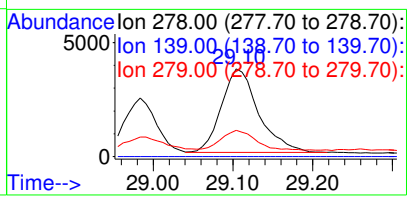


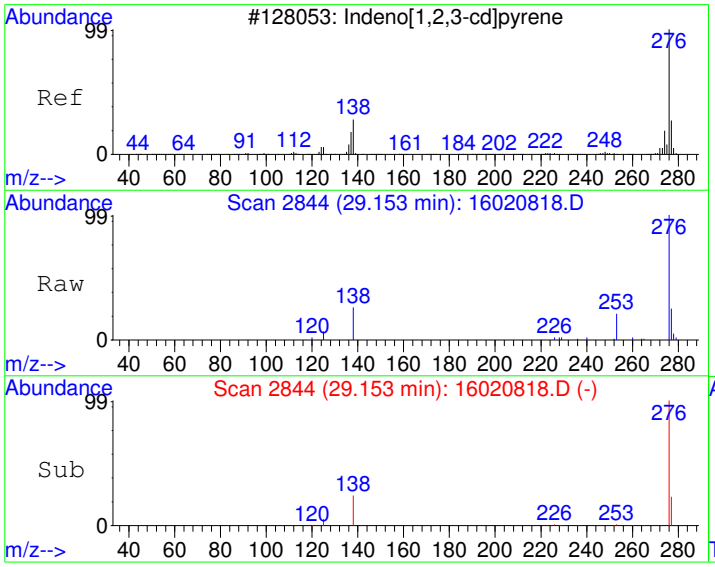


#26
Dibenz[a,h]anthracene
Concen: 16.82 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:278 Resp: 11898

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.4	3.8	43.8

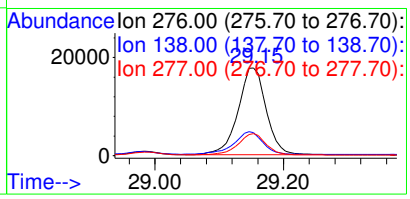


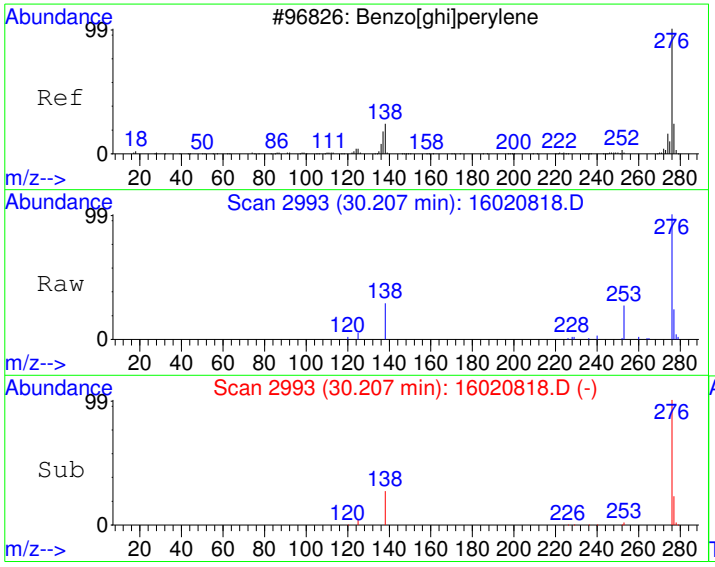


#27
Indeno[1,2,3-cd]pyrene
Concen: 62.20 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:276 Resp: 53594

Ion	Ratio	Lower	Upper
276	100		
138	25.2	2.1	42.1
277	24.5	4.2	44.2

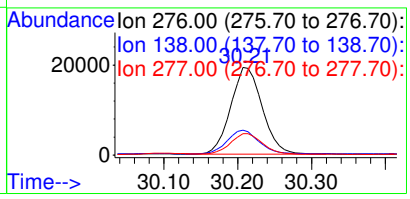




#28
Benzo[g,h,i]perylene
Concen: 79.17 ug/kg
RT: 30.21 min Scan# 2993
Delta R.T. -0.01 min
Lab File: 16020818.D
Acq: 8 Feb 2016 7:06 pm

Tgt Ion:276 Resp: 57240

Ion	Ratio	Lower	Upper
276	100		
138	27.3	3.9	43.9
277	23.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020820.D Vial: 20
Acq On : 8 Feb 2016 8:22 pm Operator:
Sample : ICV2-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2755460	4000.00 ug/kg	131
5) Acenaphthene-d10	13.15	164	2131564	4000.00 ug/kg	117
11) Phenanthrene-d10	15.22	188	3682600	4000.00 ug/kg	113
17) Chrysene-d12	20.80	240	3604086	4000.00 ug/kg	125
20) Perylene-d12	25.87	264	3094650	4000.00 ug/kg	134

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1303078	2110.06 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	52.75%	
16) 4-Terphenyl-d14	17.65	244	1408253	2289.02 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	57.23%	

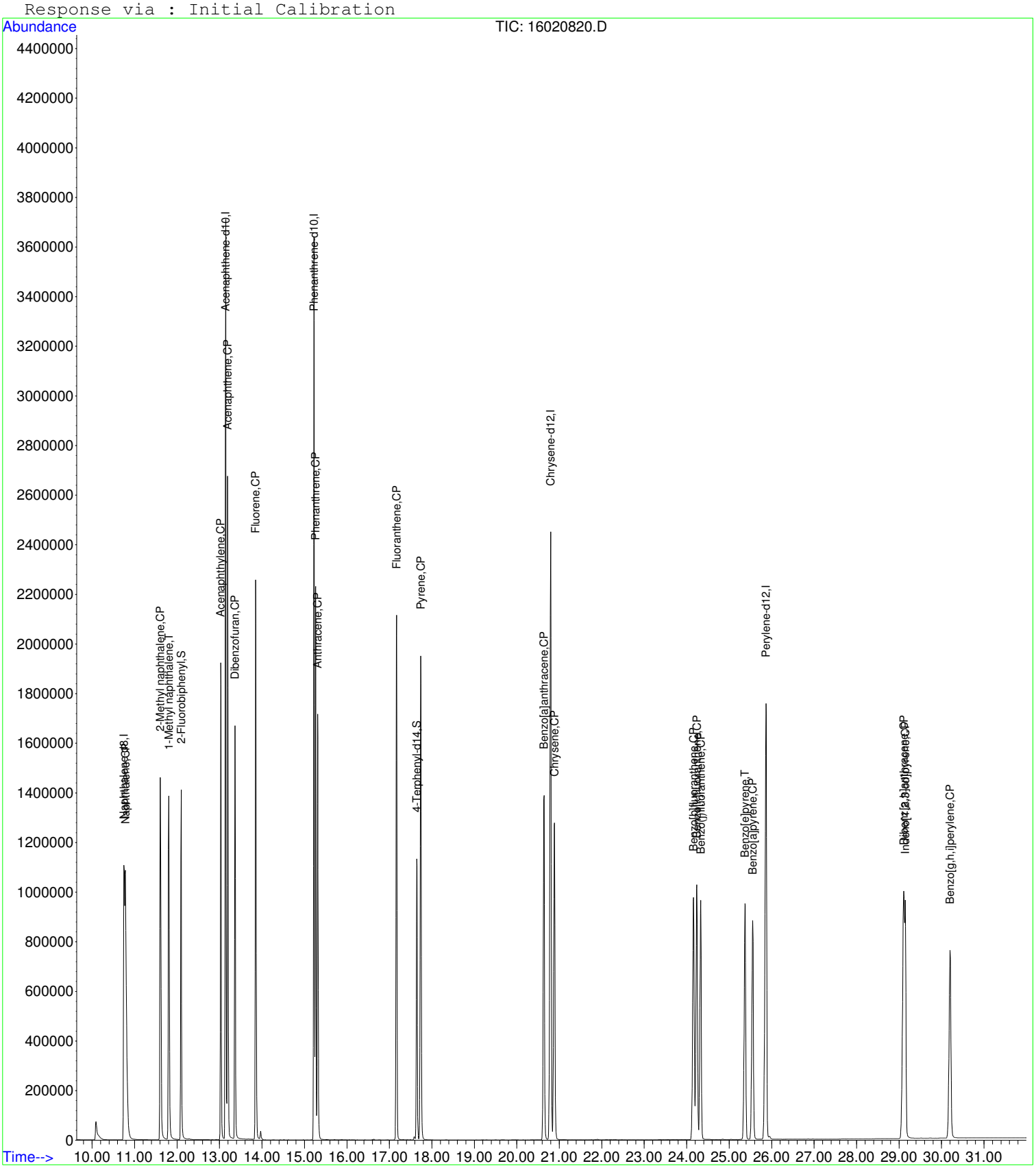
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1490304	2161.79 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1112299	2049.17 ug/kg	99
4) 1-Methyl naphthalene	11.81	142	1032561	2015.71 ug/kg	98
6) Dibenzofuran	13.36	168	1586353	2290.03 ug/kg	100
8) Acenaphthylene	13.03	152	1929932	2177.58 ug/kg	99
9) Acenaphthene	13.19	154	1182976	2202.92 ug/kg	97
10) Fluorene	13.85	166	1415992	2235.07 ug/kg	95
12) Phenanthrene	15.26	178	1889748	2160.93 ug/kg	99
13) Anthracene	15.31	178	1836532	2146.44 ug/kg	99
14) Fluoranthene	17.17	202	2030258	2341.22 ug/kg	99
15) Pyrene	17.74	202	2055180	2326.77 ug/kg	98
18) Benzo[a]anthracene	20.64	228	1901485	2288.13 ug/kg	99
19) Chrysene	20.89	228	1806228	2282.77 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	1839106	2229.01 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	1660521	2265.64 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	1541922	2239.62 ug/kg	98
24) Benzo[e]pyrene	25.38	252	1683952	2186.03 ug/kg	99
25) Benzo[a]pyrene	25.55	252	1660457	2214.56 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	1526390	2200.63 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1820297	2154.16 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	1453284	2049.74 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020820.D Vial: 20
Acq On : 8 Feb 2016 8:22 pm Operator:
Sample : ICV2-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

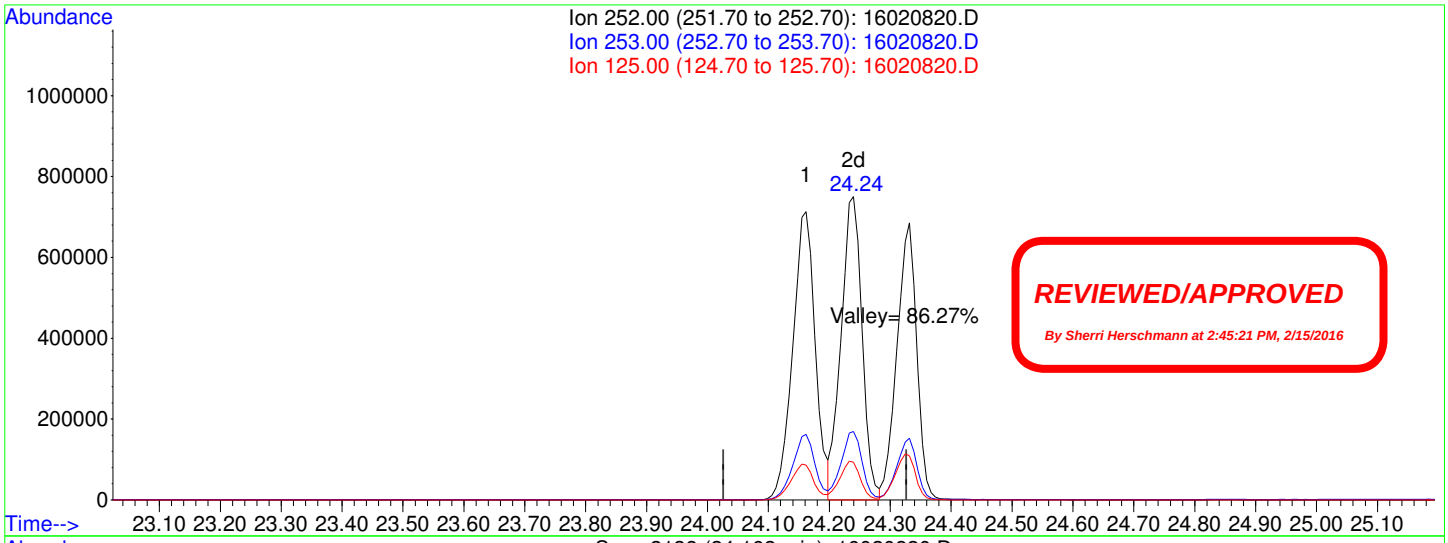
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



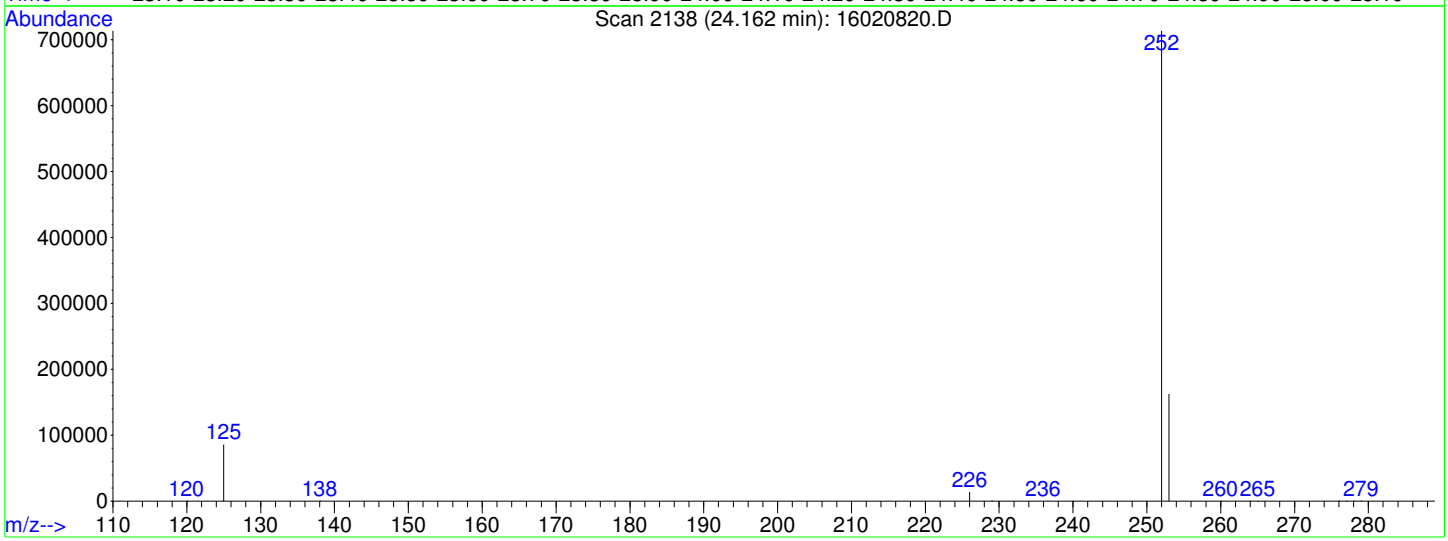
Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160206\16020820.D Vial: 20
Acq On : 8 Feb 2016 8:22 pm Operator:
Sample : ICV2-160208 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 8 20:54 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED
By Sherri Herschmann at 2:45:21 PM, 2/15/2016



TIC: 16020820.D

(21) Benzo[b]fluoranthene (CP)

24.16min 2229.01ug/kg

response 1839106

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.67
125.00	10.50	12.04
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020821.D Vial: 21
Acq On : 8 Feb 2016 9:03 pm Operator:
Sample : SBLK-160208 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2182886	4000.00 ug/kg	104
5) Acenaphthene-d10	13.15	164	1805475	4000.00 ug/kg	99
11) Phenanthrene-d10	15.23	188	2968567	4000.00 ug/kg	91
17) Chrysene-d12	20.80	240	2954685	4000.00 ug/kg	102
20) Perylene-d12	25.87	264	2571499	4000.00 ug/kg	111

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	445	0.85 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#	
16) 4-Terphenyl-d14	17.67	244	916	1.85 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.05%#	

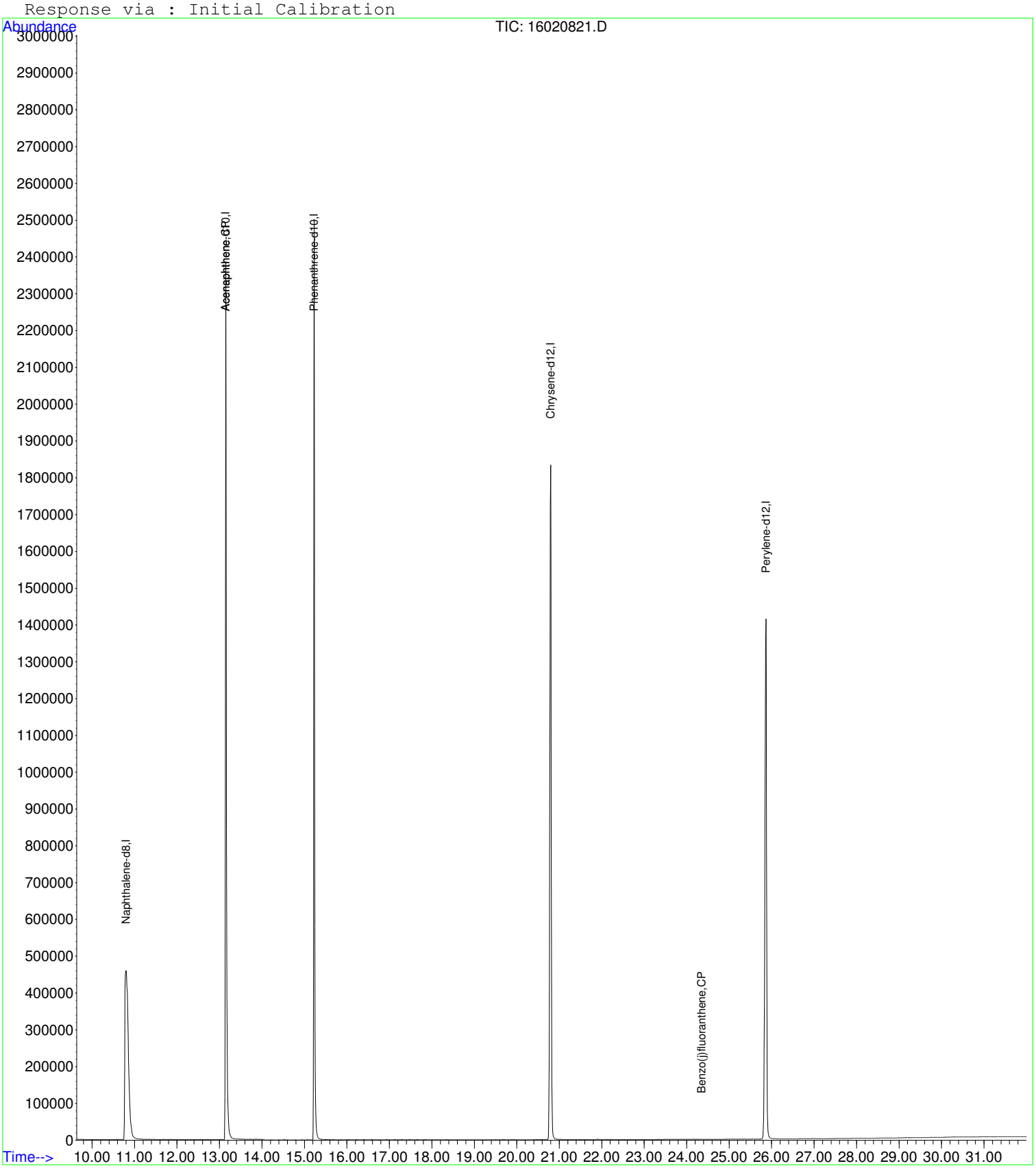
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6544	~~14.39 ug/kg#~~	10
23) Benzo(j)fluoranthene	24.35	252	470	0.82 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020821.D Vial: 21
Acq On : 8 Feb 2016 9:03 pm Operator:
Sample : SBLK-160208 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020822.D Vial: 22
Acq On : 8 Feb 2016 9:43 pm Operator:
Sample : 1601231-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2433011	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	2167020	4000.00 ug/kg	119
11) Phenanthrene-d10	15.23	188	3618746	4000.00 ug/kg	111
17) Chrysene-d12	20.80	240	3715395	4000.00 ug/kg	129
20) Perylene-d12	25.87	264	3192475	4000.00 ug/kg	138

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46453	73.99 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#	
16) 4-Terphenyl-d14	17.65	244	50115	82.90 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7508	~~13.75 ug/kg~~#	10
14) Fluoranthene	17.20	202	4805	5.64 ug/kg	97
15) Pyrene	17.77	202	4362	5.03 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	1301	1.83 ug/kg	88

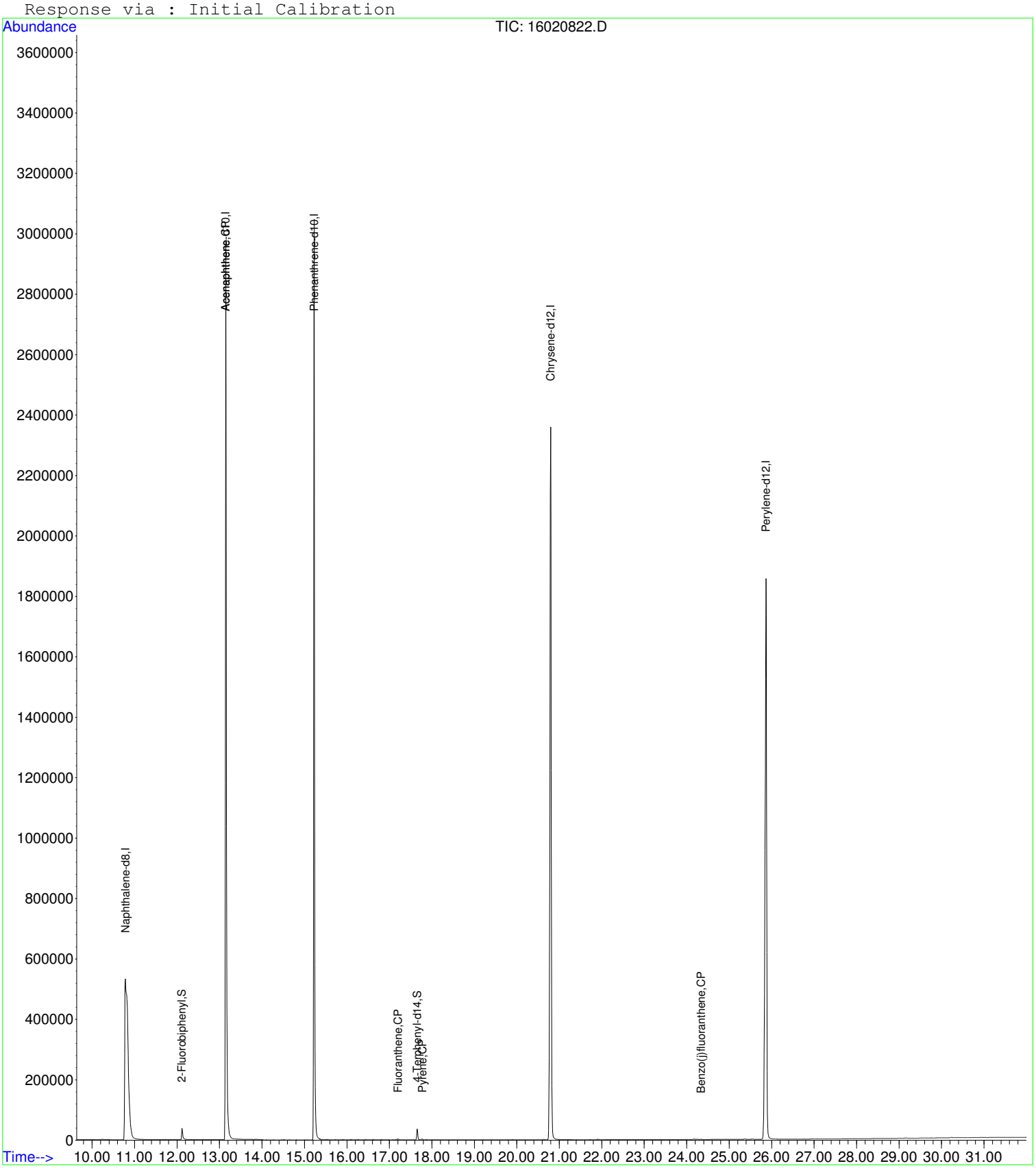
CONFIRMED
By Sherri Herschmann at 2:45:17 PM, 2/15/2016

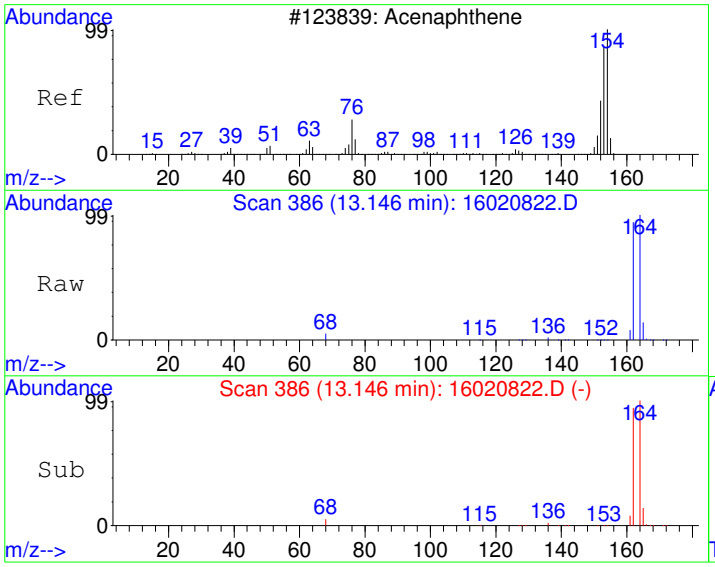
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020822.D Vial: 22
Acq On : 8 Feb 2016 9:43 pm Operator:
Sample : 1601231-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

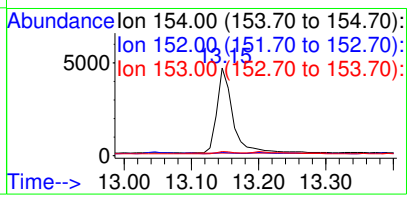


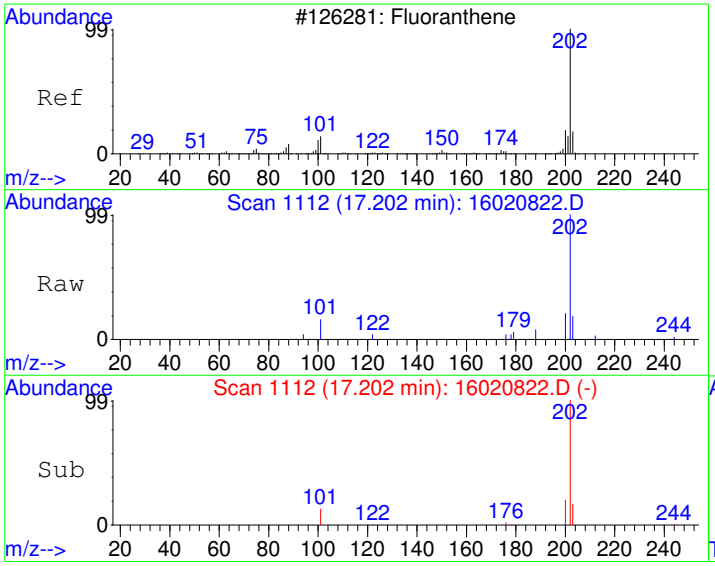


#9
Acenaphthene
Concen: 13.75 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020822.D
Acq: 8 Feb 2016 9:43 pm

Tgt Ion:154 Resp: 7508

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.3	74.4	134.4#

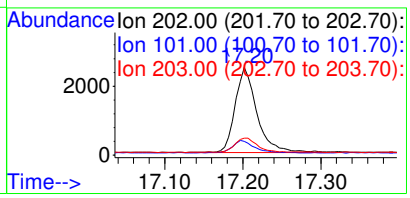


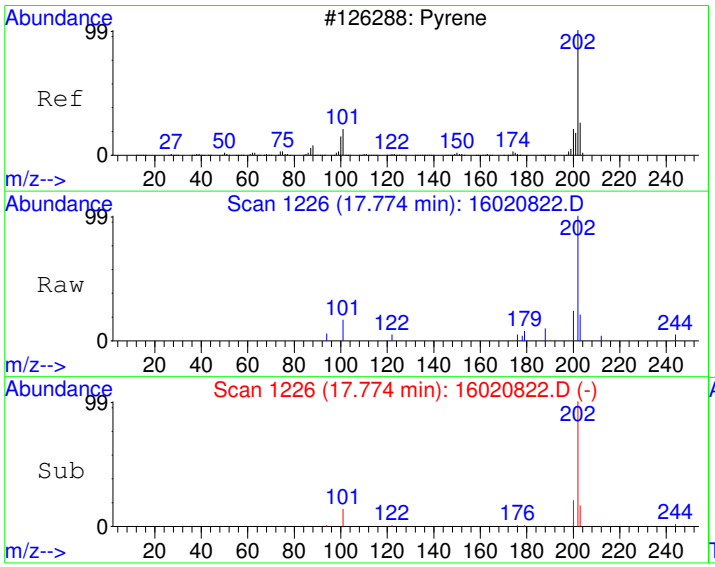


#14
Fluoranthene
Concen: 5.64 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.03 min
Lab File: 16020822.D
Acq: 8 Feb 2016 9:43 pm

Tgt Ion:202 Resp: 4805

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	42.5
203	16.7	0.0	48.0

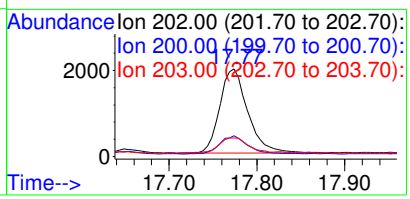


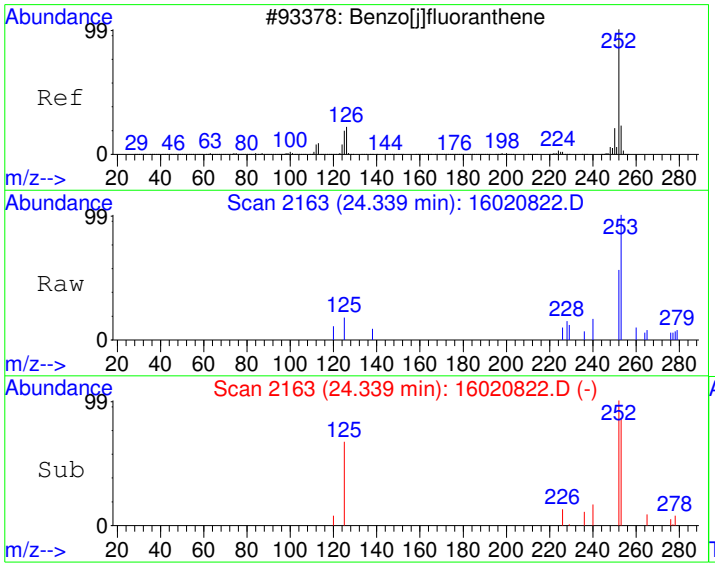


#15
Pyrene
Concen: 5.03 ug/kg
RT: 17.77 min Scan# 1226
Delta R.T. 0.03 min
Lab File: 16020822.D
Acq: 8 Feb 2016 9:43 pm

Tgt Ion:202 Resp: 4362

Ion	Ratio	Lower	Upper
202	100		
200	21.5	0.0	50.0
203	17.7	0.0	48.0

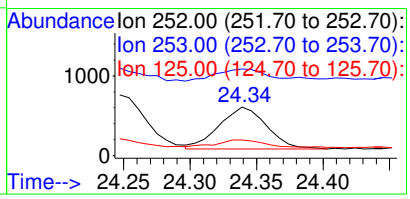




#23
Benzo(j)fluoranthene
Concen: 1.83 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020822.D
Acq: 8 Feb 2016 9:43 pm

Tgt Ion:252 Resp: 1301

Ion	Ratio	Lower	Upper
252	100		
253	29.0	2.3	42.3
125	17.9	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020823.D Vial: 23
Acq On : 8 Feb 2016 10:23 pm Operator:
Sample : 1601231-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2375261	4000.00 ug/kg	113
5) Acenaphthene-d10	13.14	164	2181244	4000.00 ug/kg	120
11) Phenanthrene-d10	15.23	188	3725365	4000.00 ug/kg	114
17) Chrysene-d12	20.80	240	3737412	4000.00 ug/kg	129
20) Perylene-d12	25.87	264	3258683	4000.00 ug/kg	141

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	45324	71.72 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#	
16) 4-Terphenyl-d14	17.65	244	49703	79.86 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	

Target Compounds					Qvalue
9) Acenaphthene	13.14	154	7742	~~14.09 ug/kg#~~	10
14) Fluoranthene	17.20	202	11962	13.64 ug/kg	99
15) Pyrene	17.76	202	11256	12.60 ug/kg	99
18) Benzo[a]anthracene	20.63	228	6349	7.37 ug/kg	99
19) Chrysene	20.88	228	8026	9.78 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	8721	10.04 ug/kg	97
23) Benzo(j)fluoranthene	24.34	252	3627	5.00 ug/kg	91
24) Benzo[e]pyrene	25.36	252	6574	8.10 ug/kg	97
25) Benzo[a]pyrene	25.54	252	7472	9.46 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.17	276	5903	6.63 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	6442	8.63 ug/kg	97

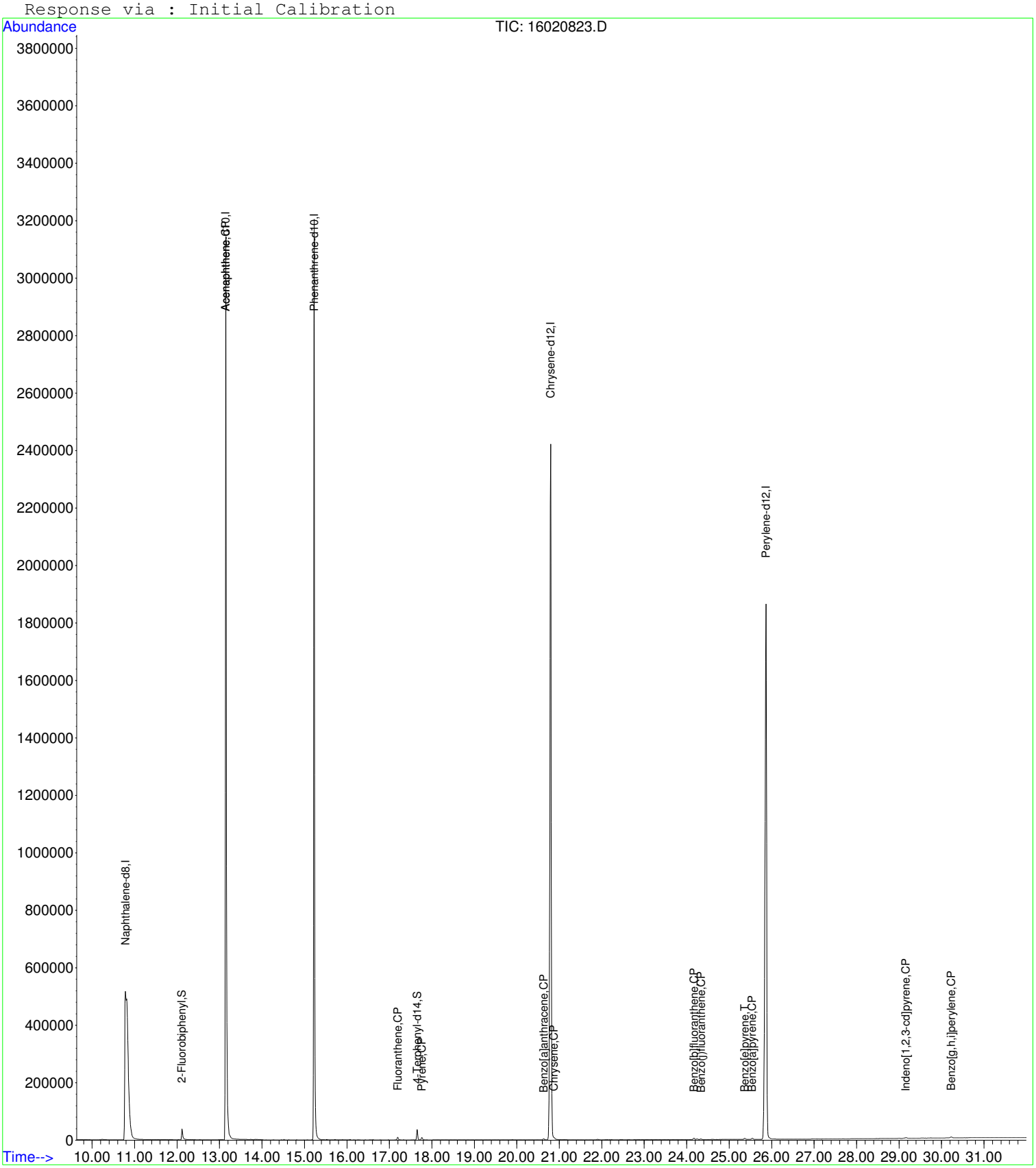
CONFIRMED
By Sherri Herschmann at 2:45:53 PM, 2/15/2016

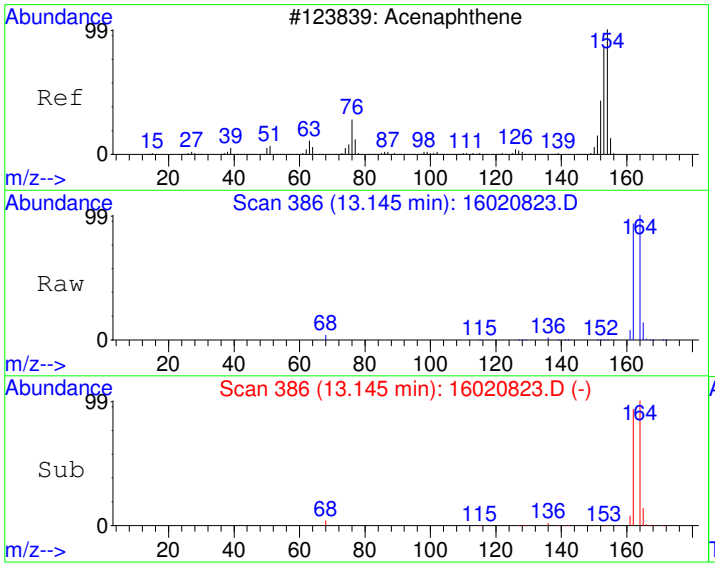
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020823.D Vial: 23
Acq On : 8 Feb 2016 10:23 pm Operator:
Sample : 1601231-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:56 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

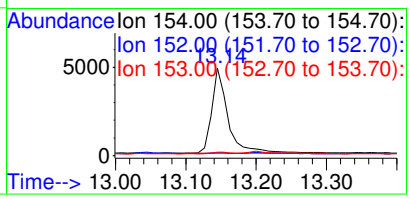


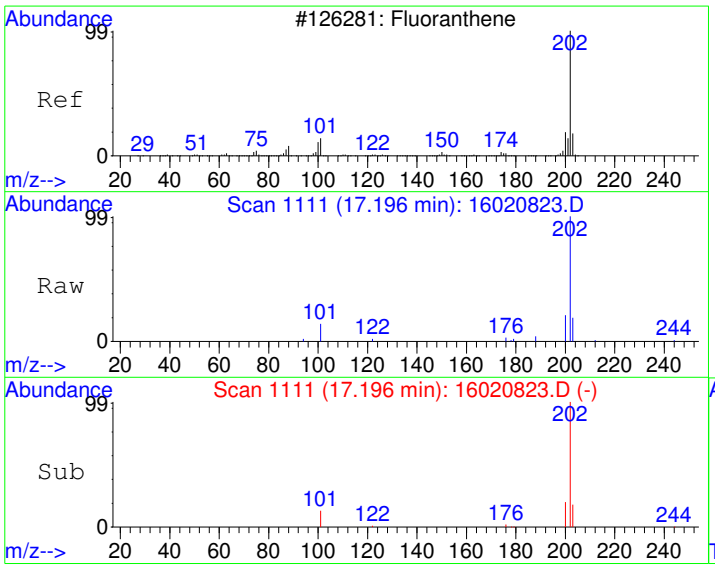


#9
Acenaphthene
Concen: 14.09 ug/kg
RT: 13.14 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:154 Resp: 7742

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.1	74.4	134.4#

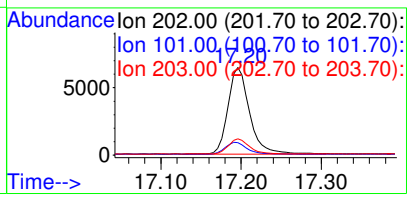


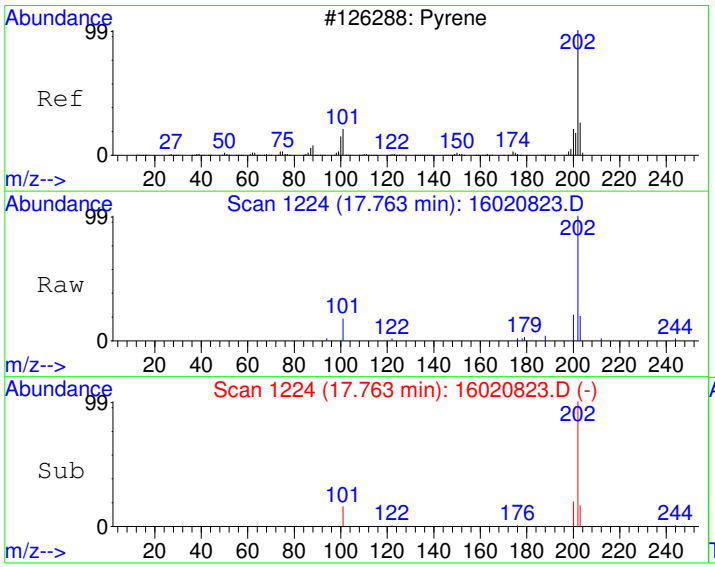


#14
Fluoranthene
Concen: 13.64 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:202 Resp: 11962

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.6	0.0	48.0

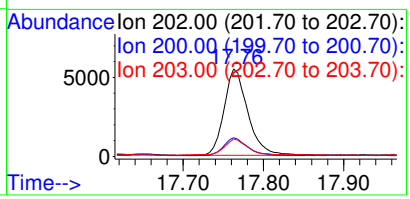


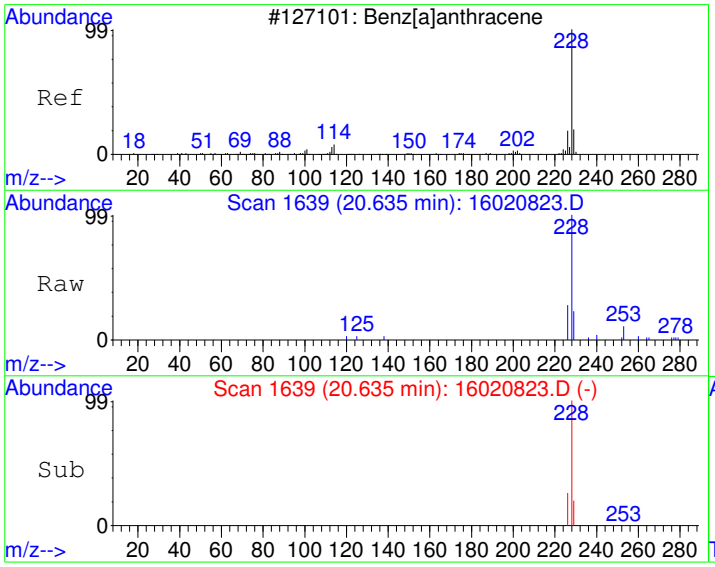


#15
Pyrene
Concen: 12.60 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:202 Resp: 11256

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.6	0.0	48.0

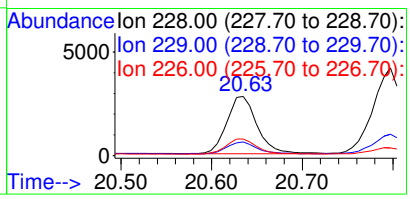


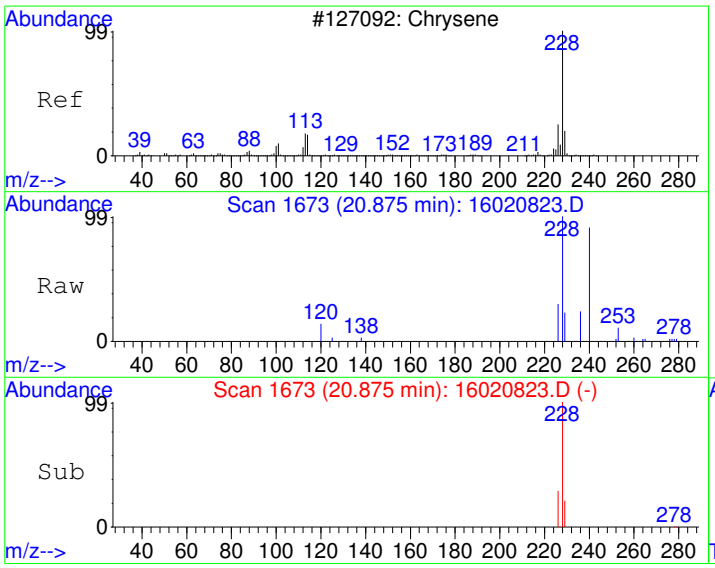


#18
Benzo[a]anthracene
Concen: 7.37 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:228 Resp: 6349

Ion	Ratio	Lower	Upper
228	100		
229	20.8	0.0	50.0
226	26.3	0.0	56.4

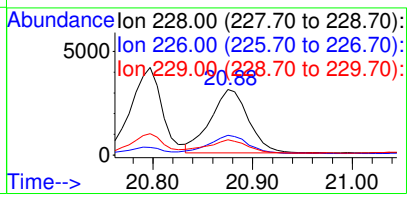


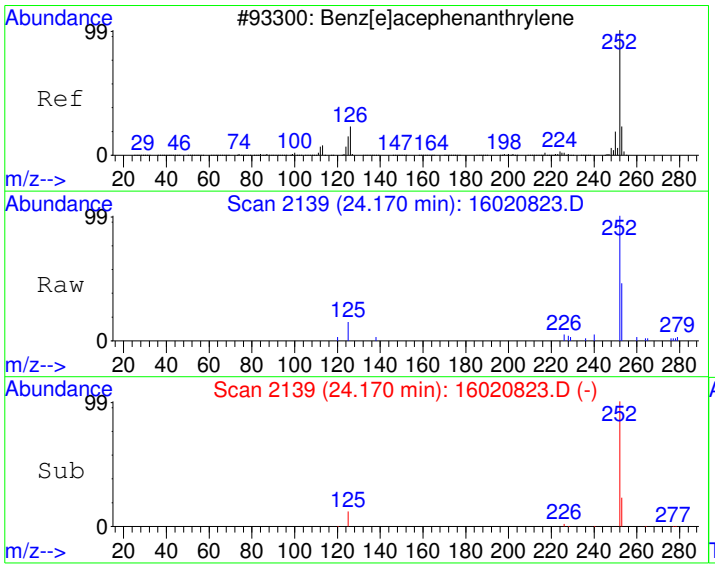


#19
Chrysene
Concen: 9.78 ug/kg
RT: 20.88 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:228 Resp: 8026

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.5
229	20.7	0.0	50.1

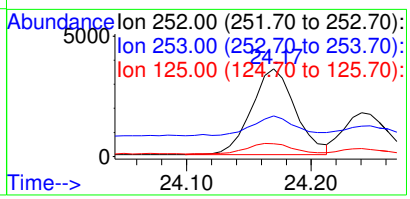


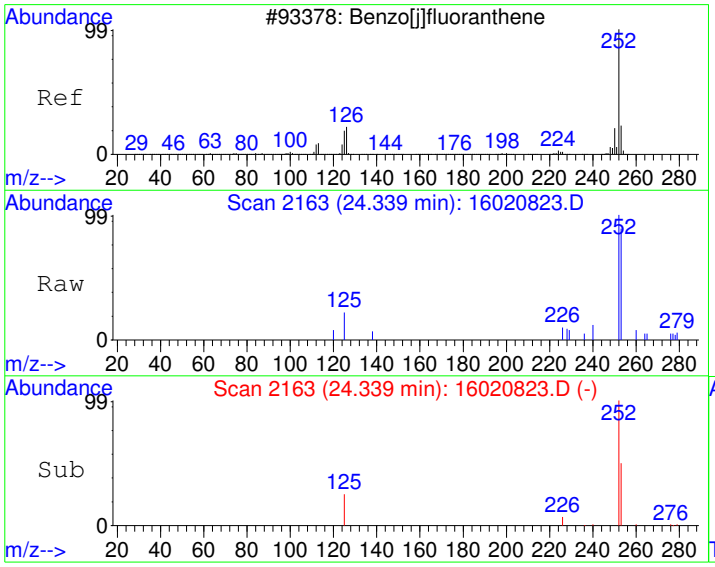


#21
Benzo[b]fluoranthene
Concen: 10.04 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:252 Resp: 8721

Ion	Ratio	Lower	Upper
252	100		
253	23.2	0.0	52.0
125	11.9	0.0	40.5

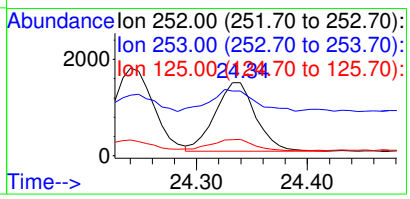


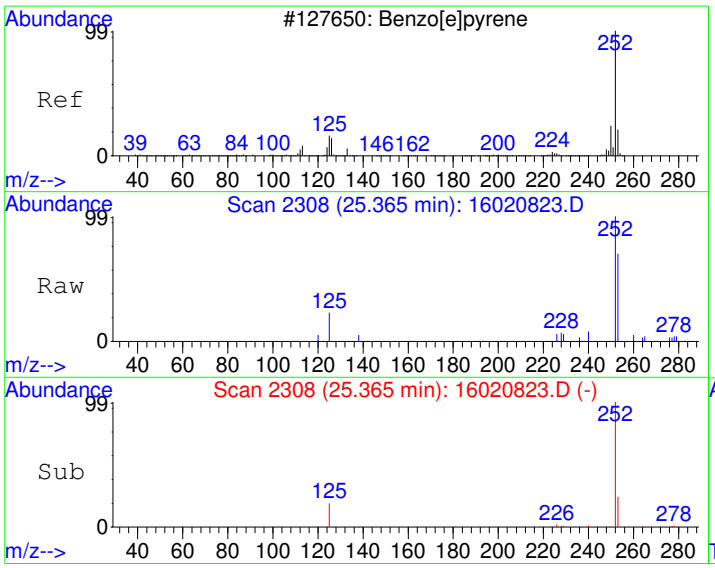


#23
Benzo(j)fluoranthene
Concen: 5.00 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:252 Resp: 3627

Ion	Ratio	Lower	Upper
252	100		
253	27.5	2.3	42.3
125	16.7	0.0	34.0

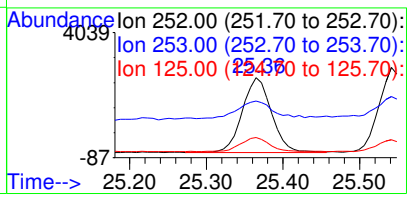


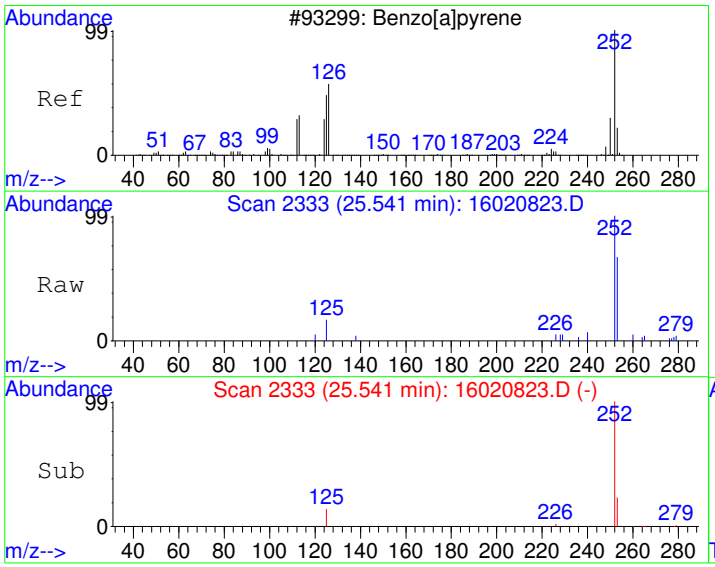


#24
Benzo[e]pyrene
Concen: 8.10 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:252 Resp: 6574

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	18.8	0.0	36.0

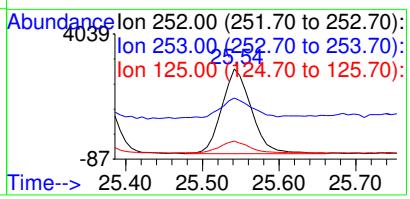


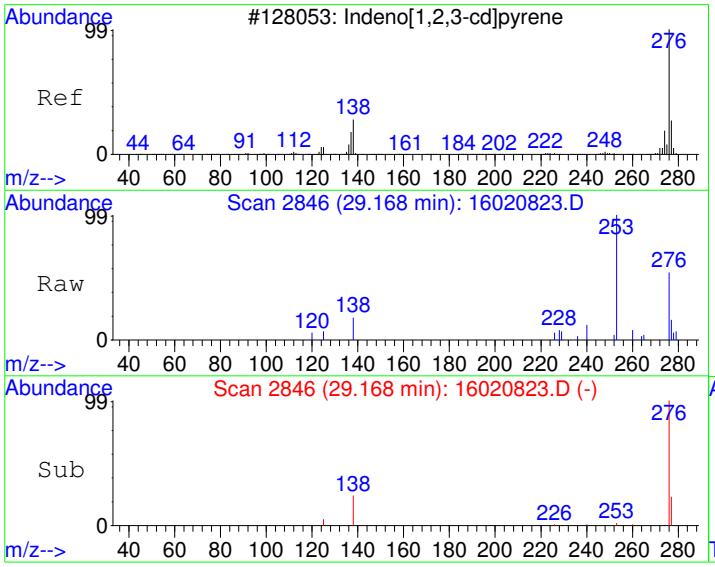


#25
Benzo[a]pyrene
Concen: 9.46 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:252 Resp: 7472

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	13.9	0.0	32.3

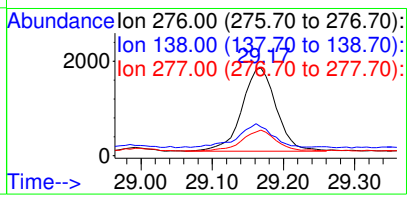


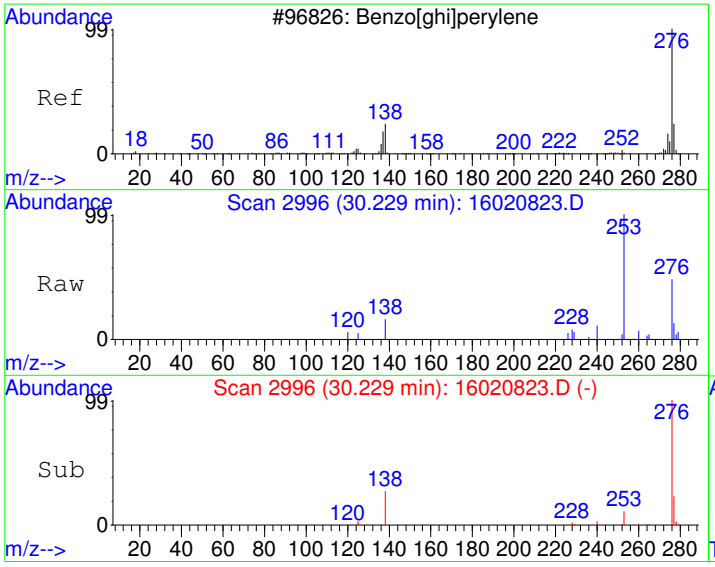


#27
Indeno[1,2,3-cd]pyrene
Concen: 6.63 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:276 Resp: 5903

Ion	Ratio	Lower	Upper
276	100		
138	24.0	2.1	42.1
277	25.1	4.2	44.2

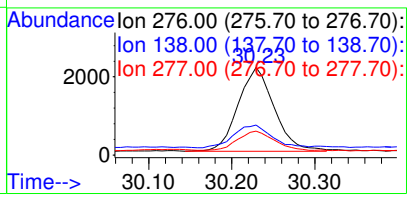




#28
Benzo[g,h,i]perylene
Concen: 8.63 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16020823.D
Acq: 8 Feb 2016 10:23 pm

Tgt Ion:276 Resp: 6442

Ion	Ratio	Lower	Upper
276	100		
138	26.4	3.9	43.9
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020824.D Vial: 24
Acq On : 8 Feb 2016 11:03 pm Operator:
Sample : 1601231-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2590441	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2229782	4000.00 ug/kg	122
11) Phenanthrene-d10	15.23	188	3659675	4000.00 ug/kg	112
17) Chrysene-d12	20.80	240	3758850	4000.00 ug/kg	130
20) Perylene-d12	25.87	264	3235803	4000.00 ug/kg	140

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	48799	75.54 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.89%#		
16) 4-Terphenyl-d14	17.65	244	52590	86.02 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.15%#		

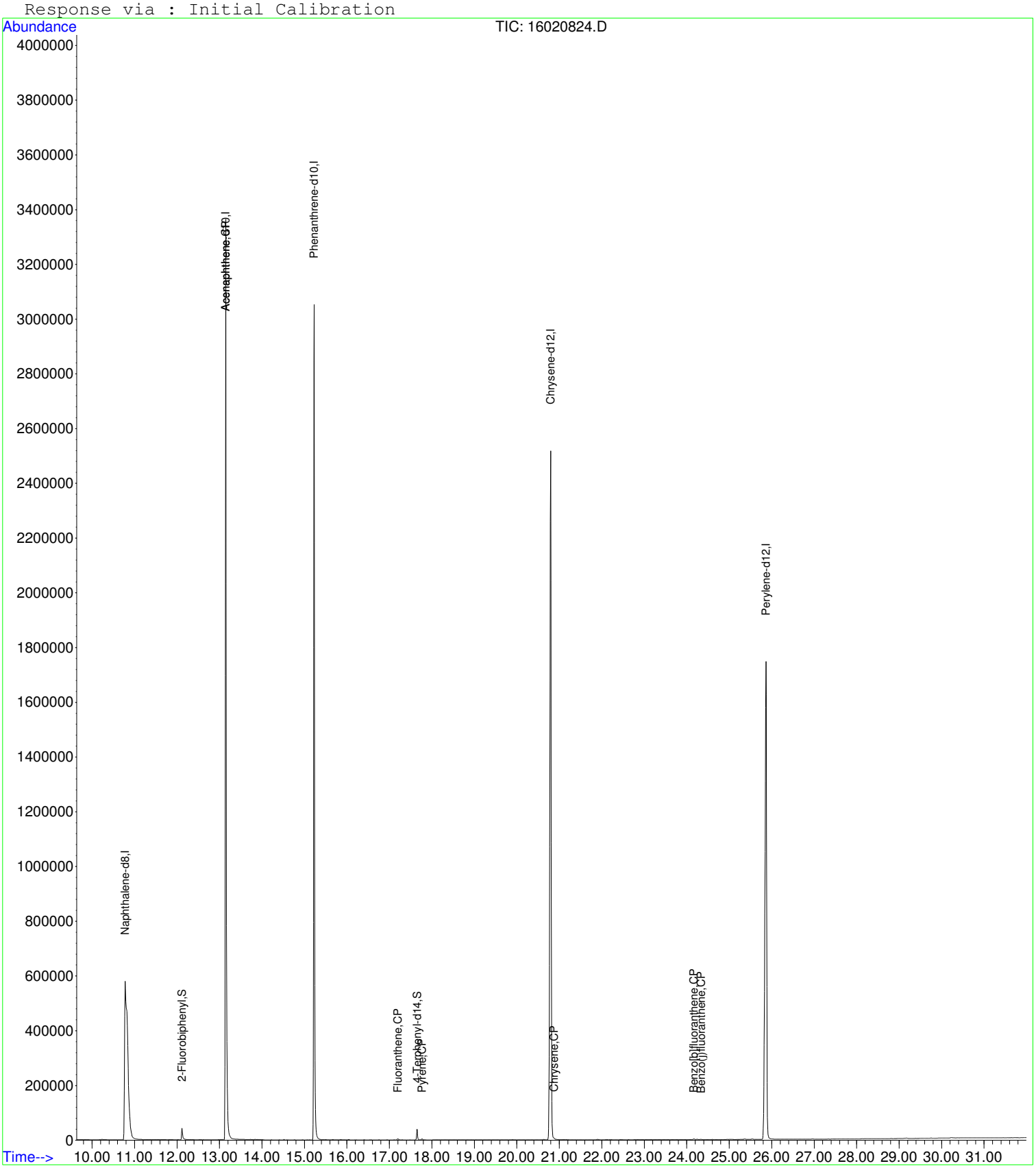
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7600	~~13.53 ug/kg#~~	10
14) Fluoranthene	17.20	202	6222	7.22 ug/kg	99
15) Pyrene	17.77	202	5722	6.52 ug/kg	99
19) Chrysene	20.88	228	4132	5.01 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	4380	5.08 ug/kg	94
23) Benzo(j)fluoranthene	24.33	252	1831	2.54 ug/kg	92

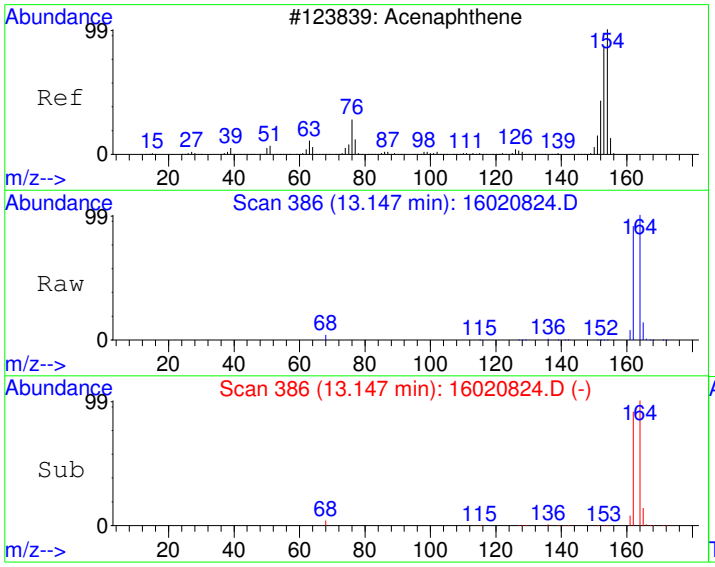
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020824.D Vial: 24
Acq On : 8 Feb 2016 11:03 pm Operator:
Sample : 1601231-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

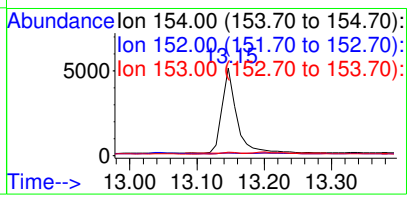


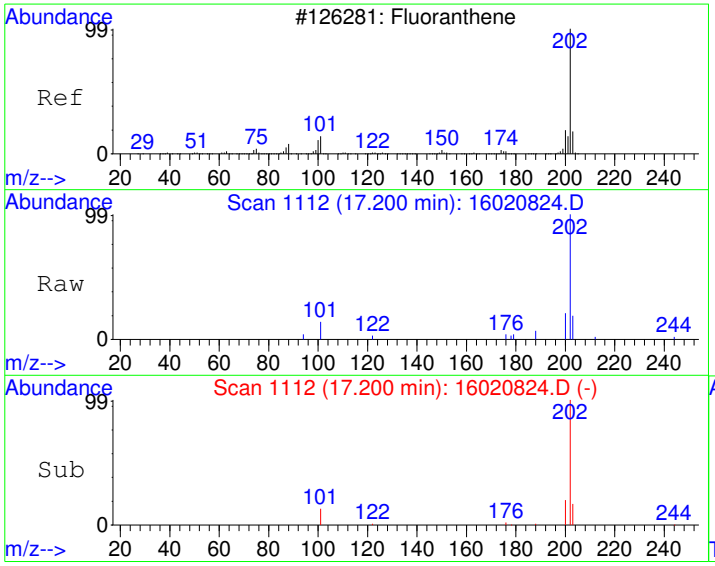


#9
Acenaphthene
Concen: 13.53 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:154 Resp: 7600

Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.7	78.7#
153	2.1	74.4	134.4#

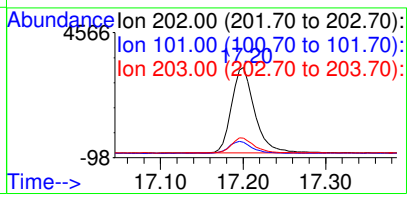


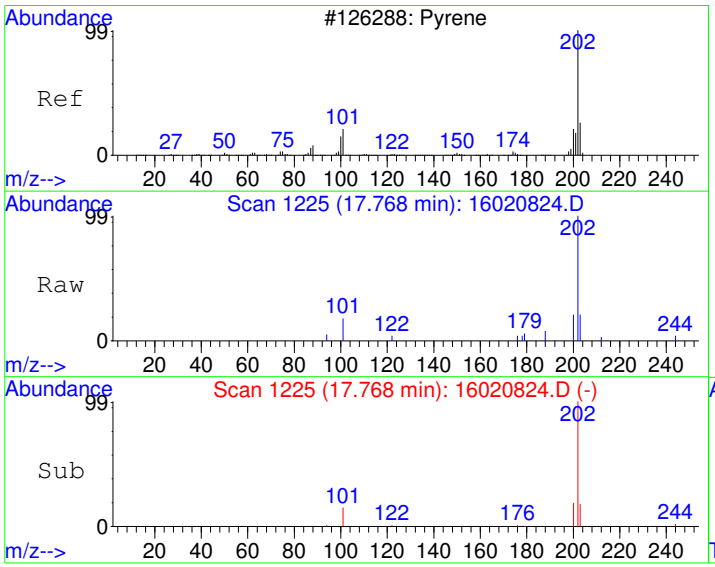


#14
Fluoranthene
Concen: 7.22 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.02 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:202 Resp: 6222

Ion	Ratio	Lower	Upper
202	100		
101	12.7	0.0	42.5
203	17.2	0.0	48.0

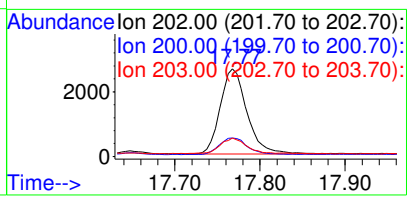


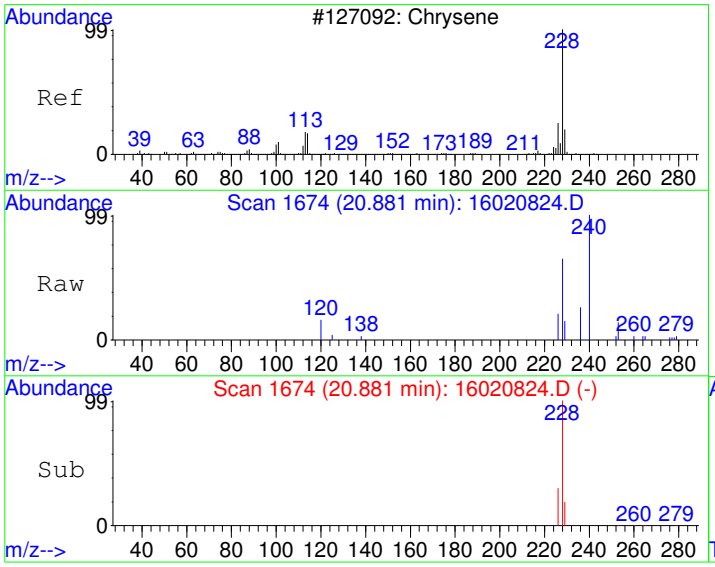


#15
Pyrene
Concen: 6.52 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:202 Resp: 5722

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	50.0
203	18.7	0.0	48.0

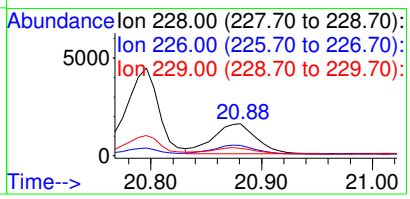


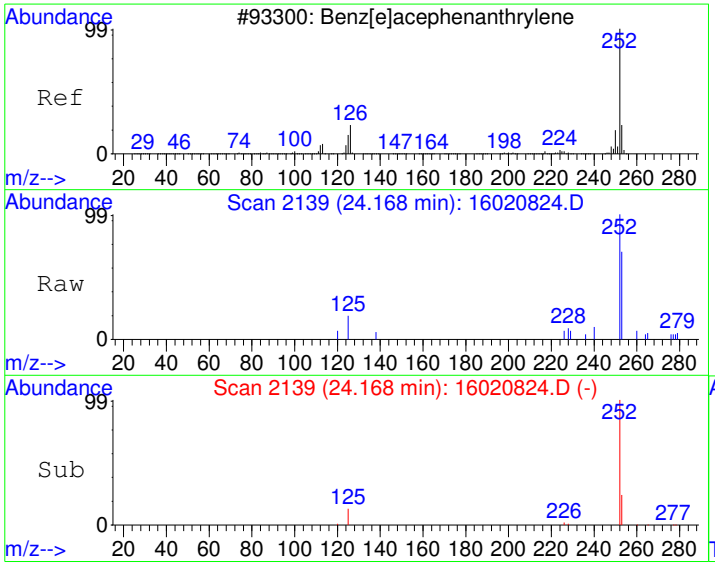


#19
Chrysene
Concen: 5.01 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.02 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:228 Resp: 4132

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.5
229	19.5	0.0	50.1

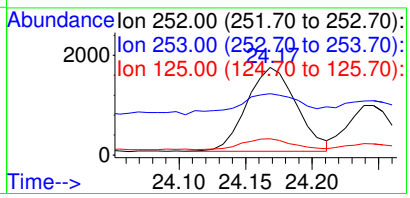


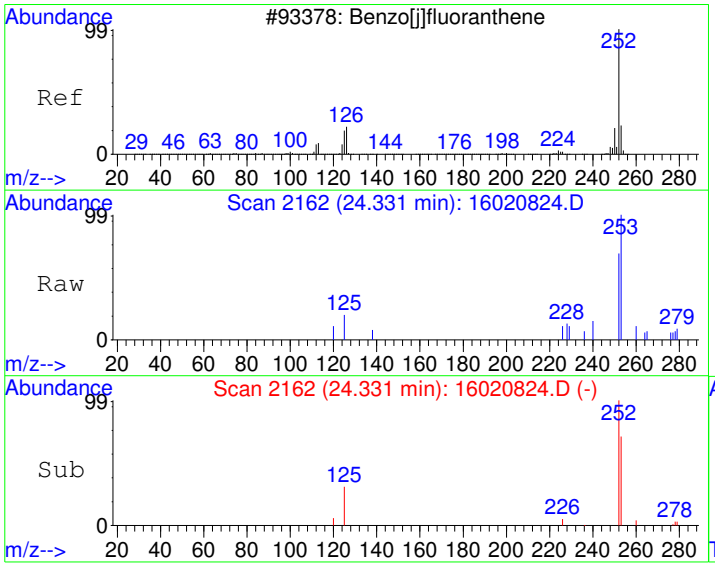


#21
Benzo[b]fluoranthene
Concen: 5.08 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:252 Resp: 4380

Ion	Ratio	Lower	Upper
252	100		
253	25.1	0.0	52.0
125	12.6	0.0	40.5

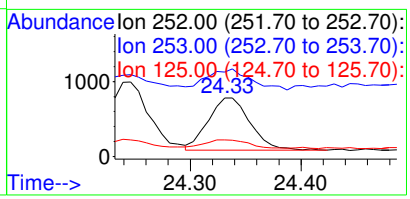




#23
Benzo(j)fluoranthene
Concen: 2.54 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16020824.D
Acq: 8 Feb 2016 11:03 pm

Tgt Ion:252 Resp: 1831

Ion	Ratio	Lower	Upper
252	100		
253	27.9	2.3	42.3
125	14.6	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020825.D Vial: 25
Acq On : 8 Feb 2016 11:43 pm Operator:
Sample : 1601231-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2427983	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	2133630	4000.00 ug/kg	117
11) Phenanthrene-d10	15.23	188	3592575	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	3113892	4000.00 ug/kg	108
20) Perylene-d12	25.86	264	2525721	4000.00 ug/kg	109

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	47701	77.17 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.93%#		
16) 4-Terphenyl-d14	17.65	244	49418	82.34 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.06%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7632	~~14.20 ug/kg~~#	10
14) Fluoranthene	17.18	202	14008	16.56 ug/kg	98
15) Pyrene	17.75	202	12380	14.37 ug/kg	99
18) Benzo[a]anthracene	20.63	228	6112	8.51 ug/kg	99
19) Chrysene	20.87	228	9220	13.49 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	7994	11.87 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	3716	6.21 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	3666	6.52 ug/kg	91
24) Benzo[e]pyrene	25.36	252	6612	10.52 ug/kg	97
25) Benzo[a]pyrene	25.55	252	6758	11.04 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.16	276	5349	7.76 ug/kg	98
28) Benzo[g,h,i]perylene	30.21	276	5752	9.94 ug/kg	97

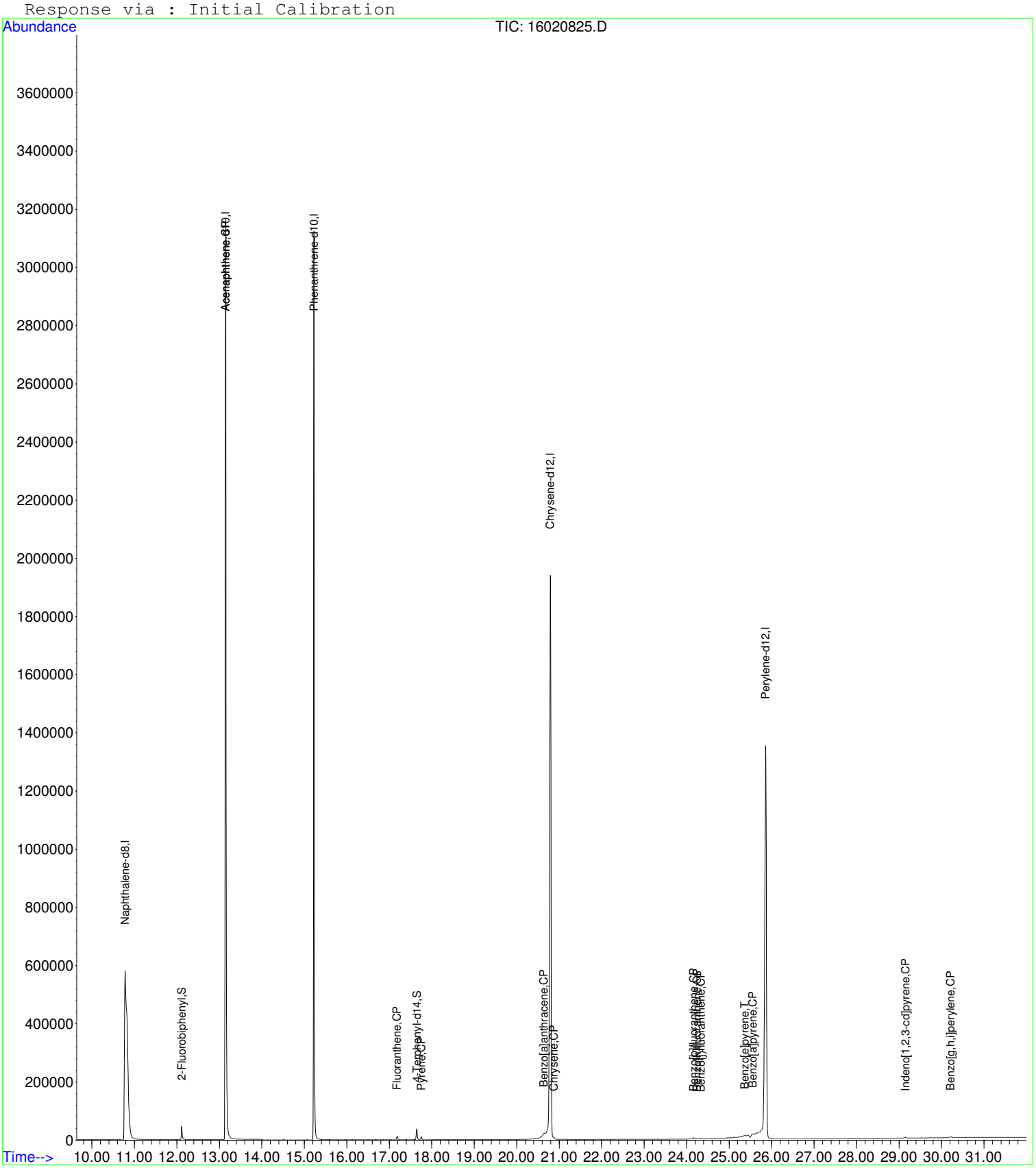
CONFIRMED
By Sherri Herschmann at 2:46:30 PM, 2/15/2016

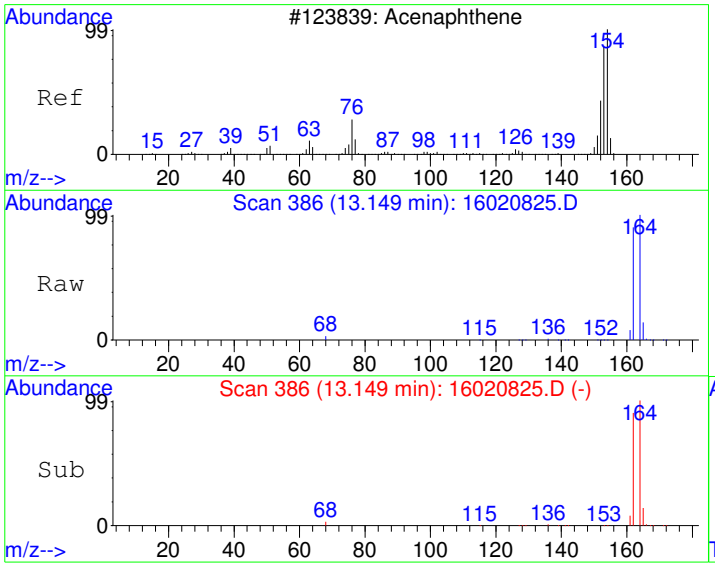
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020825.D Vial: 25
Acq On : 8 Feb 2016 11:43 pm Operator:
Sample : 1601231-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

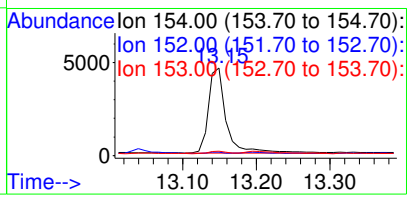


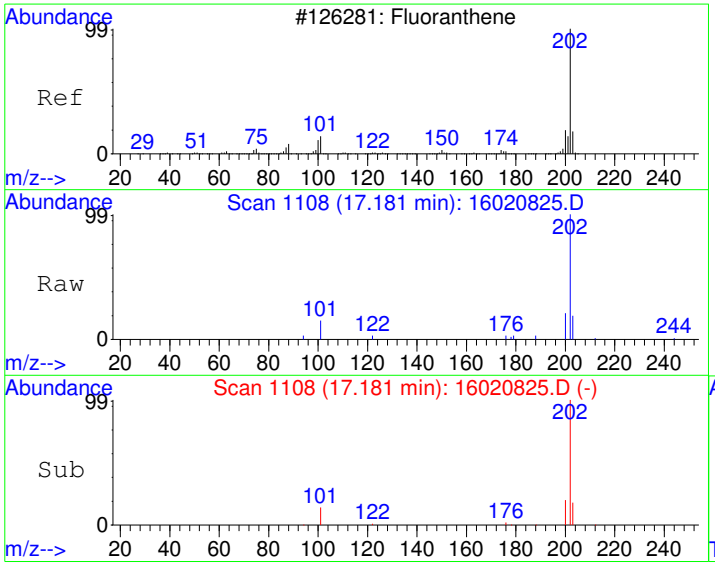


#9
Acenaphthene
Concen: 14.20 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.04 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:154 Resp: 7632

Ion	Ratio	Lower	Upper
154	100		
152	1.5	18.7	78.7#
153	2.9	74.4	134.4#

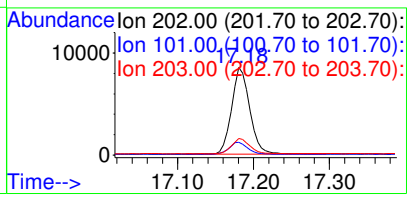


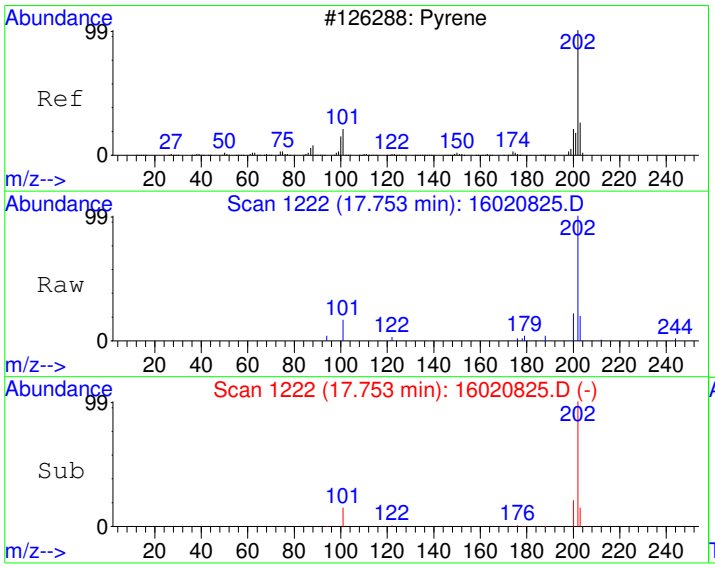


#14
Fluoranthene
Concen: 16.56 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.00 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:202 Resp: 14008

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	42.5
203	17.5	0.0	48.0

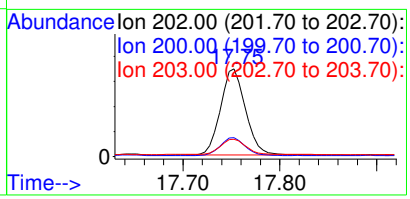


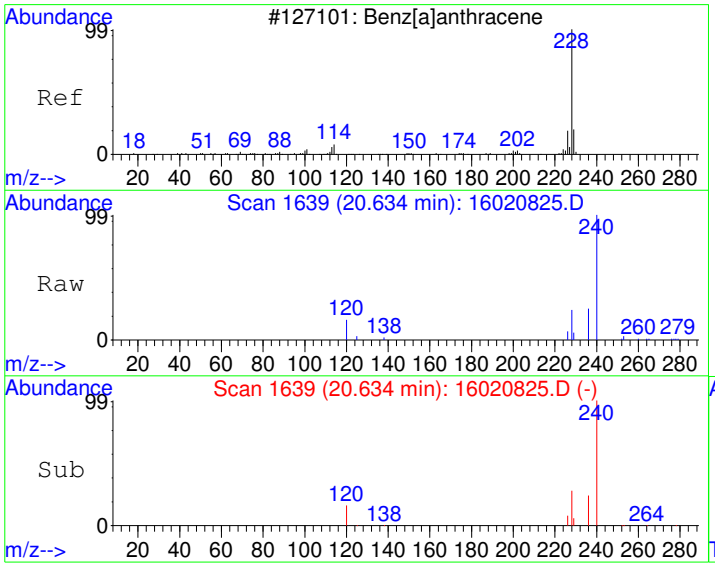


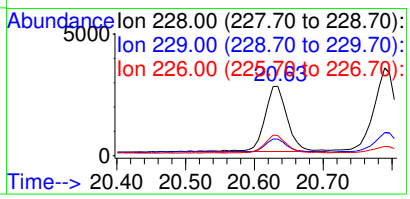
#15
Pyrene
Concen: 14.37 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.00 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:202 Resp: 12380

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	50.0
203	17.7	0.0	48.0



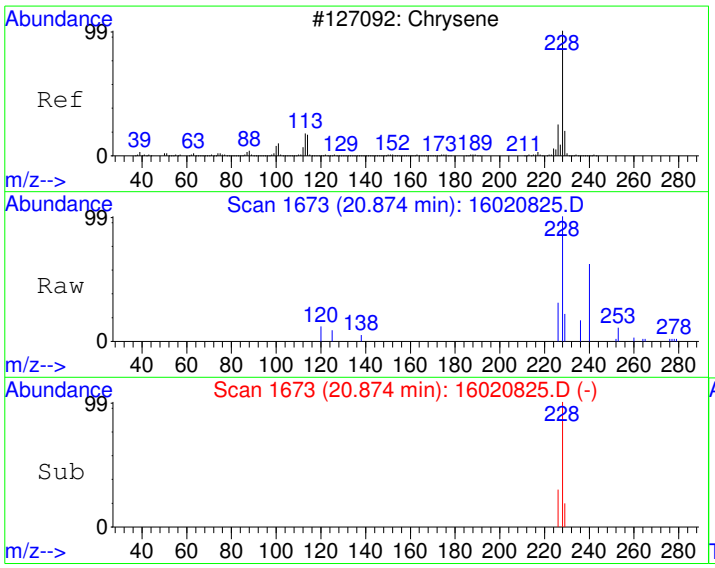


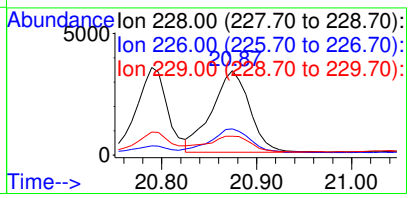


#18
Benzo[a]anthracene
Concen: 8.51 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:228 Resp: 6112

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.7	0.0	56.4

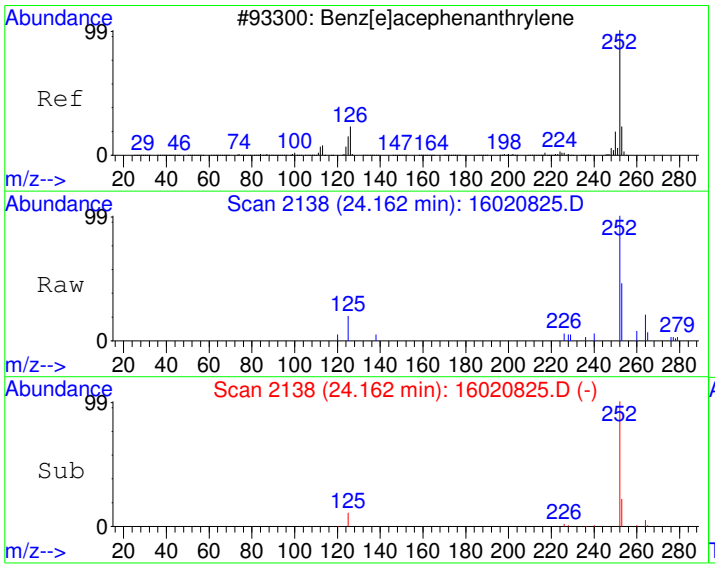


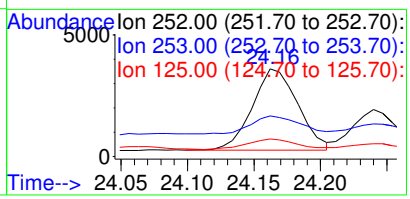


#19
Chrysene
Concen: 13.49 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:228 Resp: 9220

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.5
229	19.3	0.0	50.1

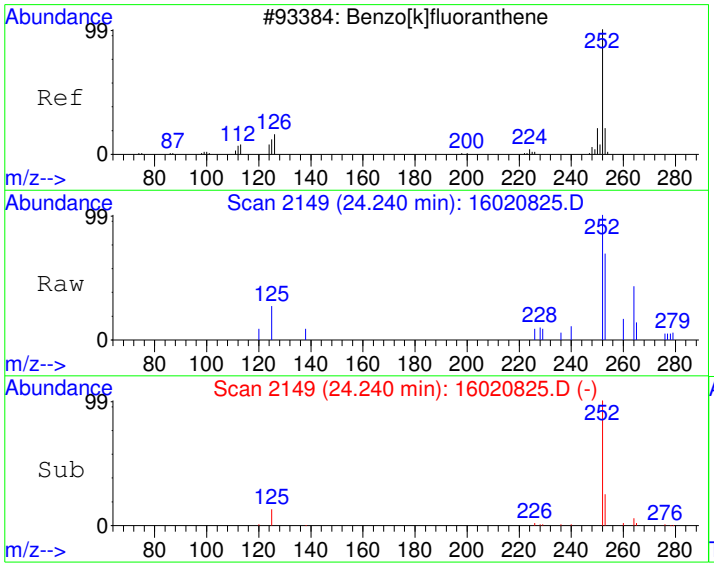




#21
Benzo[b]fluoranthene
Concen: 11.87 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:252 Resp: 7994

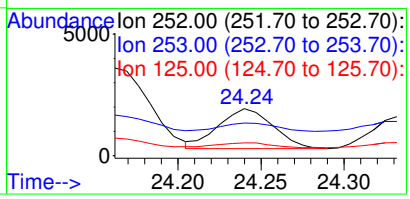
Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	12.1	0.0	40.5

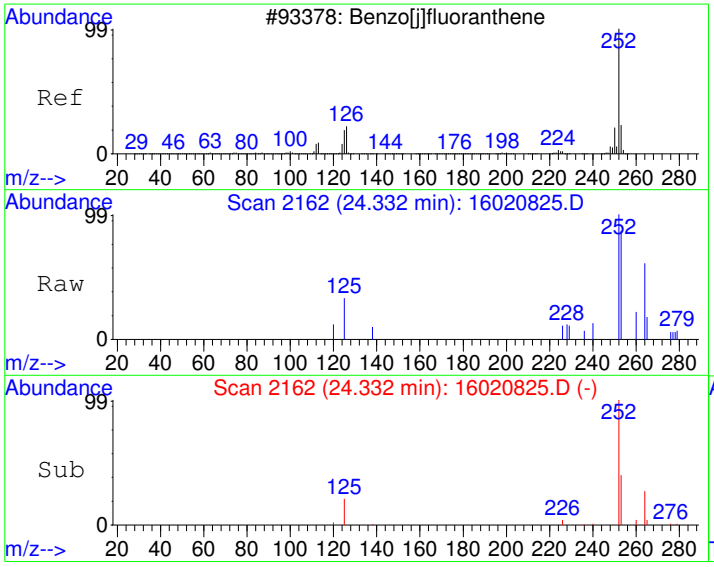


#22
Benzo[k]fluoranthene
Concen: 6.21 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:252 Resp: 3716

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.2	42.2
125	11.9	0.0	31.8

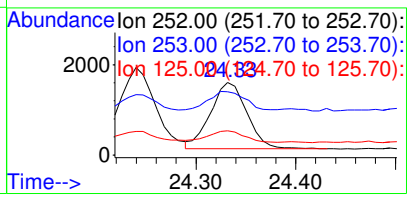


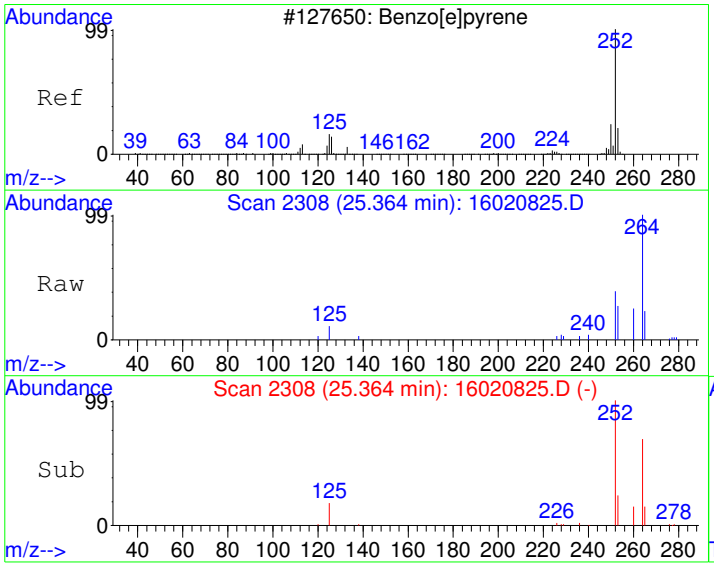


#23
Benzo(j)fluoranthene
Concen: 6.52 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:252 Resp: 3666

Ion	Ratio	Lower	Upper
252	100		
253	27.0	2.3	42.3
125	16.9	0.0	34.0

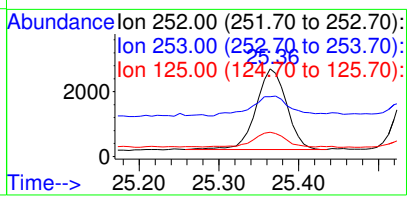


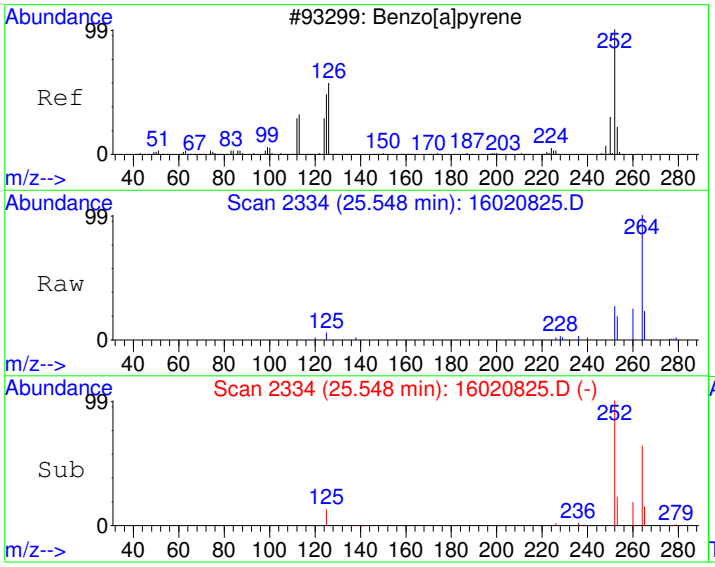


#24
Benzo[e]pyrene
Concen: 10.52 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:252 Resp: 6612

Ion	Ratio	Lower	Upper
252	100		
253	23.4	2.2	42.2
125	18.0	0.0	36.0

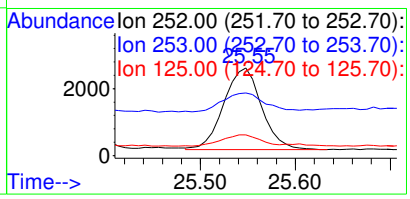


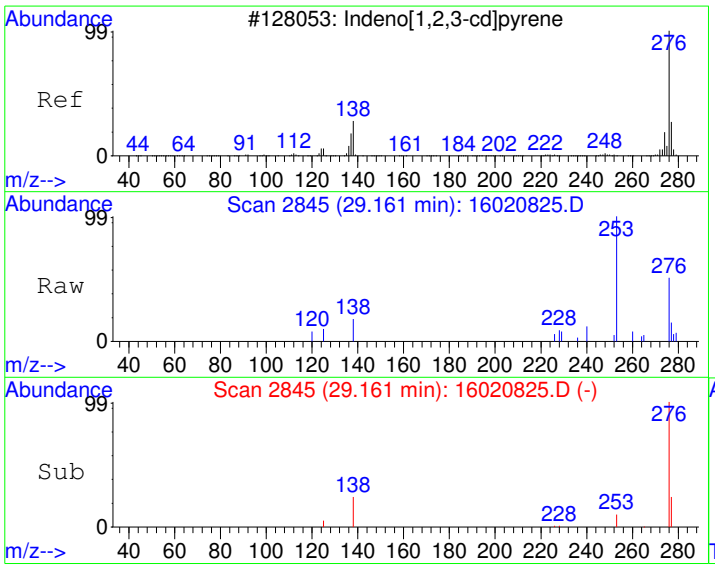


#25
Benzo[a]pyrene
Concen: 11.04 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:252 Resp: 6758

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.0	42.0
125	13.4	0.0	32.3

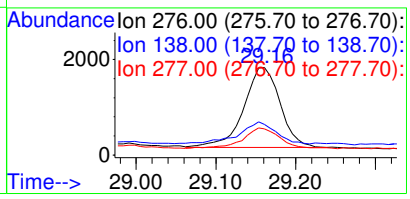


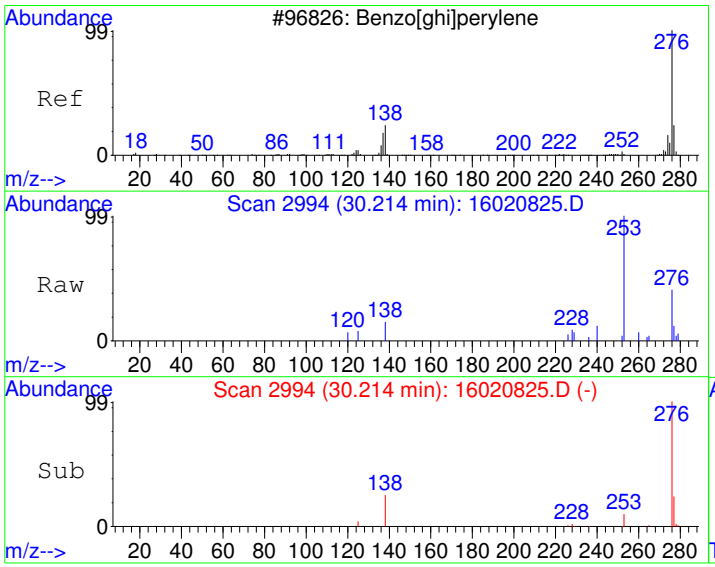


#27
Indeno[1,2,3-cd]pyrene
Concen: 7.76 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:276 Resp: 5349

Ion	Ratio	Lower	Upper
276	100		
138	24.2	2.1	42.1
277	24.5	4.2	44.2

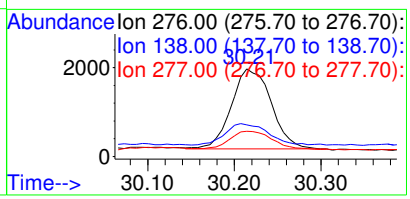




#28
Benzo[g,h,i]perylene
Concen: 9.94 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16020825.D
Acq: 8 Feb 2016 11:43 pm

Tgt Ion:276 Resp: 5752

Ion	Ratio	Lower	Upper
276	100		
138	25.1	3.9	43.9
277	22.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020826.D Vial: 26
Acq On : 9 Feb 2016 12:23 am Operator:
Sample : 1601231-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2494242	4000.00 ug/kg	119
5) Acenaphthene-d10	13.15	164	2205704	4000.00 ug/kg	121
11) Phenanthrene-d10	15.23	188	3728978	4000.00 ug/kg	114
17) Chrysene-d12	20.80	240	3683087	4000.00 ug/kg	128
20) Perylene-d12	25.86	264	3145352	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45265	70.83 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#	
16) 4-Terphenyl-d14	17.65	244	50278	80.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7515	~~13.52 ug/kg#~~	11
14) Fluoranthene	17.19	202	7899	9.00 ug/kg	97
15) Pyrene	17.76	202	7425	8.30 ug/kg	98
19) Chrysene	20.87	228	5923	7.33 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	5964	7.11 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	2483	3.55 ug/kg	87
24) Benzo[e]pyrene	25.36	252	4415	5.64 ug/kg	97
25) Benzo[a]pyrene	25.54	252	4653	6.11 ug/kg	96
28) Benzo[g,h,i]perylene	30.22	276	4124	5.72 ug/kg	96

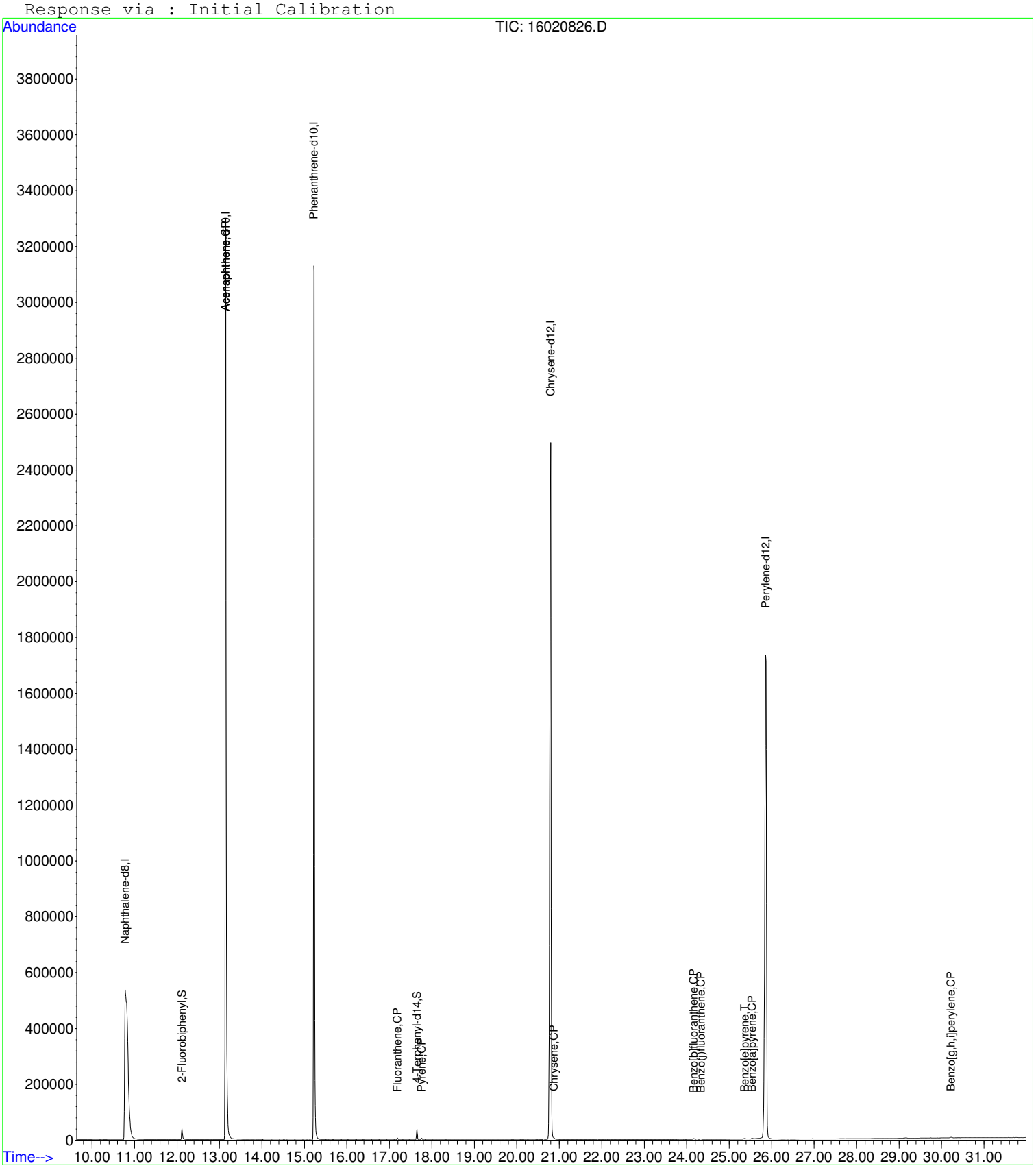
CONFIRMED
By Sherri Herschmann at 2:46:39 PM, 2/15/2016

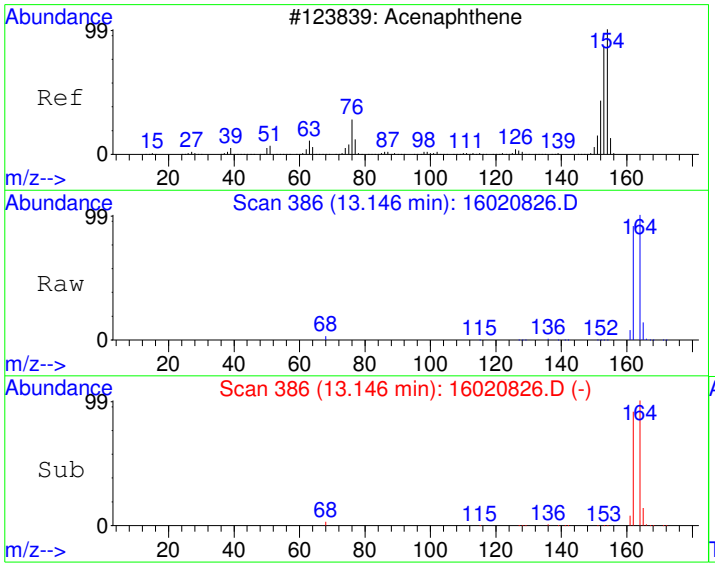
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020826.D Vial: 26
Acq On : 9 Feb 2016 12:23 am Operator:
Sample : 1601231-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

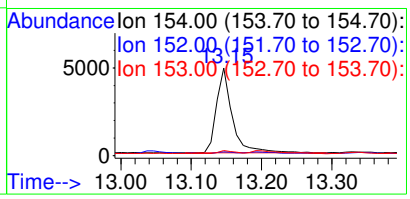


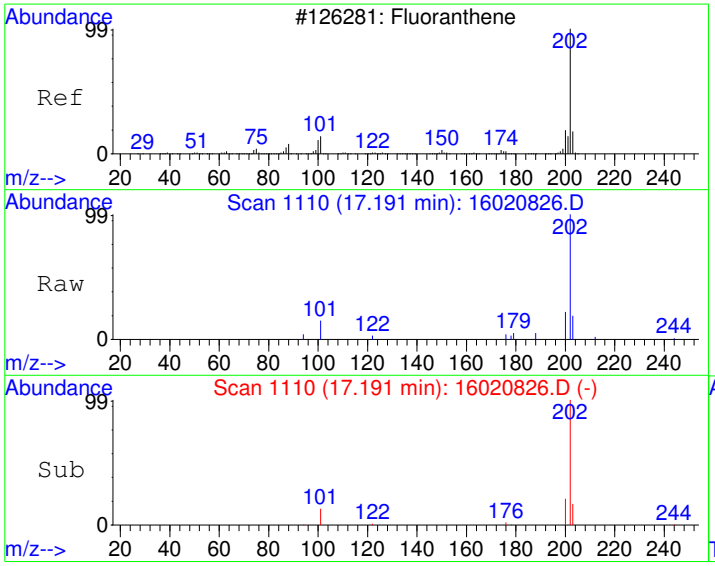


#9
Acenaphthene
Concen: 13.52 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:154 Resp: 7515

Ion	Ratio	Lower	Upper
154	100		
152	1.9	18.7	78.7#
153	3.5	74.4	134.4#

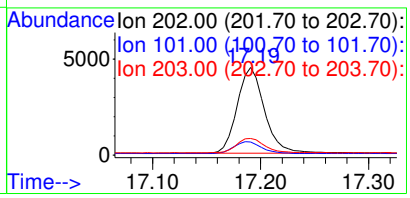


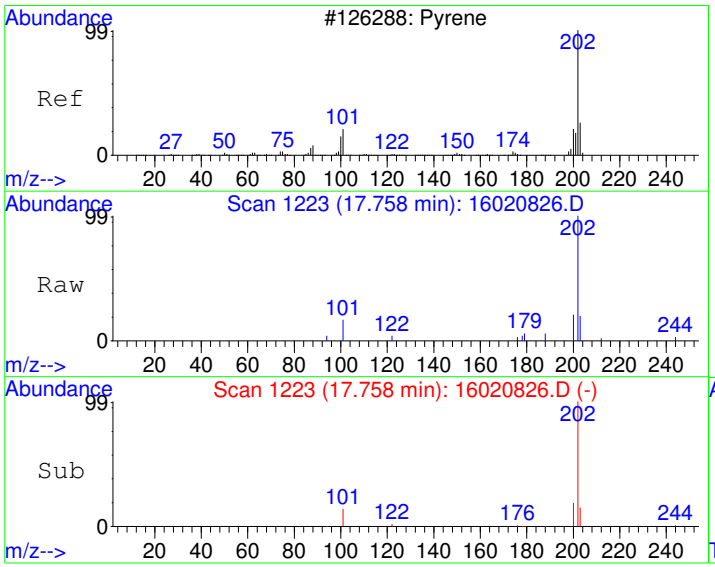


#14
Fluoranthene
Concen: 9.00 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.01 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:202 Resp: 7899

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	16.6	0.0	48.0

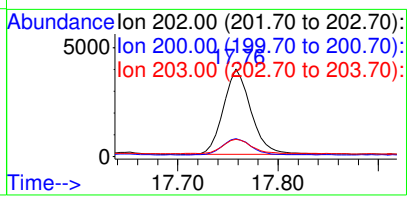


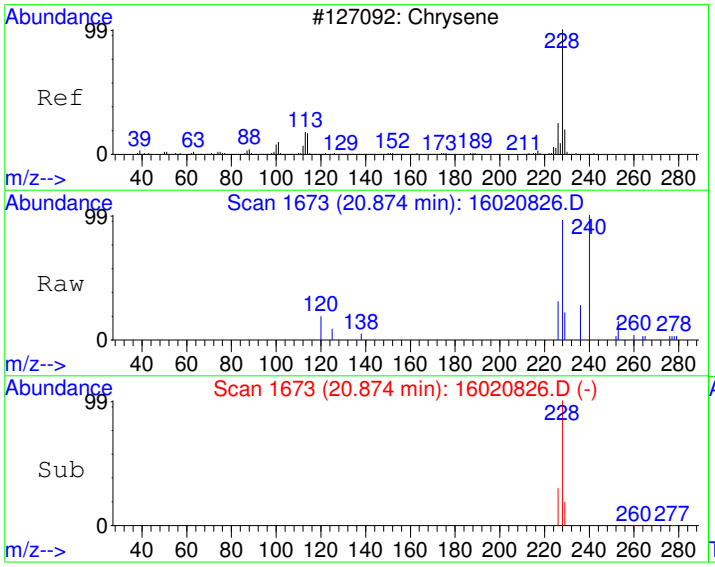


#15
Pyrene
Concen: 8.30 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:202 Resp: 7425

Ion	Ratio	Lower	Upper
202	100		
200	19.2	0.0	50.0
203	16.8	0.0	48.0

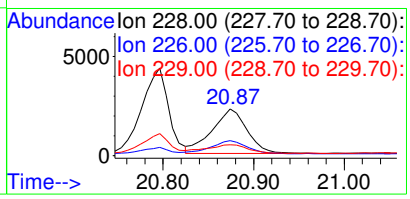


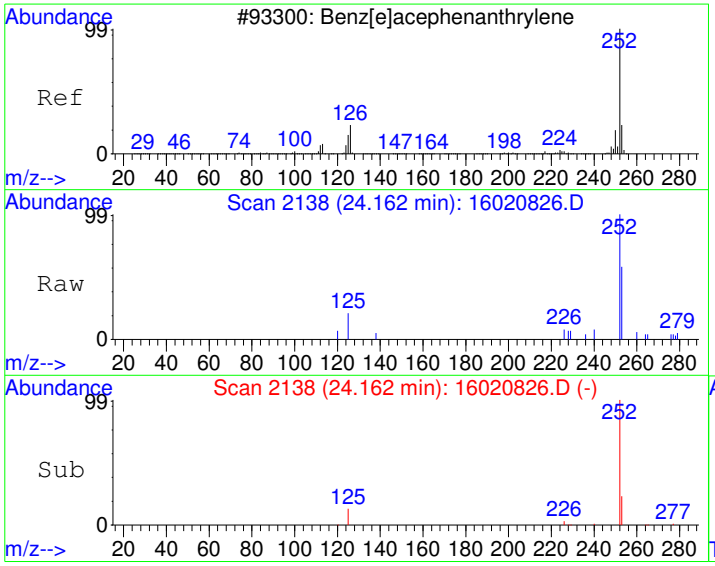


#19
Chrysene
Concen: 7.33 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:228 Resp: 5923

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.1	0.0	50.1

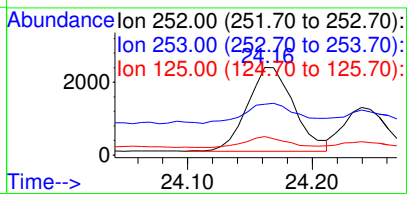


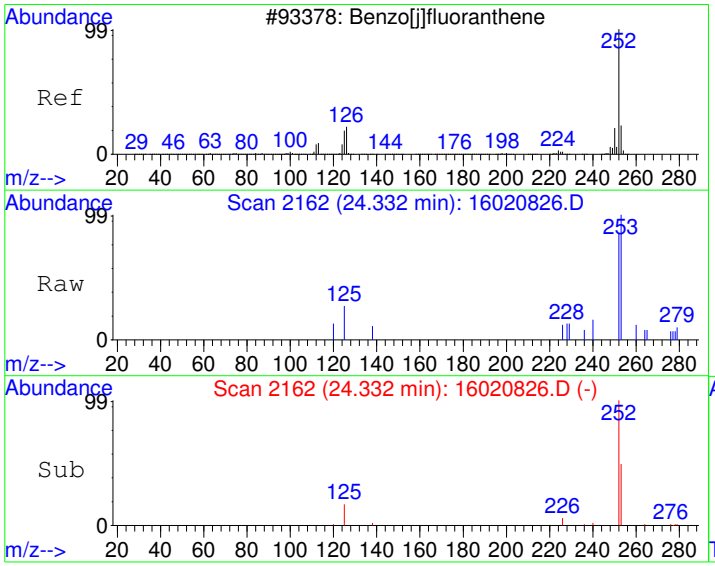


#21
Benzo[b]fluoranthene
Concen: 7.11 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:252 Resp: 5964

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	52.0
125	12.6	0.0	40.5

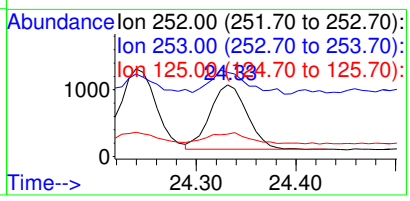


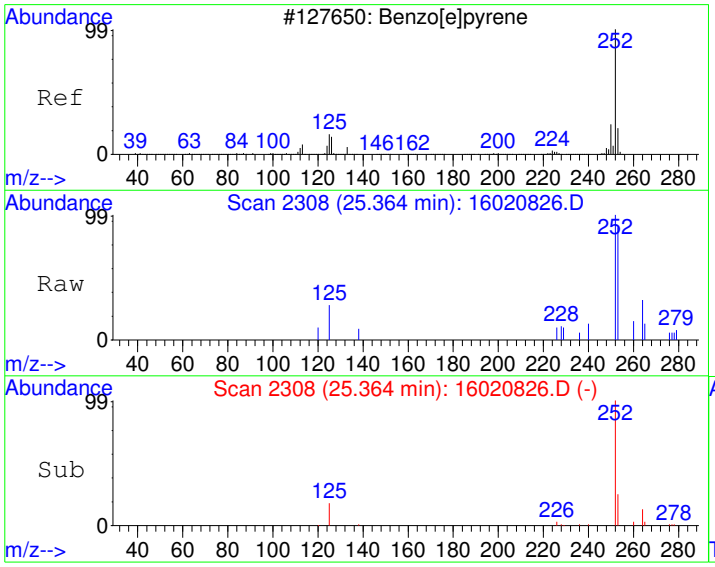


#23
Benzo(j)fluoranthene
Concen: 3.55 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:252 Resp: 2483

Ion	Ratio	Lower	Upper
252	100		
253	31.9	2.3	42.3
125	14.3	0.0	34.0

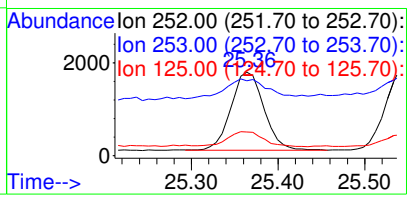


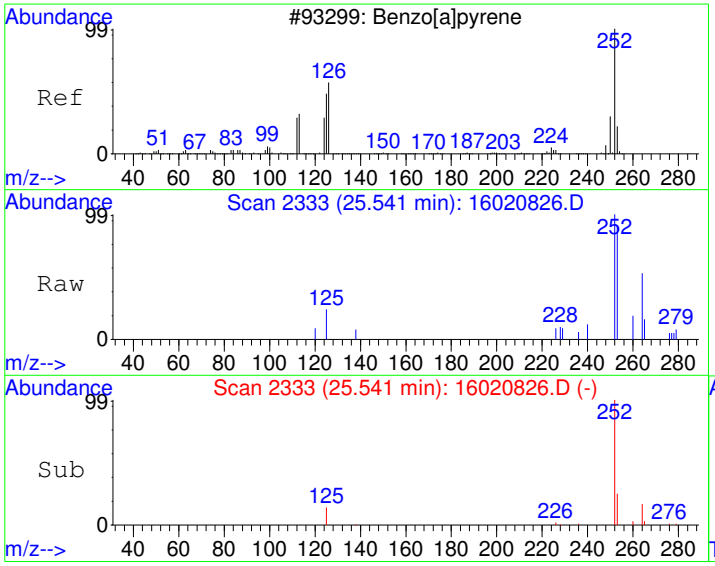


#24
Benzo[e]pyrene
Concen: 5.64 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:252 Resp: 4415

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.2	42.2
125	17.9	0.0	36.0

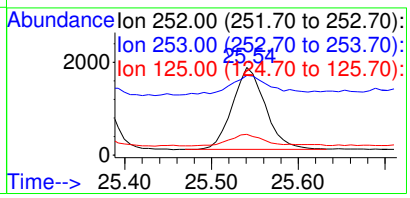


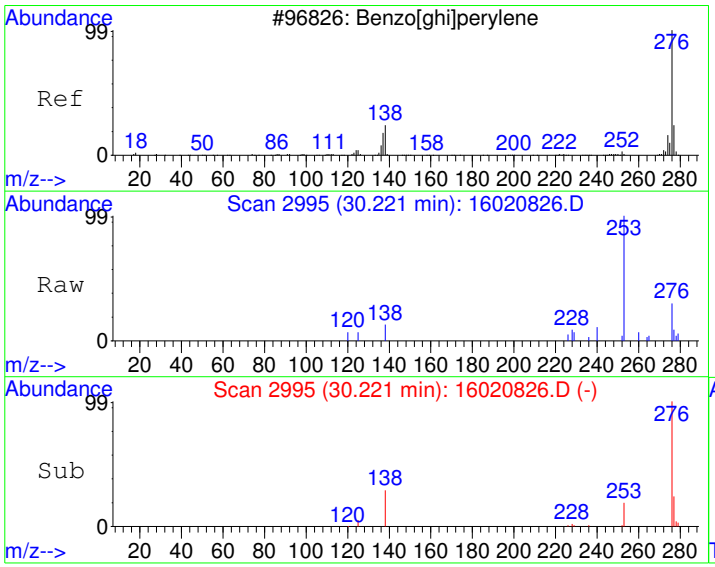


#25
Benzo[a]pyrene
Concen: 6.11 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:252 Resp: 4653

Ion	Ratio	Lower	Upper
252	100		
253	23.7	2.0	42.0
125	14.1	0.0	32.3

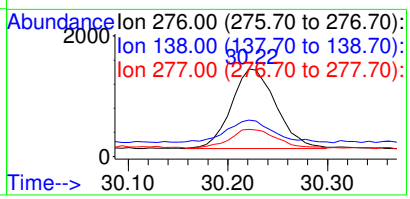




#28
Benzo[g,h,i]perylene
Concen: 5.72 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020826.D
Acq: 9 Feb 2016 12:23 am

Tgt Ion:276 Resp: 4124

Ion	Ratio	Lower	Upper
276	100		
138	27.3	3.9	43.9
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020827.D Vial: 27
Acq On : 9 Feb 2016 1:04 am Operator:
Sample : 1601231-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2531226	4000.00 ug/kg	121
5) Acenaphthene-d10	13.14	164	2176766	4000.00 ug/kg	120
11) Phenanthrene-d10	15.23	188	3613631	4000.00 ug/kg	111
17) Chrysene-d12	20.79	240	3478456	4000.00 ug/kg	120
20) Perylene-d12	25.86	264	2908427	4000.00 ug/kg	126

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	45243	71.74 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#	
16) 4-Terphenyl-d14	17.65	244	47985	79.48 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#	

Target Compounds					Qvalue
9) Acenaphthene	13.14	154	7860	~~14.33 ug/kg~~#	10
14) Fluoranthene	17.19	202	9525	11.19 ug/kg	97
15) Pyrene	17.75	202	8605	9.93 ug/kg	99
18) Benzo[a]anthracene	20.63	228	4336	5.41 ug/kg	98
19) Chrysene	20.87	228	6647	8.70 ug/kg	97
21) Benzo[b]fluoranthene	24.17	252	6498	8.38 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	2865	4.43 ug/kg	90
24) Benzo[e]pyrene	25.36	252	5039	6.96 ug/kg	94
25) Benzo[a]pyrene	25.54	252	5078	7.21 ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.16	276	4362	5.49 ug/kg	95
28) Benzo[g,h,i]perylene	30.22	276	4523	6.79 ug/kg	98

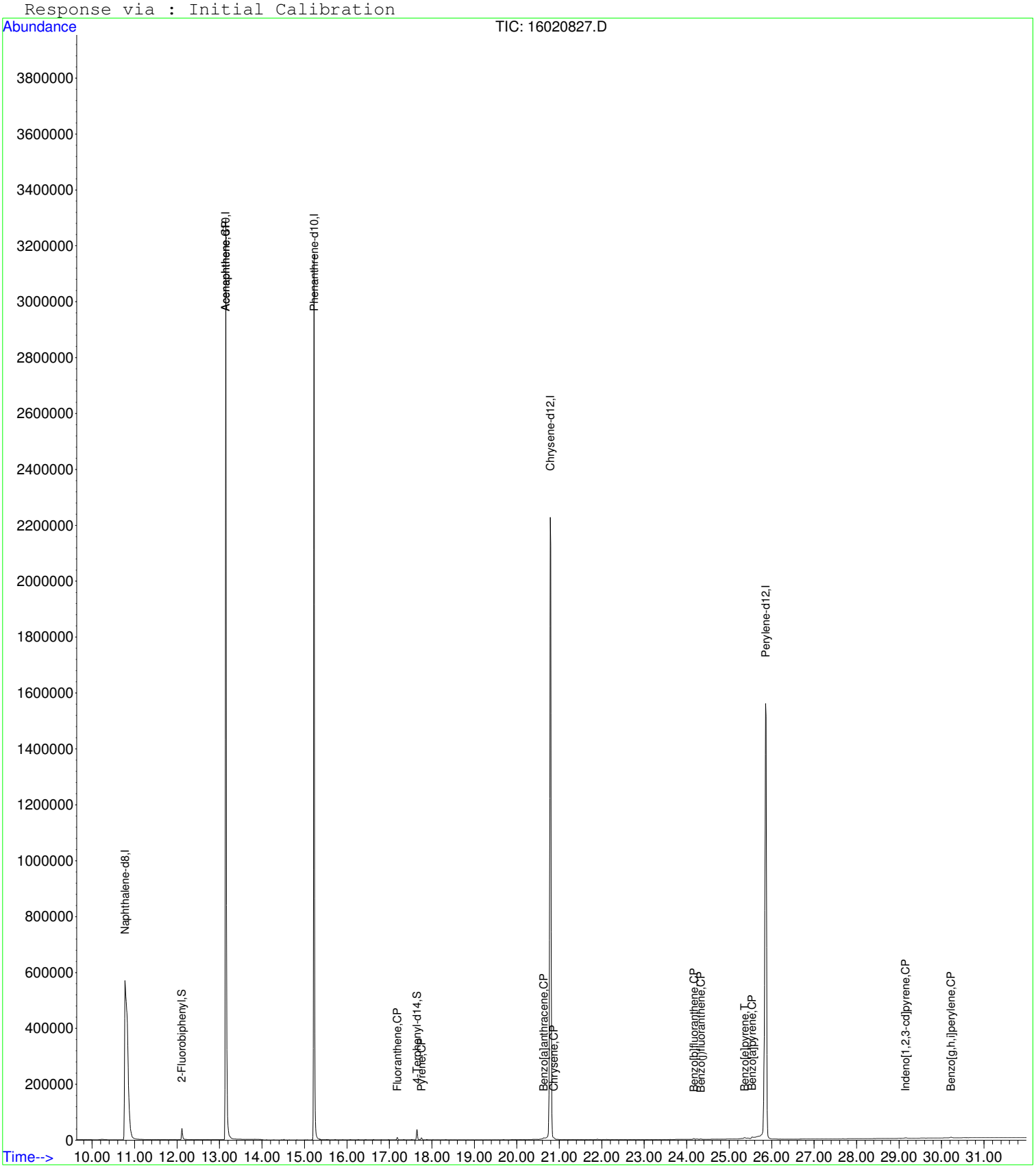
CONFIRMED
By Sherri Herschmann at 2:47:01 PM, 2/15/2016

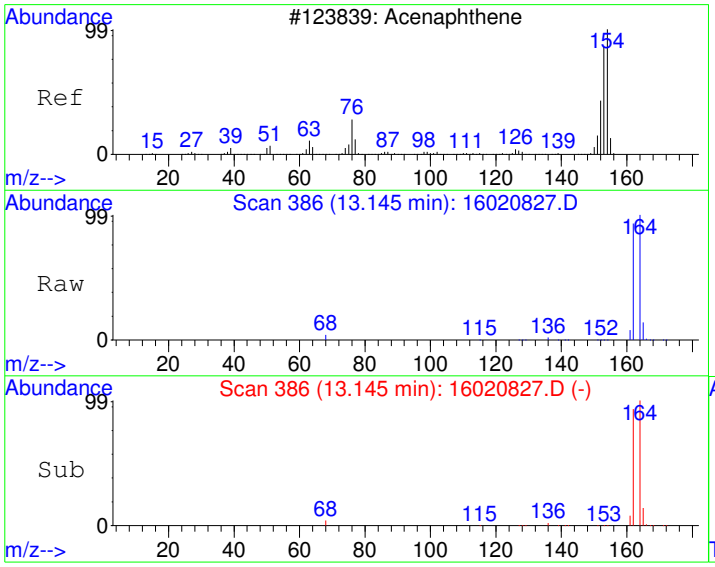
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020827.D Vial: 27
Acq On : 9 Feb 2016 1:04 am Operator:
Sample : 1601231-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

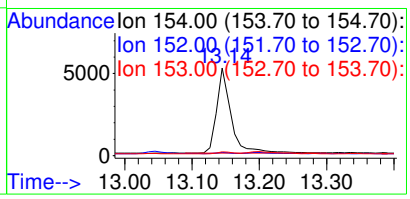


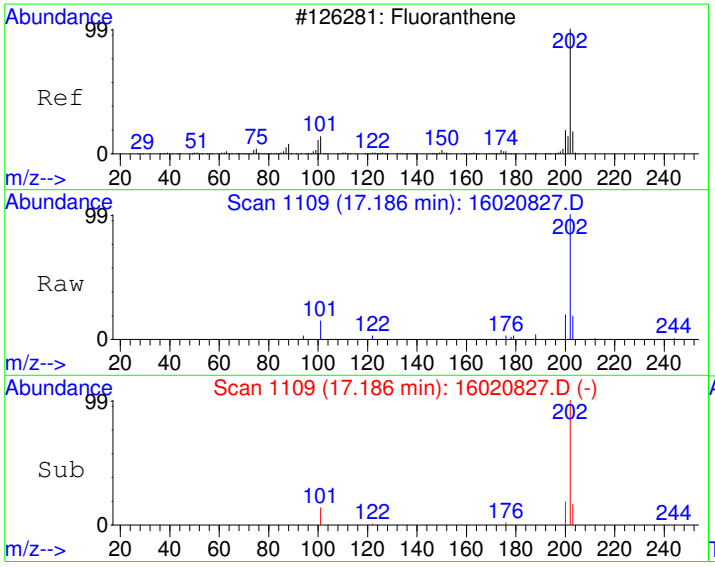


#9
Acenaphthene
Concen: 14.33 ug/kg
RT: 13.14 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:154 Resp: 7860

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.4	74.4	134.4#

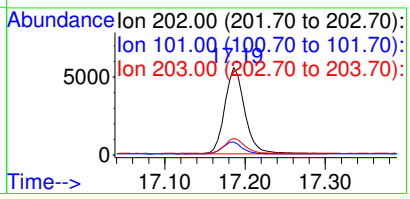


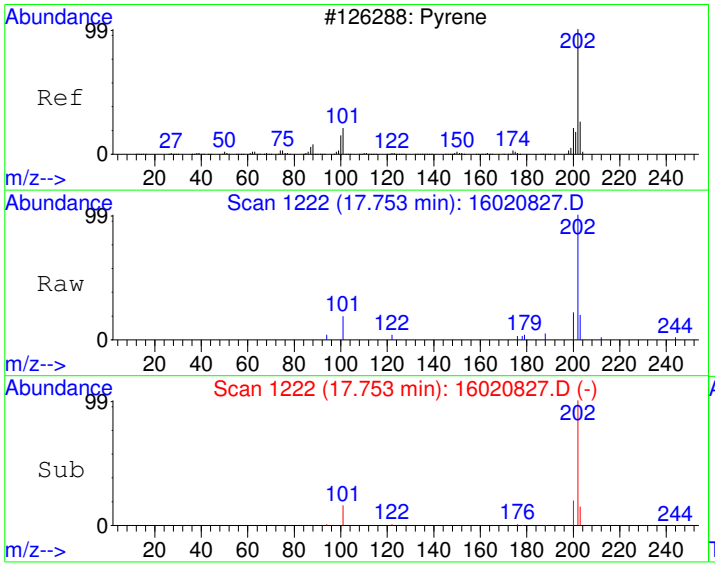


#14
Fluoranthene
Concen: 11.19 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:202 Resp: 9525

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	42.5
203	17.1	0.0	48.0

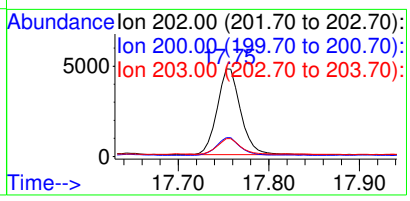


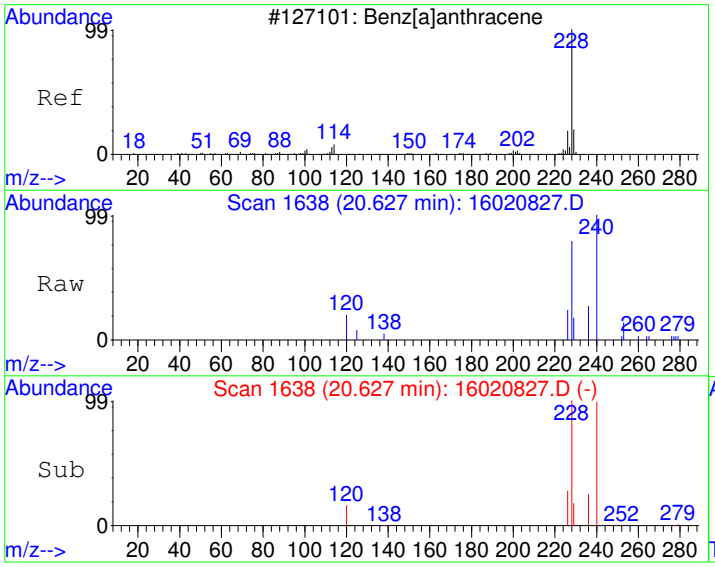


#15
Pyrene
Concen: 9.93 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.01 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:202 Resp: 8605

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.2	0.0	48.0

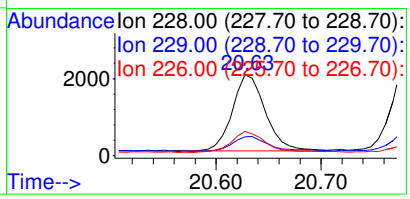


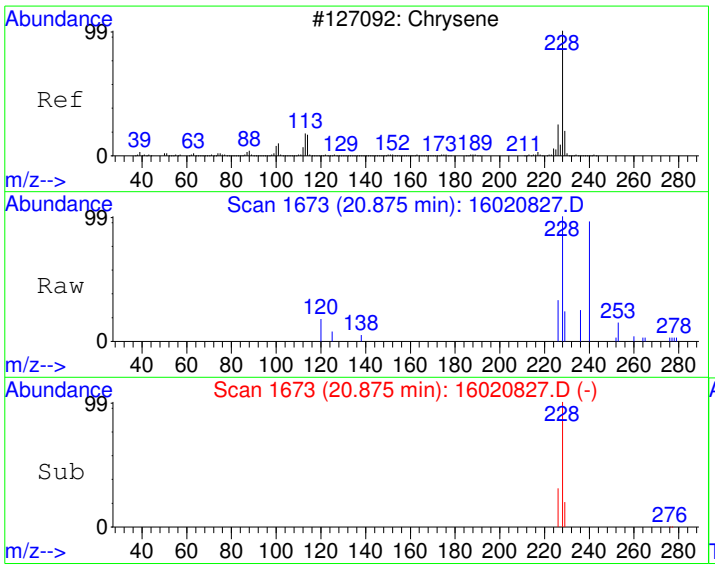


#18
Benzo[a]anthracene
Concen: 5.41 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:228 Resp: 4336

Ion	Ratio	Lower	Upper
228	100		
229	18.4	0.0	50.0
226	27.2	0.0	56.4

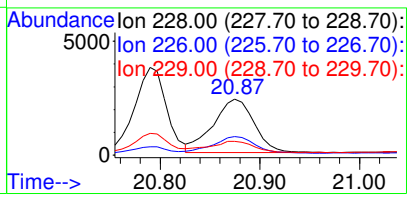


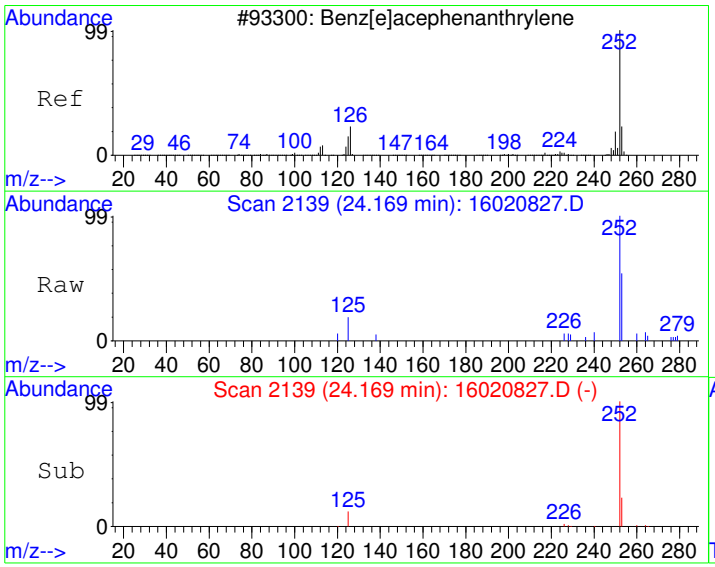


#19
Chrysene
Concen: 8.70 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:228 Resp: 6647

Ion	Ratio	Lower	Upper
228	100		
226	30.7	0.0	58.5
229	20.7	0.0	50.1

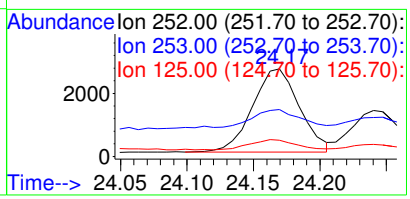


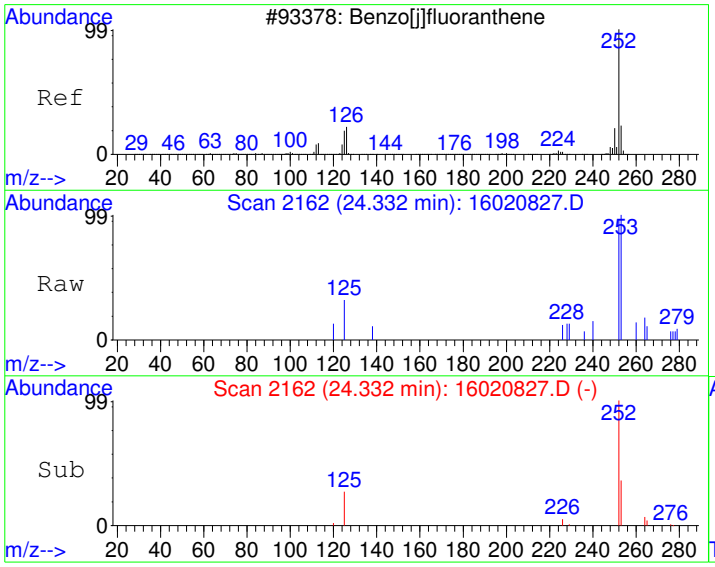


#21
Benzo[b]fluoranthene
Concen: 8.38 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:252 Resp: 6498

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.0
125	10.8	0.0	40.5

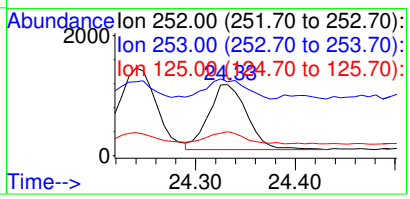


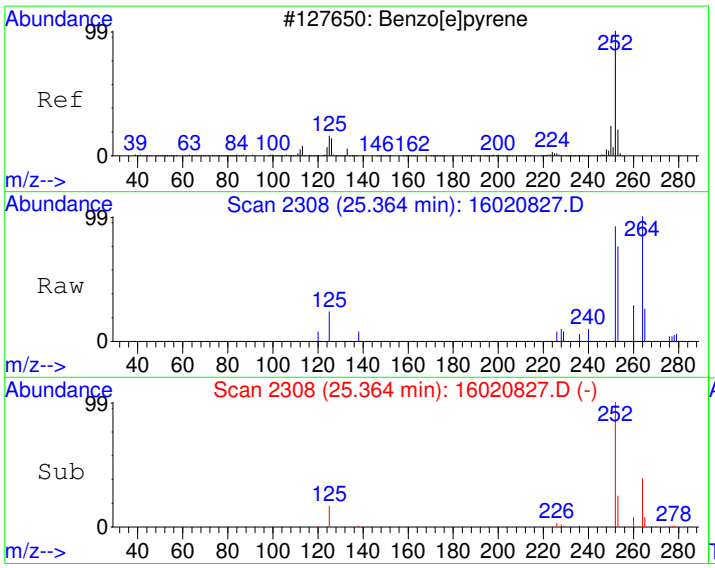


#23
Benzo(j)fluoranthene
Concen: 4.43 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:252 Resp: 2865

Ion	Ratio	Lower	Upper
252	100		
253	26.4	2.3	42.3
125	18.6	0.0	34.0

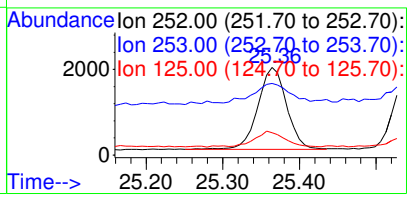


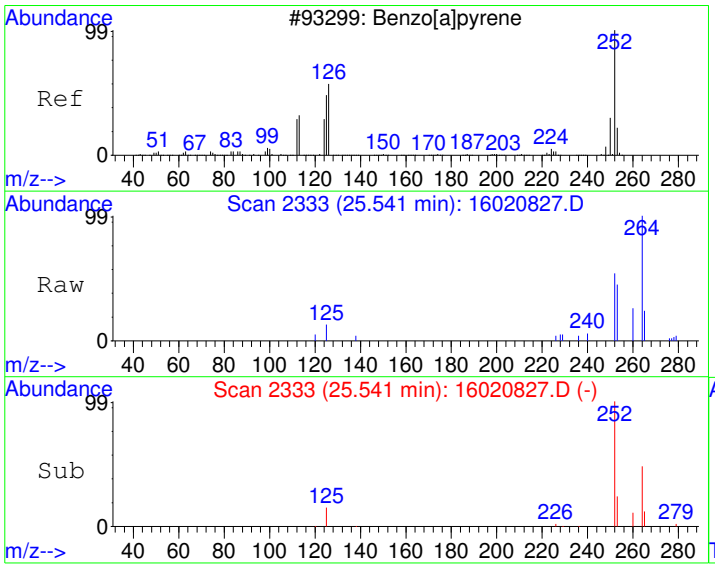


#24
Benzo[e]pyrene
Concen: 6.96 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:252 Resp: 5039

Ion	Ratio	Lower	Upper
252	100		
253	25.9	2.2	42.2
125	17.3	0.0	36.0

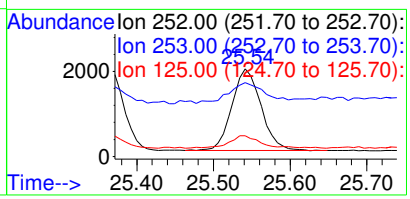


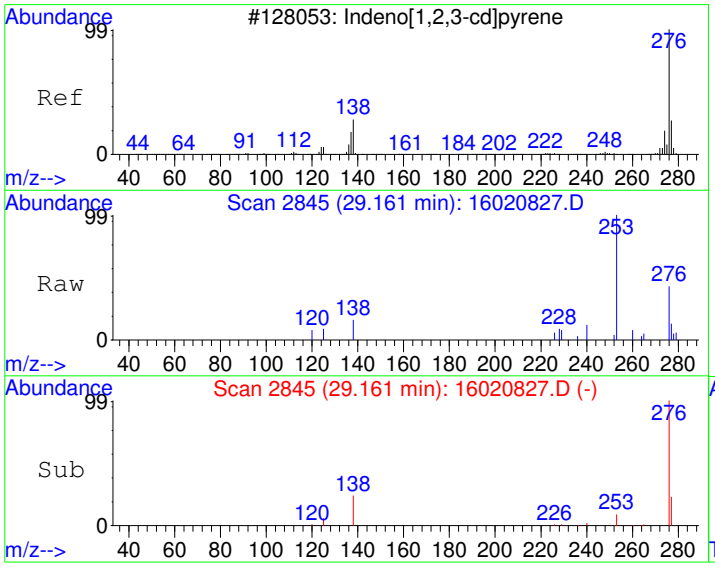


#25
Benzo[a]pyrene
Concen: 7.21 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:252 Resp: 5078

Ion	Ratio	Lower	Upper
252	100		
253	23.2	2.0	42.0
125	15.3	0.0	32.3

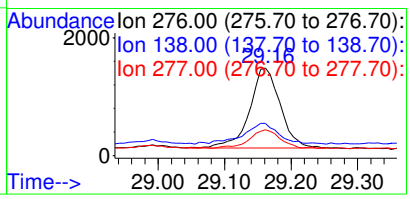


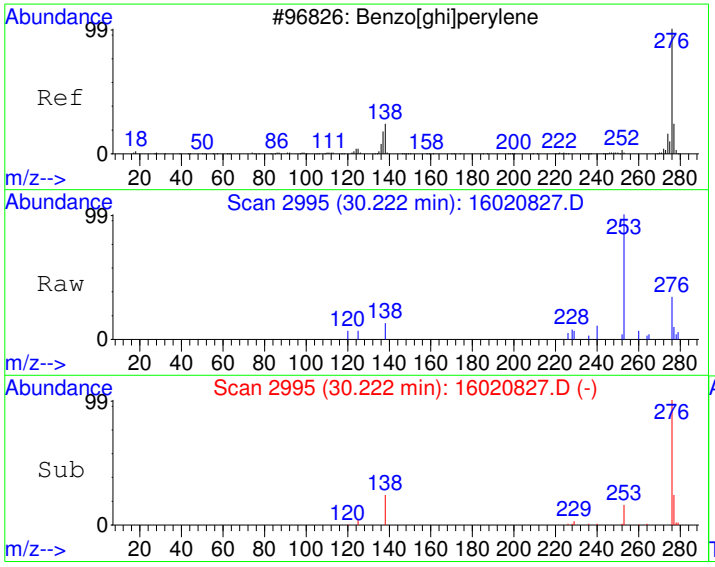


#27
Indeno[1,2,3-cd]pyrene
Concen: 5.49 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. 0.00 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:276 Resp: 4362

Ion	Ratio	Lower	Upper
276	100		
138	26.1	2.1	42.1
277	22.8	4.2	44.2

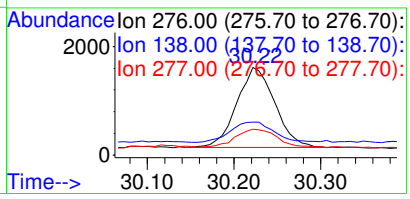




#28
Benzo[g,h,i]perylene
Concen: 6.79 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020827.D
Acq: 9 Feb 2016 1:04 am

Tgt Ion:276 Resp: 4523

Ion	Ratio	Lower	Upper
276	100		
138	24.6	3.9	43.9
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020828.D Vial: 28
Acq On : 9 Feb 2016 1:44 am Operator:
Sample : 1601231-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2492765	4000.00 ug/kg	119
5) Acenaphthene-d10	13.15	164	2166413	4000.00 ug/kg	119
11) Phenanthrene-d10	15.22	188	3586634	4000.00 ug/kg	110
17) Chrysene-d12	20.79	240	3674656	4000.00 ug/kg	127
20) Perylene-d12	25.87	264	3162944	4000.00 ug/kg	137

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46336	73.82 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#	
16) 4-Terphenyl-d14	17.65	244	50824	84.82 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7621	~~13.96 ug/kg~~#	10
14) Fluoranthene	17.20	202	6526	7.73 ug/kg	99
15) Pyrene	17.76	202	5871	6.82 ug/kg	98
19) Chrysene	20.87	228	4131	5.12 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	4260	5.05 ug/kg	95
23) Benzo(j)fluoranthene	24.33	252	1748	2.48 ug/kg <MDL	90

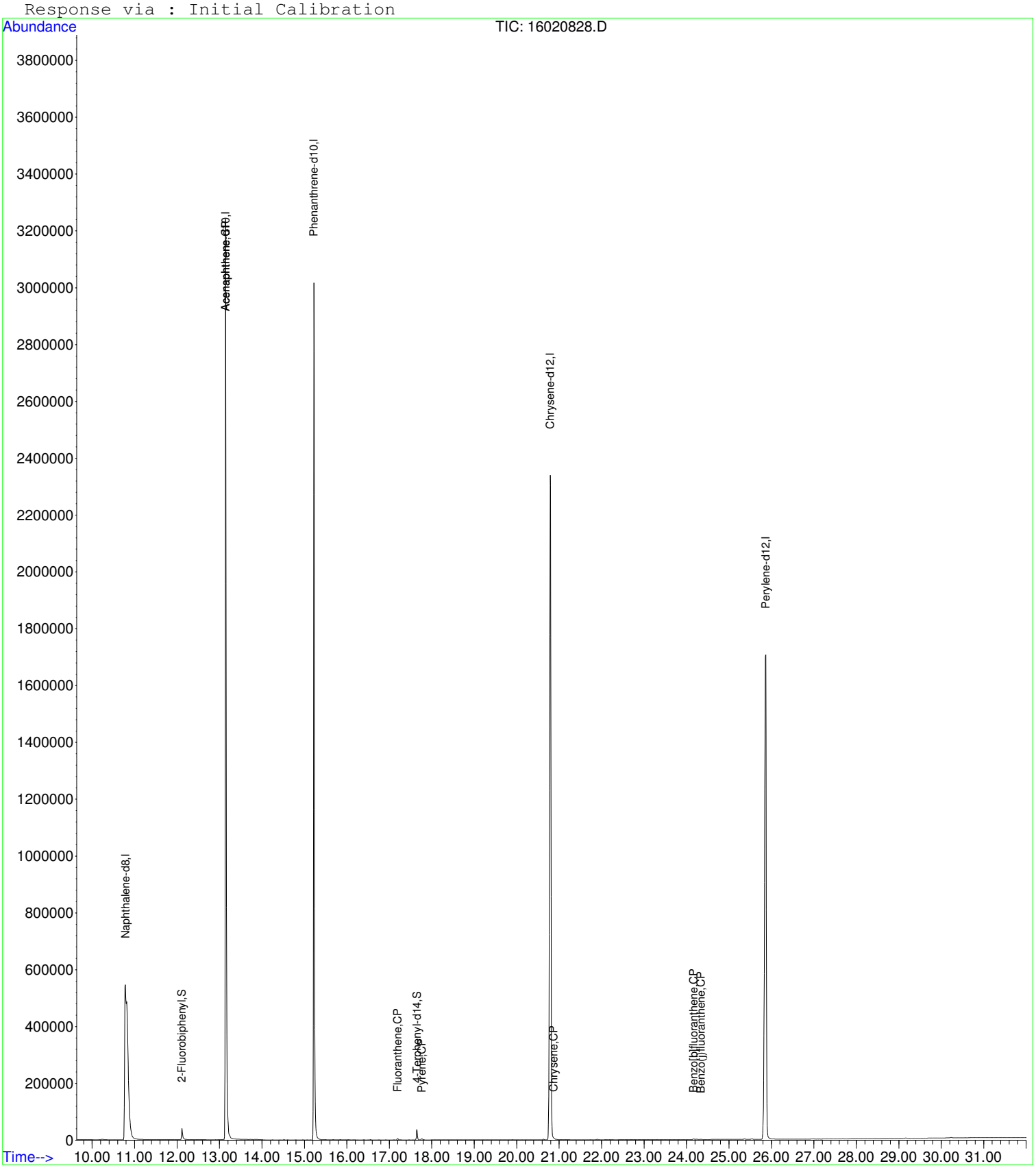
CONFIRMED
By Sherri Herschmann at 2:47:22 PM, 2/15/2016

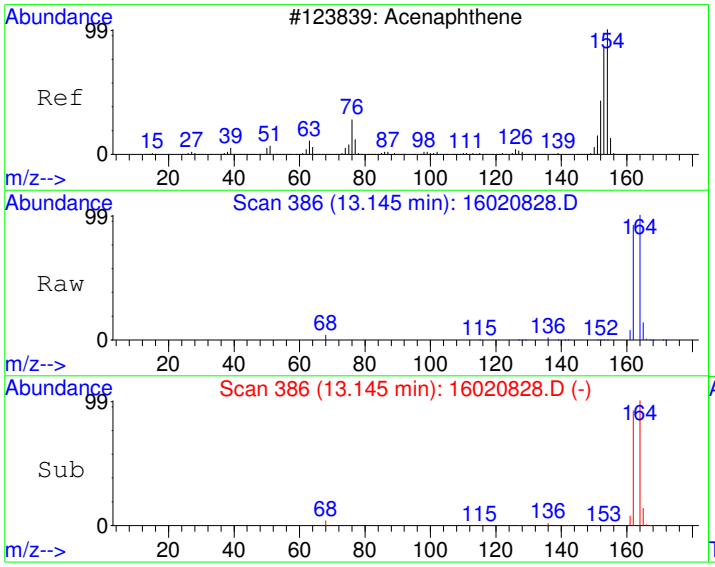
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020828.D Vial: 28
Acq On : 9 Feb 2016 1:44 am Operator:
Sample : 1601231-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:57 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

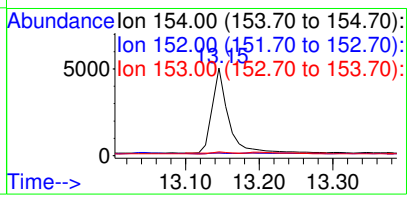


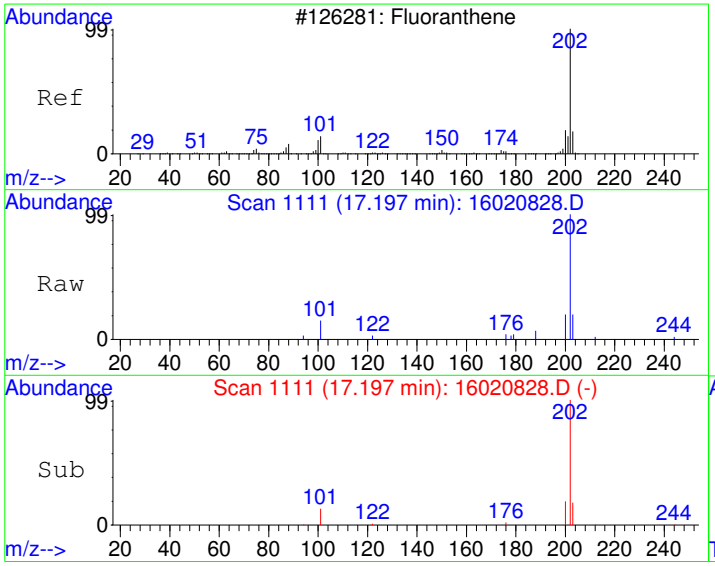


#9
Acenaphthene
Concen: 13.96 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:154 Resp: 7621

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.6	74.4	134.4#

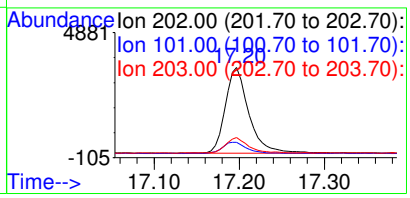


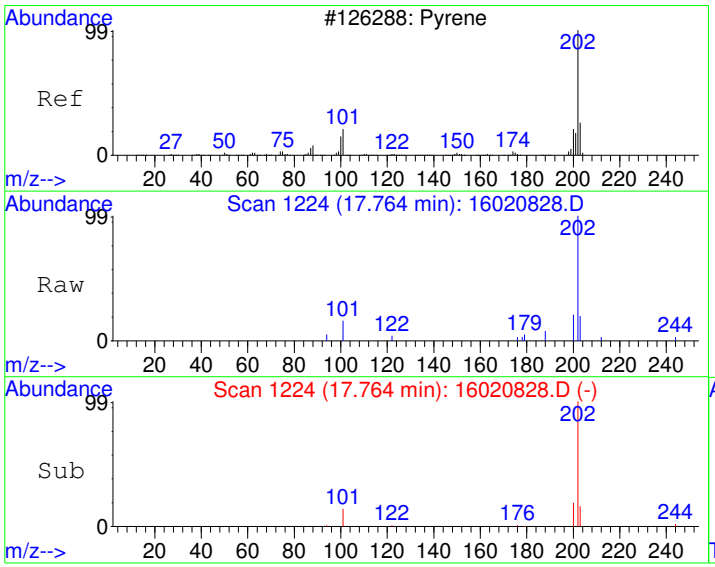


#14
Fluoranthene
Concen: 7.73 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:202 Resp: 6526

Ion	Ratio	Lower	Upper
202	100		
101	13.0	0.0	42.5
203	18.0	0.0	48.0

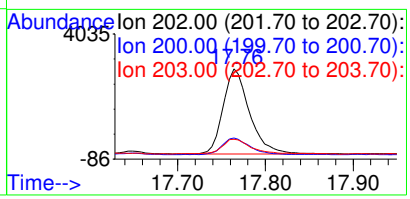


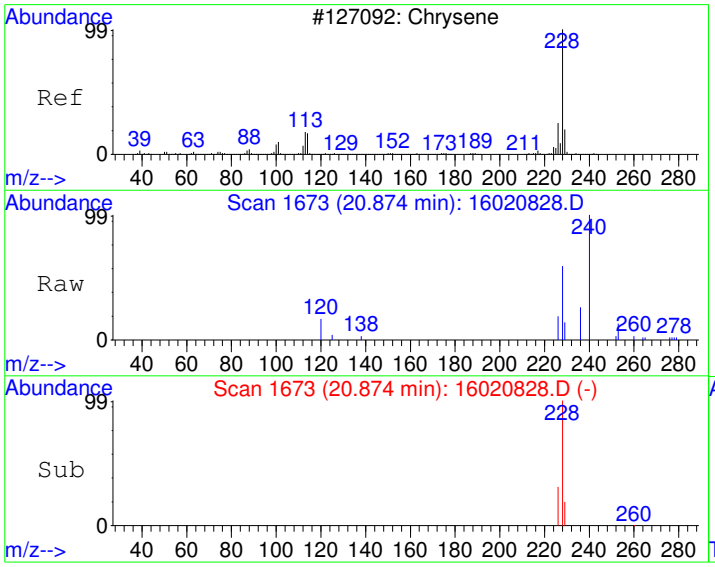


#15
Pyrene
Concen: 6.82 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:202 Resp: 5871

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	50.0
203	16.8	0.0	48.0

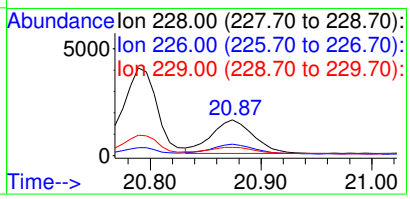


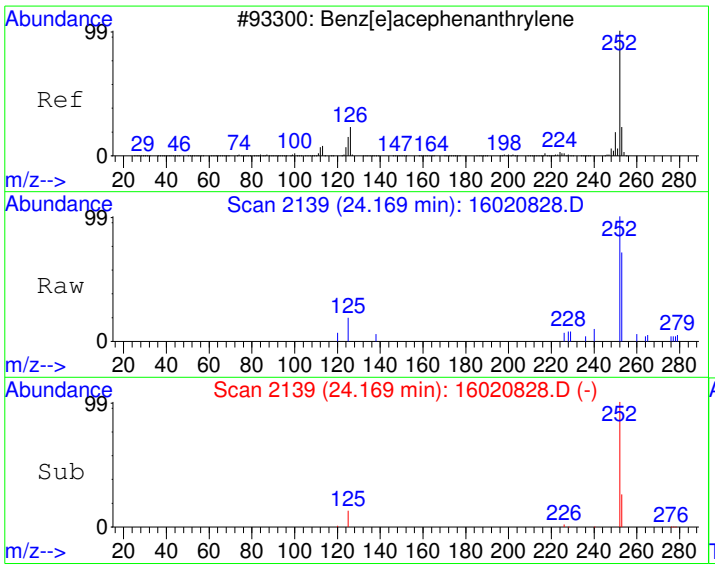


#19
Chrysene
Concen: 5.12 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:228 Resp: 4131

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.5
229	18.8	0.0	50.1

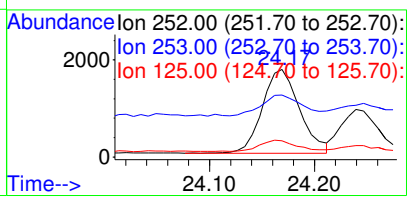


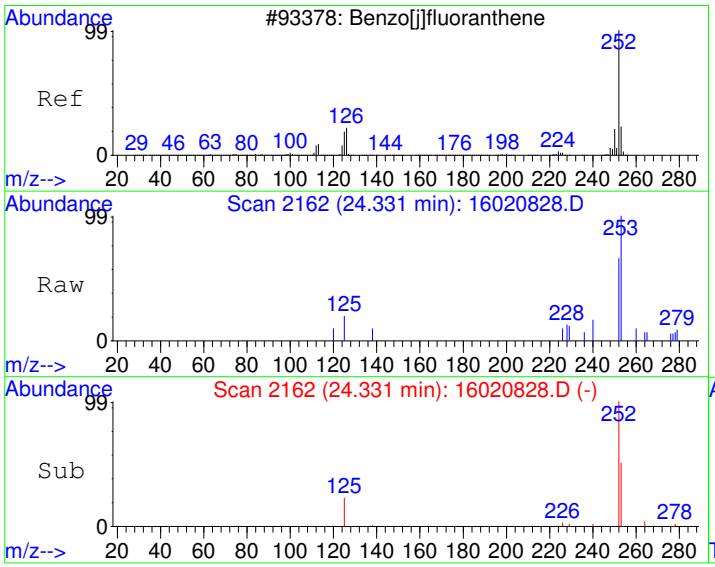


#21
Benzo[b]fluoranthene
Concen: 5.05 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:252 Resp: 4260

Ion	Ratio	Lower	Upper
252	100		
253	24.7	0.0	52.0
125	12.2	0.0	40.5

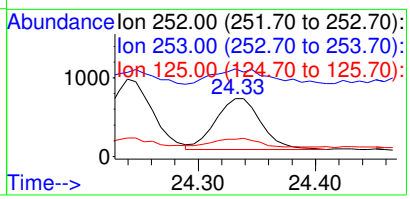




#23
Benzo(j)fluoranthene
Concen: 2.48 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020828.D
Acq: 9 Feb 2016 1:44 am

Tgt Ion:252 Resp: 1748

Ion	Ratio	Lower	Upper
252	100		
253	29.6	2.3	42.3
125	14.4	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020829.D Vial: 29
Acq On : 9 Feb 2016 2:25 am Operator:
Sample : 1601231-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:58 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2560552	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	2167291	4000.00 ug/kg	119
11) Phenanthrene-d10	15.23	188	3584443	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	3627152	4000.00 ug/kg	126
20) Perylene-d12	25.86	264	3131457	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45820	72.97 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.82%#	
16) 4-Terphenyl-d14	17.65	244	50402	84.17 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	

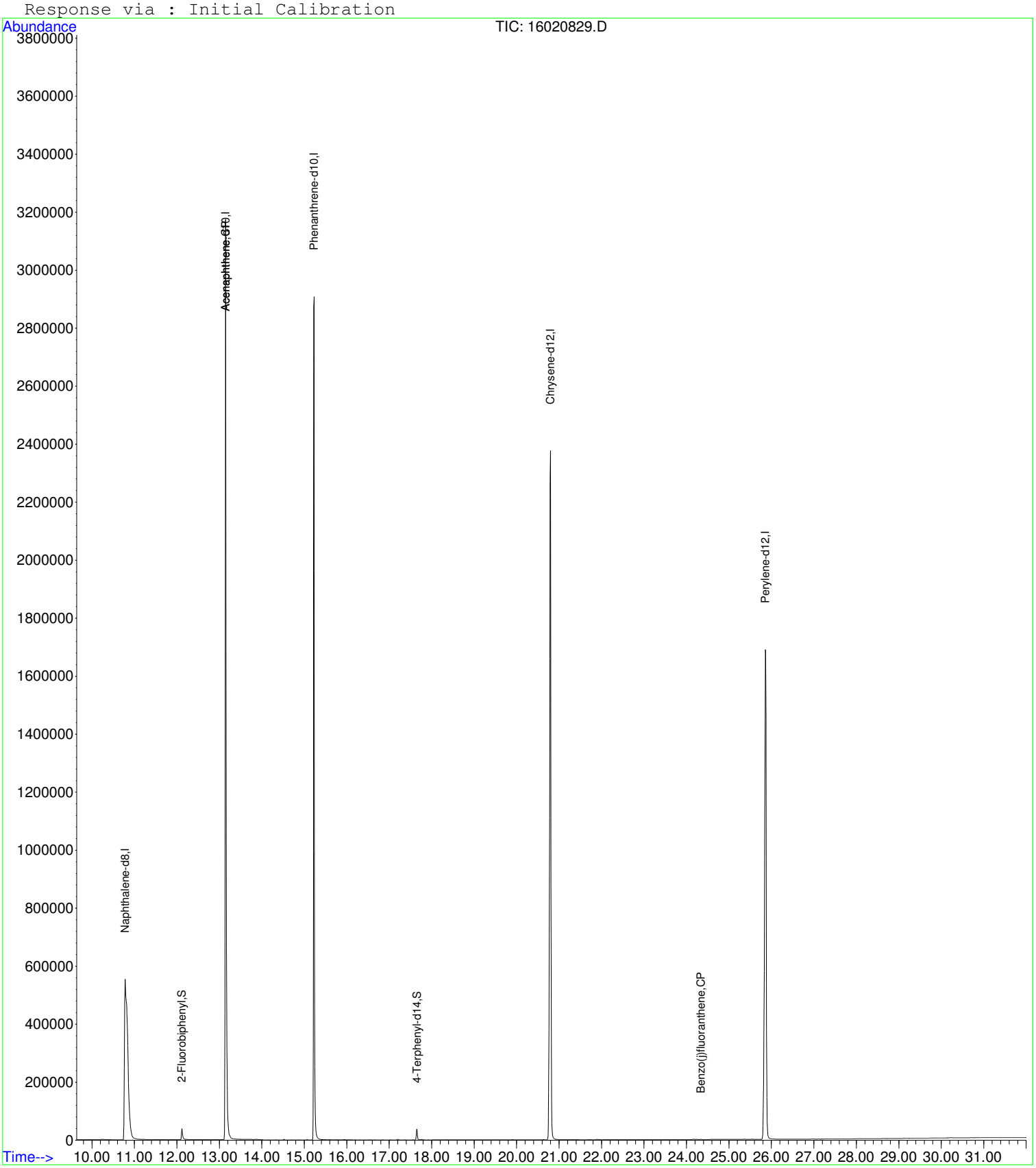
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7338	~~13.44 ug/kg#~~	10
23) Benzo(j)fluoranthene	24.34	252	870	1.25 ug/kg	80

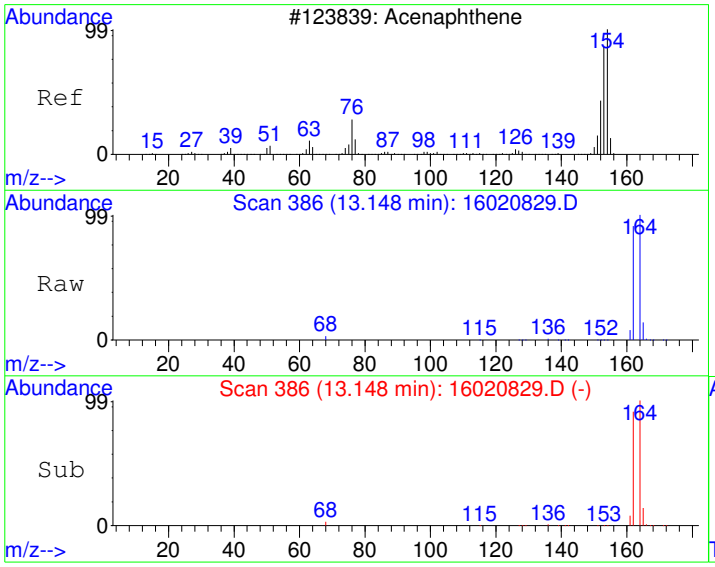
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020829.D Vial: 29
Acq On : 9 Feb 2016 2:25 am Operator:
Sample : 1601231-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:58 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

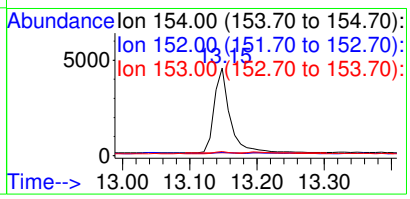


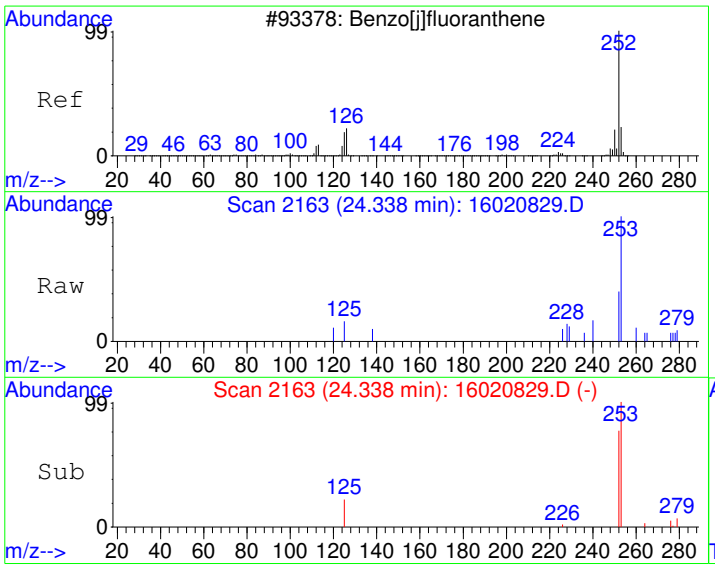


#9
Acenaphthene
Concen: 13.44 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020829.D
Acq: 9 Feb 2016 2:25 am

Tgt Ion:154 Resp: 7338

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.6	74.4	134.4#

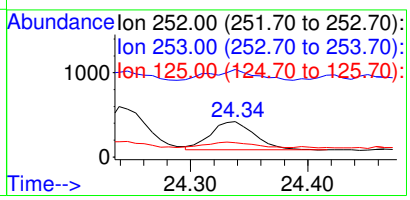




#23
Benzo(j)fluoranthene
Concen: 1.25 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020829.D
Acq: 9 Feb 2016 2:25 am

Tgt Ion:252 Resp: 870

Ion	Ratio	Lower	Upper
252	100		
253	35.6	2.3	42.3
125	17.1	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020830.D Vial: 30
Acq On : 9 Feb 2016 3:05 am Operator:
Sample : 1601231-23AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2507469	4000.00 ug/kg	120
5) Acenaphthene-d10	13.15	164	2077087	4000.00 ug/kg	114
11) Phenanthrene-d10	15.23	188	3411546	4000.00 ug/kg	104
17) Chrysene-d12	20.80	240	3466042	4000.00 ug/kg	120
20) Perylene-d12	25.87	264	3023014	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	49280	81.89 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#	
16) 4-Terphenyl-d14	17.65	244	51913	91.09 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.28%#	

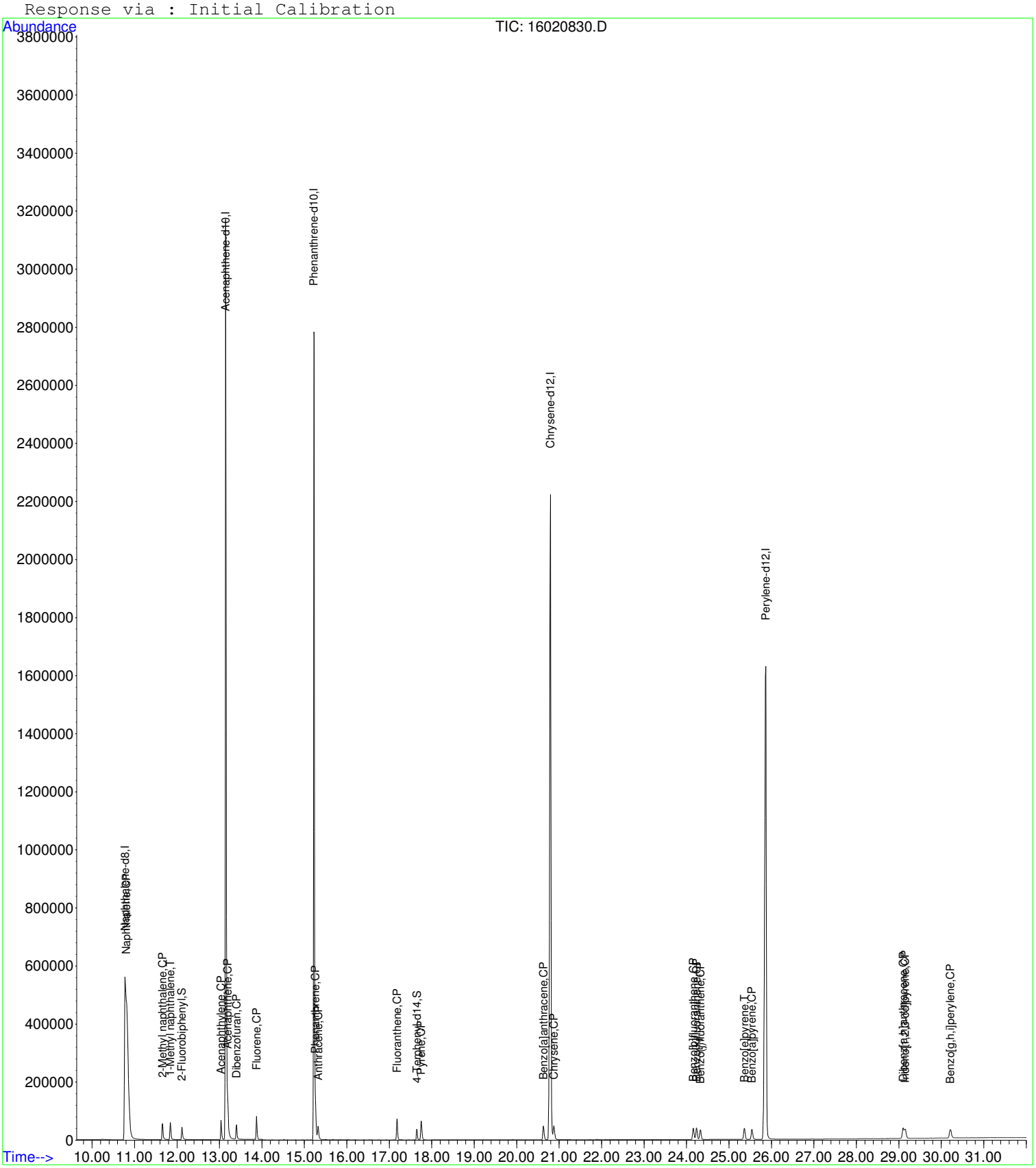
Target Compounds					Qvalue
2) Naphthalene	10.81	128	62079	98.96 ug/kg	99
3) 2-Methyl naphthalene	11.66	142	45286	91.68 ug/kg	96
4) 1-Methyl naphthalene	11.84	142	42173	90.47 ug/kg	95
6) Dibenzofuran	13.40	168	60229	89.23 ug/kg	100
8) Acenaphthylene	13.04	152	73468	85.07 ug/kg	99
9) Acenaphthene	13.20	154	45934	87.78 ug/kg	99
10) Fluorene	13.87	166	51725	83.79 ug/kg	98
12) Phenanthrene	15.26	178	73835	91.14 ug/kg	99
13) Anthracene	15.32	178	68297	86.16 ug/kg	98
14) Fluoranthene	17.18	202	82048	102.13 ug/kg	98
15) Pyrene	17.75	202	85762	104.81 ug/kg	99
18) Benzo[a]anthracene	20.63	228	71573	89.56 ug/kg	99
19) Chrysene	20.87	228	72829	95.71 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	73776	91.54 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	63975	89.36 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	61140	90.91 ug/kg	96
24) Benzo[e]pyrene	25.36	252	68719	91.32 ug/kg	98
25) Benzo[a]pyrene	25.54	252	66384	90.63 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	58770	86.74 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	72198	87.46 ug/kg	98
28) Benzo[g,h,i]perylene	30.21	276	61604	88.95 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020830.D Vial: 30
Acq On : 9 Feb 2016 3:05 am Operator:
Sample : 1601231-23AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16020830.D PP160126.M Tue Feb 09 06:52:02 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020831.D Vial: 31
Acq On : 9 Feb 2016 3:45 am Operator:
Sample : 1601231-23AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2732222	4000.00 ug/kg	130
5) Acenaphthene-d10	13.15	164	2266533	4000.00 ug/kg	124
11) Phenanthrene-d10	15.23	188	3746967	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	3789709	4000.00 ug/kg	131
20) Perylene-d12	25.87	264	3301983	4000.00 ug/kg	143

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	48999	74.62 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.87%#		
16) 4-Terphenyl-d14	17.65	244	51612	82.45 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.06%#		

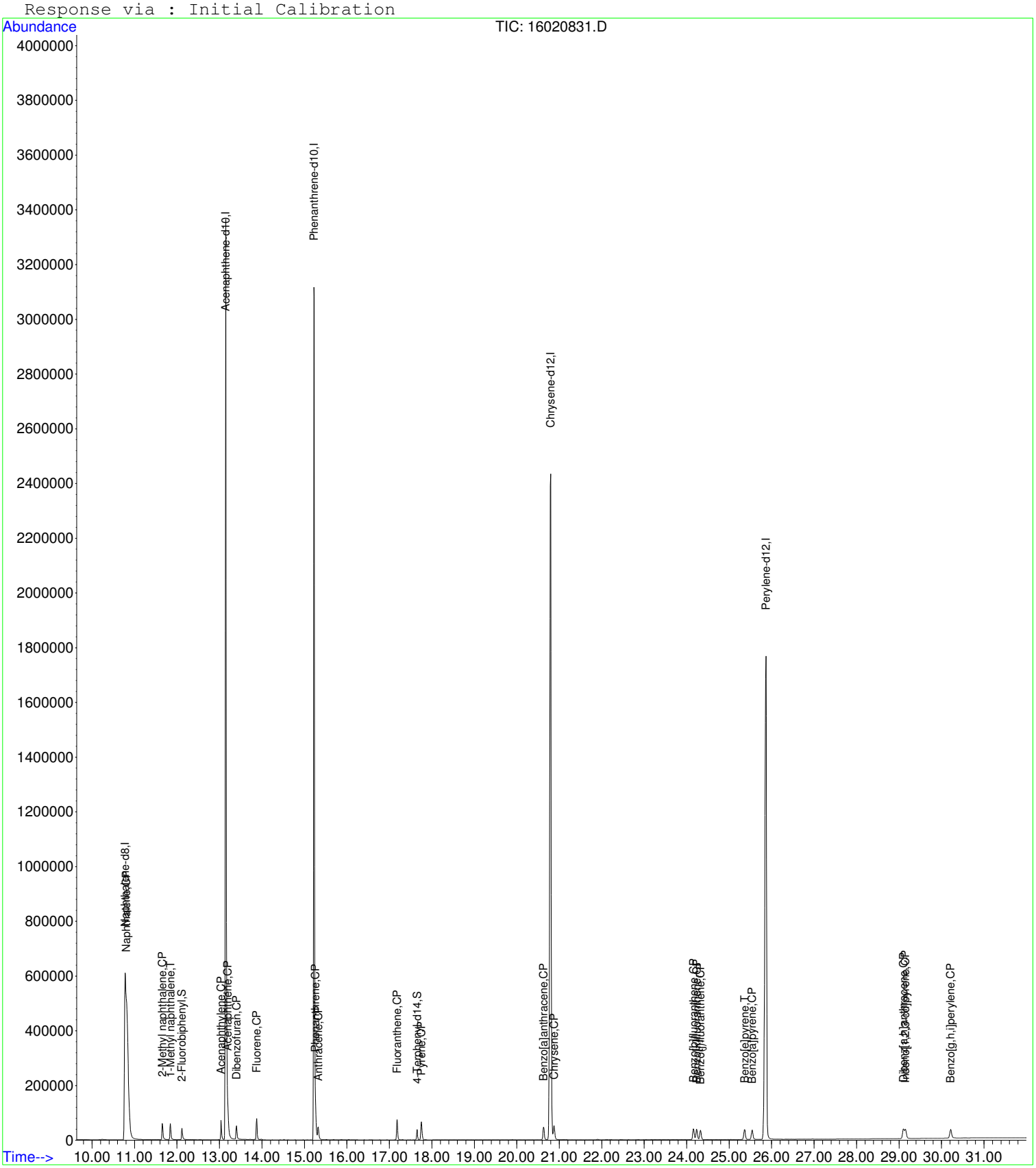
Target Compounds					Qvalue
2) Naphthalene	10.81	128	61184	89.51 ug/kg	99
3) 2-Methyl naphthalene	11.65	142	45639	84.80 ug/kg	99
4) 1-Methyl naphthalene	11.84	142	42372	83.42 ug/kg	95
6) Dibenzofuran	13.40	168	59921	81.35 ug/kg	100
8) Acenaphthylene	13.04	152	73676	78.18 ug/kg	99
9) Acenaphthene	13.20	154	46159	80.84 ug/kg	99
10) Fluorene	13.88	166	51586	76.58 ug/kg	98
12) Phenanthrene	15.26	178	74748	84.01 ug/kg	99
13) Anthracene	15.32	178	69350	79.66 ug/kg	99
14) Fluoranthene	17.18	202	82861	93.91 ug/kg	98
15) Pyrene	17.75	202	86434	96.18 ug/kg	98
18) Benzo[a]anthracene	20.63	228	73180	83.75 ug/kg	99
19) Chrysene	20.87	228	73770	88.67 ug/kg	100
21) Benzo[b]fluoranthene	24.16	252	74646	84.79 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	63493	81.19 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	61079	83.15 ug/kg	97
24) Benzo[e]pyrene	25.36	252	69256	84.26 ug/kg	97
25) Benzo[a]pyrene	25.54	252	67097	83.87 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	59439	80.31 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	73577	81.60 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	62998	83.27 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020831.D Vial: 31
Acq On : 9 Feb 2016 3:45 am Operator:
Sample : 1601231-23AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 6:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160206\16020832.D Vial: 32
Acq On : 9 Feb 2016 6:46 am Operator:
Sample : CCV1-160208 Inst : GC/MS #6
Misc : CCV Multiplr: ~~10.00~~ 1X
MS Integration Params: RTEINT.P
Quant Time: Feb 9 7:20 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	3236257	4000.00 ug/kg	154
5) Acenaphthene-d10	13.15	164	2825668	4000.00 ug/kg	155
11) Phenanthrene-d10	15.22	188	4738493	4000.00 ug/kg	145
17) Chrysene-d12	20.80	240	4861529	4000.00 ug/kg	168
20) Perylene-d12	25.87	264	4063727	4000.00 ug/kg	176

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	665781	813.27 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.33%#	
16) 4-Terphenyl-d14	17.64	244	657209	830.21 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.76%#	

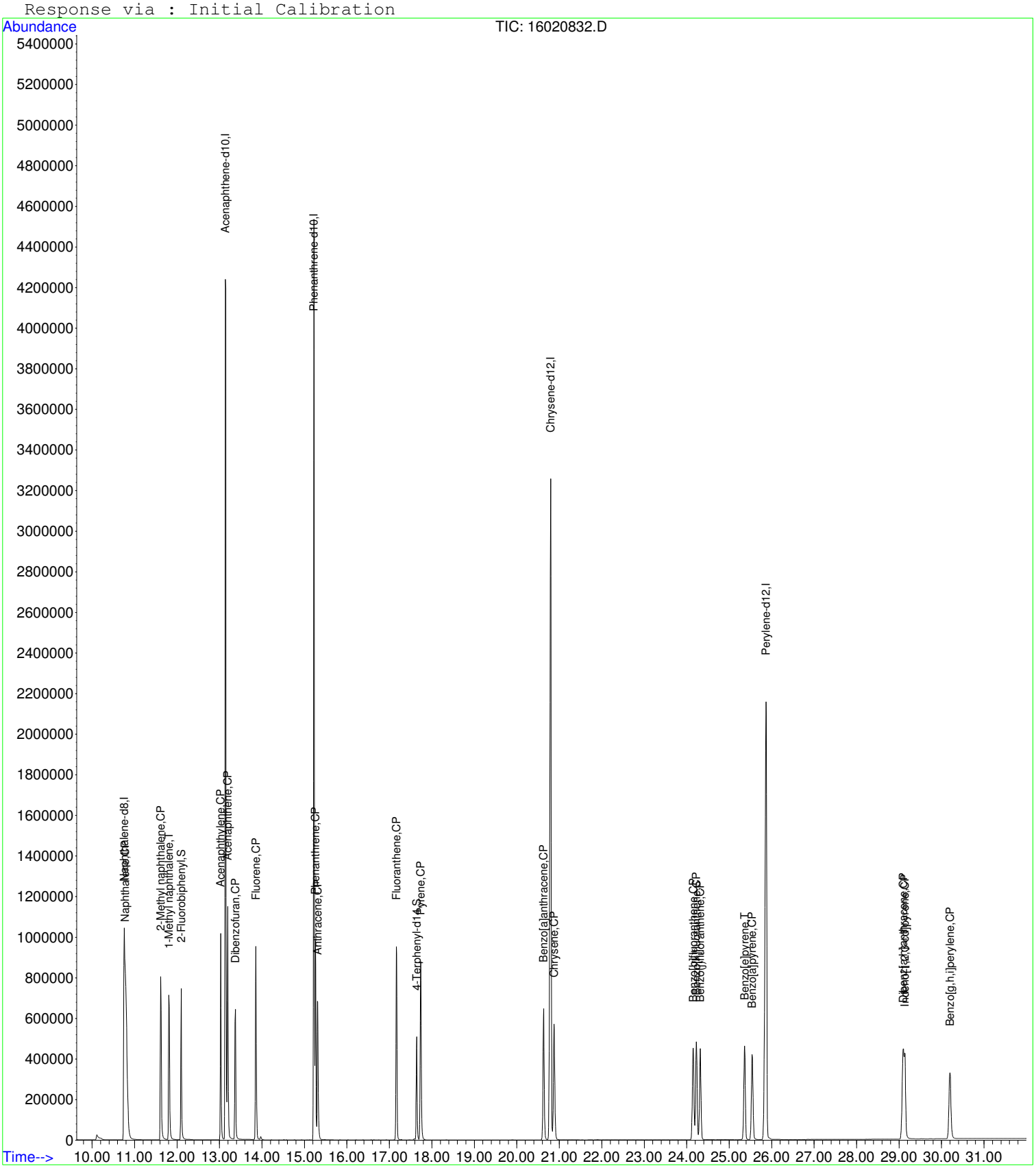
Target Compounds					Qvalue
2) Naphthalene	10.79	128	744418	919.40 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	582614	913.88 ug/kg	100
4) 1-Methyl naphthalene	11.81	142	536640	891.96 ug/kg	93
6) Dibenzofuran	13.37	168	719018	782.99 ug/kg	99
8) Acenaphthylene	13.03	152	942906	802.56 ug/kg	100
9) Acenaphthene	13.19	154	555344	780.12 ug/kg	98
10) Fluorene	13.86	166	615333	732.69 ug/kg	98
12) Phenanthrene	15.26	178	881629	783.50 ug/kg	99
13) Anthracene	15.31	178	853706	775.43 ug/kg	99
14) Fluoranthene	17.17	202	969619	868.97 ug/kg	98
15) Pyrene	17.74	202	986296	867.81 ug/kg	99
18) Benzo[a]anthracene	20.63	228	879691	784.77 ug/kg	100
19) Chrysene	20.87	228	845307	792.00 ug/kg	98
21) Benzo[b]fluoranthene	24.15	252	867455	800.64 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	770930	801.03 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	728820	806.16 ug/kg	97
24) Benzo[e]pyrene	25.36	252	808809	799.58 ug/kg	98
25) Benzo[a]pyrene	25.54	252	789406	801.77 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	707292	776.55 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	844786	761.32 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	689654	740.74 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160206\16020832.D Vial: 32
Acq On : 9 Feb 2016 6:46 am Operator:
Sample : CCV1-160208 Inst : GC/MS #6
Misc : CCV Multiplr: ~~10.00~~ 1X
MS Integration Params: RTEINT.P
Quant Time: Feb 9 7:20 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



GCMS6_160209A
For

DHL Work Order
1601231

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_160209A
Batch Number(s): See Run Log.	SOP: ORGANICS-PAH-01
Matrix: See Run Log.	

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	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			
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		X
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: REVIEWED/APPROVED 2/12/2016

Second-Level Review: Date: By Sherri Herschmann at 9:30:33 AM, 2/16/2016 02/16/2016

DHL Analytical, Inc.

Run ID: GCMS6_160209A **Run No.:** 84103

Analytical Run Date: 2/9/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160209	1	PAH_LL_SDOD1	TUNE	R84103	2/9/2016 7:25:00 AM		
ICV-160209	1	PAH_LL_SDOD1	ICV	R84103	2/9/2016 8:02:00 AM		
MB-73550	1	PAH_LL_SDOD1	MBLK	73550	2/9/2016 8:42:00 AM		
LCS-73550	1	PAH_LL_SDOD1	LCS	73550	2/9/2016 9:22:00 AM		
1601231-24A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:03:00 AM		All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.
1601231-25A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:43:00 AM		
1601231-26A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 11:24:00 AM		
1601231-27A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 12:04:00 PM		
1601232-01A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 12:44:00 PM		
1601232-02A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 1:25:00 PM		
1601232-03A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 2:05:00 PM		
1601232-04A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 2:46:00 PM		
1601232-05A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 3:26:00 PM		
1601232-06A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 4:06:00 PM		
1601232-07A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 4:46:00 PM		
1601232-08A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 5:27:00 PM		
1601232-09A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 6:07:00 PM		
DFTPP2-160209	1	PAH_LL_SDOD1	TUNE	R84103	2/9/2016 6:47:00 PM		DNR.
ICV2-160209	1	PAH_LL_SDOD1	ICV	R84103	2/9/2016 7:23:00 PM		~~DNR.~~ **Report as ending CCV**
SB-160209	1	PAH_LL_SDOD1	SBLK	73550	2/9/2016 8:03:00 PM		DNR. Hits present in SB - likely solvent rinse went dry. See rerun for the rest of the analytical run.
1601232-10A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 8:44:00 PM		DNR.
1601232-11A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 9:23:00 PM		DNR.
1601232-12A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:03:00 PM		DNR.
1601232-13A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:43:00 PM		DNR.
1601232-14A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 11:22:00 PM		DNR.
1601232-15A	10	PAH_LL_SDOD1	SAMP	73550	2/10/2016 12:02:00 AM		DNR.
1601232-16A	10	PAH_LL_SDOD1	SAMP	73550	2/10/2016 12:41:00 AM		DNR.

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

REVIEWED/APPROVED

By Sherri Herschmann at 9:31:12 AM, 2/16/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160209A** **Run No.:** 84103

1601232-06AMS	10	PAH_LL_SDOD1	MS	73550	2/10/2016 1:21:00 AM		DNR.
1601232-06AMSD	10	PAH_LL_SDOD1	MSD	73550	2/10/2016 2:01:00 AM		DNR.
CCV1-160209	1	PAH_LL_SDOD1	CCV	R84103	2/10/2016 2:41:00 AM		DNR.
DFTPP-160211	1	PAH_LL_SDOD1	TUNE	R84103	2/11/2016 8:49:00 AM		
ICV-160211	1	PAH_LL_SDOD1	ICV	R84103	2/11/2016 9:26:00 AM		
SBLK-160211	1	PAH_LL_SDOD1	SBLK	73550	2/11/2016 10:06:00 AM		
1601232-10A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 10:46:00 AM		
1601232-11A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 11:27:00 AM		
1601232-12A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 12:07:00 PM		
1601232-13A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 12:47:00 PM		
1601232-14A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 1:27:00 PM		
1601232-15A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 2:07:00 PM		
1601232-16A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 2:47:00 PM		
1601232-06AMS	10	PAH_LL_SDOD1	MS	73550	2/11/2016 3:28:00 PM		Fluoranthene and pyrene high.
1601232-06AMSD	10	PAH_LL_SDOD1	MSD	73550	2/11/2016 4:07:00 PM		Benz(a)anthracene, benzo(a)pyrene, benzo(b and k)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, chrysene, and indeno (1,2,3-cd)pyrene low. RPD ok.
DFTPP2-160211	1	PAH_LL_SDOD1	TUNE	R84103	2/11/2016 4:47:00 PM		
ICV2-160126	1	PAH_LL_SDOD1	CCV	R84103	2/11/2016 5:24:00 PM		Second ICV of 2-11 imported as CCV for ending of this analytical run.

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160209.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160209\
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	16020901	DFTPPPAH	DFTPP-160209
2	Sample	2	16020902	PP160126	ICV-160209
3	Sample	3	16020903	PP160126	MB-73550
4	Sample	4	16020904	PP160126	LCS-73550
5	Sample	5	16020905	PP160126	1601231-24A
6	Sample	6	16020906	PP160126	1601231-25A
7	Sample	7	16020907	PP160126	1601231-26A
8	Sample	8	16020908	PP160126	1601231-27A
9	Sample	9	16020909	PP160126	1601232-01A
10	Sample	10	16020910	PP160126	1601232-02A
11	Sample	11	16020911	PP160126	1601232-03A
12	Sample	12	16020912	PP160126	1601232-04A
13	Sample	13	16020913	PP160126	1601232-05A
14	Sample	14	16020914	PP160126	1601232-06A
15	Sample	15	16020915	PP160126	1601232-07A
16	Sample	16	16020916	PP160126	1601232-08A
17	Sample	17	16020917	PP160126	1601232-09A
18	Sample	18	16020918	DFTPPLVI	DFTPP2-160209
19	Sample	19	16020919	PP160126	ICV2-160209
20	Sample	20	16020920	PP160126	SB-160209
21	Sample	21	16020921	PP160126	1601232-10A
22	Sample	22	16020922	PP160126	1601232-11A
23	Sample	23	16020923	PP160126	1601232-12A
24	Sample	24	16020924	PP160126	1601232-13A
25	Sample	25	16020925	PP160126	1601232-14A
26	Sample	26	16020926	PP160126	1601232-15A
27	Sample	27	16020927	PP160126	1601232-16A
28	Sample	28	16020928	PP160126	1601232-06AMS
29	Sample	29	16020929	PP160126	1601232-06AMSD
30	Sample	30	16020930	PP160126	CCV1-160209

Sequence Name: C:\HPCHEM\1\SEQUENCE\160211.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160211\
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	16021101	DFTPPPAH	DFTPP-160211
2	Sample	2	16021102	PP160126	ICV-160211
3	Sample	3	16021103	PP160126	SBLK-160211
4	Sample	4	16021104	PP160126	1601232-10A
5	Sample	5	16021105	PP160126	1601232-11A
6	Sample	6	16021106	PP160126	1601232-12A
7	Sample	7	16021107	PP160126	1601232-13A
8	Sample	8	16021108	PP160126	1601232-14A
9	Sample	9	16021109	PP160126	1601232-15A
10	Sample	10	16021110	PP160126	1601232-16A
11	Sample	11	16021111	PP160126	1601232-06AMS
12	Sample	12	16021112	PP160126	1601232-06AMSD
13	Sample	13	16021113	DFTPPPAH	DFTPP2-160211
14	Sample	14	16021114	PP160126	ICV2-160126
15	Sample	15	16021115	PP160126	LCS-73519
16	Sample	16	16021116	PP160126	LCS-73598
17	Sample	17	16021117	PP160126	MB-73519
18	Sample	18	16021118	PP160126	MB-73598
19	Sample	19	16021119	PP160126	1601152-26A
20	Sample	20	16021120	PP160126	1601247-10A
21	Sample	21	16021121	PP160126	1601247-11A
22	Sample	22	16021122	PP160126	1601247-12A
23	Sample	23	16021123	PP160126	1601247-14A
24	Sample	24	16021124	PP160126	1601247-15A
25	Sample	25	16021125	PP160126	1601247-16A
26	Sample	26	16021126	PP160126	1601247-17A
27	Sample	27	16021127	PP160126	1601247-18A
28	Sample	28	16021128	PP160126	1601247-19A
29	Sample	29	16021129	PP160126	1601247-20A
30	Sample	30	16021130	DFTPPPAH	DFTPP3-160211
31	Sample	31	16021131	PP160126	ICV3-160211
32	Sample	32	16021132	PP160126	SBLK
33	Sample	33	16021133	PP160126	SBLK2-160211
34	Sample	34	16021134	PP160126	1601247-21A
35	Sample	35	16021135	PP160126	1601247-22A
36	Sample	36	16021136	PP160126	1601285-01A
37	Sample	37	16021137	PP160126	1601285-02A
38	Sample	38	16021138	PP160126	1601285-03A
39	Sample	39	16021139	PP160126	1601285-04A
40	Sample	40	16021140	PP160126	1601285-05A
41	Sample	41	16021141	PP160126	1601285-06A
42	Sample	42	16021142	PP160126	1601285-07A
43	Sample	43	16021143	PP160126	1601285-08A

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601231-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	Sieved sample will be in 2-oz glass jar					
1601231-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-08A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15 /					
1601231-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-16A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-19A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601231-20A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					
1601231-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-27A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-01A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample. Needed two days to dry. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601232-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	Sieved sample will be in 2-oz glass jar					
1601232-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-06A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-07A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-08A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
	/					
1601232-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-16A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-17A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-18A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-21A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample Processed 1/30/15					
1601232-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-27A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: **2/5/2016 5:00:00 PM**

Prep Batch **73550** 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 #
1601231-24A	Soil		10.01	10	0.999	1 of 1
1601231-25A	Soil		10.64	10	0.940	1 of 1
1601231-26A	Soil		10.32	10	0.969	1 of 1
1601231-27A	Soil		10.91	10	0.917	1 of 1
1601232-01A	Soil		10.37	10	0.964	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		10.05	10	0.995	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		10.03	10	0.997	1 of 1
1601232-04A	Soil		10.12	10	0.988	1 of 1
1601232-05A	Soil		10.17	10	0.983	1 of 1
1601232-06A	Soil		10.24	10	0.977	1 of 1
1601232-06AMS	Soil		10.33	10	0.968	of
1601232-06AMSD	Soil		10.53	10	0.950	of
1601232-07A	Soil		10.57	10	0.946	1 of 1
1601232-08A	Soil		10.54	10	0.949	1 of 1
1601232-09A	Soil		8.57	10	1.167	1 of 1
Not enough sample produced						
1601232-10A	Soil		10.81	10	0.925	1 of 1
1601232-11A	Soil		10.1	10	0.990	1 of 1
1601232-12A	Soil		10.7	10	0.935	1 of 1
1601232-13A	Soil		10.47	10	0.955	1 of 1
1601232-14A	Soil		10.29	10	0.972	1 of 1
/						
1601232-15A	Soil		10.02	10	0.998	1 of 1
1601232-16A	Soil		10.69	10	0.935	1 of 1
LCS-73550	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

REVIEWED/APPROVED

By Sherri Herschmann at 9:39:58 AM, 2/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: **2/5/2016 5:00:00 PM**

Prep Batch **73550** 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 #
MB-73550	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: 2/5/16 5:00 PM

Prep Batch **73550** 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 #			
1601231-24A	Soil		10.01	10	1.000	1	of	1	
1601231-25A	Soil		10.64	10	1.000	1	of	1	
1601231-26A	Soil		10.32	10	1.000	1	of	1	
1601231-27A	Soil		10.91	10	1.000	1	of	1	
1601232-01A	Soil		10.37	10	1.000	1	of	1	
The preparation for PAH & metals must wait til sieve completed.									
1601232-02A	Soil		10.05	10	1.000	1	of	1	
Sieved sample will be in 2-oz glass jar									
1601232-03A	Soil		10.03	10	1.000	1	of	1	
1601232-04A	Soil		10.12	10	1.000	1	of	1	
1601232-05A	Soil		10.17	10	1.000	1	of	1	
1601232-06A	Soil		10.24	10	1.000	1	of	1	
1601232-06AMS	Soil		10.33	10	1.000		of		
1601232-06AMSD	Soil		10.53	10	1.000		of		
1601232-07A	Soil		10.57	10	1.000	1	of	1	
1601232-08A	Soil		10.54	10	1.000	1	of	1	
1601232-09A	Soil		8.57	10	1.000	1	of	1	Not enough sample produced.
1601232-10A	Soil		10.81	10	1.000	1	of	1	
1601232-11A	Soil		10.10	10	1.000	1	of	1	
1601232-12A	Soil		10.70	10	1.000	1	of	1	
1601232-13A	Soil		10.47	10	1.000	1	of	1	
1601232-14A	Soil		10.29	10	1.000	1	of	1	
1601232-15A	Soil		10.02	10	1.000	1	of	1	
1601232-16A	Soil		10.69	10	1.000	1	of	1	
LCS-73550	Soil		10.	10	1.000		of		
MB-73550	Soil		10	10	1.000		of		

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

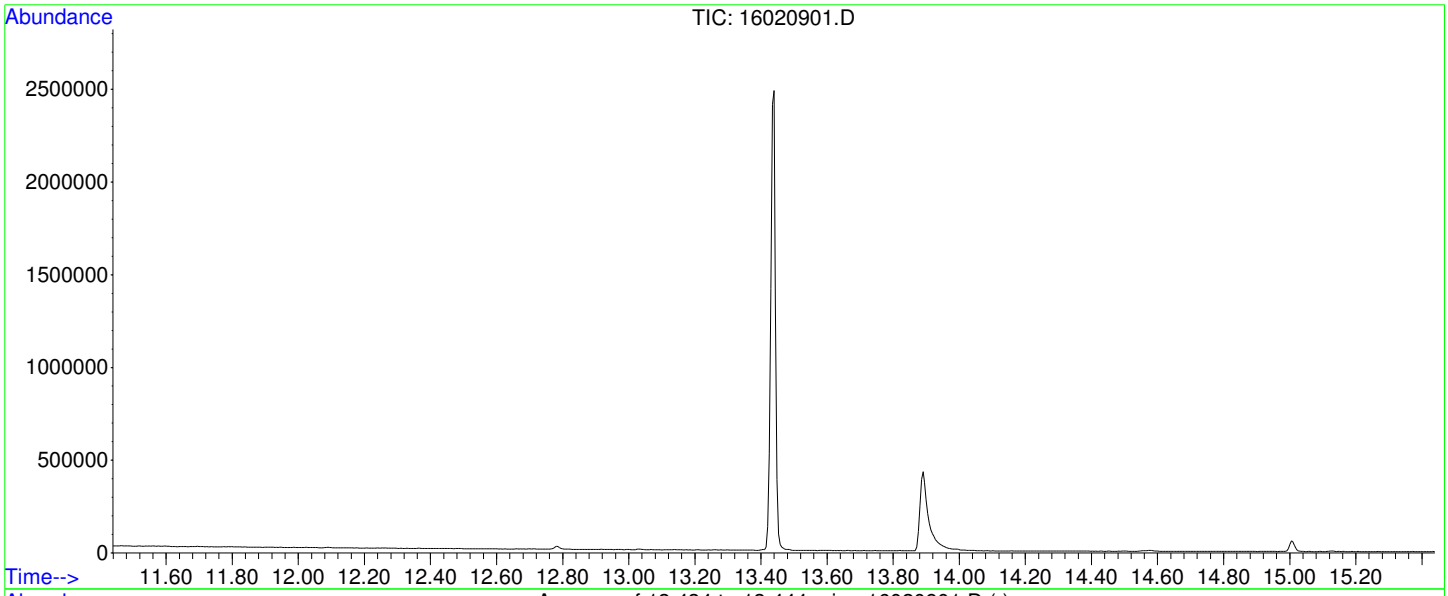
2/5/16

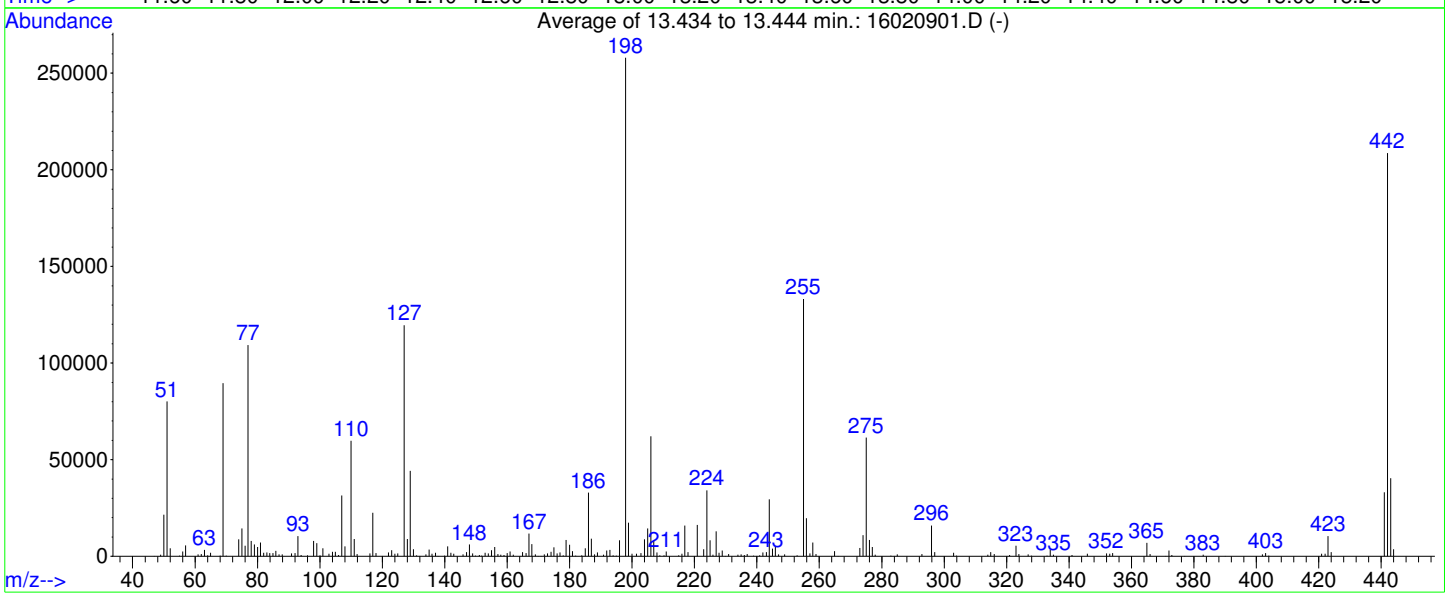
2/5/16

REVIEWED/APPROVED

By Sherri Herschmann at 9:40:25 AM, 2/16/2016

Data File : C:\HPCHEM\1\DATA\160209\16020901.D Vial: 1
Acq On : 9 Feb 2016 7:25 am Operator:
Sample : DFTPP-160209 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

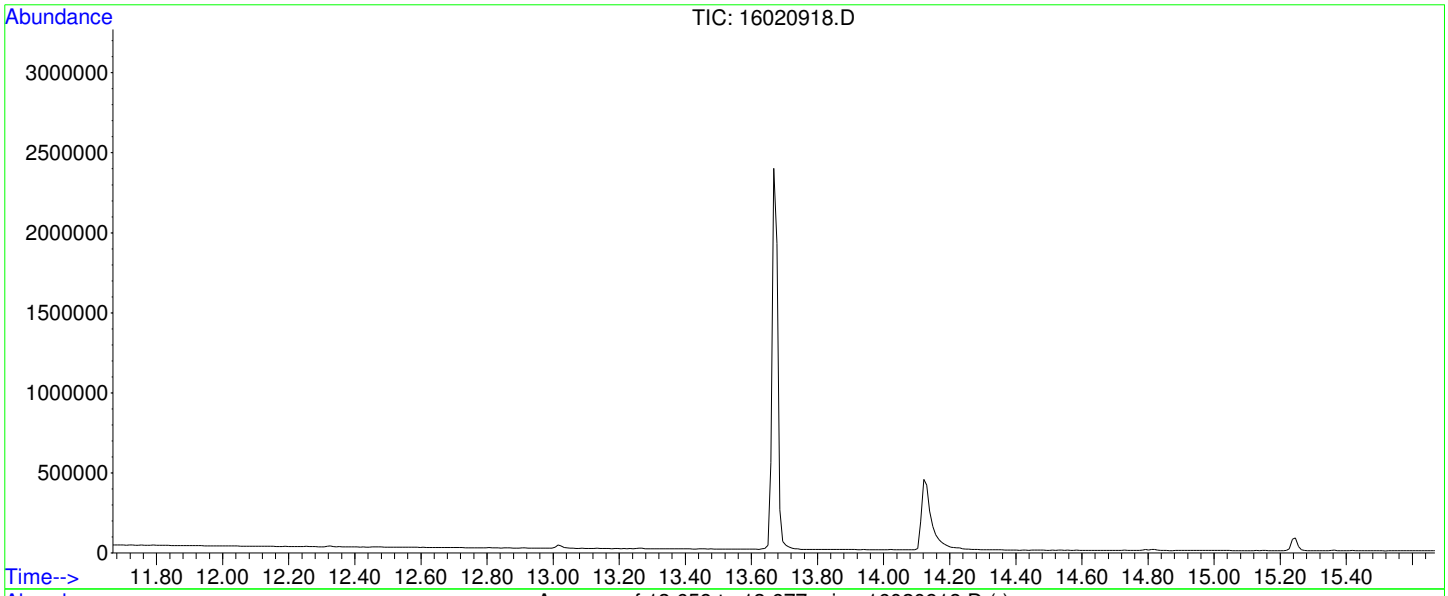


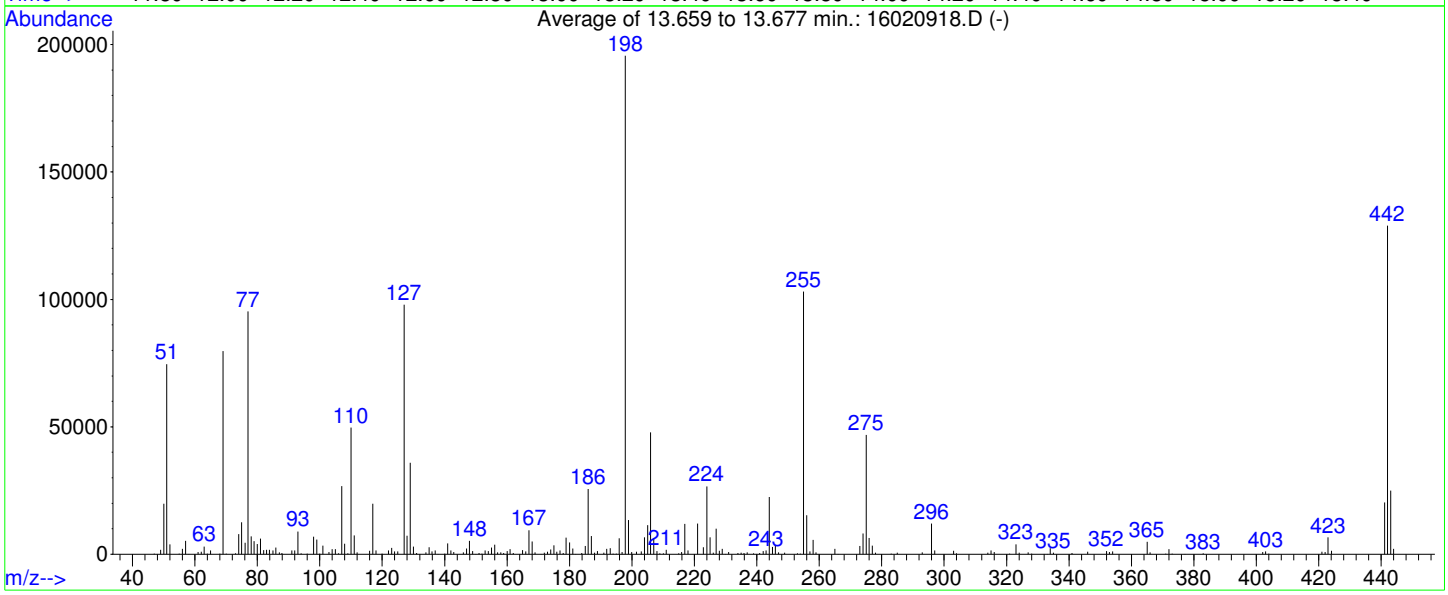


AutoFind: Scans 1562, 1563, 1564; Background Corrected with Scan 1555

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.1	80124	PASS
68	69	0.00	2	0.3	290	PASS
69	198	0.00	100	34.7	89600	PASS
70	69	0.00	2	0.4	380	PASS
127	198	10	80	46.4	119661	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	258048	PASS
199	198	5	9	6.7	17390	PASS
275	198	10	60	23.8	61429	PASS
365	198	1	200	2.7	7014	PASS
441	442	0.01	24	15.9	33197	PASS
442	198	50	400	80.9	208661	PASS
443	442	15	24	19.4	40392	PASS

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 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

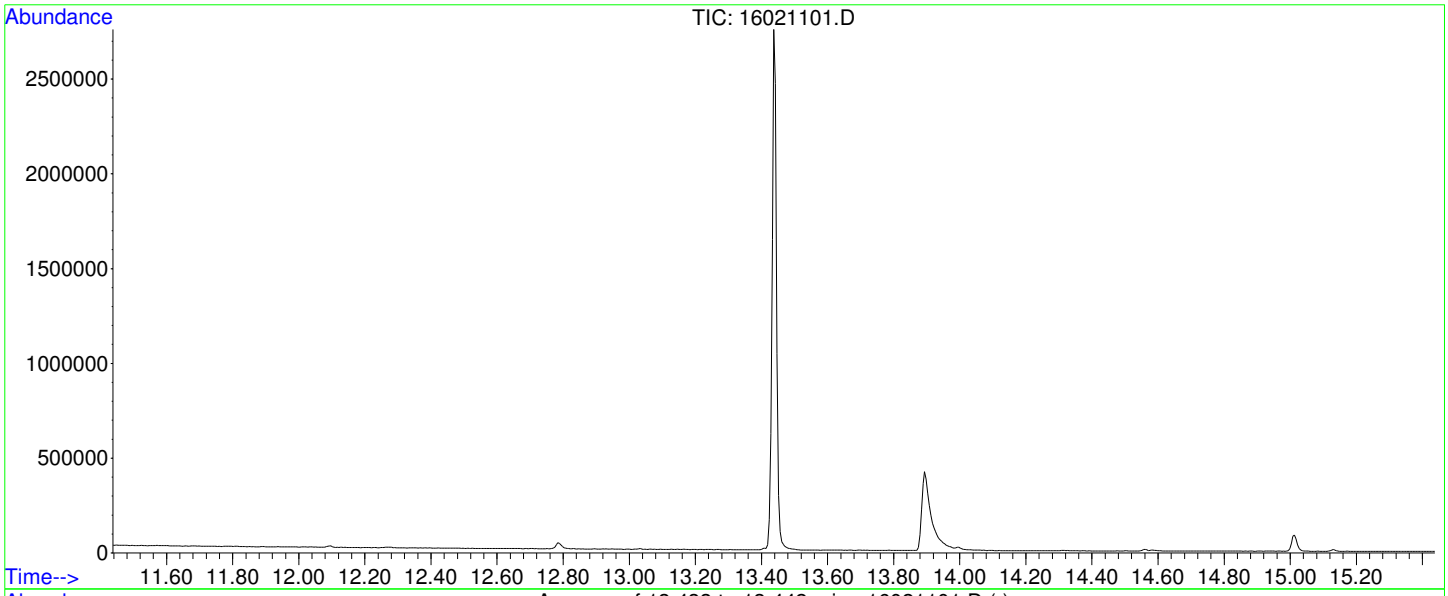


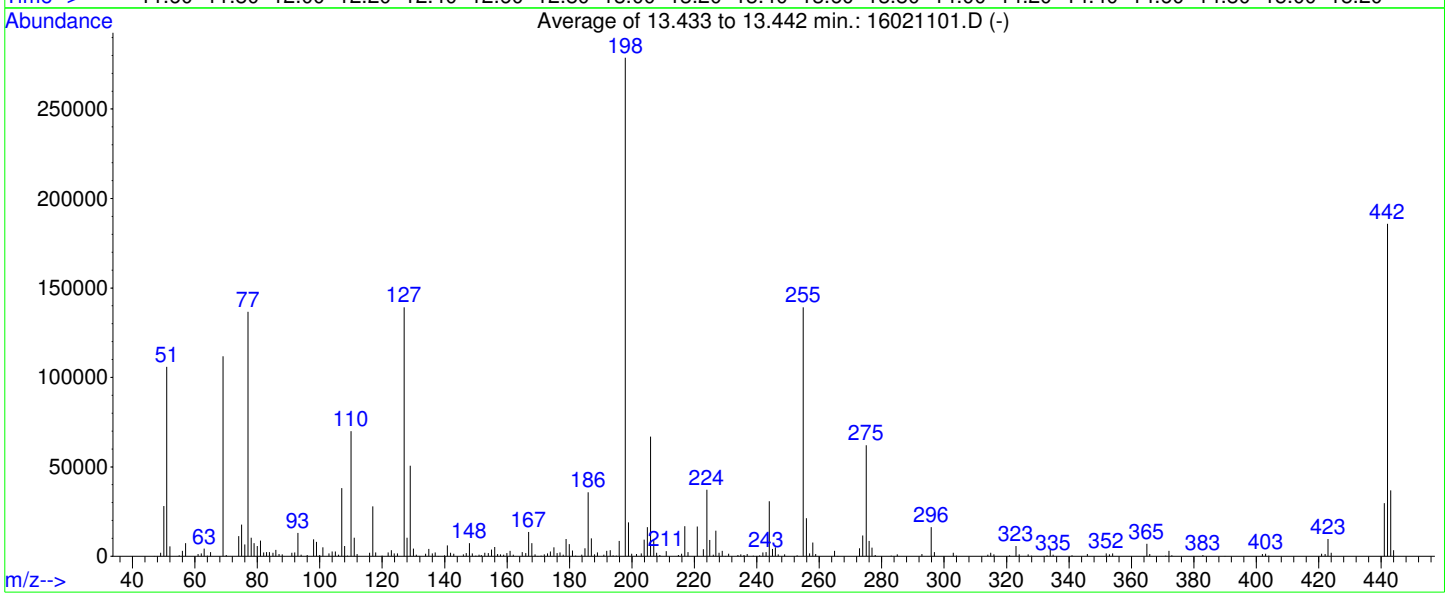


AutoFind: Scans 835, 836, 837; Background Corrected with Scan 831

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.1	74557	PASS
68	69	0.00	2	0.3	269	PASS
69	198	0.00	100	40.8	79733	PASS
70	69	0.00	2	0.3	257	PASS
127	198	10	80	50.0	97915	PASS
197	198	0.00	2	0.5	940	PASS
198	198	100	100	100.0	195640	PASS
199	198	5	9	6.8	13392	PASS
275	198	10	60	23.9	46815	PASS
365	198	1	200	2.5	4965	PASS
441	442	0.01	24	15.8	20330	PASS
442	198	50	400	65.9	128929	PASS
443	442	15	24	19.4	25005	PASS

Data File : C:\HPCHEM\1\DATA\160211\16021101.D Vial: 1
Acq On : 11 Feb 2016 8:49 am Operator:
Sample : DFTPP-160211 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

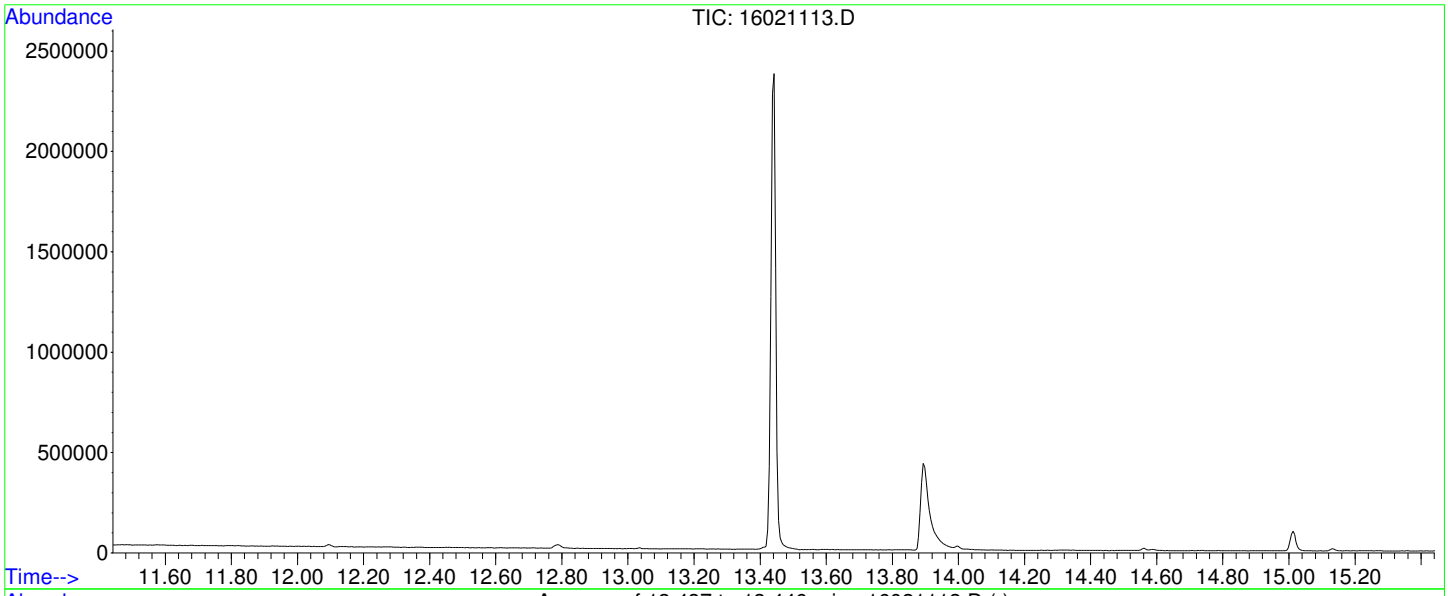


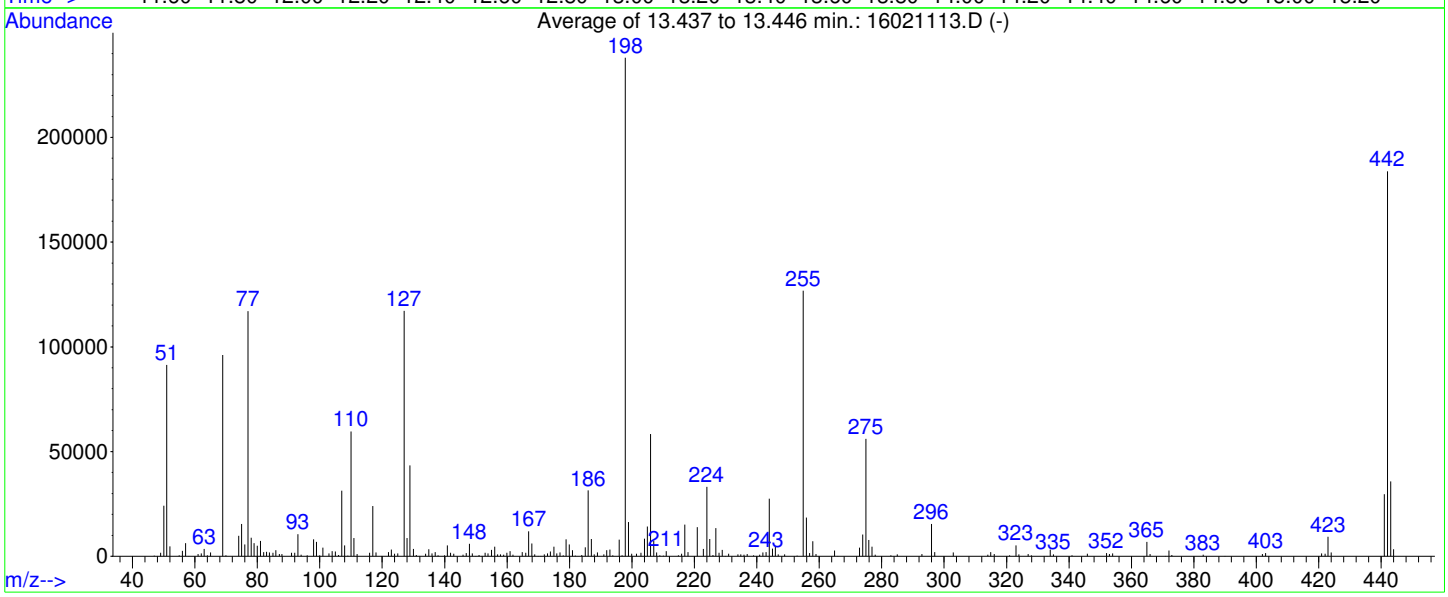


AutoFind: Scans 1562, 1563, 1564; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.0	105940	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.1	111797	PASS
70	69	0.00	2	0.6	663	PASS
127	198	10	80	50.0	139243	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	278720	PASS
199	198	5	9	6.8	19023	PASS
275	198	10	60	22.3	62128	PASS
365	198	1	200	2.5	6938	PASS
441	442	0.01	24	16.0	29705	PASS
442	198	50	400	66.7	185805	PASS
443	442	15	24	19.8	36845	PASS

Data File : C:\HPCHEM\1\DATA\160211\16021113.D Vial: 13
Acq On : 11 Feb 2016 4:47 pm Operator:
Sample : DFTPP2-160211 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 1563, 1564, 1565; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.4	91446	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.4	96075	PASS
70	69	0.00	2	0.4	401	PASS
127	198	10	80	49.2	117184	PASS
197	198	0.00	2	0.2	499	PASS
198	198	100	100	100.0	238059	PASS
199	198	5	9	6.8	16301	PASS
275	198	10	60	23.6	56088	PASS
365	198	1	200	2.9	6892	PASS
441	442	0.01	24	16.1	29616	PASS
442	198	50	400	77.2	183851	PASS
443	442	15	24	19.5	35819	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2748475	4000.00 ug/kg	131
5) Acenaphthene-d10	13.14	164	2181461	4000.00 ug/kg	120
11) Phenanthrene-d10	15.22	188	3597106	4000.00 ug/kg	110
17) Chrysene-d12	20.79	240	3610236	4000.00 ug/kg	125
20) Perylene-d12	25.86	264	3101277	4000.00 ug/kg	134

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	1316444	2082.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 52.07%		
16) 4-Terphenyl-d14	17.64	244	1390941	2314.61 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.87%		

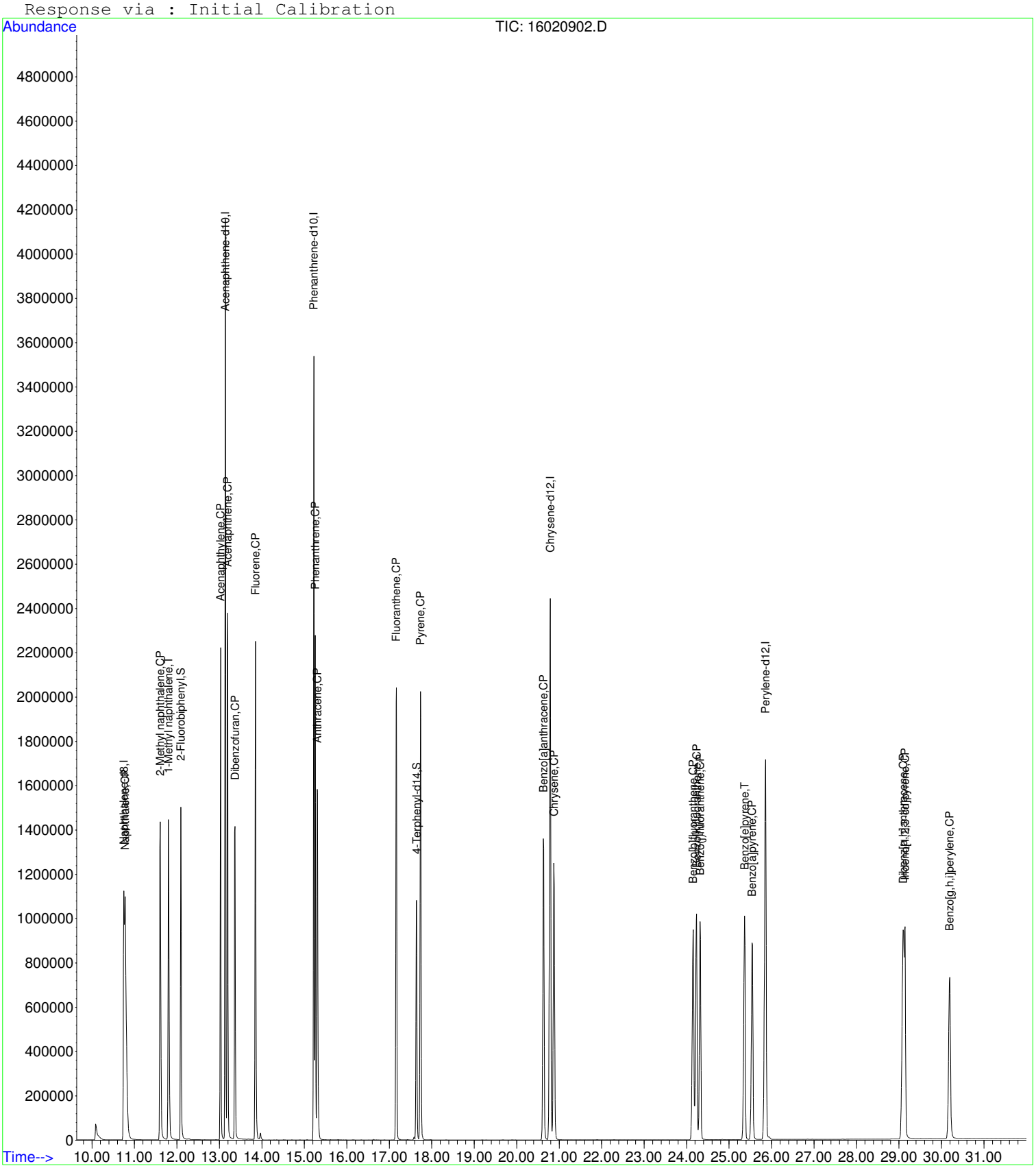
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1498633	2179.40 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1132967	2092.55 ug/kg	97
4) 1-Methyl naphthalene	11.80	142	1042998	2041.26 ug/kg	96
6) Dibenzofuran	13.37	168	1548226	2183.87 ug/kg	100
8) Acenaphthylene	13.03	152	1949040	2148.84 ug/kg	99
9) Acenaphthene	13.19	154	1174874	2137.79 ug/kg	99
10) Fluorene	13.85	166	1357291	2093.41 ug/kg	99
12) Phenanthrene	15.26	178	1849983	2165.74 ug/kg	99
13) Anthracene	15.30	178	1757225	2102.56 ug/kg	99
14) Fluoranthene	17.17	202	1982464	2340.44 ug/kg	99
15) Pyrene	17.73	202	2042729	2367.64 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1880101	2258.55 ug/kg	99
19) Chrysene	20.87	228	1794271	2263.80 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	1848841	2236.02 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	1626408	2214.35 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1555555	2254.59 ug/kg	97
24) Benzo[e]pyrene	25.36	252	1692153	2191.98 ug/kg	98
25) Benzo[a]pyrene	25.54	252	1653865	2201.05 ug/kg	98
26) Dibenz[a,h]anthracene	29.09	278	1522443	2190.25 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	1822380	2152.01 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	1446116	2035.27 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

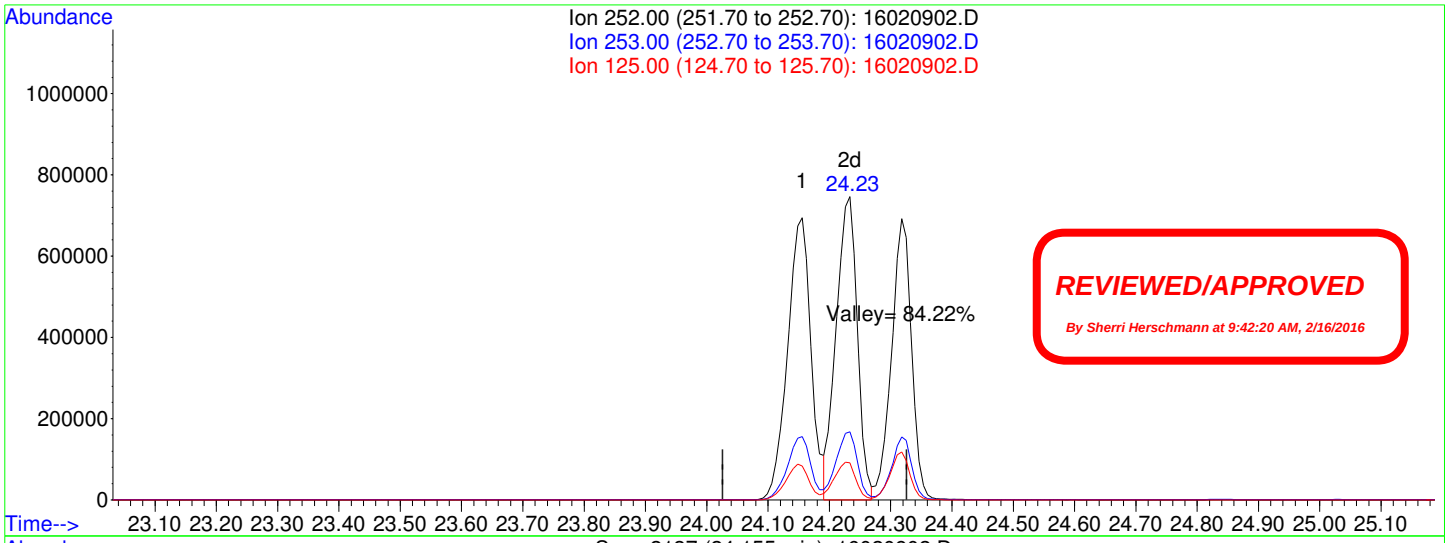
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

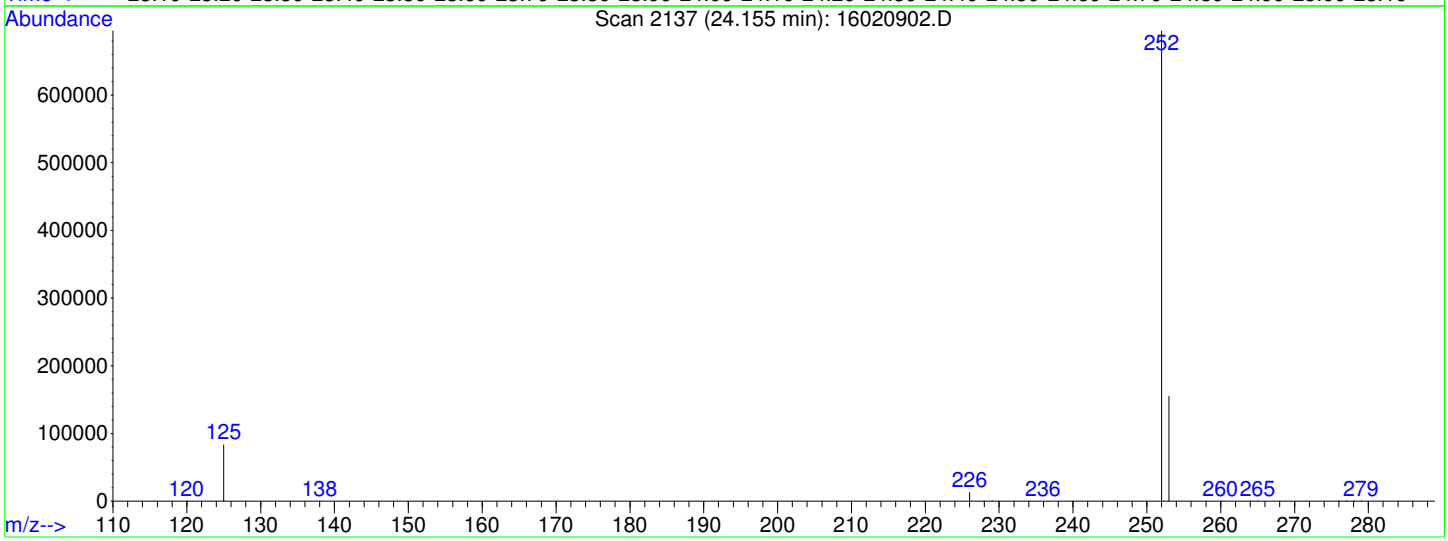
Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 8:34 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED

By Sherri Herschmann at 9:42:20 AM, 2/16/2016



TIC: 16020902.D

(21) Benzo[b]fluoranthene (CP)

24.16min 2236.02ug/kg

response 1848841

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.30
125.00	10.50	12.04
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020903.D Vial: 3
Acq On : 9 Feb 2016 8:42 am Operator:
Sample : MB-73550 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2249420	4000.00 ug/kg	107
5) Acenaphthene-d10	13.15	164	1682452	4000.00 ug/kg	92
11) Phenanthrene-d10	15.22	188	2840412	4000.00 ug/kg	87
17) Chrysene-d12	20.79	240	3414452	4000.00 ug/kg	118
20) Perylene-d12	25.86	264	2860781	4000.00 ug/kg	124

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	437348	897.24 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.43%#		
16) 4-Terphenyl-d14	17.64	244	541481	1141.10 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 28.53%#		

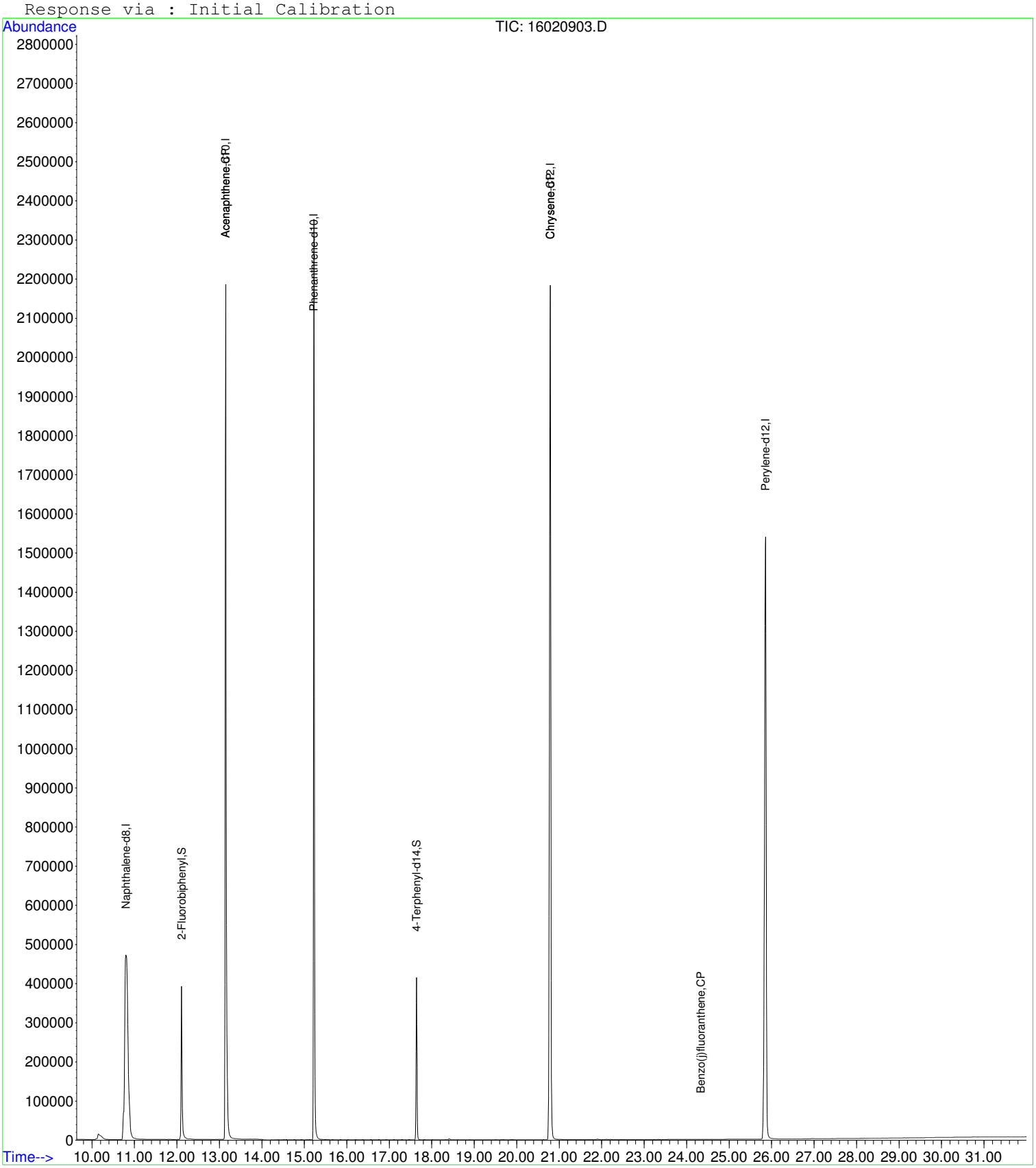
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5936	14.00 ug/kg#	10
19) Chrysene	20.79	228	7836	10.45 ug/kg	74
23) Benzo(j)fluoranthene	24.33	252	111	0.17 ug/kg	65

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020903.D Vial: 3
Acq On : 9 Feb 2016 8:42 am Operator:
Sample : MB-73550 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020904.D Vial: 4
Acq On : 9 Feb 2016 9:22 am Operator:
Sample : LCS-73550 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2416296	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1846653	4000.00 ug/kg	101
11) Phenanthrene-d10	15.22	188	3302917	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3625594	4000.00 ug/kg	126
20) Perylene-d12	25.86	264	3079495	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	417857	781.03 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.53%#		
16) 4-Terphenyl-d14	17.64	244	543313	984.64 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.62%#		

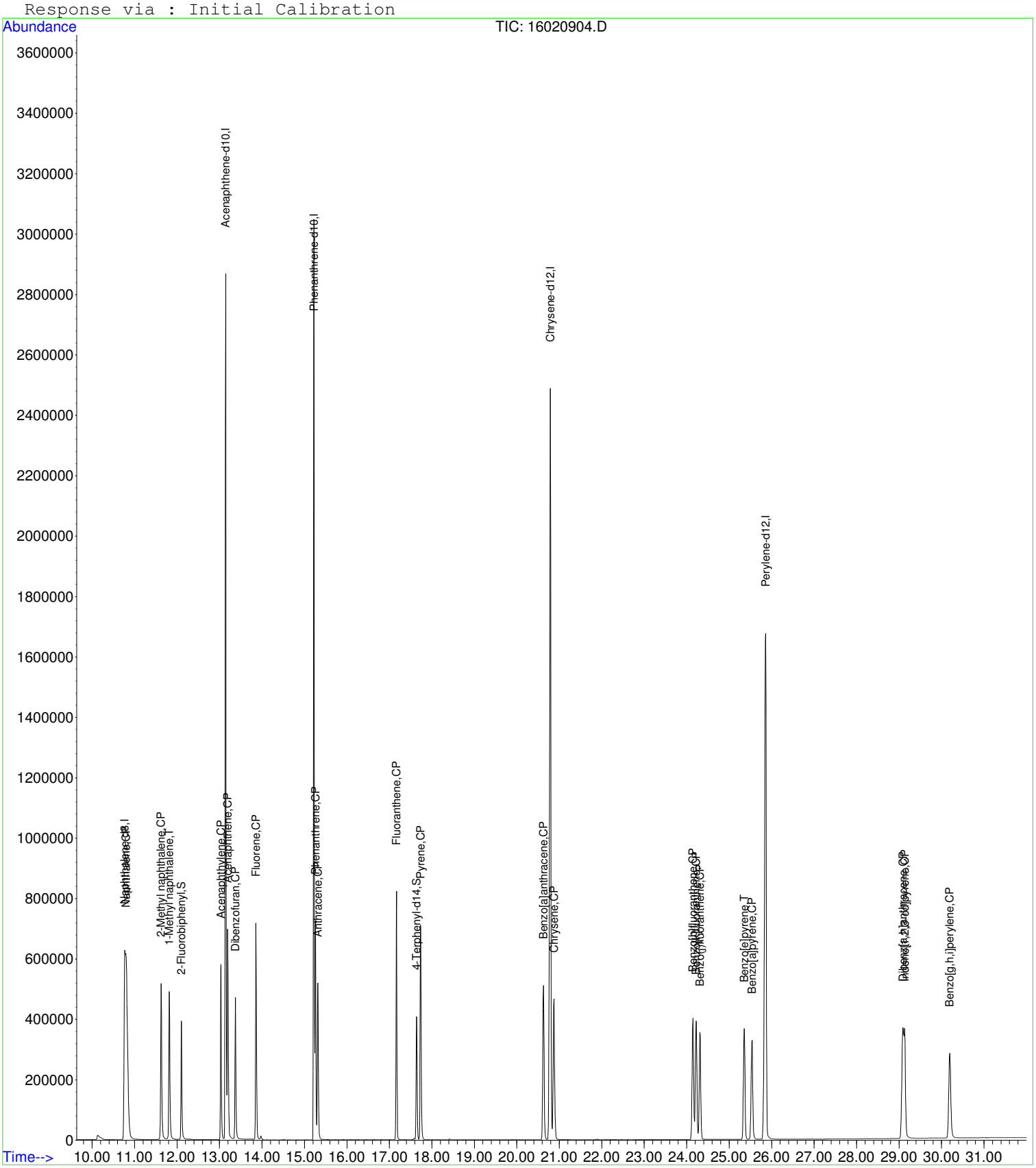
Target Compounds					Qvalue
2) Naphthalene	10.80	128	522443	864.21 ug/kg	100
3) 2-Methyl naphthalene	11.62	142	394700	829.22 ug/kg	99
4) 1-Methyl naphthalene	11.82	142	361845	805.53 ug/kg	95
6) Dibenzofuran	13.37	168	516640	860.88 ug/kg	100
8) Acenaphthylene	13.04	152	649178	845.49 ug/kg	99
9) Acenaphthene	13.19	154	380803	818.53 ug/kg	97
10) Fluorene	13.86	166	456940	832.54 ug/kg	97
12) Phenanthrene	15.26	178	666021	849.14 ug/kg	99
13) Anthracene	15.32	178	638867	832.50 ug/kg	99
14) Fluoranthene	17.17	202	810795	1042.46 ug/kg	99
15) Pyrene	17.73	202	832032	1050.27 ug/kg	98
18) Benzo[a]anthracene	20.63	228	757749	906.42 ug/kg	100
19) Chrysene	20.87	228	730635	917.92 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	740554	901.97 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	657615	901.68 ug/kg	100
23) Benzo(j)fluoranthene	24.31	252	609376	889.47 ug/kg	97
24) Benzo[e]pyrene	25.36	252	672325	877.08 ug/kg	98
25) Benzo[a]pyrene	25.54	252	631389	846.23 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	609029	882.37 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	729943	868.07 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	598566	848.38 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020904.D Vial: 4
Acq On : 9 Feb 2016 9:22 am Operator:
Sample : LCS-73550 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020905.D Vial: 5
Acq On : 9 Feb 2016 10:03 am Operator:
Sample : 1601231-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2480488	4000.00	ug/kg	118
5) Acenaphthene-d10	13.15	164	1956985	4000.00	ug/kg	107
11) Phenanthrene-d10	15.22	188	3262585	4000.00	ug/kg	100
17) Chrysene-d12	20.79	240	3328889	4000.00	ug/kg	115
20) Perylene-d12	25.86	264	2880188	4000.00	ug/kg	125

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	45358	80.00	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			
16) 4-Terphenyl-d14	17.65	244	45756	83.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.10%#			

Target Compounds

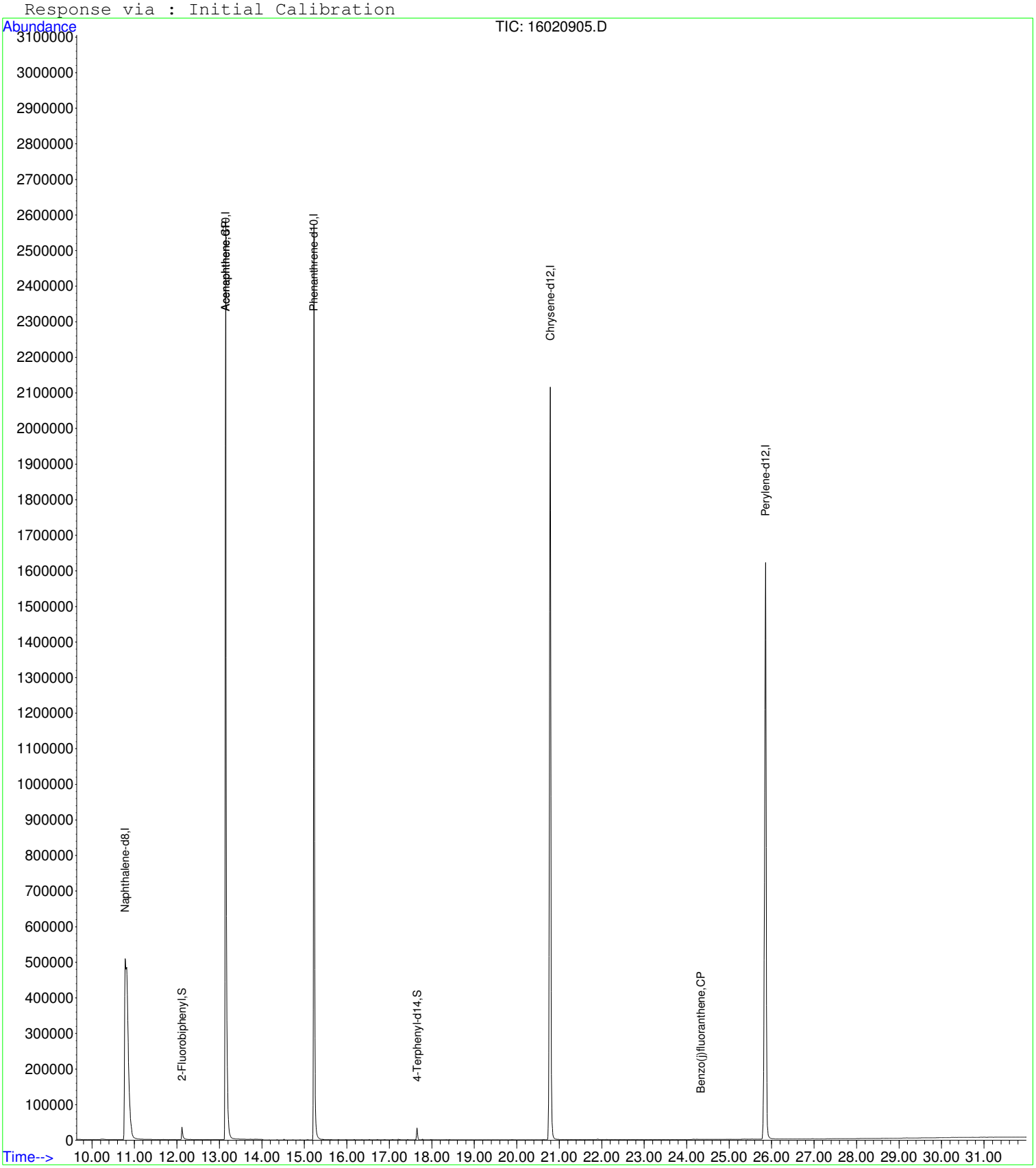
						Qvalue
9) Acenaphthene	13.15	154	6964	14.13	ug/kg#	10
23) Benzo(j)fluoranthene	24.33	252	621	0.97	ug/kg	86

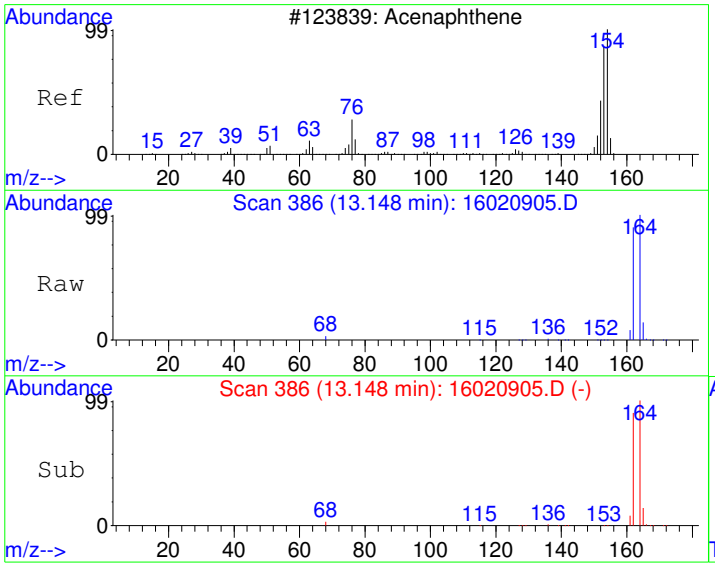
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020905.D Vial: 5
Acq On : 9 Feb 2016 10:03 am Operator:
Sample : 1601231-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

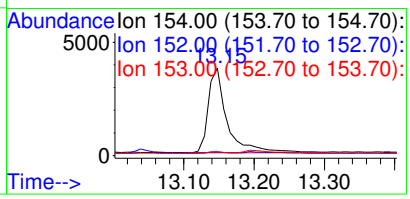


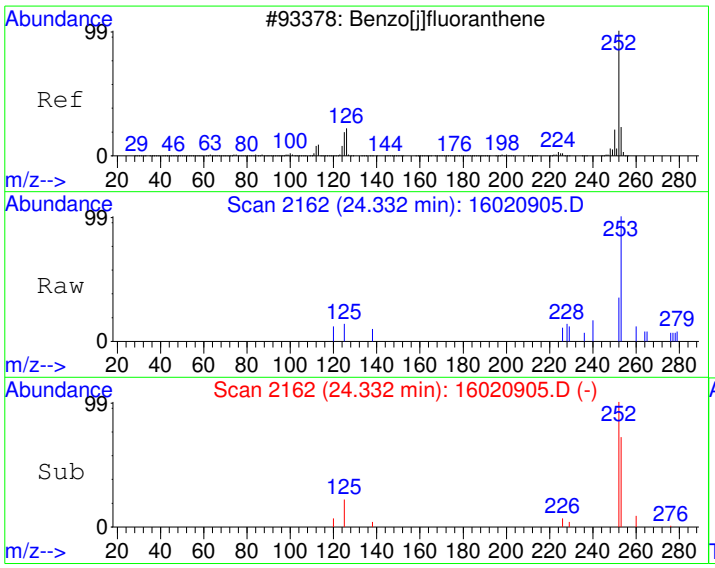


#9
Acenaphthene
Concen: 14.13 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020905.D
Acq: 9 Feb 2016 10:03 am

Tgt Ion:154 Resp: 6964

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.4	74.4	134.4#

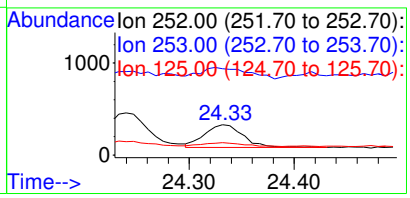




#23
Benzo(j)fluoranthene
Concen: 0.97 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020905.D
Acq: 9 Feb 2016 10:03 am

Tgt Ion:252 Resp: 621

Ion	Ratio	Lower	Upper
252	100		
253	32.8	2.3	42.3
125	15.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020906.D Vial: 6
Acq On : 9 Feb 2016 10:43 am Operator:
Sample : 1601231-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2451100	4000.00 ug/kg	117
5) Acenaphthene-d10	13.15	164	2008651	4000.00 ug/kg	110
11) Phenanthrene-d10	15.22	188	3367787	4000.00 ug/kg	103
17) Chrysene-d12	20.79	240	3501161	4000.00 ug/kg	121
20) Perylene-d12	25.86	264	3037367	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46537	79.97 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.65	244	49001	87.09 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#	

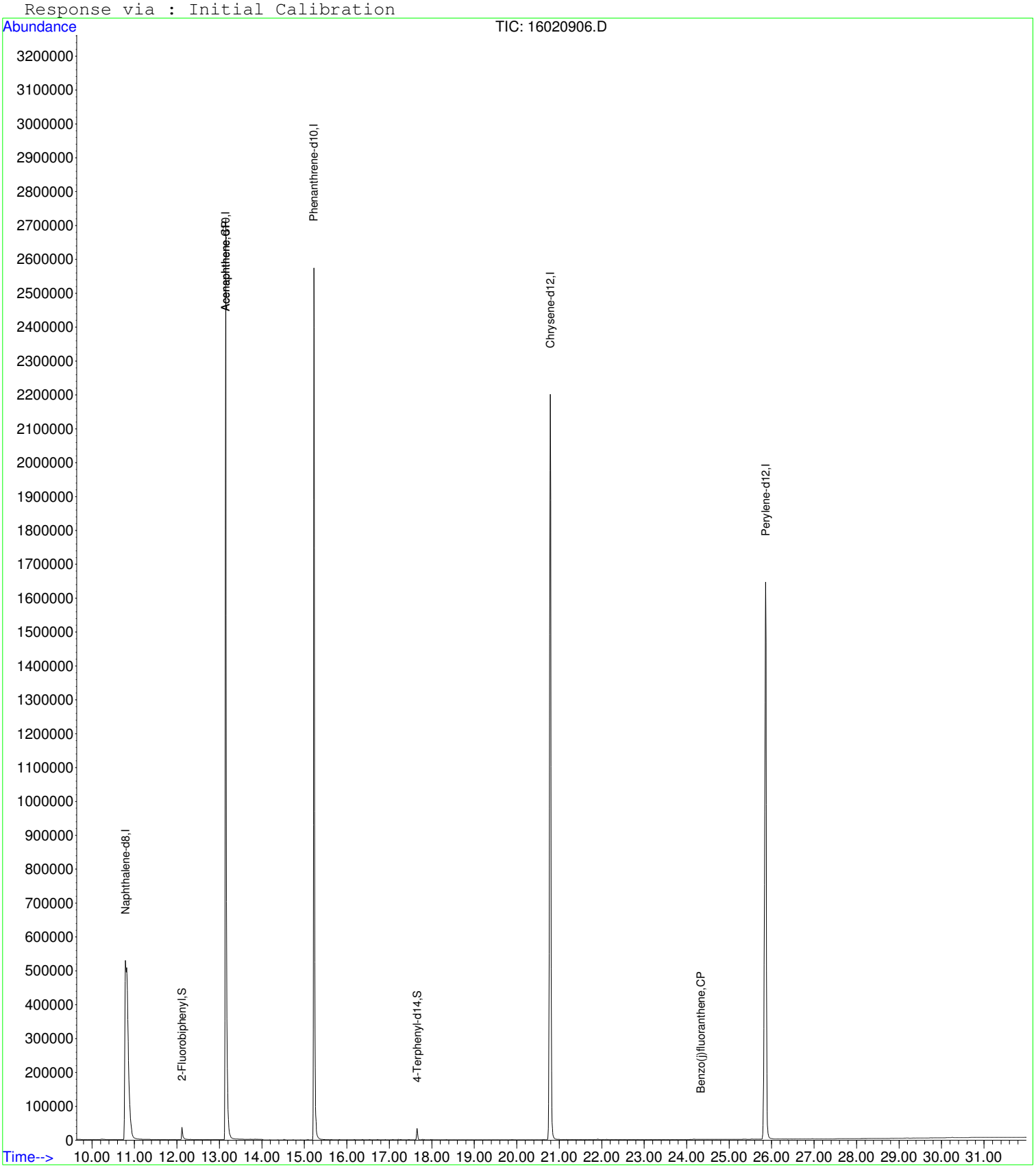
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6994	13.82 ug/kg#	10
23) Benzo(j)fluoranthene	24.34	252	734	1.09 ug/kg	94

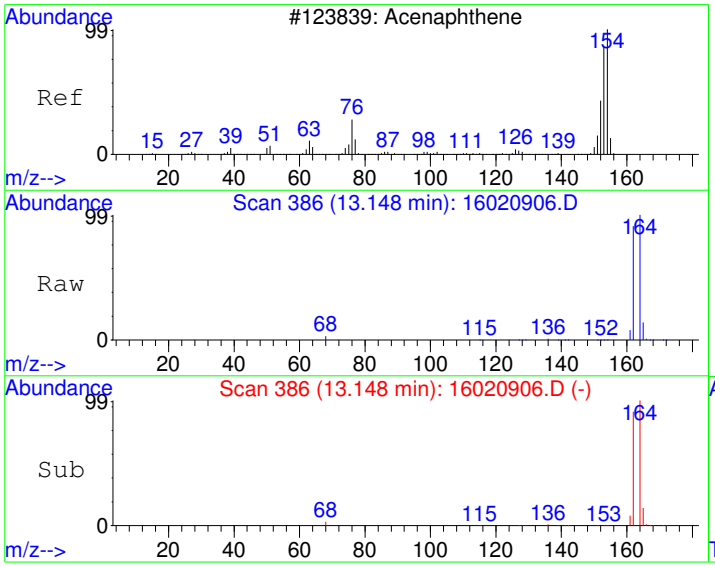
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020906.D Vial: 6
Acq On : 9 Feb 2016 10:43 am Operator:
Sample : 1601231-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

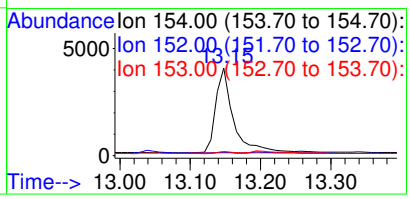


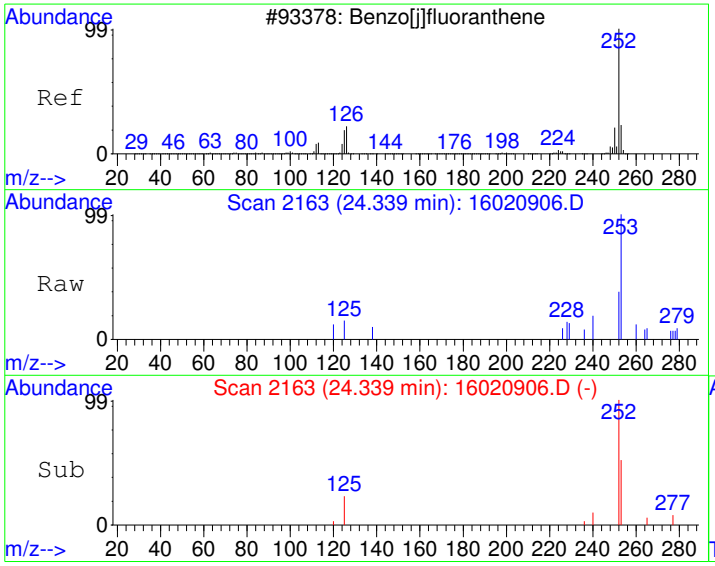


#9
Acenaphthene
Concen: 13.82 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020906.D
Acq: 9 Feb 2016 10:43 am

Tgt Ion:154 Resp: 6994

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.1	74.4	134.4#

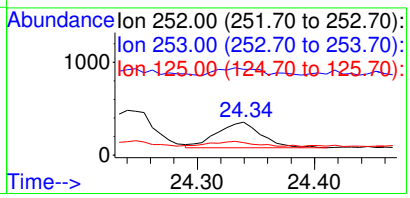




#23
Benzo(j)fluoranthene
Concen: 1.09 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16020906.D
Acq: 9 Feb 2016 10:43 am

Tgt Ion:252 Resp: 734

Ion	Ratio	Lower	Upper
252	100		
253	18.4	2.3	42.3
125	13.4	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020907.D Vial: 7
Acq On : 9 Feb 2016 11:24 am Operator:
Sample : 1601231-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2540029	4000.00 ug/kg	121
5) Acenaphthene-d10	13.15	164	1881939	4000.00 ug/kg	103
11) Phenanthrene-d10	15.22	188	3156165	4000.00 ug/kg	97
17) Chrysene-d12	20.79	240	3153708	4000.00 ug/kg	109
20) Perylene-d12	25.86	264	2749908	4000.00 ug/kg	119

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	43616	80.00 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.65	244	43761	82.99 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	

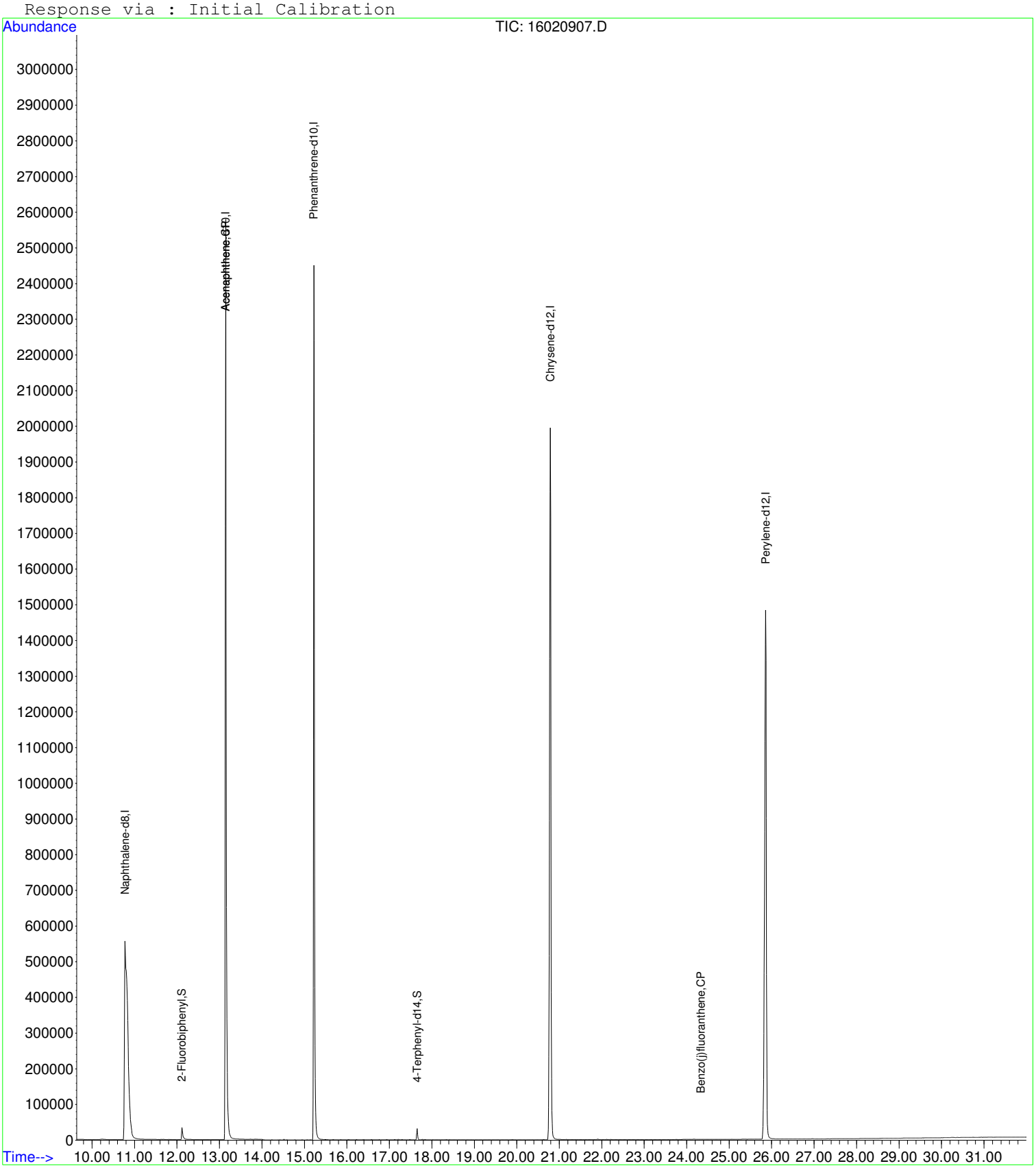
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6691	14.11 ug/kg#	10
23) Benzo(j)fluoranthene	24.33	252	619	1.01 ug/kg	89

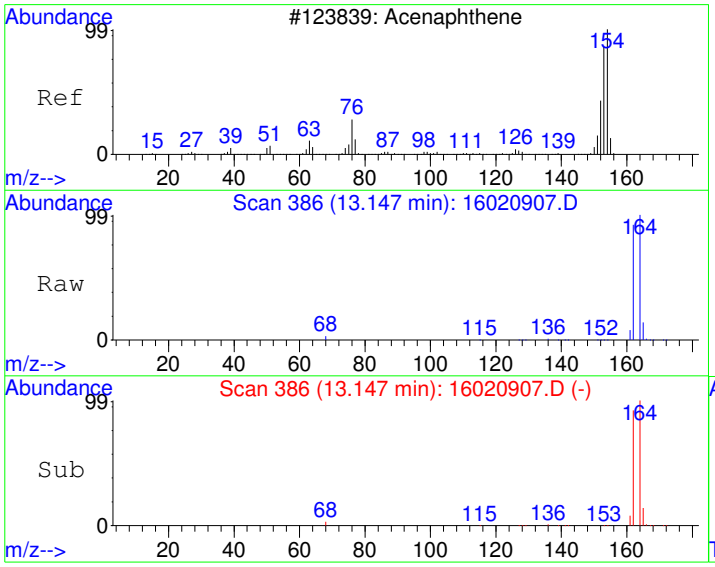
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020907.D Vial: 7
Acq On : 9 Feb 2016 11:24 am Operator:
Sample : 1601231-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

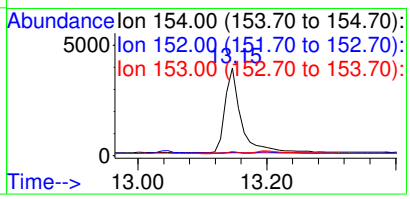


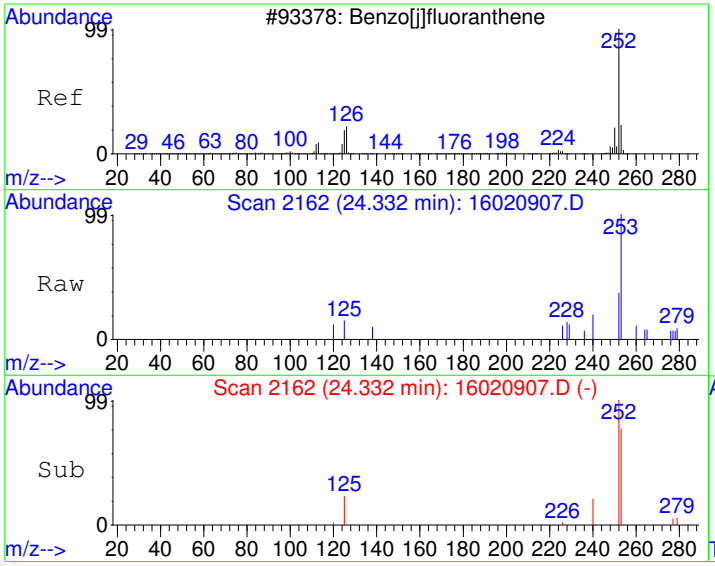


#9
Acenaphthene
Concen: 14.11 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020907.D
Acq: 9 Feb 2016 11:24 am

Tgt Ion:154 Resp: 6691

Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.7	78.7#
153	2.3	74.4	134.4#

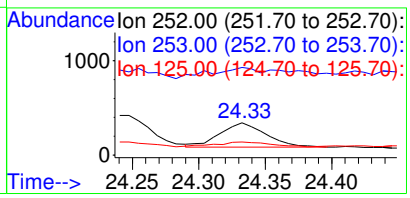




#23
Benzo(j)fluoranthene
Concen: 1.01 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020907.D
Acq: 9 Feb 2016 11:24 am

Tgt Ion:252 Resp: 619

Ion	Ratio	Lower	Upper
252	100		
253	28.3	2.3	42.3
125	17.1	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020908.D Vial: 8
Acq On : 9 Feb 2016 12:04 pm Operator:
Sample : 1601231-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2380719	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1969665	4000.00 ug/kg	108
11) Phenanthrene-d10	15.23	188	3260100	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3431719	4000.00 ug/kg	119
20) Perylene-d12	25.86	264	3003495	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44169	77.40 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#	
16) 4-Terphenyl-d14	17.65	244	47150	86.57 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#	

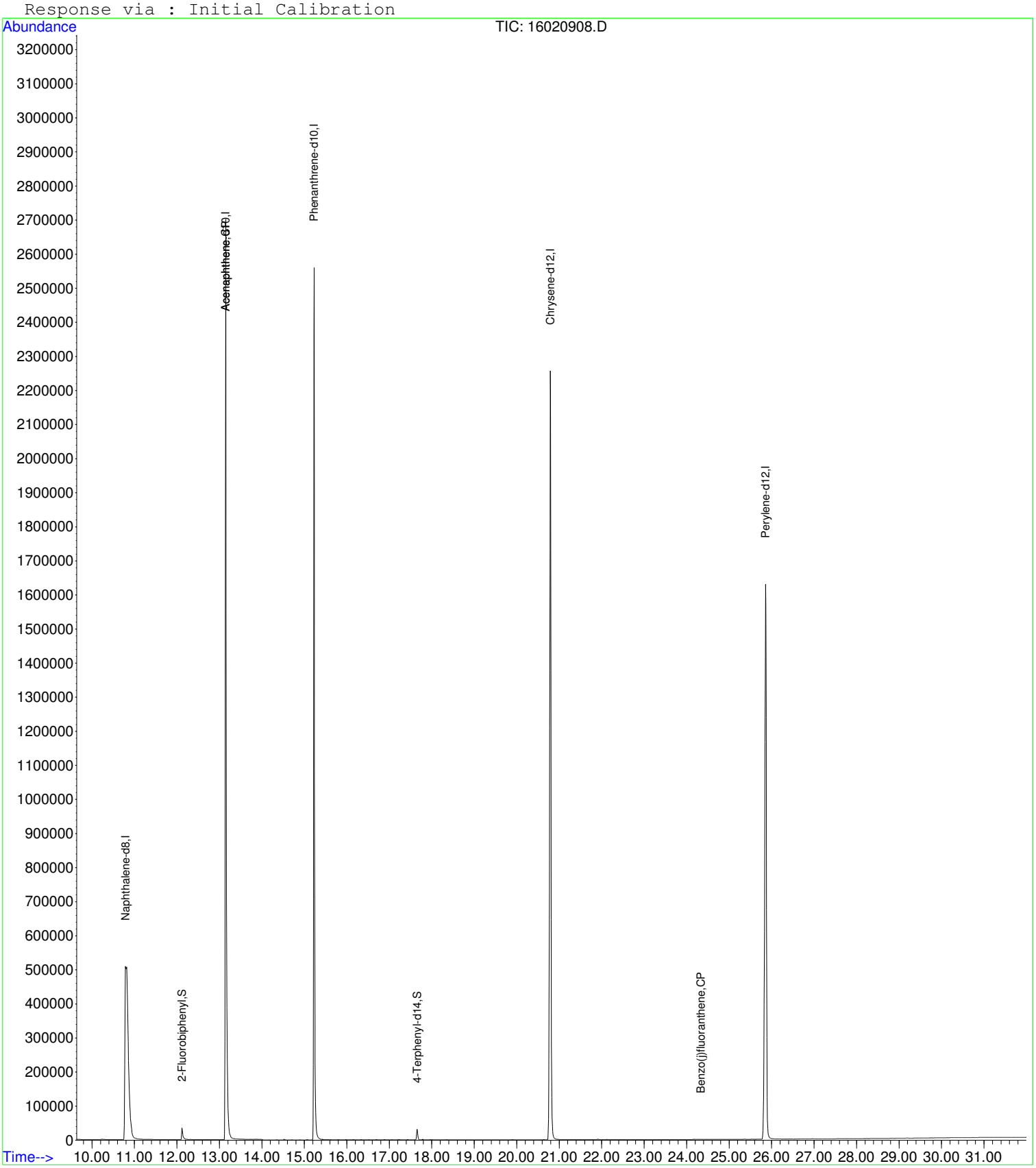
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6873	13.85 ug/kg#	10
23) Benzo(j)fluoranthene	24.33	252	543	0.81 ug/kg	93

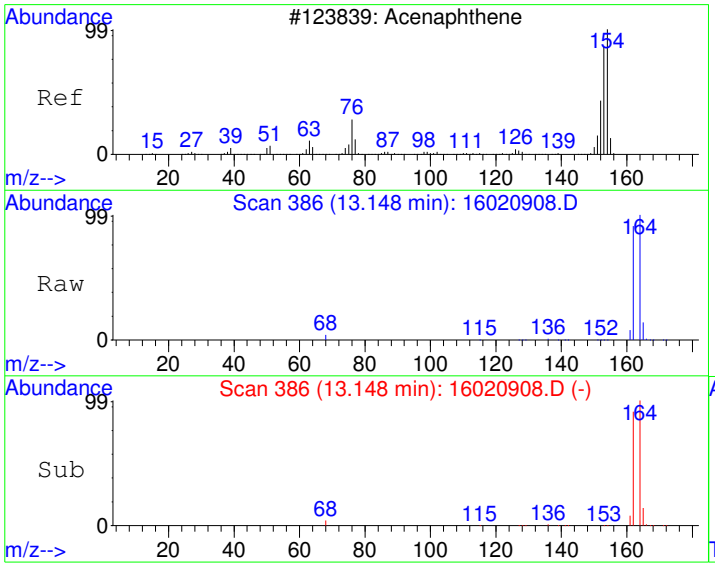
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020908.D Vial: 8
Acq On : 9 Feb 2016 12:04 pm Operator:
Sample : 1601231-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

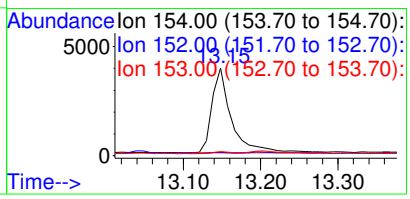


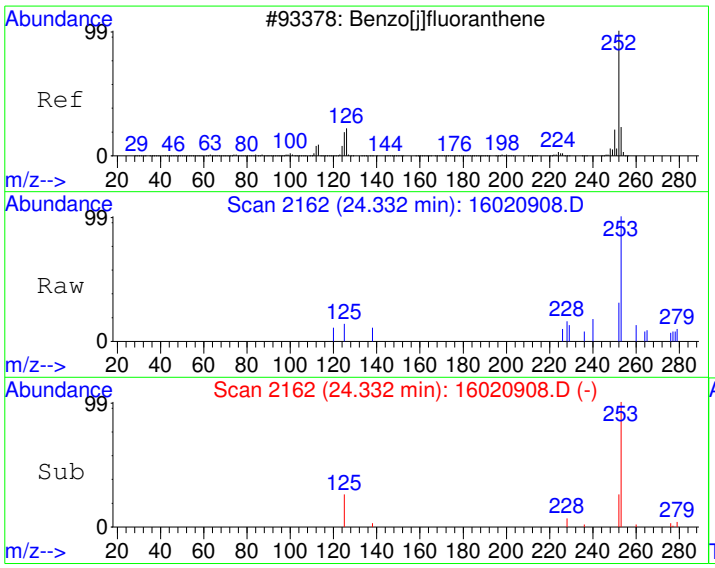


#9
Acenaphthene
Concen: 13.85 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020908.D
Acq: 9 Feb 2016 12:04 pm

Tgt Ion:154 Resp: 6873

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.5	74.4	134.4#

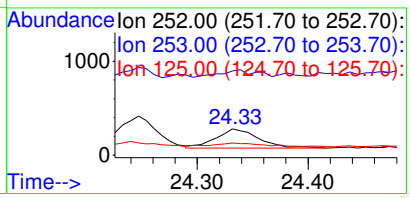




#23
Benzo(j)fluoranthene
Concen: 0.81 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020908.D
Acq: 9 Feb 2016 12:04 pm

Tgt Ion:252 Resp: 543

Ion	Ratio	Lower	Upper
252	100		
253	19.6	2.3	42.3
125	18.1	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : DFTPPLVI

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	0.00	136	0	0.00 ug/kg	0
5) Acenaphthene-d10	0.00	164	0	0.00 ug/kg	0
11) Phenanthrene-d10	0.00	188	0	0.00 ug/kg	0
17) Chrysene-d12	0.00	240	0	0.00 ug/kg	0
20) Perylene-d12	0.00	264	0	0.00 ug/kg	0

System Monitoring Compounds

7) 2-Fluorobiphenyl	0.00	172	0	0.00 ug/kg	
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#	
16) 4-Terphenyl-d14	0.00	244	0	0.00 ug/kg	
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#	

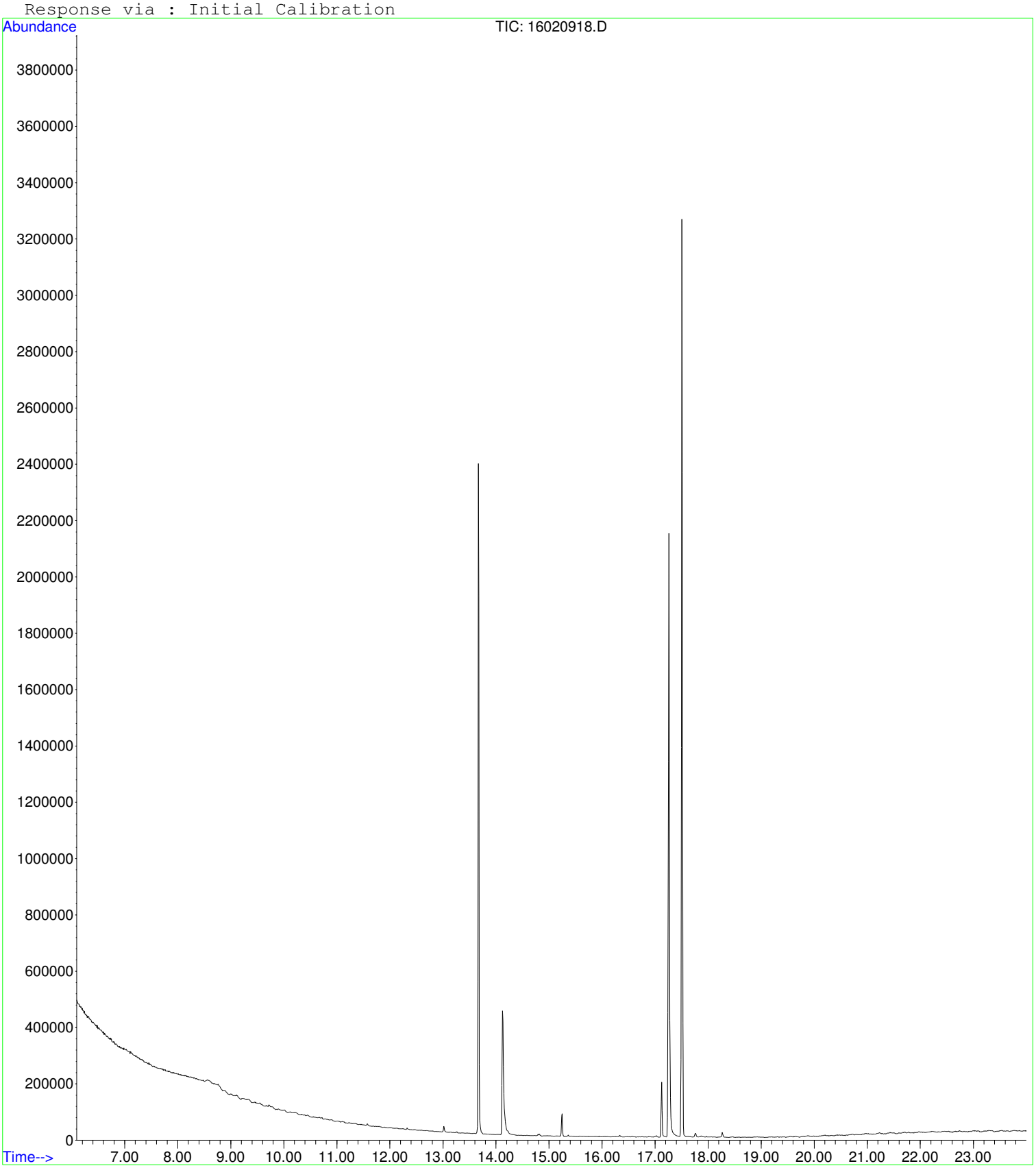
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	3048347	4000.00 ug/kg	145
5) Acenaphthene-d10	13.15	164	2397357	4000.00 ug/kg	132
11) Phenanthrene-d10	15.22	188	3758260	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	3769176	4000.00 ug/kg	131
20) Perylene-d12	25.87	264	3278588	4000.00 ug/kg	142

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1487178	2141.18 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	53.53%	
16) 4-Terphenyl-d14	17.64	244	1422696	2265.94 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	56.65%	

Target Compounds					Qvalue
2) Naphthalene	10.79	128	1669128	2188.56 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1266139	2108.47 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	1155470	2038.92 ug/kg	97
6) Dibenzofuran	13.37	168	1661577	2132.69 ug/kg	100
8) Acenaphthylene	13.03	152	2099084	2105.85 ug/kg	99
9) Acenaphthene	13.19	154	1272574	2107.03 ug/kg	97
10) Fluorene	13.85	166	1455289	2042.42 ug/kg	96
12) Phenanthrene	15.26	178	1901019	2130.06 ug/kg	98
13) Anthracene	15.31	178	1827043	2092.36 ug/kg	99
14) Fluoranthene	17.17	202	2054055	2320.97 ug/kg	97
15) Pyrene	17.74	202	2082971	2310.76 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1938225	2230.19 ug/kg	99
19) Chrysene	20.88	228	1868595	2258.16 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1895153	2168.07 ug/kg	97
22) Benzo[k]fluoranthene	24.24	252	1734065	2233.25 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	1630175	2234.97 ug/kg	97
24) Benzo[e]pyrene	25.37	252	1767460	2165.71 ug/kg	99
25) Benzo[a]pyrene	25.55	252	1746985	2199.24 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	1598144	2174.82 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1922891	2147.90 ug/kg	99
28) Benzo[g,h,i]perylene	30.20	276	1520122	2023.72 ug/kg	99

Used as bracketing CCV - recoveries pass 80-120% limits

REVIEWED/APPROVED

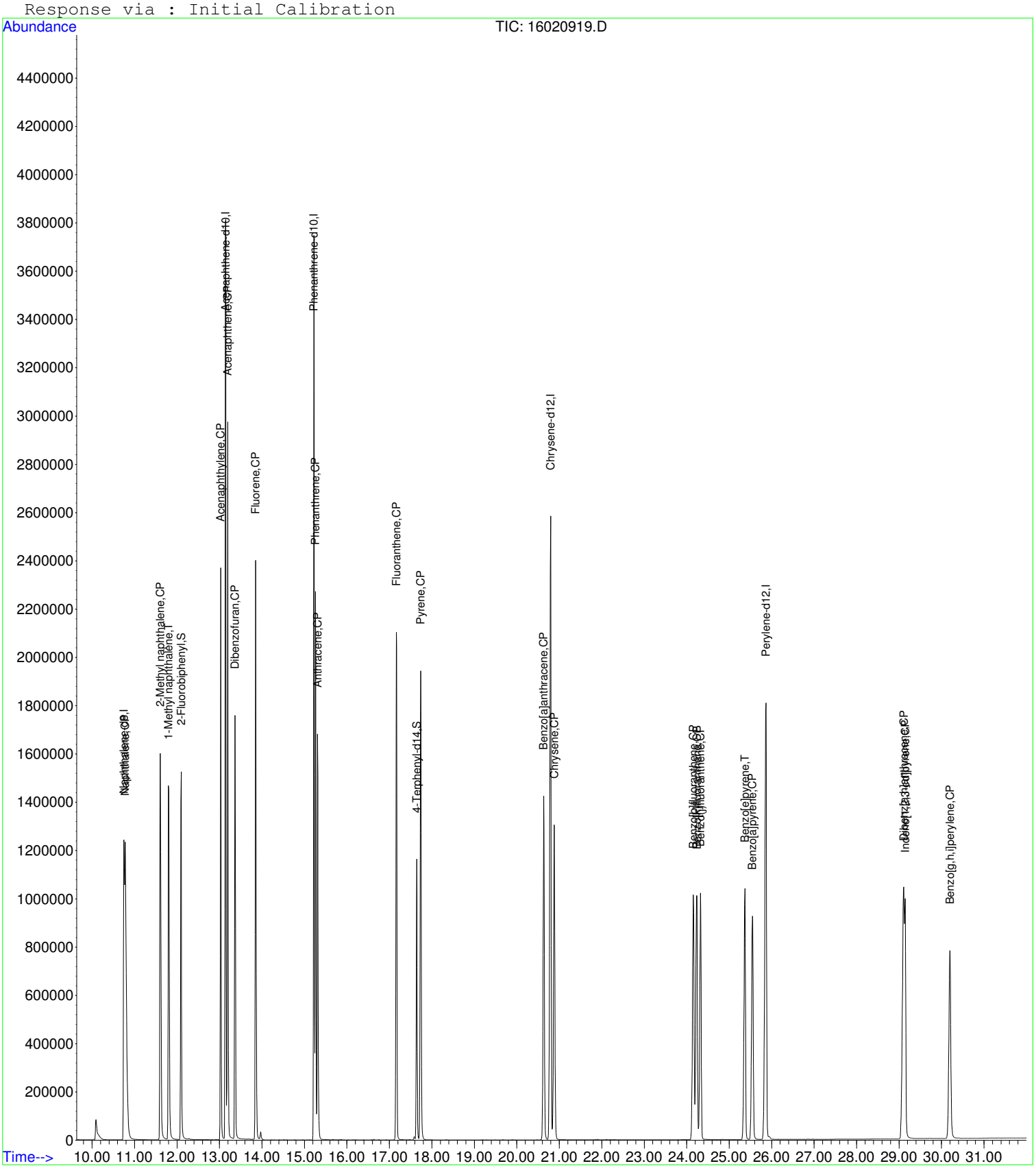
By Sherri Herschmann at 10:03:17 AM, 2/16/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

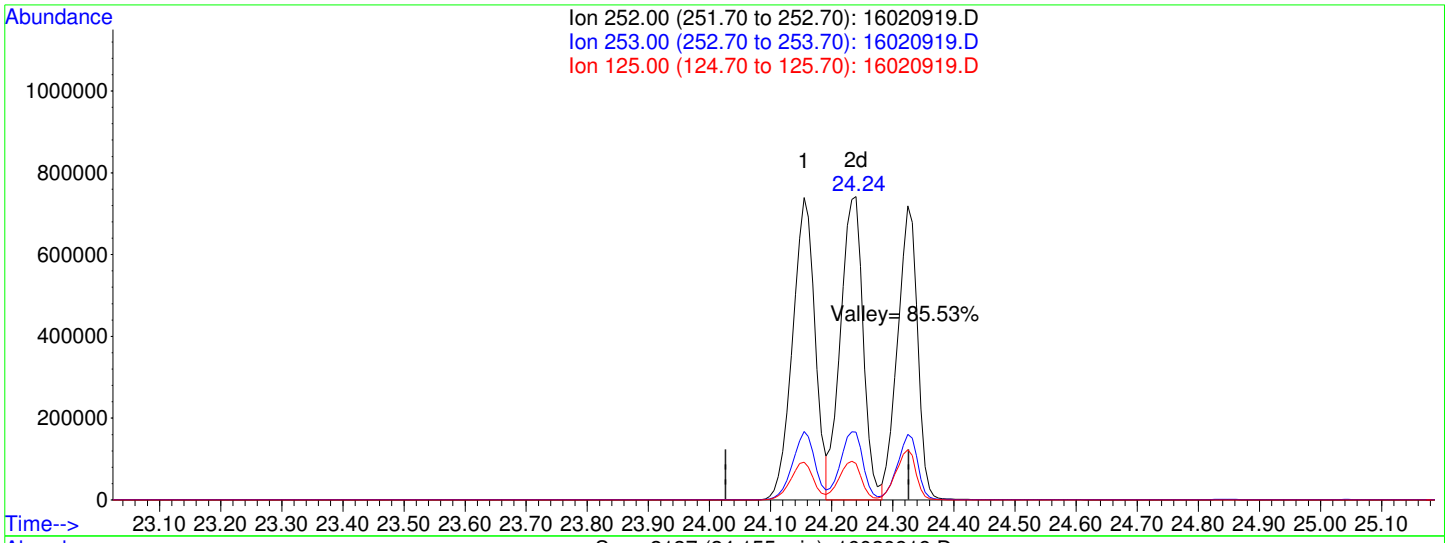
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

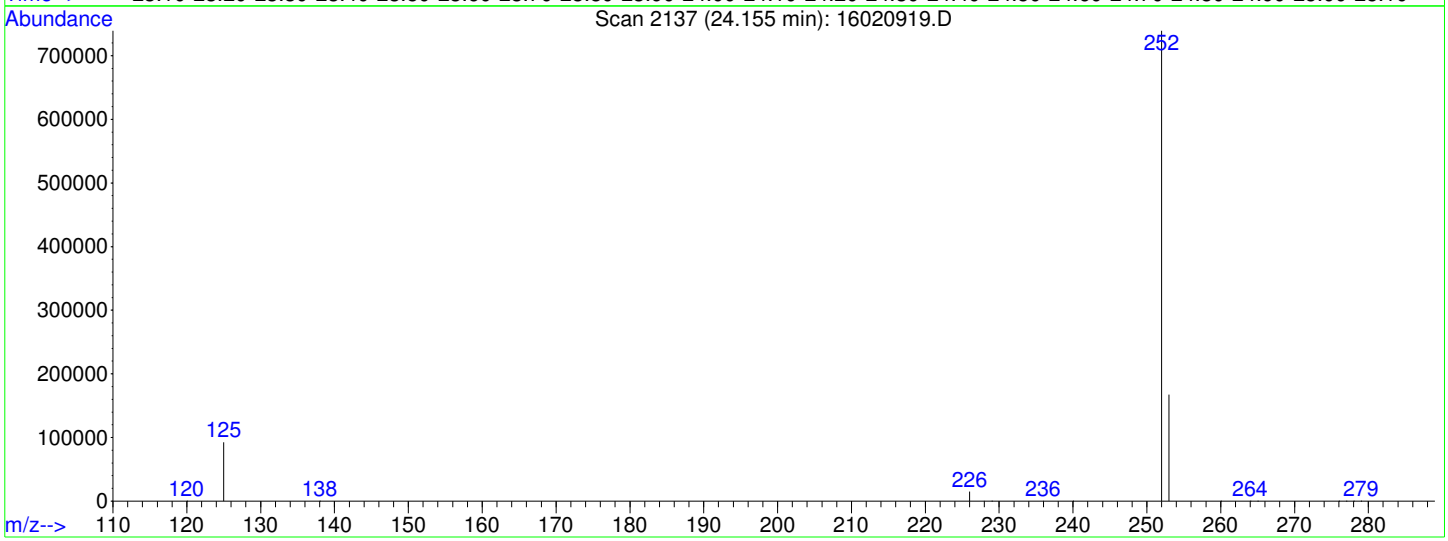


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 19:55 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration





TIC: 16020919.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2168.07ug/kg

response 1895153

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.54
125.00	10.50	12.52
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020920.D Vial: 20
Acq On : 9 Feb 2016 8:03 pm Operator:
Sample : SB-160209 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

DNR - hits present. Rerunning subsequent samples.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2471628	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	1932334	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3244846	4000.00 ug/kg	99
17) Chrysene-d12	20.79	240	3300202	4000.00 ug/kg	114
20) Perylene-d12	25.86	264	2868860	4000.00 ug/kg	124

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.14	172	255	0.46 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	
16) 4-Terphenyl-d14	17.68	244	226	0.42 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	

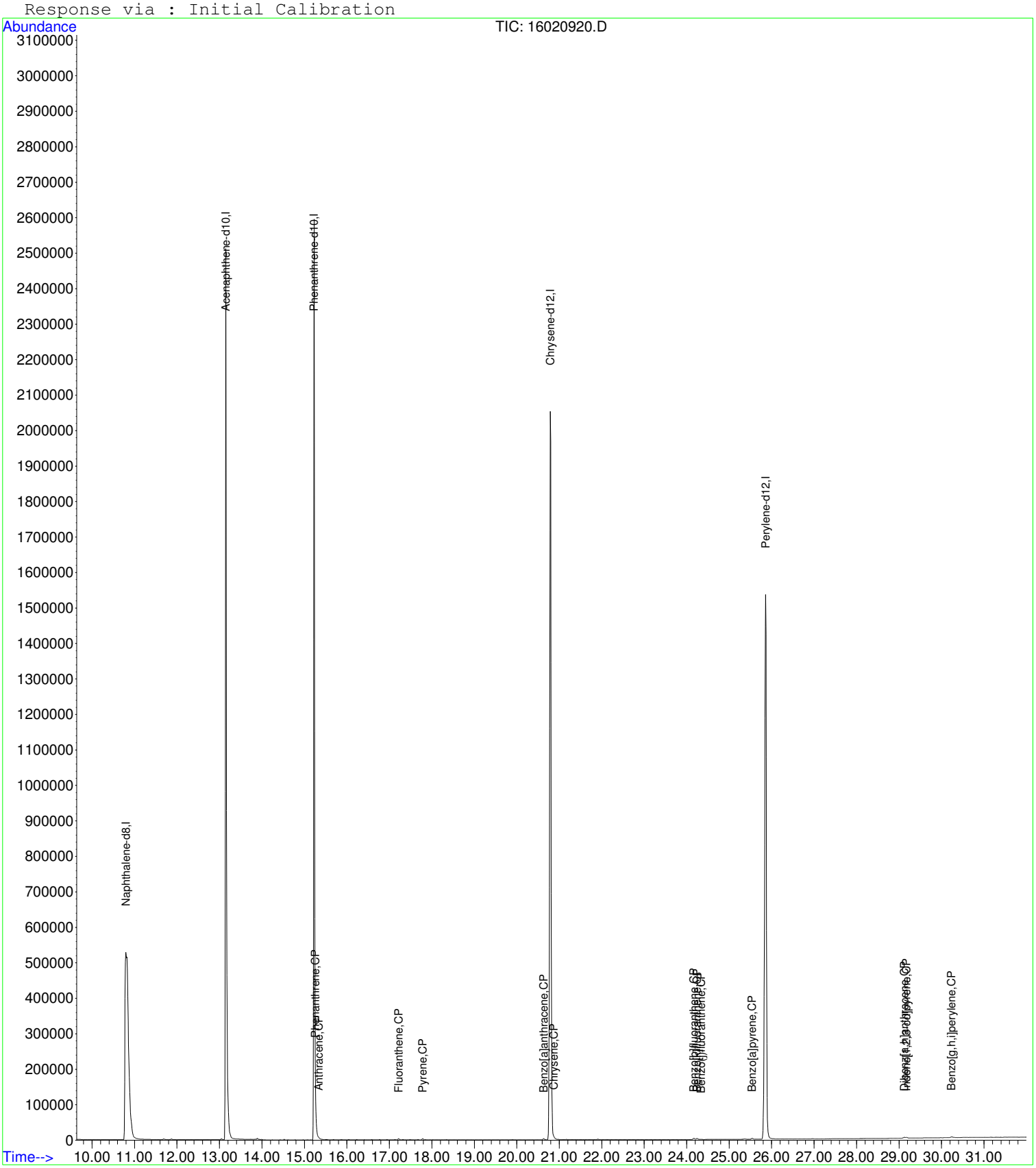
Target Compounds					Qvalue
12) Phenanthrene	15.26	178	4116	5.34 ug/kg	98
13) Anthracene	15.34	178	3980	5.28 ug/kg	98
14) Fluoranthene	17.22	202	5293	6.93 ug/kg	96
15) Pyrene	17.78	202	5674	7.29 ug/kg	98
18) Benzo[a]anthracene	20.63	228	5457	7.17 ug/kg	99
19) Chrysene	20.87	228	5633	7.77 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	5838	7.63 ug/kg	96
22) Benzo[k]fluoranthene	24.25	252	5413	7.97 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	400	0.63 ug/kg#	65
25) Benzo[a]pyrene	25.54	252	5476	7.88 ug/kg	99
26) Dibenz[a,h]anthracene	29.13	278	4693	7.30 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.18	276	5726	7.31 ug/kg	98
28) Benzo[g,h,i]perylene	30.24	276	4836	7.36 ug/kg	94

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020920.D Vial: 20
Acq On : 9 Feb 2016 8:03 pm Operator:
Sample : SB-160209 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020928.D Vial: 28
Acq On : 10 Feb 2016 1:21 am Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2571995	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2025679	4000.00 ug/kg	111
11) Phenanthrene-d10	15.22	188	3439064	4000.00 ug/kg	105
17) Chrysene-d12	20.78	240	3493369	4000.00 ug/kg	121
20) Perylene-d12	25.85	264	3140068	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45278	77.15 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#	
16) 4-Terphenyl-d14	17.64	244	48212	83.91 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	

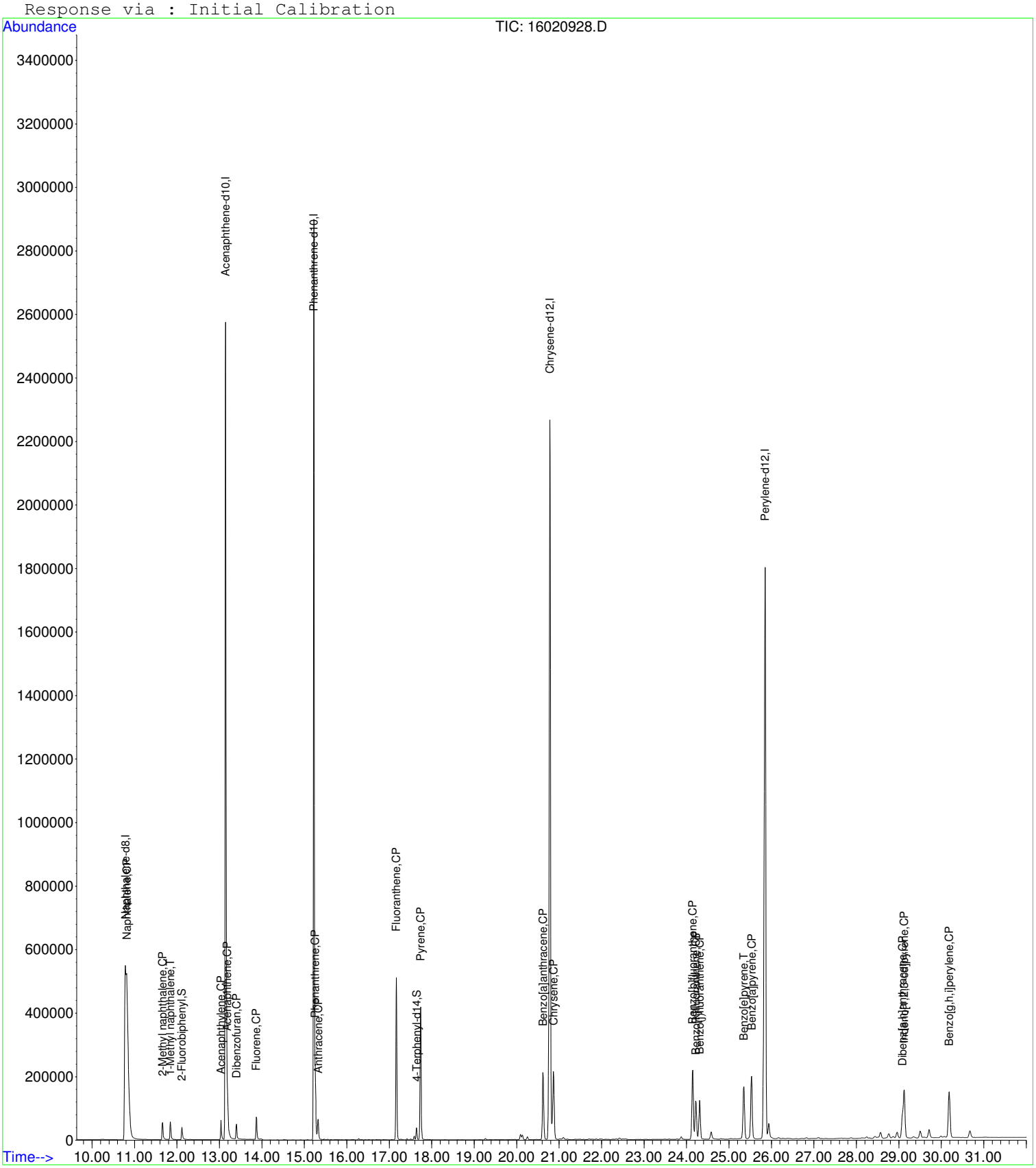
Target Compounds					Qvalue
2) Naphthalene	10.83	128	63512	98.70 ug/kg	99
3) 2-Methyl naphthalene	11.66	142	43601	86.06 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	41236	86.24 ug/kg	97
6) Dibenzofuran	13.40	168	56785	86.26 ug/kg	99
8) Acenaphthylene	13.04	152	67537	80.19 ug/kg	98
9) Acenaphthene	13.19	154	45201	88.57 ug/kg	96
10) Fluorene	13.87	166	48843	81.13 ug/kg	96
12) Phenanthrene	15.26	178	200600	245.63 ug/kg	99
13) Anthracene	15.32	178	86621	108.41 ug/kg	99
14) Fluoranthene	17.17	202	513352	633.90 ug/kg	99
15) Pyrene	17.74	202	481092	583.24 ug/kg	99
18) Benzo[a]anthracene	20.62	228	308284	382.73 ug/kg	100
19) Chrysene	20.87	228	357988	466.78 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	389143	464.82 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	202290	272.02 ug/kg	98
23) Benzo(j)fluoranthene	24.31	252	196102	280.72 ug/kg	91
24) Benzo[e]pyrene	25.35	252	301093	385.21 ug/kg	98
25) Benzo[a]pyrene	25.53	252	361593	475.28 ug/kg	100
26) Dibenz[a,h]anthracene	29.08	278	105572	150.00 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	284956	332.34 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	275429	382.85 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020928.D Vial: 28
Acq On : 10 Feb 2016 1:21 am Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020929.D Vial: 29
Acq On : 10 Feb 2016 2:01 am Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2587433	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2004853	4000.00 ug/kg	110
11) Phenanthrene-d10	15.22	188	3354913	4000.00 ug/kg	103
17) Chrysene-d12	20.78	240	3476474	4000.00 ug/kg	120
20) Perylene-d12	25.85	264	3124171	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44279	76.23 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.64	244	47649	85.01 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#	

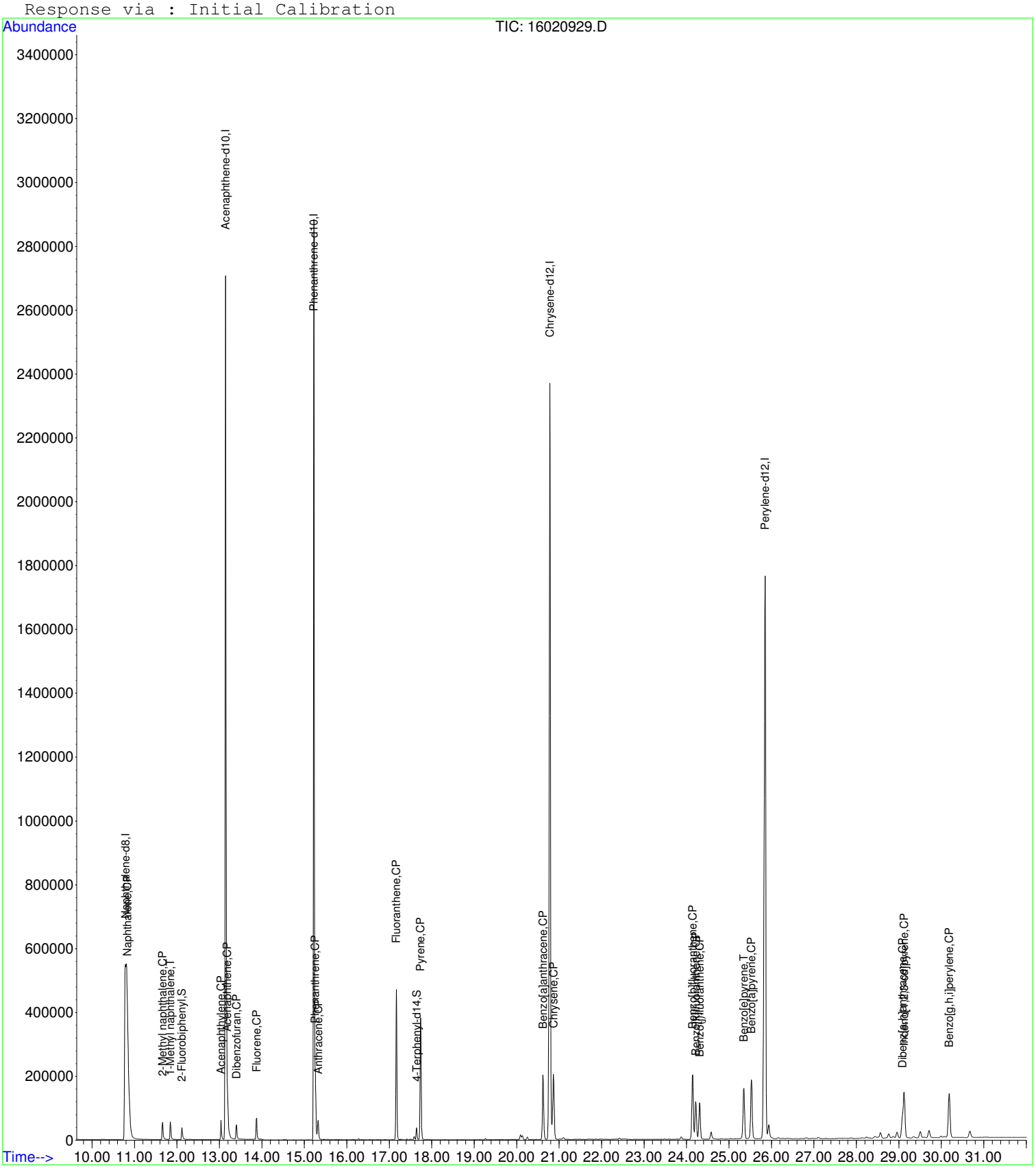
Target Compounds					Qvalue
2) Naphthalene	10.84	128	62572	96.66 ug/kg	99
3) 2-Methyl naphthalene	11.66	142	42983	84.33 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	40166	83.50 ug/kg	95
6) Dibenzofuran	13.40	168	54947	84.33 ug/kg	100
8) Acenaphthylene	13.04	152	66071	79.26 ug/kg	99
9) Acenaphthene	13.19	154	44034	87.18 ug/kg	97
10) Fluorene	13.88	166	47460	79.65 ug/kg	98
12) Phenanthrene	15.26	178	183145	229.88 ug/kg	99
13) Anthracene	15.32	178	83399	106.99 ug/kg	99
14) Fluoranthene	17.17	202	464791	588.33 ug/kg	98
15) Pyrene	17.74	202	440165	547.01 ug/kg	99
18) Benzo[a]anthracene	20.62	228	285624	356.32 ug/kg	100
19) Chrysene	20.87	228	336033	440.28 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	369440	443.53 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	195198	263.81 ug/kg	98
23) Benzo(j)fluoranthene	24.31	252	186480	268.30 ug/kg	91
24) Benzo[e]pyrene	25.35	252	284825	366.25 ug/kg	98
25) Benzo[a]pyrene	25.53	252	338501	447.19 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	102670	146.62 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	272689	319.65 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	259969	363.20 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020929.D Vial: 29
Acq On : 10 Feb 2016 2:01 am Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020930.D Vial: 30
Acq On : 10 Feb 2016 2:41 am Operator:
Sample : CCV1-160209 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2982919	4000.00 ug/kg	142
5) Acenaphthene-d10	13.14	164	2212646	4000.00 ug/kg	121
11) Phenanthrene-d10	15.22	188	3510529	4000.00 ug/kg	107
17) Chrysene-d12	20.78	240	3561134	4000.00 ug/kg	123
20) Perylene-d12	25.86	264	3121023	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	638756	996.43 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.91%#	
16) 4-Terphenyl-d14	17.64	244	599710	1022.57 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	25.56%#	

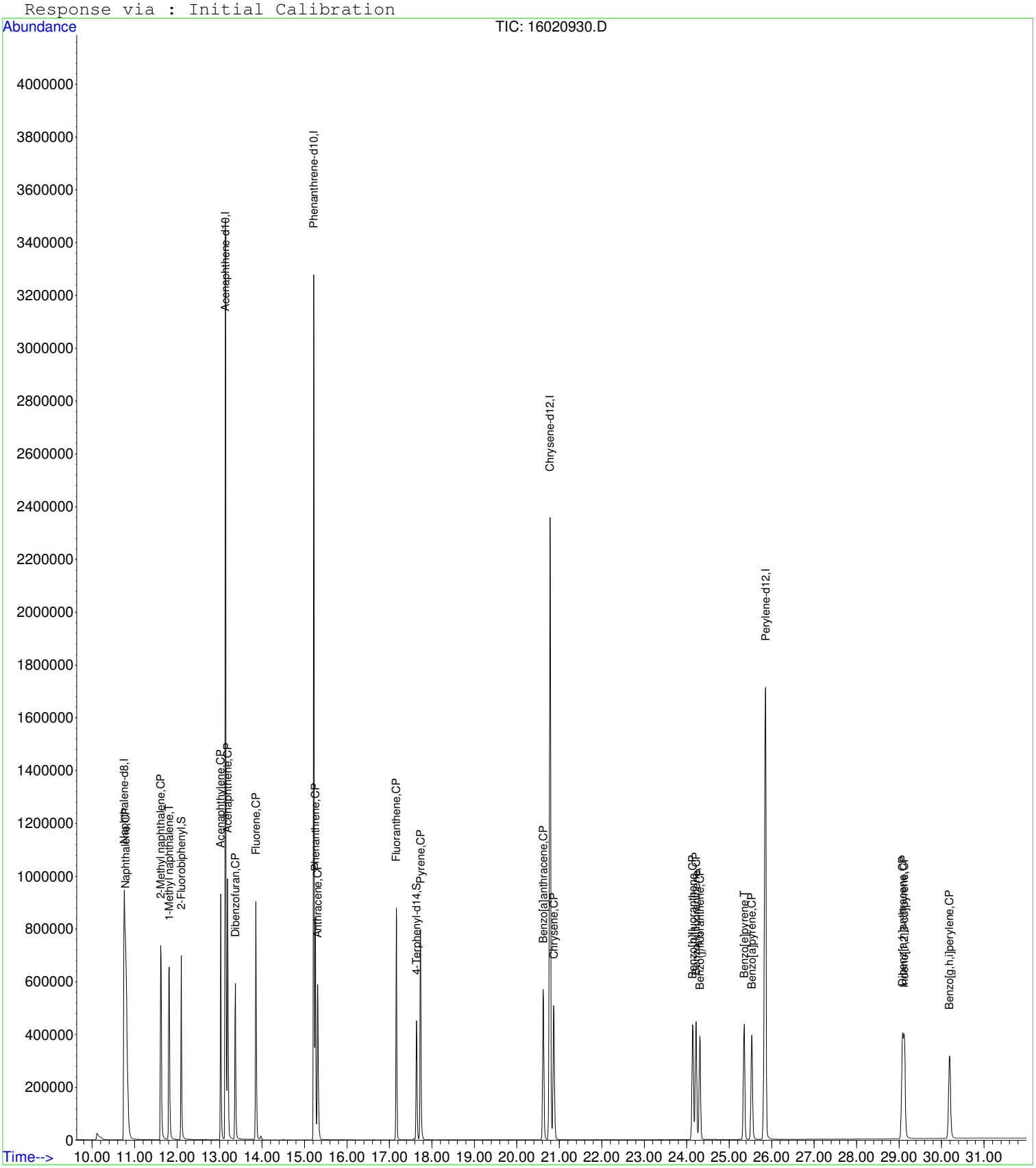
Target Compounds					Qvalue
2) Naphthalene	10.79	128	769925	1031.67 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	569508	969.19 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	520227	938.12 ug/kg	98
6) Dibenzofuran	13.37	168	666476	926.86 ug/kg	100
8) Acenaphthylene	13.03	152	872145	948.00 ug/kg	100
9) Acenaphthene	13.19	154	512585	919.55 ug/kg	97
10) Fluorene	13.86	166	570541	867.57 ug/kg	98
12) Phenanthrene	15.25	178	769963	923.61 ug/kg	99
13) Anthracene	15.31	178	753159	923.40 ug/kg	99
14) Fluoranthene	17.16	202	880646	1065.30 ug/kg	98
15) Pyrene	17.73	202	904205	1073.87 ug/kg	99
18) Benzo[a]anthracene	20.62	228	807358	983.24 ug/kg	99
19) Chrysene	20.87	228	785063	1004.16 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	803534	965.66 ug/kg	98
22) Benzo[k]fluoranthene	24.22	252	746069	1009.35 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	688703	991.88 ug/kg	97
24) Benzo[e]pyrene	25.36	252	767352	987.72 ug/kg	99
25) Benzo[a]pyrene	25.53	252	745077	985.32 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	671053	959.30 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	801867	940.92 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	657532	919.56 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020930.D Vial: 30
Acq On : 10 Feb 2016 2:41 am Operator:
Sample : CCV1-160209 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021102.D Vial: 2
Acq On : 11 Feb 2016 9:26 am Operator:
Sample : ICV-160211 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2931868	4000.00 ug/kg	140
5) Acenaphthene-d10	13.15	164	2018577	4000.00 ug/kg	111
11) Phenanthrene-d10	15.22	188	3289876	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3228099	4000.00 ug/kg	112
20) Perylene-d12	25.85	264	2862089	4000.00 ug/kg	124

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1244791	2128.50 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	53.21%	
16) 4-Terphenyl-d14	17.64	244	1150004	2092.39 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	52.31%	

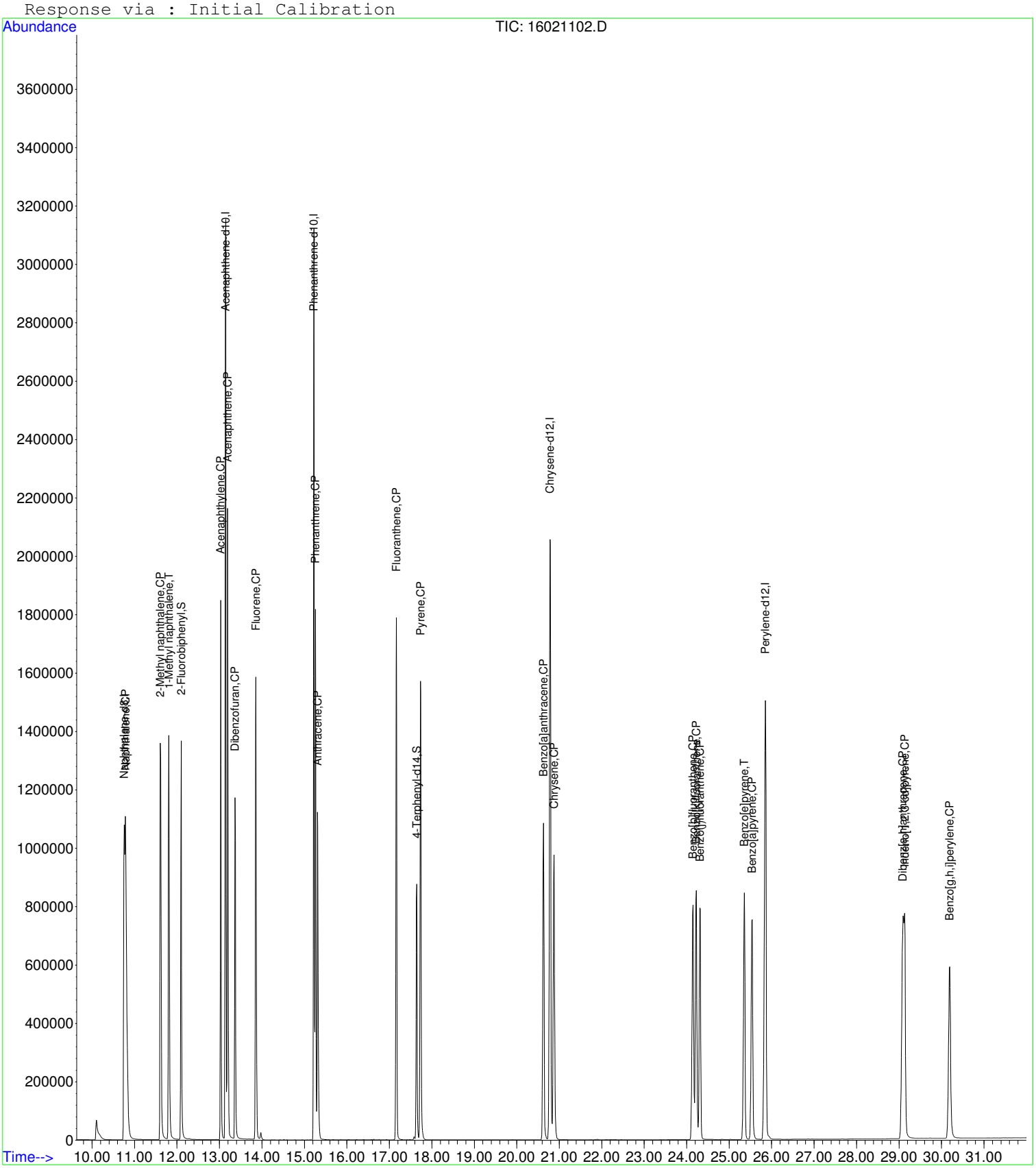
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1486118	2026.01 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	1100592	1905.61 ug/kg	97
4) 1-Methyl naphthalene	11.81	142	1011814	1856.36 ug/kg	97
6) Dibenzofuran	13.37	168	1258548	1918.51 ug/kg	99
8) Acenaphthylene	13.03	152	1678103	1999.42 ug/kg	99
9) Acenaphthene	13.19	154	997192	1960.90 ug/kg	97
10) Fluorene	13.86	166	1079827	1799.85 ug/kg	98
12) Phenanthrene	15.26	178	1505376	1926.89 ug/kg	99
13) Anthracene	15.31	178	1422408	1860.88 ug/kg	99
14) Fluoranthene	17.17	202	1684096	2173.86 ug/kg	98
15) Pyrene	17.73	202	1698839	2152.94 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1539455	2068.25 ug/kg	99
19) Chrysene	20.87	228	1483950	2093.91 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1569153	2056.36 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	1411598	2082.51 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	1309750	2056.97 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1456852	2044.89 ug/kg	97
25) Benzo[a]pyrene	25.54	252	1429864	2061.97 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	1289307	2009.87 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1548924	1981.95 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	1235766	1884.57 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021102.D Vial: 2
Acq On : 11 Feb 2016 9:26 am Operator:
Sample : ICV-160211 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

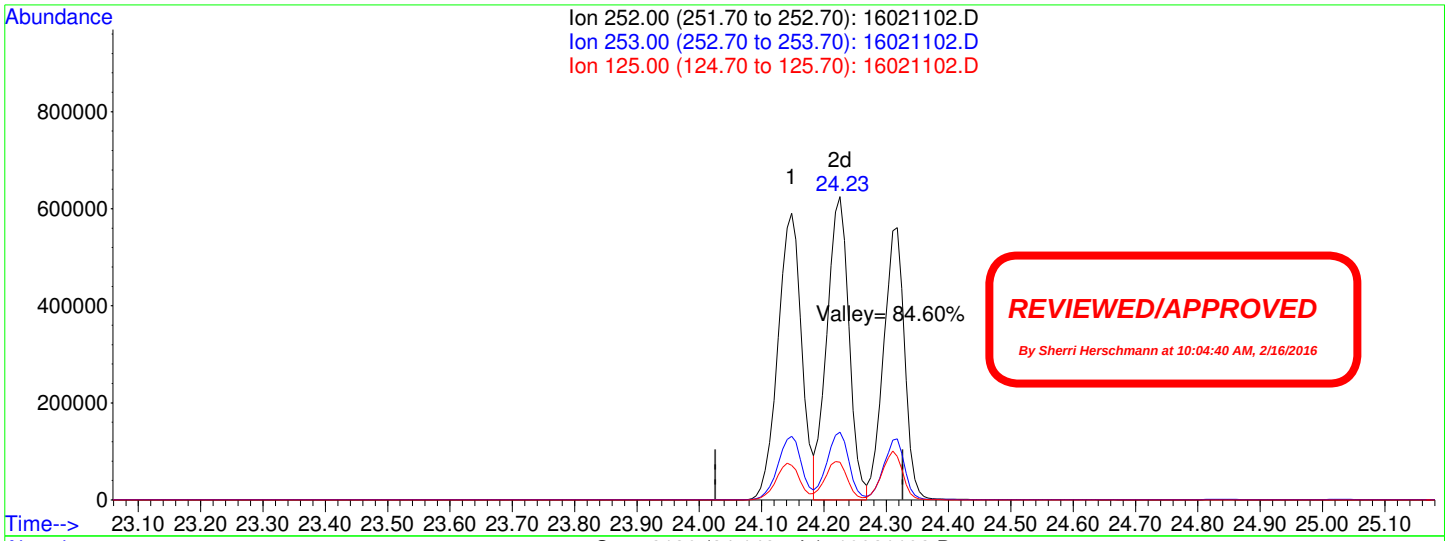
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

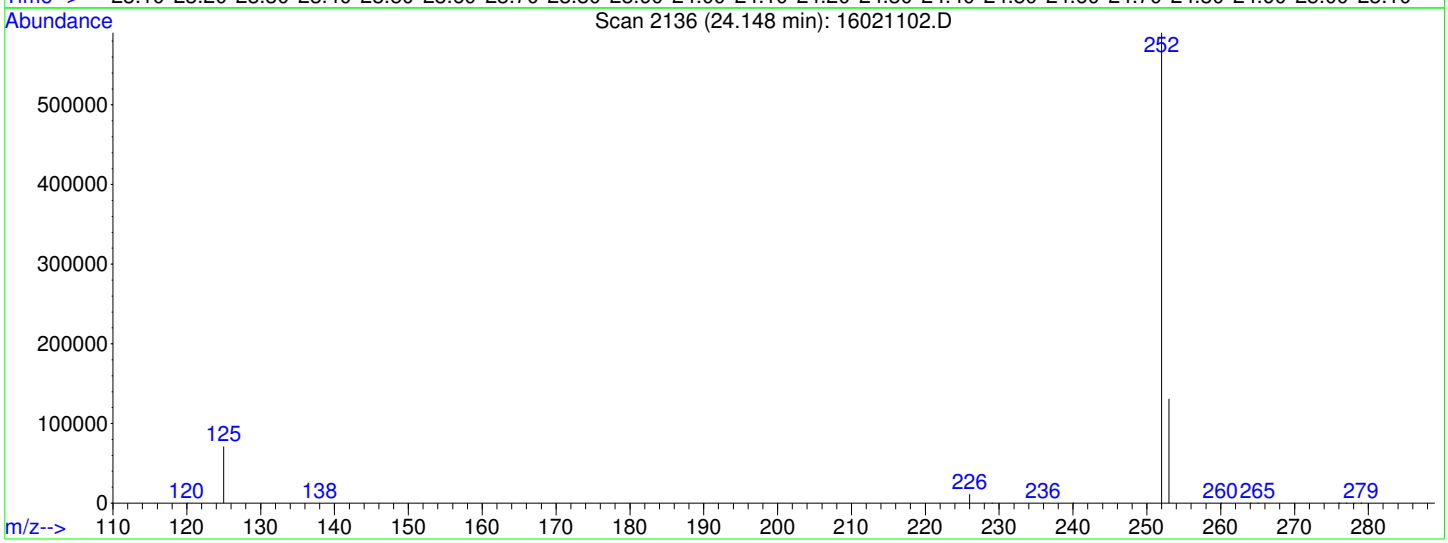
Data File : C:\HPCHEM\1\DATA\160211\16021102.D Vial: 2
Acq On : 11 Feb 2016 9:26 am Operator:
Sample : ICV-160211 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 9:58 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED

By Sherri Herschmann at 10:04:40 AM, 2/16/2016



TIC: 16021102.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2056.36ug/kg

response 1569153

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.09
125.00	10.50	12.04
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021103.D Vial: 3
Acq On : 11 Feb 2016 10:06 am Operator:
Sample : SBLK-160211 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2042432	4000.00	ug/kg	97
5) Acenaphthene-d10	13.15	164	1452810	4000.00	ug/kg	80
11) Phenanthrene-d10	15.23	188	2557551	4000.00	ug/kg	78
17) Chrysene-d12	20.79	240	2630064	4000.00	ug/kg	91
20) Perylene-d12	25.85	264	2319554	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.04	172	85	0.20	ug/kg	-0.06
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
16) 4-Terphenyl-d14	17.68	244	260	0.61	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			

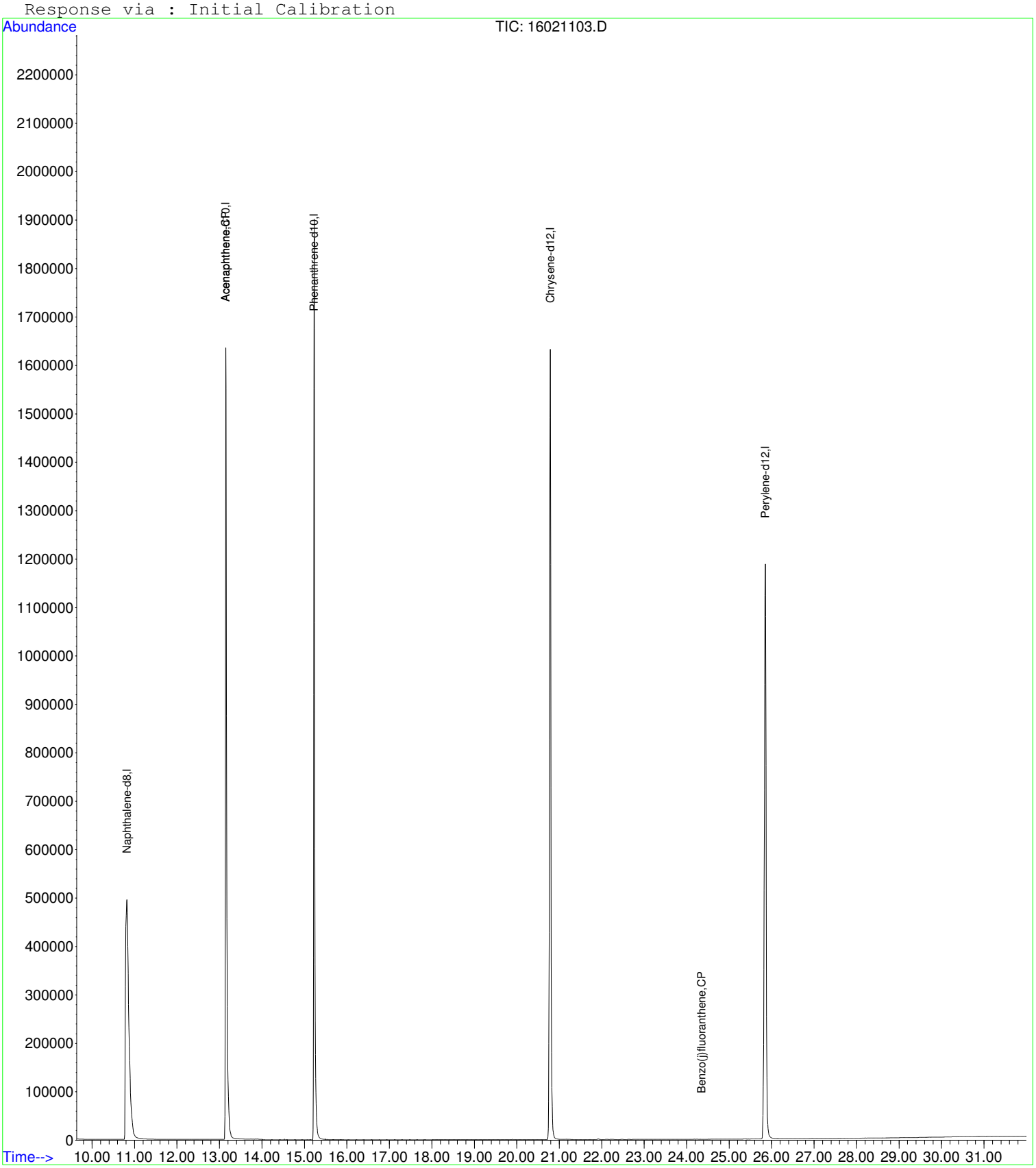
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	5293	14.46	ug/kg#	10
23) Benzo(j)fluoranthene	24.35	252	87	0.17	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021103.D Vial: 3
Acq On : 11 Feb 2016 10:06 am Operator:
Sample : SBLK-160211 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021111.D Vial: 11
Acq On : 11 Feb 2016 3:28 pm Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2404664	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1771017	4000.00 ug/kg	97
11) Phenanthrene-d10	15.23	188	3063493	4000.00 ug/kg	94
17) Chrysene-d12	20.79	240	3240033	4000.00 ug/kg	112
20) Perylene-d12	25.86	264	2928767	4000.00 ug/kg	127

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	39117	76.24 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.65	244	43339	84.68 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	

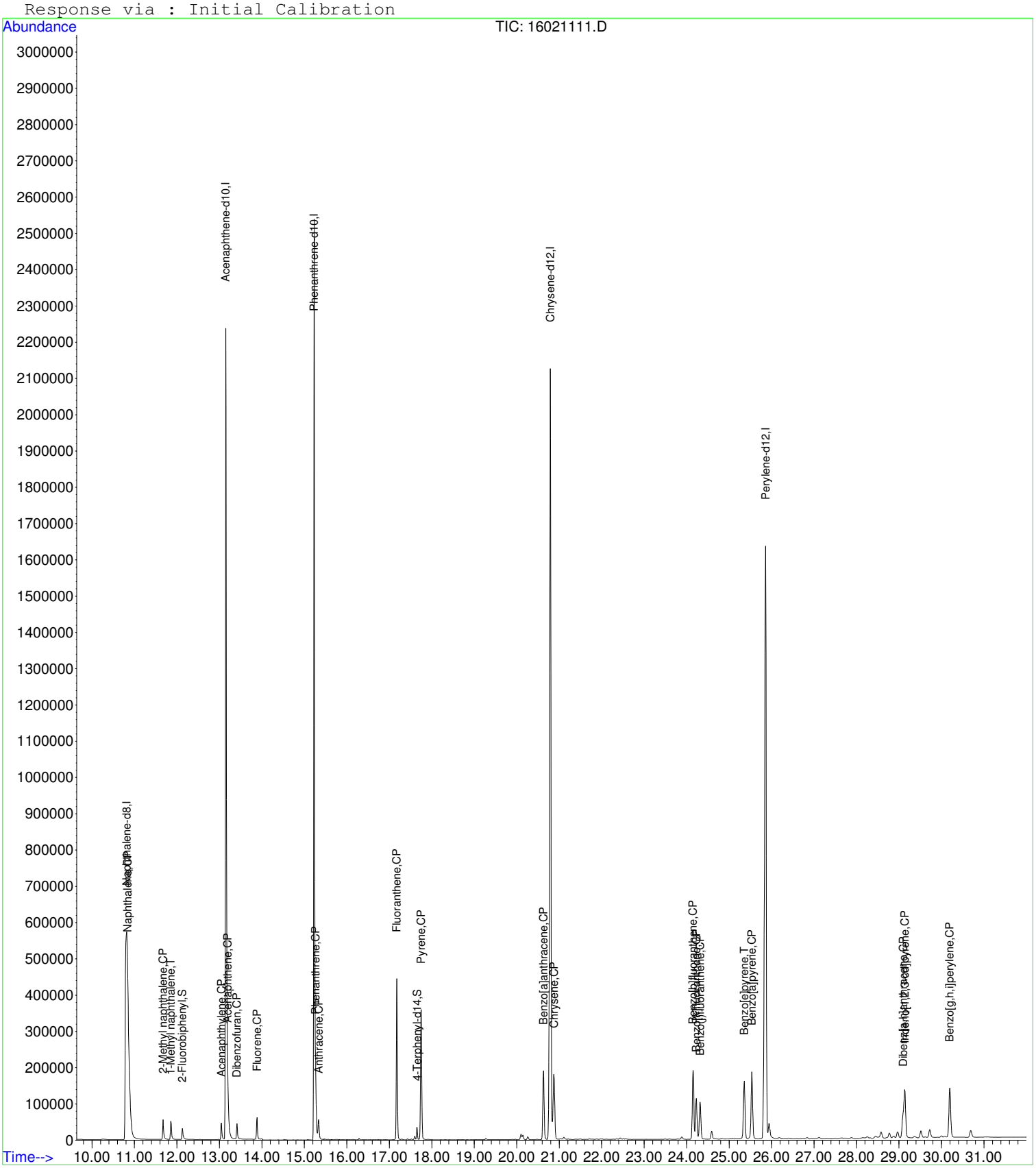
Target Compounds						Qvalue
2) Naphthalene	10.85	128	63323	105.25 ug/kg		100
3) 2-Methyl naphthalene	11.67	142	40986	86.52 ug/kg		100
4) 1-Methyl naphthalene	11.85	142	38280	85.63 ug/kg		92
6) Dibenzofuran	13.41	168	49033	85.19 ug/kg		98
8) Acenaphthylene	13.05	152	59357	80.61 ug/kg		98
9) Acenaphthene	13.20	154	39516	88.57 ug/kg		97
10) Fluorene	13.89	166	41977	79.75 ug/kg		97
12) Phenanthrene	15.27	178	180695	248.38 ug/kg		99
13) Anthracene	15.33	178	78676	110.53 ug/kg		99
14) Fluoranthene	17.18	202	456939	633.41 ug/kg		98
15) Pyrene	17.75	202	431755	587.60 ug/kg	HIGH	99
18) Benzo[a]anthracene	20.63	228	280950	376.07 ug/kg		100
19) Chrysene	20.88	228	329990	463.91 ug/kg		99
21) Benzo[b]fluoranthene	24.15	252	354488	453.98 ug/kg		97
22) Benzo[k]fluoranthene	24.23	252	176238	254.08 ug/kg		98
23) Benzo(j)fluoranthene	24.32	252	177405	272.27 ug/kg		89
24) Benzo[e]pyrene	25.36	252	278673	382.25 ug/kg		98
25) Benzo[a]pyrene	25.53	252	334257	471.05 ug/kg		98
26) Dibenz[a,h]anthracene	29.09	278	96217	146.58 ug/kg		99
27) Indeno[1,2,3-cd]pyrene	29.13	276	258859	323.69 ug/kg		95
28) Benzo[g,h,i]perylene	30.19	276	252541	376.36 ug/kg		96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021111.D Vial: 11
Acq On : 11 Feb 2016 3:28 pm Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16021111.D PP160126.M Fri Feb 12 11:53:17 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021112.D Vial: 12
Acq On : 11 Feb 2016 4:07 pm Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2469034	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	1875359	4000.00 ug/kg	103
11) Phenanthrene-d10	15.23	188	3181497	4000.00 ug/kg	97
17) Chrysene-d12	20.79	240	3380139	4000.00 ug/kg	117
20) Perylene-d12	25.86	264	3020425	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	40064	73.74 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	
16) 4-Terphenyl-d14	17.65	244	43551	81.94 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#	

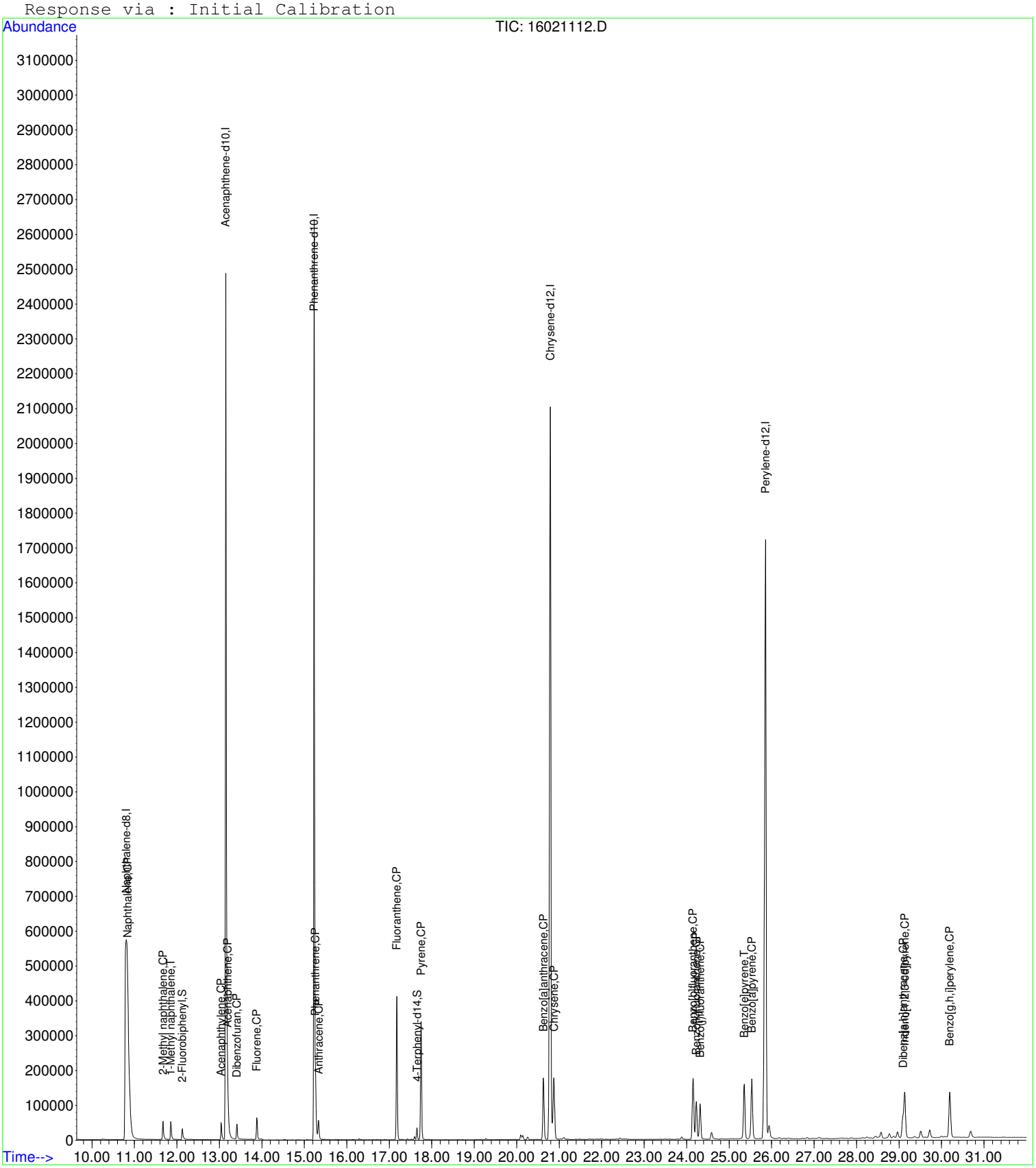
Target Compounds					Qvalue	
2) Naphthalene	10.85	128	63348	102.55 ug/kg	99	
3) 2-Methyl naphthalene	11.67	142	41138	84.58 ug/kg	99	
4) 1-Methyl naphthalene	11.85	142	38670	84.25 ug/kg	95	
6) Dibenzofuran	13.41	168	49881	81.84 ug/kg	100	
8) Acenaphthylene	13.04	152	60428	77.50 ug/kg	99	
9) Acenaphthene	13.20	154	39718	84.07 ug/kg	97	
10) Fluorene	13.88	166	42536	76.31 ug/kg	95	
12) Phenanthrene	15.26	178	169019	223.72 ug/kg	99	
13) Anthracene	15.33	178	75961	102.76 ug/kg	99	
14) Fluoranthene	17.18	202	429573	573.39 ug/kg	97	
15) Pyrene	17.75	202	401894	526.67 ug/kg	99	
18) Benzo[a]anthracene	20.63	228	261689	335.76 ug/kg	99	
19) Chrysene	20.87	228	309423	416.97 ug/kg	99	
21) Benzo[b]fluoranthene	24.15	252	333870	414.60 ug/kg	97	
22) Benzo[k]fluoranthene	24.23	252	166765	233.13 ug/kg	98	LOW
23) Benzo(j)fluoranthene	24.32	252	169197	251.80 ug/kg	89	
24) Benzo[e]pyrene	25.36	252	267830	356.23 ug/kg	98	
25) Benzo[a]pyrene	25.53	252	316898	433.03 ug/kg	99	
26) Dibenz[a,h]anthracene	29.09	278	94773	139.99 ug/kg	100	
27) Indeno[1,2,3-cd]pyrene	29.13	276	249817	302.90 ug/kg	97	
28) Benzo[g,h,i]perylene	30.19	276	244925	353.94 ug/kg	97	

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021112.D Vial: 12
Acq On : 11 Feb 2016 4:07 pm Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16021112.D PP160126.M Fri Feb 12 11:53:23 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2922066	4000.00 ug/kg	139
5) Acenaphthene-d10	13.14	164	1967800	4000.00 ug/kg	108
11) Phenanthrene-d10	15.22	188	3286089	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3028810	4000.00 ug/kg	105
20) Perylene-d12	25.86	264	2727466	4000.00 ug/kg	118

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1162523	2039.12 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.98%	
16) 4-Terphenyl-d14	17.64	244	1076226	1960.41 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	49.01%	

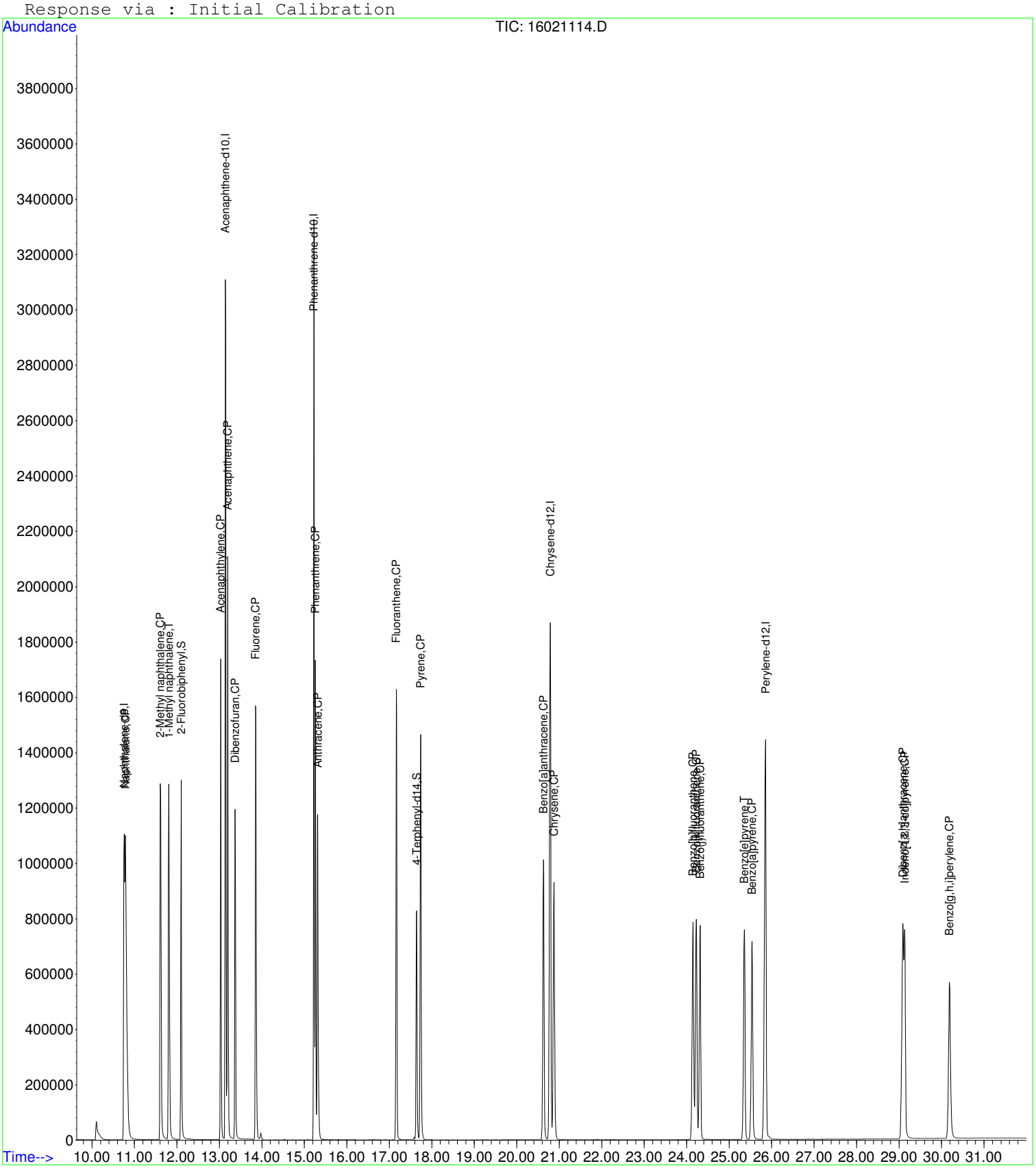
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1465742	2004.94 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	1049949	1824.02 ug/kg	97
4) 1-Methyl naphthalene	11.81	142	965355	1777.07 ug/kg	96
6) Dibenzofuran	13.37	168	1236394	1933.38 ug/kg	99
8) Acenaphthylene	13.03	152	1609456	1967.11 ug/kg	99
9) Acenaphthene	13.19	154	960445	1937.37 ug/kg	96
10) Fluorene	13.86	166	1081178	1848.61 ug/kg	98
12) Phenanthrene	15.26	178	1492283	1912.33 ug/kg	99
13) Anthracene	15.31	178	1385549	1814.75 ug/kg	100
14) Fluoranthene	17.17	202	1568450	2026.92 ug/kg	97
15) Pyrene	17.74	202	1579047	2003.43 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1472388	2108.31 ug/kg	99
19) Chrysene	20.87	228	1403932	2111.34 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1458776	2006.07 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	1314930	2035.64 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1235458	2036.07 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1366771	2013.14 ug/kg	96
25) Benzo[a]pyrene	25.54	252	1344265	2034.21 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	1218909	1993.91 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1467404	1970.32 ug/kg	95
28) Benzo[g,h,i]perylene	30.19	276	1165330	1864.87 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

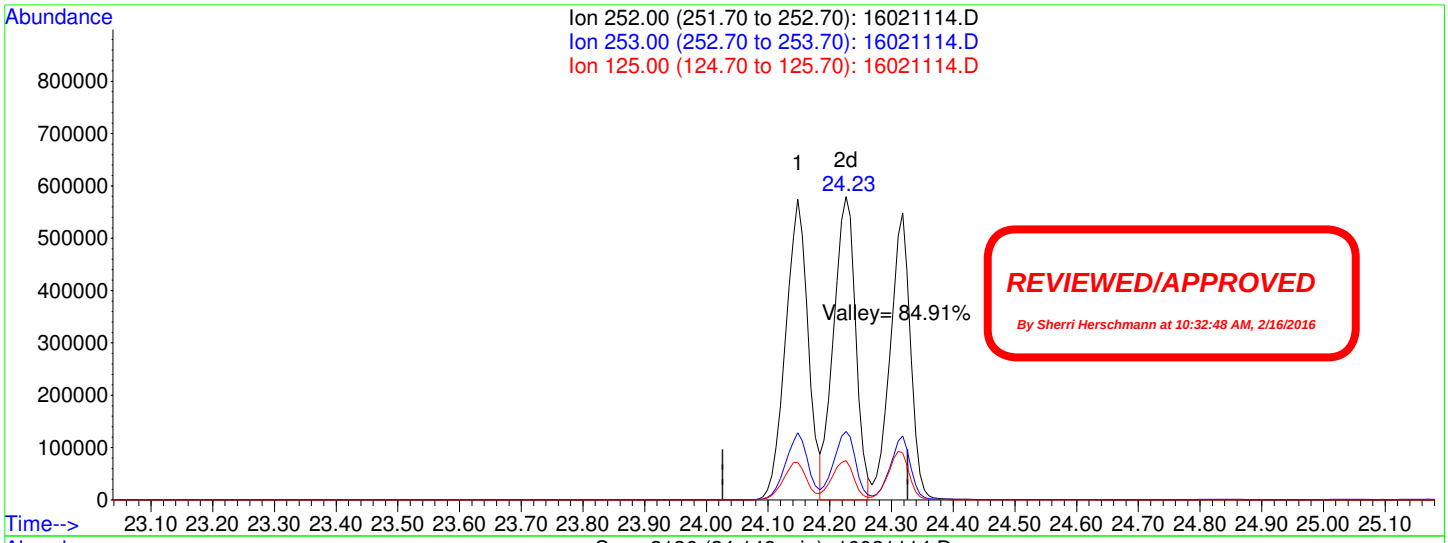
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

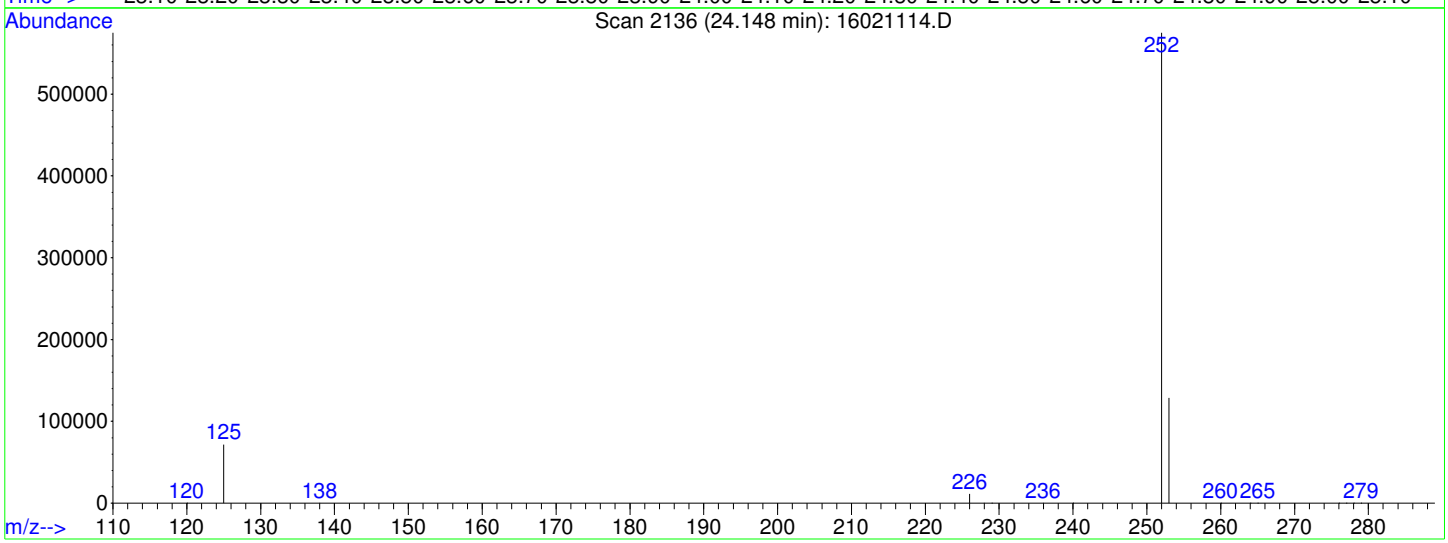


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 17:56 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration





TIC: 16021114.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2006.07ug/kg

response 1458776

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.27
125.00	10.50	12.46
0.00	0.00	0.00

GCMS6
Calibration Curve
For

DHL Work Order
1601231

CAL ID: 621

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160126.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	----	PAHCAL160126	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160126-1	1
SSCV 2500 ppb	-----	PAHSSCV160126-2	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	**PAHCAL160126**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160126-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160126-2**

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 Don Winston Date: 01/26/16

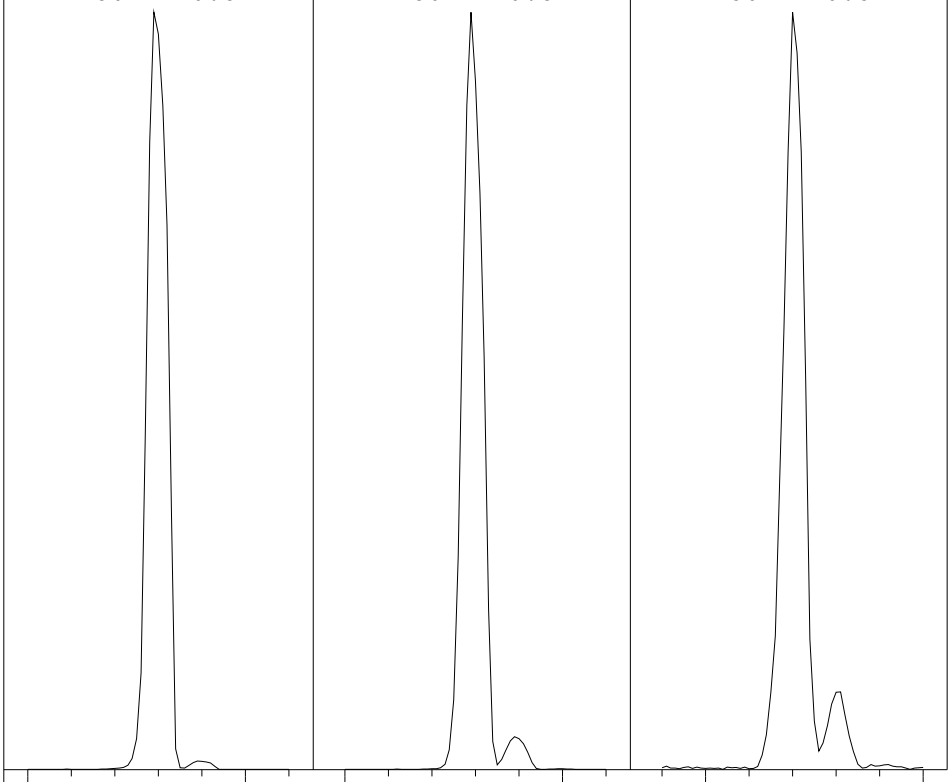
Second-Level Review: [signature] Date: 01/28/2016

HP5973

Instrument: GC/MS #6

Tue Jan 26 12:42:11 2016 C:\HPCHEM\1\5973\ATUNE.U

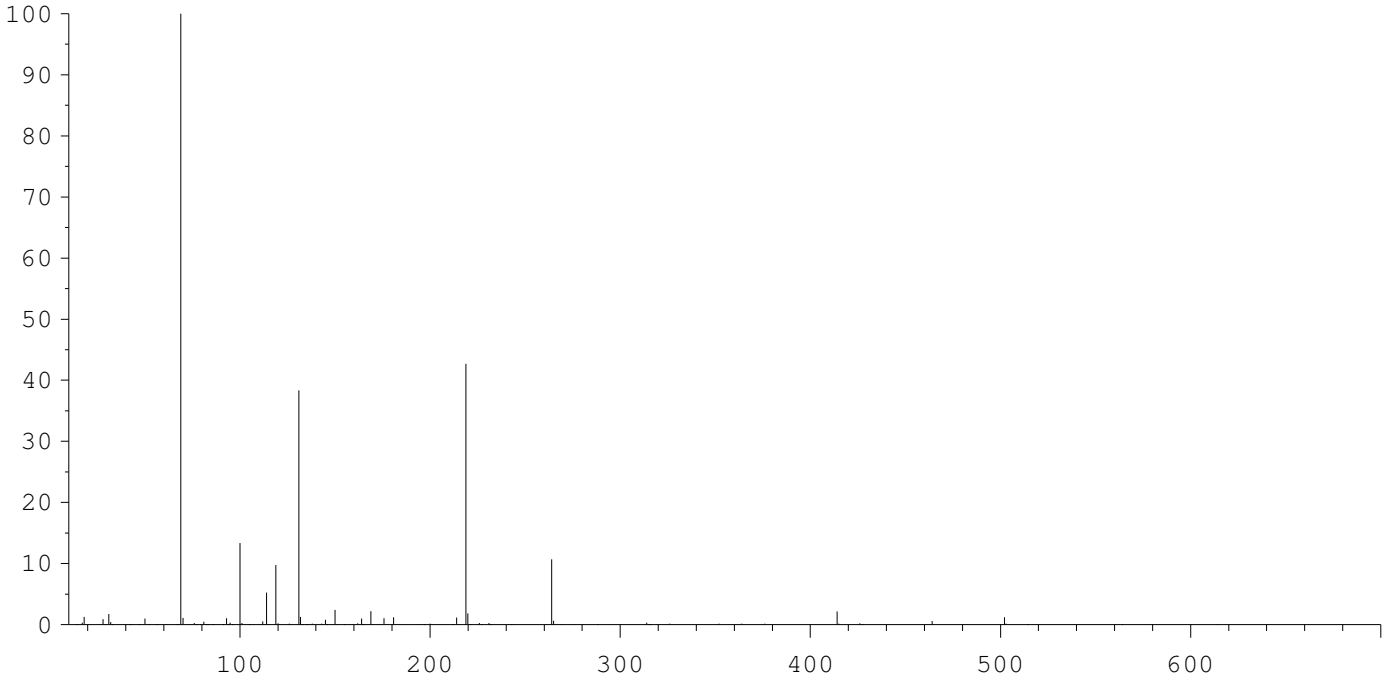
Mass	Ab	Pw50
68.90	617093	0.54
218.90	275350	0.54
502.00	7371	0.54



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2211
EleEnergy	69.9	AmuOffs	128
Filament	1	Wid219	0.044
		DC Pol	POS
Repeller	21.08		
IonFocus	81.6	HED	ON
EntLens	7.0	EMVolts	1471
EntOffs	19.58		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	87
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

126 peaks Base: 69.00 Abundance: 530496



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	530496	100.00	70.00	5936	1.12
218.90	226496	42.70	219.90	9767	4.31
502.00	6318	1.19	503.00	718	11.36

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(%):	1.0	100.0	38.3	41.7	2.1	1.2

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160126.M
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response Via : Initial Calibration

Calibration Files
1 =16012602.D 2 =16012603.D 3 =16012604.D 4 =16012605.D 5 =16012606.D 6 =16012607.D 7 =16012608.D
8 =16012609.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	1.195	1.100	0.990	0.935	0.983	0.953	0.920	0.931	1.001	9.70	A	0.0970	0.0000	1.0008	0.0000
3)	CP	2-Methyl napht...	0.872	0.848	0.770	0.707	0.793	0.796	0.749	0.769	0.788	6.70	A	0.0670	0.0000	0.7880	0.0000
4)	T	1-Methyl napht...	0.875	0.795	0.747	0.669	0.748	0.737	0.682	0.696	0.744	9.04	A	0.0904	0.0000	0.7436	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.433	1.357	1.268	1.198	1.268	1.244	1.277	1.354	1.300	5.82#	A	0.0582	0.0000	1.2999	0.0000
7)	S	2-Fluorobiphenyl	1.366	1.255	1.130	1.085	1.140	1.109	1.063	1.124	1.159	8.73	A	0.0873	0.0000	1.1589	0.0000
8)	CP	Acenaphthylene	1.994	1.761	1.600	1.525	1.614	1.609	1.580	1.623	1.663	8.97	A	0.0897	0.0000	1.6631	0.0000
9)	CP	Acenaphthene	1.213	1.070	0.975	0.919	0.959	0.951	0.958	1.016	1.008	9.41	A	0.0941	0.0000	1.0077	0.0000
10)	CP	Fluorene	1.389	1.184	1.140	1.085	1.146	1.137	1.162	1.267	1.189	8.09	A	0.0809	0.0000	1.1889	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.069	0.998	0.953	0.884	0.923	0.905	0.912	0.954	0.950	6.29	A	0.0629	0.0000	0.9499	0.0000
13)	CP	Anthracene	1.014	0.940	0.911	0.875	0.924	0.913	0.905	0.952	0.929	4.44	A	0.0444	0.0000	0.9294	0.0000
14)	CP	Fluoranthene	1.062	0.970	0.900	0.885	0.952	0.930	0.903	0.932	0.942	5.95	A	0.0595	0.0000	0.9419	0.0000
15)	CP	Pyrene	1.128	1.009	0.911	0.899	0.963	0.931	0.904	0.930	0.959	8.03	A	0.0803	0.0000	0.9594	0.0000
16)	S	4-Terphenyl-d14	0.759	0.675	0.629	0.615	0.662	0.653	0.650	0.703	0.668	6.82	A	0.0682	0.0000	0.6682	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	1.056	0.932	0.883	0.842	0.903	0.906	0.898	0.958	0.922	6.91	A	0.0691	0.0000	0.9223	0.0000
19)	CP	Chrysene	1.016	0.892	0.837	0.799	0.860	0.860	0.847	0.915	0.878	7.48	A	0.0748	0.0000	0.8782	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	1.292	1.101	1.014	0.960	1.040	1.026	1.040	1.058	1.066	9.31	A	0.0931	0.0000	1.0665	0.0000
22)	CP	Benzo[k]fluora...	1.120	0.966	0.873	0.861	0.922	0.936	0.938	0.962	0.947	8.39	A	0.0839	0.0000	0.9473	0.0000
23)	CP	Benzo(j)fluora...	0.973	0.892	0.862	0.828	0.885	0.868	0.886	0.924	0.890	4.90	A	0.0490	0.0000	0.8899	0.0000
24)	T	Benzo[e]pyrene	1.245	1.048	0.936	0.902	0.960	0.949	0.953	0.973	0.996	10.94	A	0.1094	0.0000	0.9957	0.0000
25)	CP	Benzo[a]pyrene	1.203	0.986	0.912	0.872	0.939	0.931	0.944	0.966	0.969	10.35	A	0.1035	0.0000	0.9691	0.0000
26)	CP	Dibenz[a,h]ant...	1.183	0.914	0.812	0.783	0.869	0.864	0.866	0.882	0.897	13.71	A	0.1371	0.0000	0.8965	0.0000
27)	CP	Indeno[1,2,3-c...	1.467	1.138	0.994	0.955	1.049	1.040	1.045	1.050	1.092	14.65	A	0.1465	0.0000	1.0922	0.0000
28)	CP	Benzo[g,h,i]pe...	1.203	0.956	0.861	0.827	0.894	0.869	0.864	0.858	0.916	13.29	A	0.1329	0.0000	0.9164	0.0000

(#) = Out of Range

REVIEWED/APPROVED

By Sherri Herschmann at 10:45:54 AM, 1/28/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160126A** **Run No.:** 83823

Analytical Run Date: 1/26/2016 **InstrumentID:** GCMS6

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

Column ID: 0.18mm

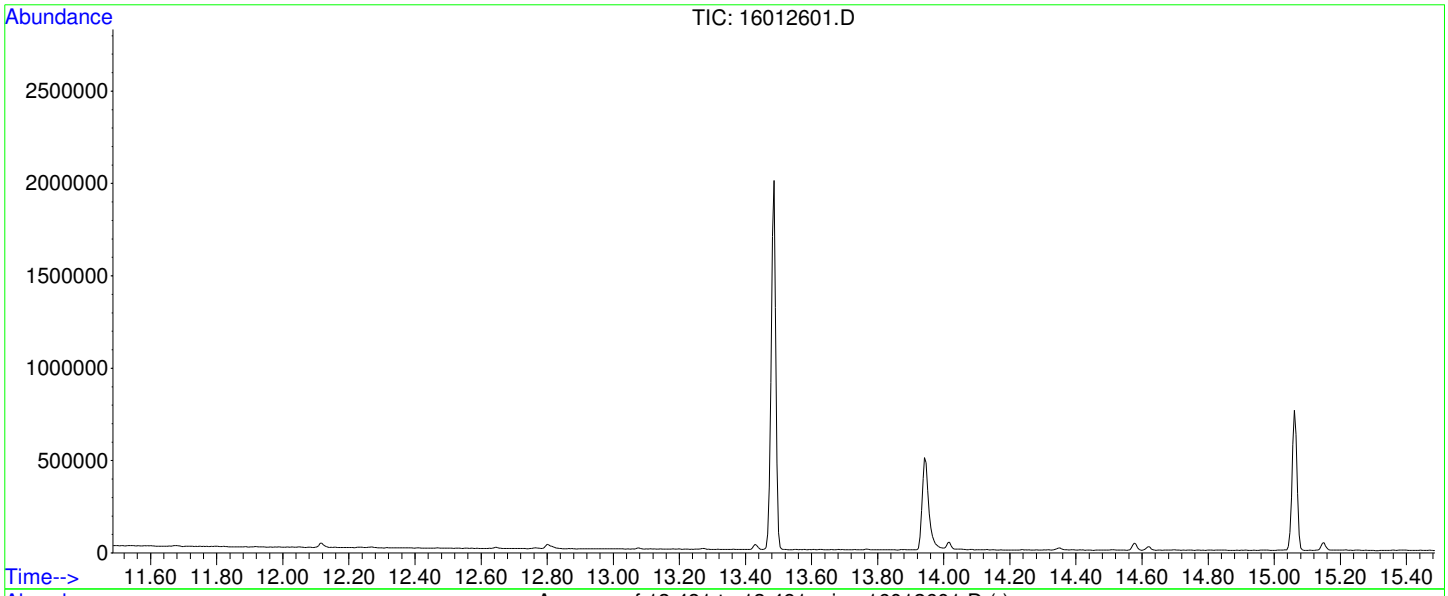
Column Length: 20m

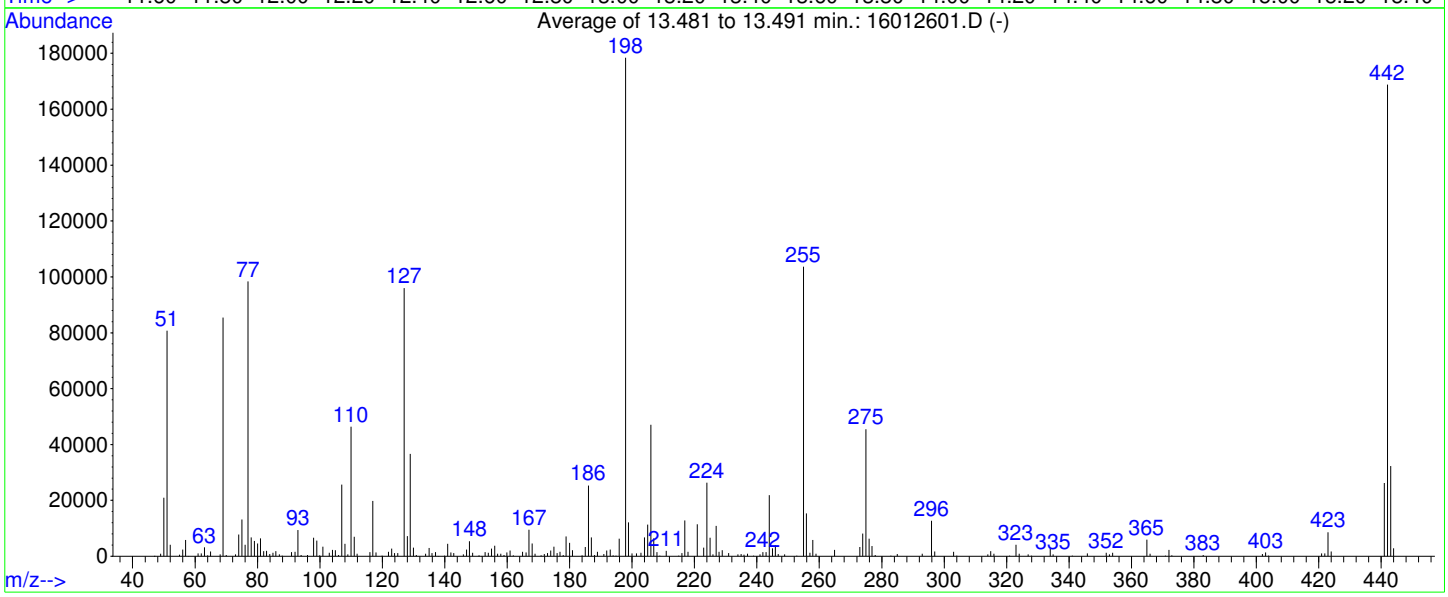
SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160126	1	PAH_ALL_W	TUNE	R83823	1/26/2016 1:25:00 PM		
PAH1 160126 5ppb	1	PAH_ALL_W	CAL1	R83823	1/26/2016 2:02:00 PM		
PAH2 160126 10ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 2:43:00 PM		
PAH3 160126 50ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 3:24:00 PM		
PAH4 160126 100ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 4:04:00 PM		
PAH5 160126 500ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 4:44:00 PM		
PAH6 160126 1000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 5:24:00 PM		
PAH7 160126 2000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 6:04:00 PM		
PAH8 160126 5000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 6:45:00 PM		
SSCV 160126 2500ppb	1	PAH_ALL_W	ICV	R83823	1/26/2016 8:04:00 PM		Chrysene low - see rerun for chrysene and all analytes in that standard spiked in SSCV 160127 2500 ppb
SSCV 160126 2500ppb	1	PAH_ALL_W	ICV	R83823	1/26/2016 8:43:00 PM		Dibenzofuran and Benzo(j)fluoranthene.
DFTPP-160127	1	PAH_ALL_W	TUNE	R83823	1/27/2016 10:30:00 AM		
SSCV 160127 2500ppb	1	PAH_ALL_W	ICV	R83823	1/27/2016 11:08:00 AM		PAH mix. PAHSSCV160127-1 used for rerun.

REVIEWED/APPROVED

By Sherri Herschmann at 10:46:01 AM, 1/28/2016

Data File : C:\HPCHEM\1\DATA\160126\16012601.D Vial: 1
Acq On : 26 Jan 2016 1:25 pm Operator:
Sample : DFTPP-160126 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

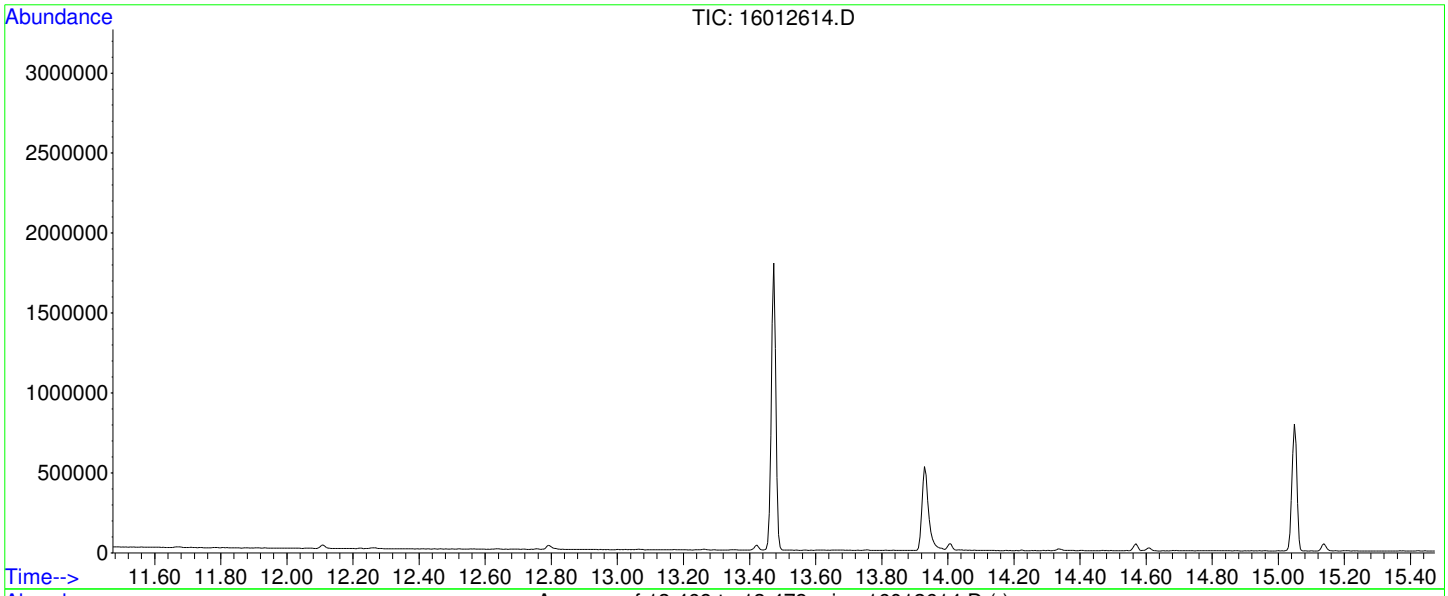


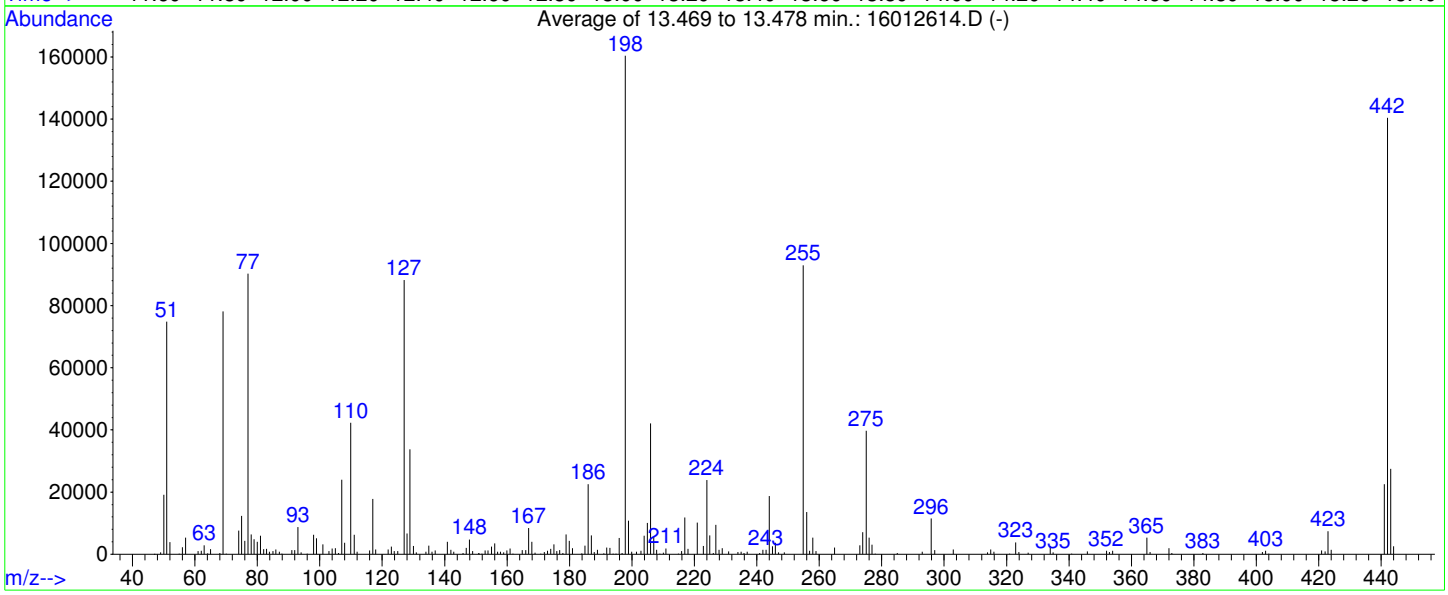


AutoFind: Scans 1572, 1573, 1574; Background Corrected with Scan 1565

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.3	80805	PASS
68	69	0.00	2	0.9	742	PASS
69	198	0.00	100	47.9	85408	PASS
70	69	0.00	2	0.5	410	PASS
127	198	10	80	53.8	96027	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	178453	PASS
199	198	5	9	6.8	12127	PASS
275	198	10	60	25.5	45480	PASS
365	198	1	200	3.4	5986	PASS
441	442	0.01	24	15.5	26192	PASS
442	198	50	400	94.6	168800	PASS
443	442	15	24	19.1	32272	PASS

Data File : C:\HPCHEM\1\DATA\160126\16012614.D Vial: 2
Acq On : 27 Jan 2016 10:30 am Operator:
Sample : DFTPP-160127 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 1569, 1570, 1571; Background Corrected with Scan 1562

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	46.7	74877	PASS
68	69	0.00	2	0.6	459	PASS
69	198	0.00	100	48.7	78123	PASS
70	69	0.00	2	0.2	181	PASS
127	198	10	80	55.0	88221	PASS
197	198	0.00	2	0.2	373	PASS
198	198	100	100	100.0	160405	PASS
199	198	5	9	6.7	10786	PASS
275	198	10	60	24.8	39789	PASS
365	198	1	200	3.4	5408	PASS
441	442	0.01	24	16.1	22532	PASS
442	198	50	400	87.5	140381	PASS
443	442	15	24	19.6	27475	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012602.D Vial: 2
Acq On : 26 Jan 2016 2:02 pm Operator:
Sample : PAH1 160126 5ppb Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2244252	4000.00 ug/kg	107
5) Acenaphthene-d10	13.19	164	1779934	4000.00 ug/kg	98
11) Phenanthrene-d10	15.28	188	3068359	4000.00 ug/kg	94
17) Chrysene-d12	20.91	240	2677596	4000.00 ug/kg	93
20) Perylene-d12	26.01	264	2201084	4000.00 ug/kg	95

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.15	172	3039	5.89 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.15%#		
16) 4-Terphenyl-d14	17.72	244	2912	5.68 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.14%#		

Target Compounds					Qvalue
2) Naphthalene	10.82	128	3352	5.97 ug/kg	97
3) 2-Methyl naphthalene	11.69	142	2445	5.53 ug/kg	98
4) 1-Methyl naphthalene	11.88	142	2455	5.88 ug/kg	95
6) Dibenzofuran	13.43	168	3189	5.51 ug/kg	98
8) Acenaphthylene	13.08	152	4436	5.99 ug/kg	98
9) Acenaphthene	13.24	154	2698	6.02 ug/kg	96
10) Fluorene	13.91	166	3091	5.84 ug/kg	100
12) Phenanthrene	15.31	178	4102	5.63 ug/kg	98
13) Anthracene	15.36	178	3888	5.45 ug/kg	97
14) Fluoranthene	17.25	202	4073	5.64 ug/kg	98
15) Pyrene	17.82	202	4325	5.88 ug/kg	99
18) Benzo[a]anthracene	20.74	228	3535	5.73 ug/kg	97
19) Chrysene	20.99	228	3401	5.79 ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	3554	6.06 ug/kg	92
22) Benzo[k]fluoranthene	24.37	252	3082	5.91 ug/kg	97
23) Benzo(j)fluoranthene	24.46	252	2678	5.47 ug/kg	89
24) Benzo[e]pyrene	25.51	252	3425	6.25 ug/kg	98
25) Benzo[a]pyrene	25.68	252	3309	6.20 ug/kg	95
26) Dibenz[a,h]anthracene	29.25	278	3256	6.60 ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.29	276	4035	6.71 ug/kg	97
28) Benzo[g,h,i]perylene	30.36	276	3310	6.56 ug/kg	100

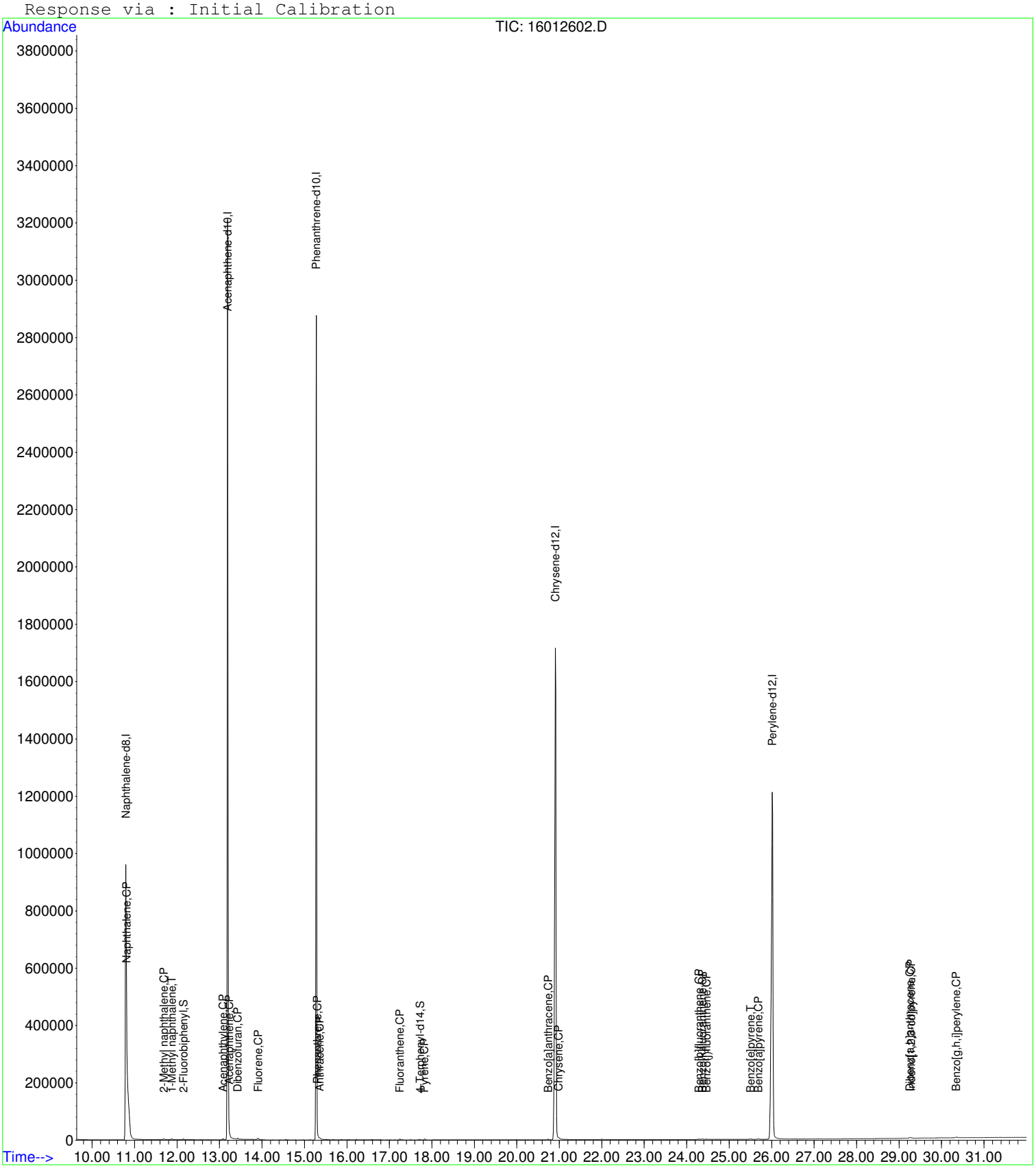
Slightly high, reprocessed low point must pass at 10 ppb for all analytes.

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012602.D Vial: 2
Acq On : 26 Jan 2016 2:02 pm Operator:
Sample : PAH1 160126 5ppb Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



16012602.D PP160126.M Wed Jan 27 11:53:01 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012603.D Vial: 3
Acq On : 26 Jan 2016 2:43 pm Operator:
Sample : PAH2 160126 10ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Reprocessed low point.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2188478	4000.00 ug/kg	104
5) Acenaphthene-d10	13.19	164	1792842	4000.00 ug/kg	98
11) Phenanthrene-d10	15.28	188	3016862	4000.00 ug/kg	92
17) Chrysene-d12	20.91	240	2693318	4000.00 ug/kg	93
20) Perylene-d12	26.01	264	2176517	4000.00 ug/kg	94

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.15	172	5623	10.83 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.27%#		
16) 4-Terphenyl-d14	17.72	244	5091	10.10 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#		

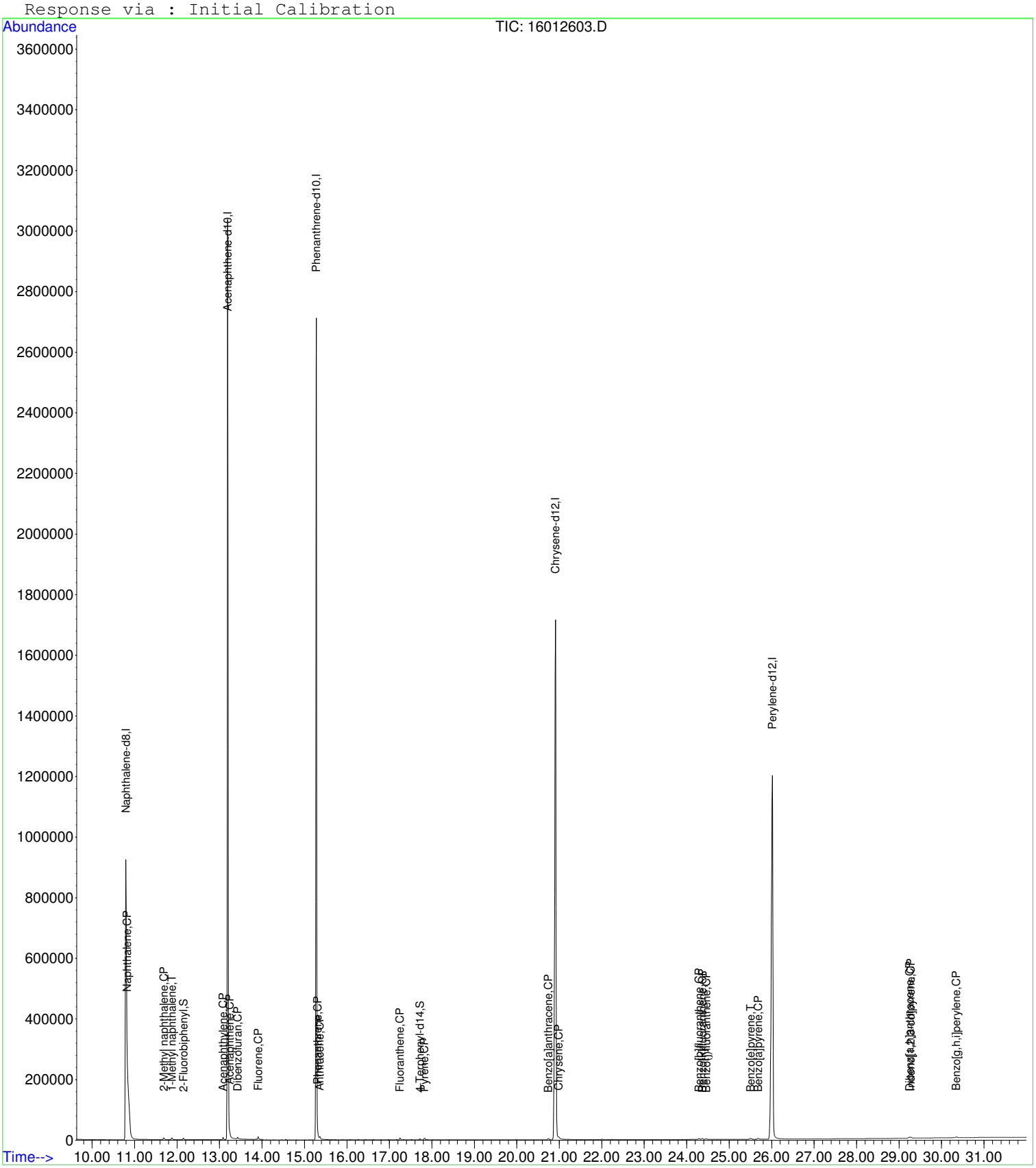
Target Compounds					Qvalue
2) Naphthalene	10.83	128	6018	10.99 ug/kg	97
3) 2-Methyl naphthalene	11.69	142	4642	10.77 ug/kg	96
4) 1-Methyl naphthalene	11.88	142	4350	10.69 ug/kg	96
6) Dibenzofuran	13.43	168	6082	10.44 ug/kg	100
8) Acenaphthylene	13.08	152	7894	10.59 ug/kg	97
9) Acenaphthene	13.24	154	4796	10.62 ug/kg	99
10) Fluorene	13.91	166	5307	9.96 ug/kg	98
12) Phenanthrene	15.31	178	7524	10.50 ug/kg	98
13) Anthracene	15.36	178	7093	10.12 ug/kg	98
14) Fluoranthene	17.25	202	7319	10.30 ug/kg	98
15) Pyrene	17.82	202	7611	10.52 ug/kg	97
18) Benzo[a]anthracene	20.74	228	6278	10.11 ug/kg	100
19) Chrysene	20.99	228	6008	10.16 ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	5993	10.33 ug/kg	98
22) Benzo[k]fluoranthene	24.37	252	5254	10.19 ug/kg	95
23) Benzo(j)fluoranthene	24.46	252	4856	10.03 ug/kg	95
24) Benzo[e]pyrene	25.51	252	5704	10.53 ug/kg	98
25) Benzo[a]pyrene	25.68	252	5367	10.18 ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	4973	10.19 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.28	276	6194	10.42 ug/kg	96
28) Benzo[g,h,i]perylene	30.36	276	5203	10.43 ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012603.D Vial: 3
Acq On : 26 Jan 2016 2:43 pm Operator:
Sample : PAH2 160126 10ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



16012603.D PP160126.M Wed Jan 27 11:53:07 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012604.D Vial: 4
Acq On : 26 Jan 2016 3:24 pm Operator:
Sample : PAH3 160126 50ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2159310	4000.00 ug/kg	103
5) Acenaphthene-d10	13.19	164	1703253	4000.00 ug/kg	94
11) Phenanthrene-d10	15.28	188	3035492	4000.00 ug/kg	93
17) Chrysene-d12	20.91	240	2655973	4000.00 ug/kg	92
20) Perylene-d12	26.01	264	2149058	4000.00 ug/kg	93

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.14	172	24057	48.75 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.22%#	
16) 4-Terphenyl-d14	17.72	244	23858	47.05 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.18%#	

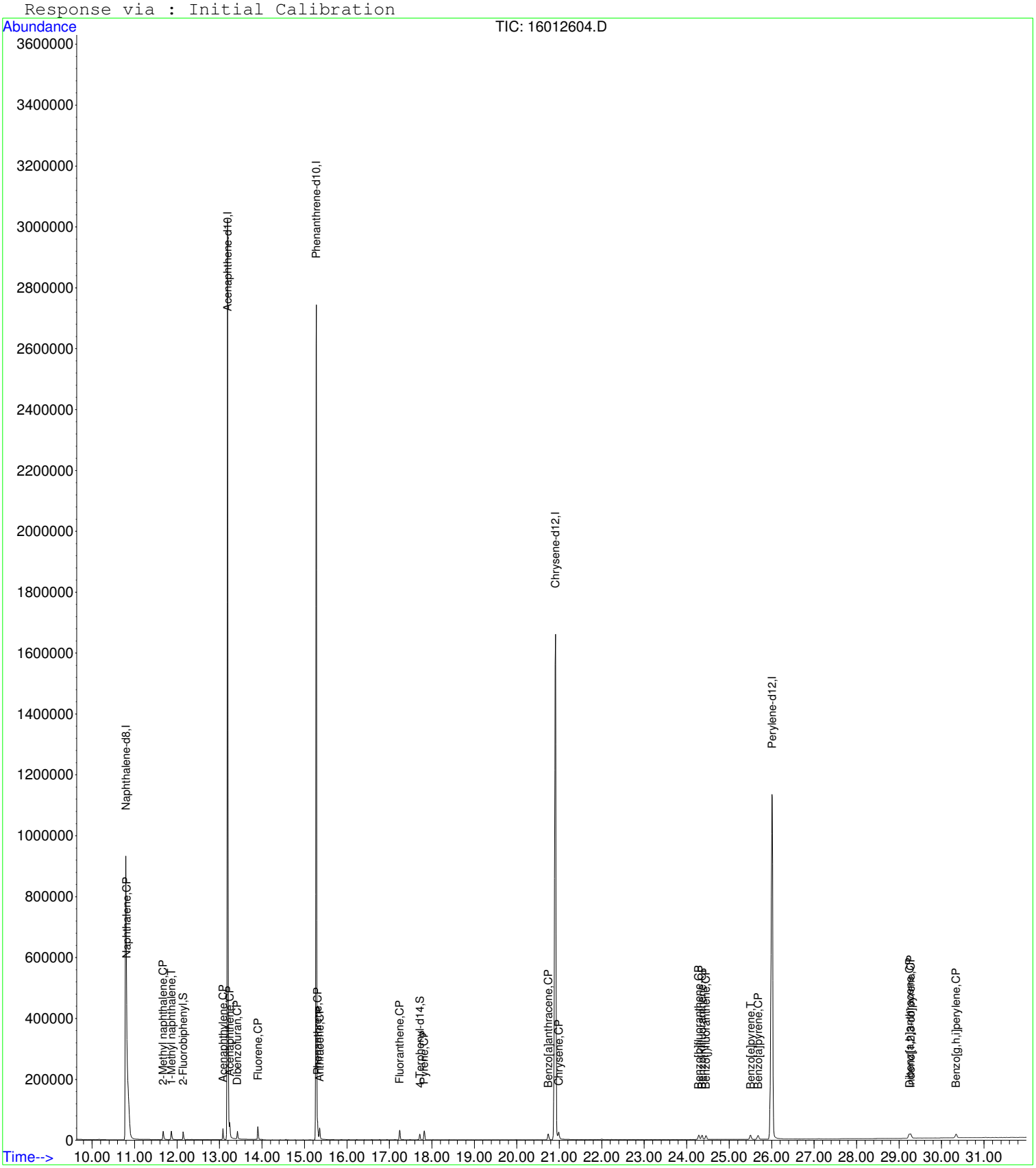
Target Compounds					Qvalue
2) Naphthalene	10.82	128	26716	49.45 ug/kg	99
3) 2-Methyl naphthalene	11.68	142	20774	48.84 ug/kg	97
4) 1-Methyl naphthalene	11.87	142	20153	50.20 ug/kg	99
6) Dibenzofuran	13.42	168	26996	48.77 ug/kg	99
8) Acenaphthylene	13.08	152	34058	48.09 ug/kg	98
9) Acenaphthene	13.24	154	20762	48.39 ug/kg	97
10) Fluorene	13.90	166	24273	47.95 ug/kg	98
12) Phenanthrene	15.31	178	36149	50.15 ug/kg	99
13) Anthracene	15.36	178	34574	49.02 ug/kg	98
14) Fluoranthene	17.24	202	34157	47.79 ug/kg	99
15) Pyrene	17.82	202	34571	47.48 ug/kg	100
18) Benzo[a]anthracene	20.74	228	29307	47.86 ug/kg	97
19) Chrysene	20.99	228	27789	47.66 ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	27252	47.56 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	23453	46.08 ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	23156	48.43 ug/kg	96
24) Benzo[e]pyrene	25.51	252	25151	47.02 ug/kg	98
25) Benzo[a]pyrene	25.68	252	24499	47.05 ug/kg	99
26) Dibenz[a,h]anthracene	29.24	278	21808	45.28 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.27	276	26698	45.50 ug/kg	98
28) Benzo[g,h,i]perylene	30.34	276	23119	46.95 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012604.D Vial: 4
Acq On : 26 Jan 2016 3:24 pm Operator:
Sample : PAH3 160126 50ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012605.D Vial: 5
Acq On : 26 Jan 2016 4:04 pm Operator:
Sample : PAH4 160126 100ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2435003	4000.00	ug/kg	116
5) Acenaphthene-d10	13.19	164	1827825	4000.00	ug/kg	100
11) Phenanthrene-d10	15.28	188	3102712	4000.00	ug/kg	95
17) Chrysene-d12	20.91	240	2787948	4000.00	ug/kg	97
20) Perylene-d12	26.02	264	2244118	4000.00	ug/kg	97

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.14	172	49563	93.59	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.34%#			
16) 4-Terphenyl-d14	17.71	244	47722	92.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.30%#			

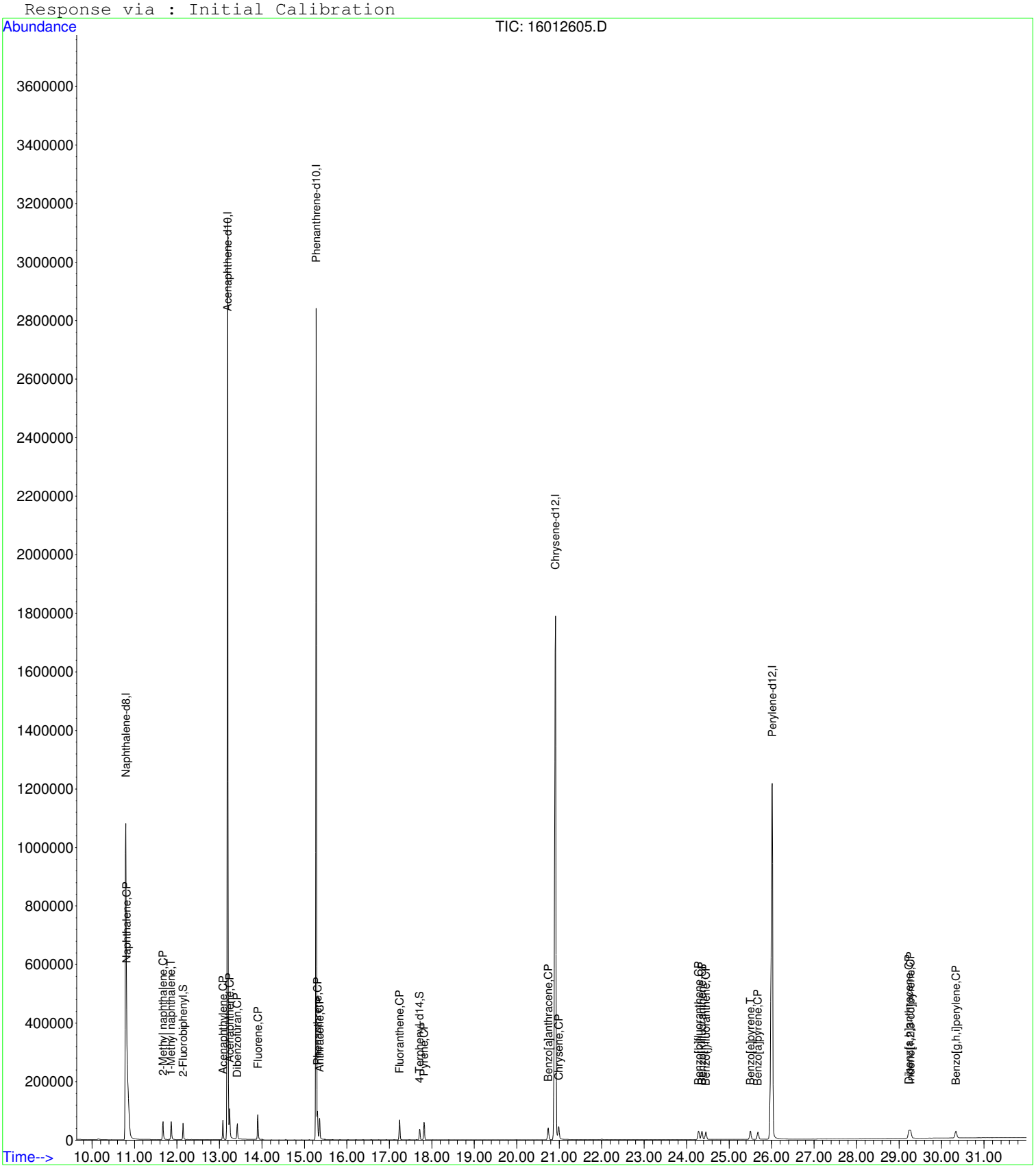
Target Compounds						Qvalue
2) Naphthalene	10.82	128	56912	93.42	ug/kg	100
3) 2-Methyl naphthalene	11.67	142	43051	89.75	ug/kg	97
4) 1-Methyl naphthalene	11.86	142	40729	89.97	ug/kg	95
6) Dibenzofuran	13.42	168	54736	92.15	ug/kg	99
8) Acenaphthylene	13.08	152	69695	91.71	ug/kg	98
9) Acenaphthene	13.24	154	41980	91.17	ug/kg	96
10) Fluorene	13.90	166	49598	91.30	ug/kg	99
12) Phenanthrene	15.31	178	68605	93.11	ug/kg	99
13) Anthracene	15.36	178	67902	94.19	ug/kg	98
14) Fluoranthene	17.24	202	68672	93.99	ug/kg	99
15) Pyrene	17.82	202	69706	93.67	ug/kg	99
18) Benzo[a]anthracene	20.74	228	58721	91.35	ug/kg	99
19) Chrysene	20.99	228	55673	90.96	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	53876	90.05	ug/kg	98
22) Benzo[k]fluoranthene	24.36	252	48315	90.91	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	46455	93.05	ug/kg	97
24) Benzo[e]pyrene	25.50	252	50586	90.56	ug/kg	99
25) Benzo[a]pyrene	25.68	252	48932	90.00	ug/kg	99
26) Dibenz[a,h]anthracene	29.23	278	43917	87.31	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	53593	87.46	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	46383	90.21	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012605.D Vial: 5
Acq On : 26 Jan 2016 4:04 pm Operator:
Sample : PAH4 160126 100ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012606.D Vial: 6
Acq On : 26 Jan 2016 4:44 pm Operator:
Sample : PAH5 160126 500ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2235270	4000.00 ug/kg	107
5) Acenaphthene-d10	13.19	164	1798502	4000.00 ug/kg	99
11) Phenanthrene-d10	15.28	188	3098904	4000.00 ug/kg	95
17) Chrysene-d12	20.91	240	2763319	4000.00 ug/kg	96
20) Perylene-d12	26.01	264	2233167	4000.00 ug/kg	97

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	256192	491.67 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.29%#		
16) 4-Terphenyl-d14	17.71	244	256452	495.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#		

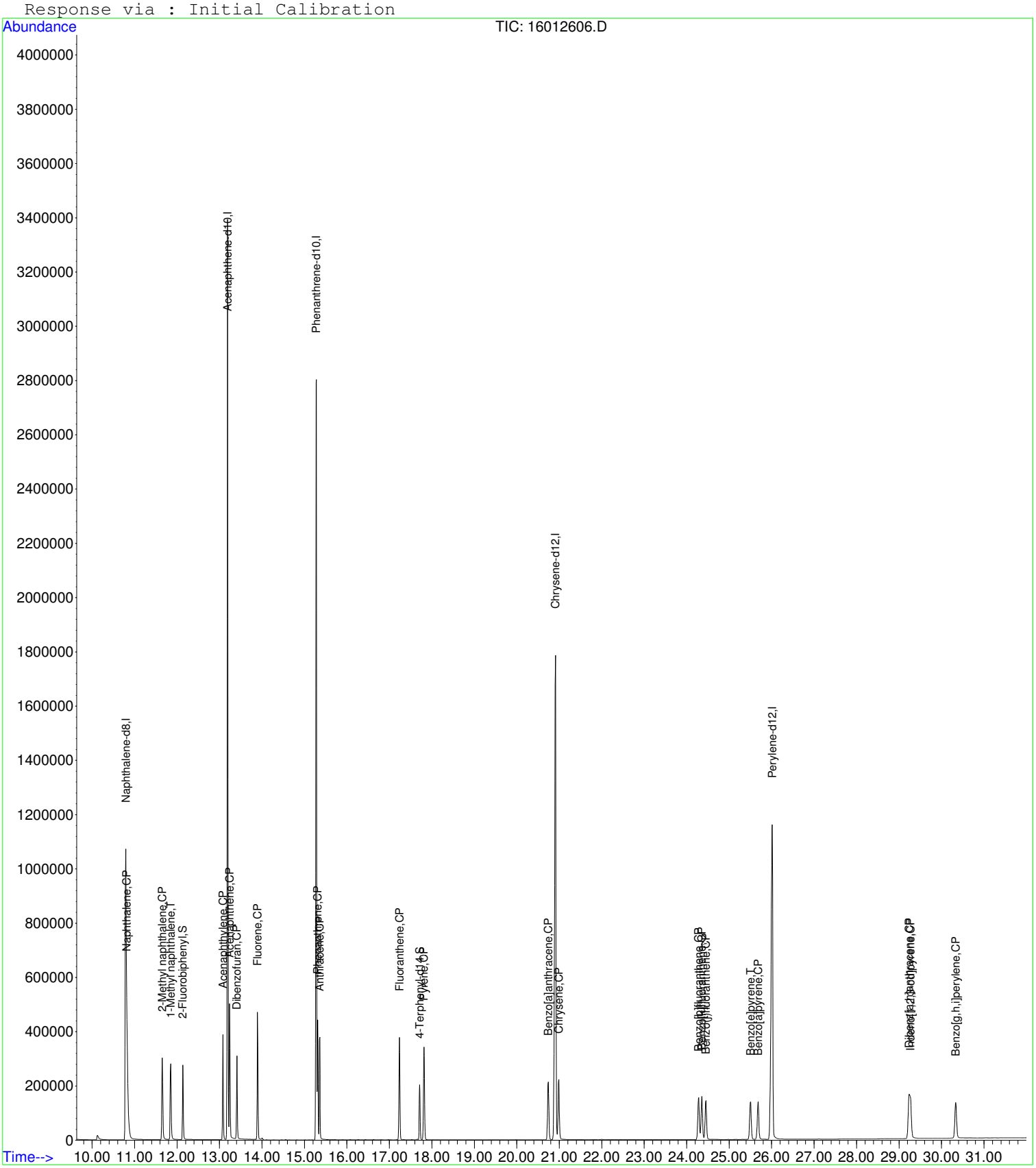
Target Compounds					Qvalue
2) Naphthalene	10.82	128	274664	491.14 ug/kg	100
3) 2-Methyl naphthalene	11.65	142	221689	503.46 ug/kg	99
4) 1-Methyl naphthalene	11.85	142	209018	502.99 ug/kg	97
6) Dibenzofuran	13.41	168	285022	487.65 ug/kg	99
8) Acenaphthylene	13.08	152	362848	485.23 ug/kg	98
9) Acenaphthene	13.24	154	215617	475.88 ug/kg	97
10) Fluorene	13.89	166	257524	481.77 ug/kg	96
12) Phenanthrene	15.31	178	357624	485.97 ug/kg	99
13) Anthracene	15.36	178	357883	497.06 ug/kg	98
14) Fluoranthene	17.24	202	368769	505.35 ug/kg	99
15) Pyrene	17.81	202	373093	501.96 ug/kg	100
18) Benzo[a]anthracene	20.74	228	311912	489.54 ug/kg	99
19) Chrysene	20.99	228	296934	489.46 ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	290417	487.77 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	257477	486.83 ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	246972	497.11 ug/kg	99
24) Benzo[e]pyrene	25.51	252	268004	482.12 ug/kg	100
25) Benzo[a]pyrene	25.68	252	262128	484.47 ug/kg	100
26) Dibenz[a,h]anthracene	29.23	278	242580	484.65 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	292712	480.03 ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	249501	487.65 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012606.D Vial: 6
Acq On : 26 Jan 2016 4:44 pm Operator:
Sample : PAH5 160126 500ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012607.D Vial: 7
Acq On : 26 Jan 2016 5:24 pm Operator:
Sample : PAH6 160126 1000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2158518	4000.00 ug/kg	103
5) Acenaphthene-d10	13.19	164	1840013	4000.00 ug/kg	101
11) Phenanthrene-d10	15.27	188	3200350	4000.00 ug/kg	98
17) Chrysene-d12	20.91	240	2810849	4000.00 ug/kg	97
20) Perylene-d12	26.01	264	2296486	4000.00 ug/kg	99

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	510284	957.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.93%#		
16) 4-Terphenyl-d14	17.71	244	522441	977.15 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.43%#		

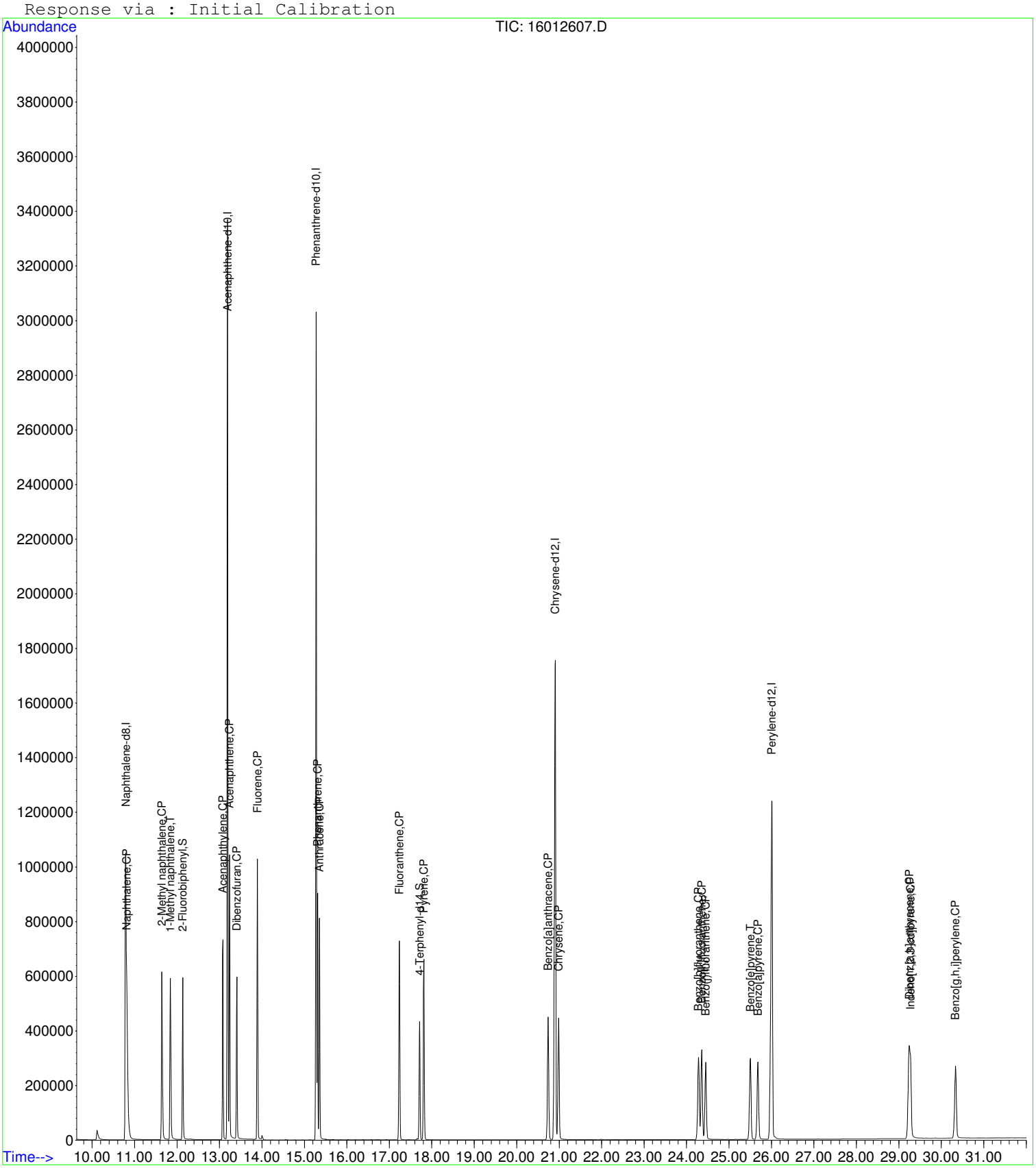
Target Compounds					Qvalue
2) Naphthalene	10.82	128	514174	952.11 ug/kg	100
3) 2-Methyl naphthalene	11.64	142	429319	1009.66 ug/kg	99
4) 1-Methyl naphthalene	11.84	142	397544	990.69 ug/kg	97
6) Dibenzofuran	13.41	168	572385	957.21 ug/kg	100
8) Acenaphthylene	13.08	152	740088	967.37 ug/kg	98
9) Acenaphthene	13.24	154	437672	944.17 ug/kg	98
10) Fluorene	13.89	166	523181	956.66 ug/kg	98
12) Phenanthrene	15.31	178	724398	953.17 ug/kg	99
13) Anthracene	15.35	178	730503	982.42 ug/kg	99
14) Fluoranthene	17.24	202	744264	987.58 ug/kg	99
15) Pyrene	17.81	202	744857	970.36 ug/kg	99
18) Benzo[a]anthracene	20.74	228	636710	982.40 ug/kg	99
19) Chrysene	20.99	228	604061	978.88 ug/kg	100
21) Benzo[b]fluoranthene	24.28	252	589003	961.99 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	537156	987.63 ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	498392	975.51 ug/kg	97
24) Benzo[e]pyrene	25.50	252	544995	953.38 ug/kg	99
25) Benzo[a]pyrene	25.68	252	534701	960.99 ug/kg	100
26) Dibenz[a,h]anthracene	29.24	278	495792	963.23 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.28	276	596831	951.78 ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	498982	948.38 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012607.D Vial: 7
Acq On : 26 Jan 2016 5:24 pm Operator:
Sample : PAH6 160126 1000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



16012607.D PP160126.M Wed Jan 27 11:53:35 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012608.D Vial: 8
Acq On : 26 Jan 2016 6:04 pm Operator:
Sample : PAH7 160126 2000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2097846	4000.00	ug/kg	100
5) Acenaphthene-d10	13.19	164	1821291	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	3269176	4000.00	ug/kg	100
17) Chrysene-d12	20.91	240	2887924	4000.00	ug/kg	100
20) Perylene-d12	26.01	264	2311437	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	967726	1833.99	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.85%			
16) 4-Terphenyl-d14	17.71	244	1061938	1944.39	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.61%			

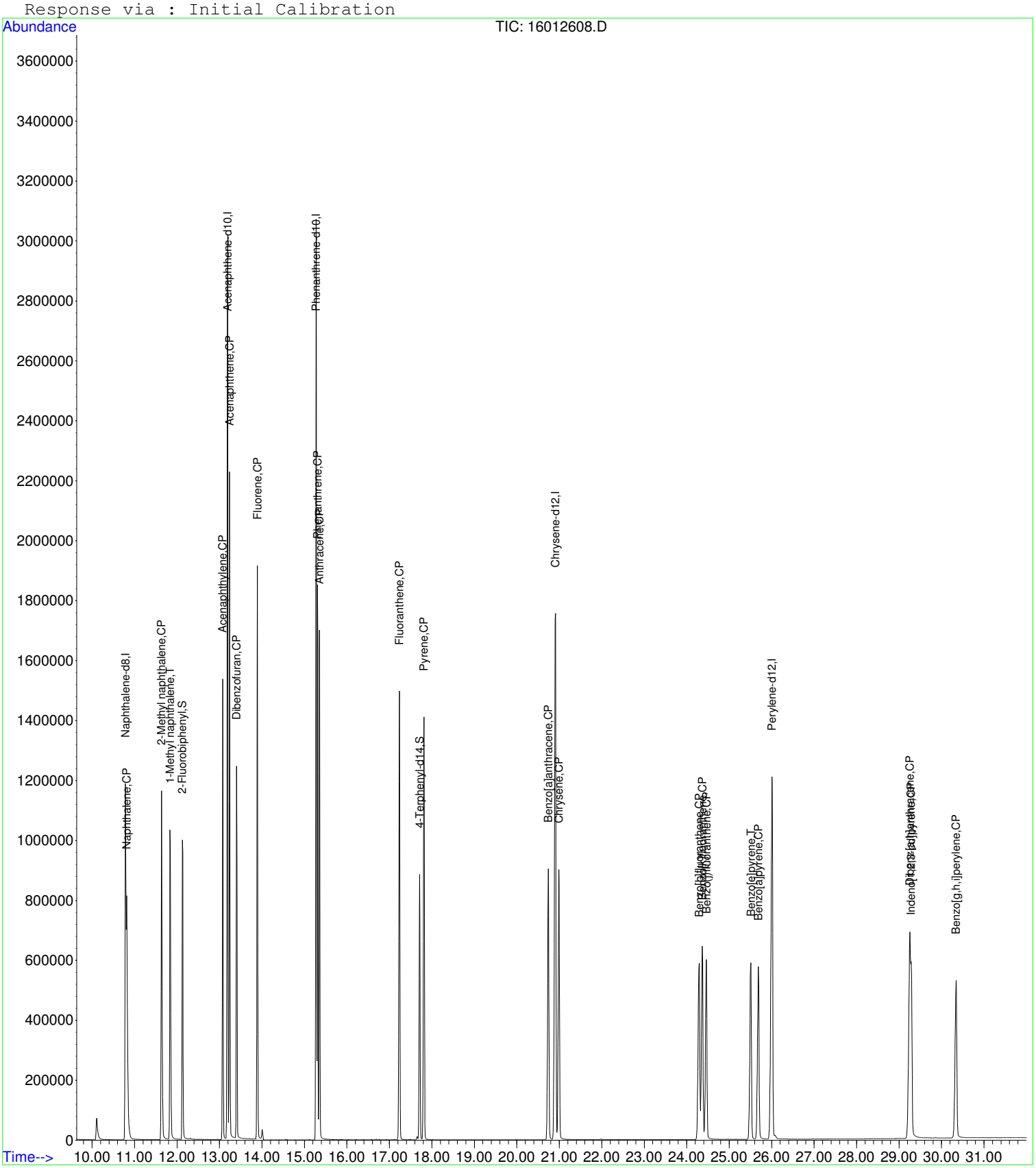
Target Compounds						Qvalue
2) Naphthalene	10.82	128	965006	1838.61	ug/kg	100
3) 2-Methyl naphthalene	11.63	142	785437	1900.59	ug/kg	100
4) 1-Methyl naphthalene	11.84	142	715870	1835.55	ug/kg	100
6) Dibenzofuran	13.40	168	1163125	1965.11	ug/kg	100
8) Acenaphthylene	13.07	152	1438629	1899.77	ug/kg	100
9) Acenaphthene	13.24	154	872830	1902.27	ug/kg	100
10) Fluorene	13.89	166	1058004	1954.50	ug/kg	100
12) Phenanthrene	15.31	178	1490541	1919.98	ug/kg	100
13) Anthracene	15.35	178	1479040	1947.22	ug/kg	100
14) Fluoranthene	17.24	202	1475933	1917.22	ug/kg	100
15) Pyrene	17.81	202	1477970	1884.89	ug/kg	100
18) Benzo[a]anthracene	20.74	228	1296771	1947.43	ug/kg	100
19) Chrysene	20.99	228	1223411	1929.62	ug/kg	100
21) Benzo[b]fluoranthene	24.30	252	1201887	1950.29	ug/kg	100
22) Benzo[k]fluoranthene	24.37	252	1084547	1981.18	ug/kg	100
23) Benzo(j)fluoranthene	24.47	252	1024021	1991.36	ug/kg	100
24) Benzo[e]pyrene	25.51	252	1100846	1913.30	ug/kg	100
25) Benzo[a]pyrene	25.69	252	1090866	1947.87	ug/kg	100
26) Dibenz[a,h]anthracene	29.25	278	1000571	1931.35	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1208037	1914.01	ug/kg	100
28) Benzo[g,h,i]perylene	30.34	276	998970	1886.38	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012608.D Vial: 8
Acq On : 26 Jan 2016 6:04 pm Operator:
Sample : PAH7 160126 2000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

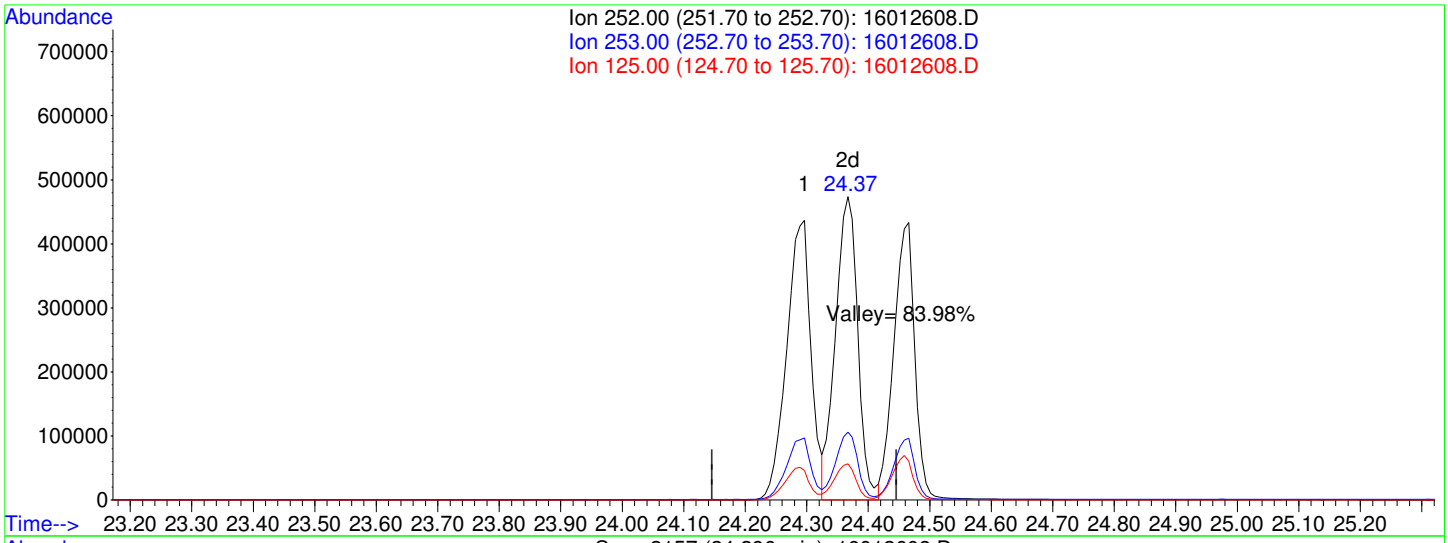
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration

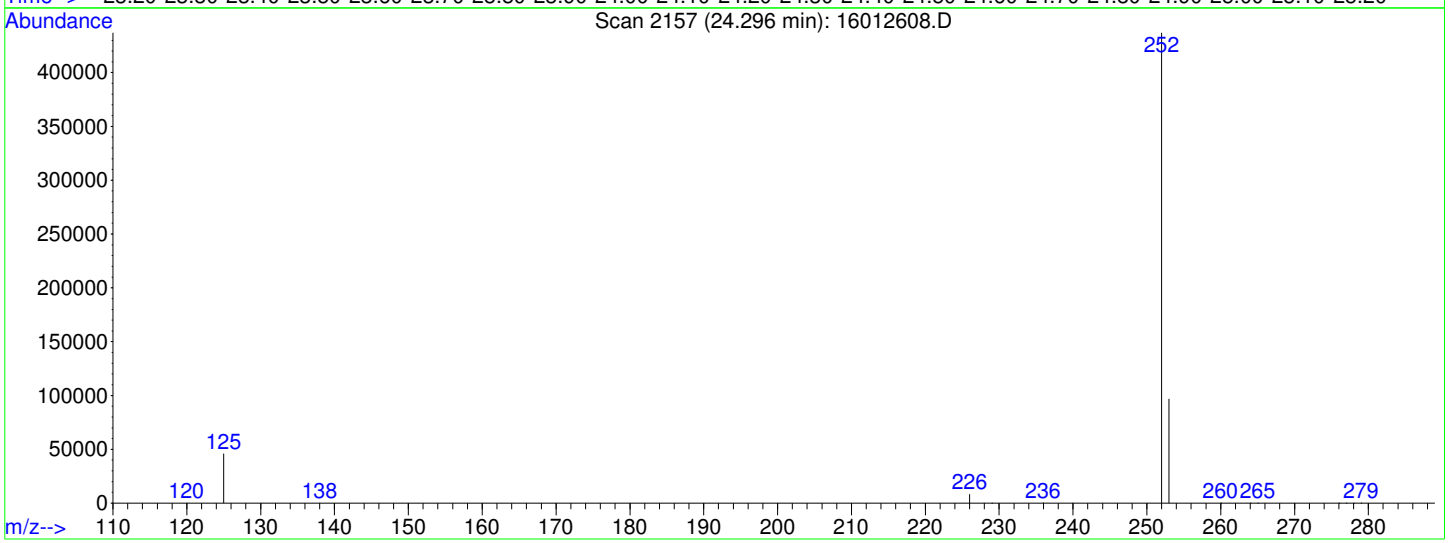


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160126\16012608.D          Vial: 8
Acq On    : 26 Jan 2016   6:04 pm                   Operator:
Sample    : PAH7 160126 2000ppb                     Inst    : GC/MS #6
Misc      : CAL                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Jan 27 09:39:38 2016
Response via : Multiple Level Calibration
```





TIC: 16012608.D

(21) Benzo[b]fluoranthene (CP)

24.30min 1950.29ug/kg

response 1201887

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.97
125.00	10.50	10.52
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012609.D Vial: 9
Acq On : 26 Jan 2016 6:45 pm Operator:
Sample : PAH8 160126 5000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2131998	4000.00 ug/kg	102
5) Acenaphthene-d10	13.19	164	1769567	4000.00 ug/kg	97
11) Phenanthrene-d10	15.27	188	3189275	4000.00 ug/kg	98
17) Chrysene-d12	20.91	240	2852801	4000.00 ug/kg	99
20) Perylene-d12	26.01	264	2290073	4000.00 ug/kg	99

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	2487205	4851.41 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 121.29%		
16) 4-Terphenyl-d14	17.72	244	2802740	5260.34 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 131.51%		

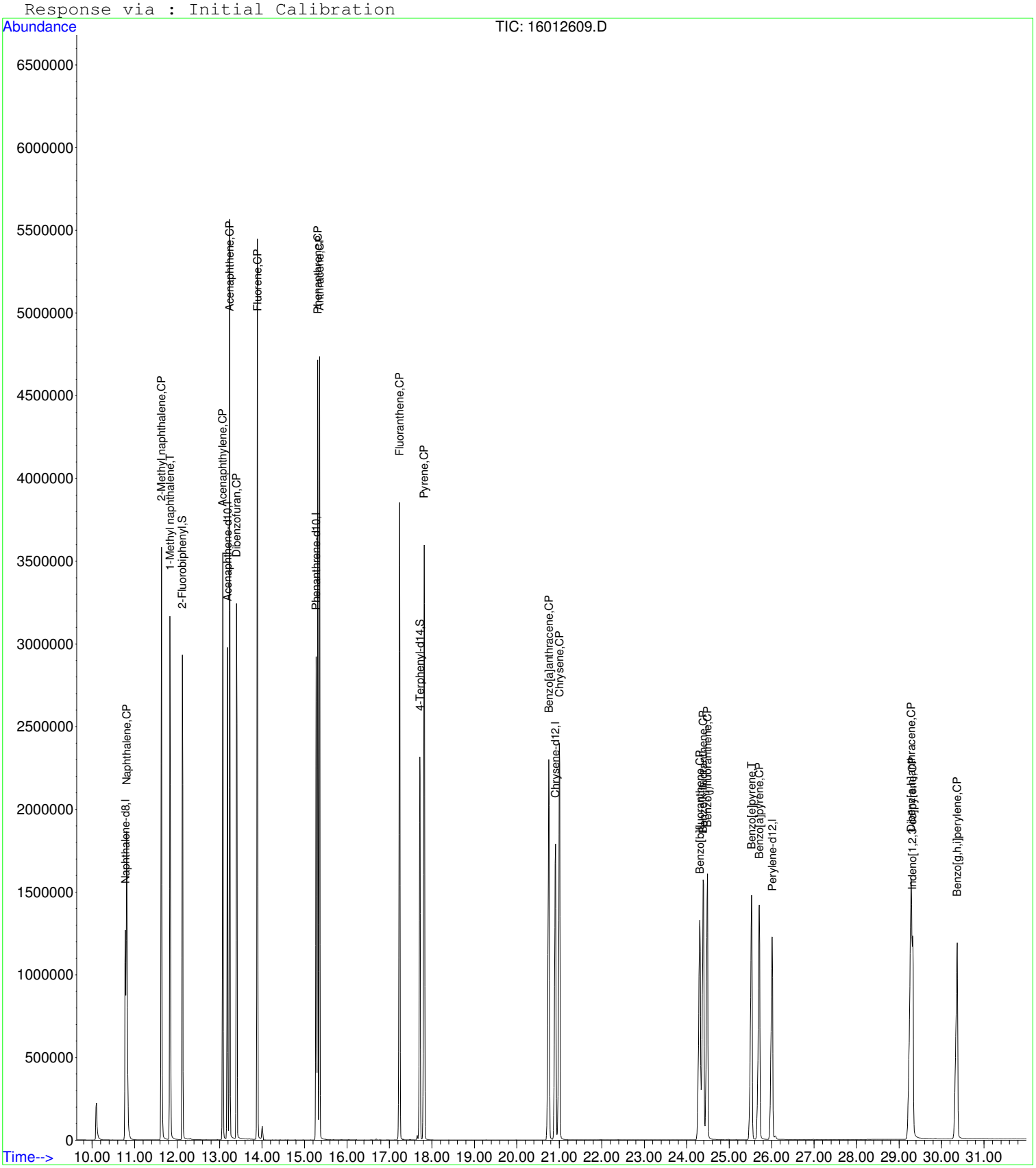
Target Compounds					Qvalue
2) Naphthalene	10.81	128	2480231	4649.84 ug/kg	99
3) 2-Methyl naphthalene	11.63	142	2049599	4880.15 ug/kg	96
4) 1-Methyl naphthalene	11.83	142	1854399	4678.68 ug/kg	95
6) Dibenzofuran	13.40	168	2994948	5207.90 ug/kg	100
8) Acenaphthylene	13.08	152	3589088	4878.07 ug/kg	98
9) Acenaphthene	13.24	154	2247788	5042.08 ug/kg	98
10) Fluorene	13.89	166	2803540	5330.51 ug/kg	99
12) Phenanthrene	15.31	178	3804386	5023.24 ug/kg	98
13) Anthracene	15.36	178	3796920	5124.05 ug/kg	98
14) Fluoranthene	17.24	202	3716902	4949.19 ug/kg	98
15) Pyrene	17.82	202	3709059	4848.76 ug/kg	98
18) Benzo[a]anthracene	20.75	228	3414531	5190.91 ug/kg	99
19) Chrysene	21.00	228	3261363	5207.30 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	3027218	4958.05 ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	2754530	5078.74 ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	2646283	5194.10 ug/kg	99
24) Benzo[e]pyrene	25.53	252	2784027	4883.85 ug/kg	99
25) Benzo[a]pyrene	25.71	252	2764409	4982.23 ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	2524704	4918.75 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	3006879	4808.54 ug/kg	100
28) Benzo[g,h,i]perylene	30.37	276	2454792	4678.70 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012609.D Vial: 9
Acq On : 26 Jan 2016 6:45 pm Operator:
Sample : PAH8 160126 5000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012611.D Vial: 11
Acq On : 26 Jan 2016 8:04 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2122032	4000.00 ug/kg	101
5) Acenaphthene-d10	13.18	164	1686505	4000.00 ug/kg	93
11) Phenanthrene-d10	15.27	188	3137706	4000.00 ug/kg	96
17) Chrysene-d12	20.90	240	2751552	4000.00 ug/kg	95
20) Perylene-d12	26.01	264	2232569	4000.00 ug/kg	97

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1123996	2300.38 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	57.51%	
16) 4-Terphenyl-d14	17.71	244	1263023	2409.47 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.24%	

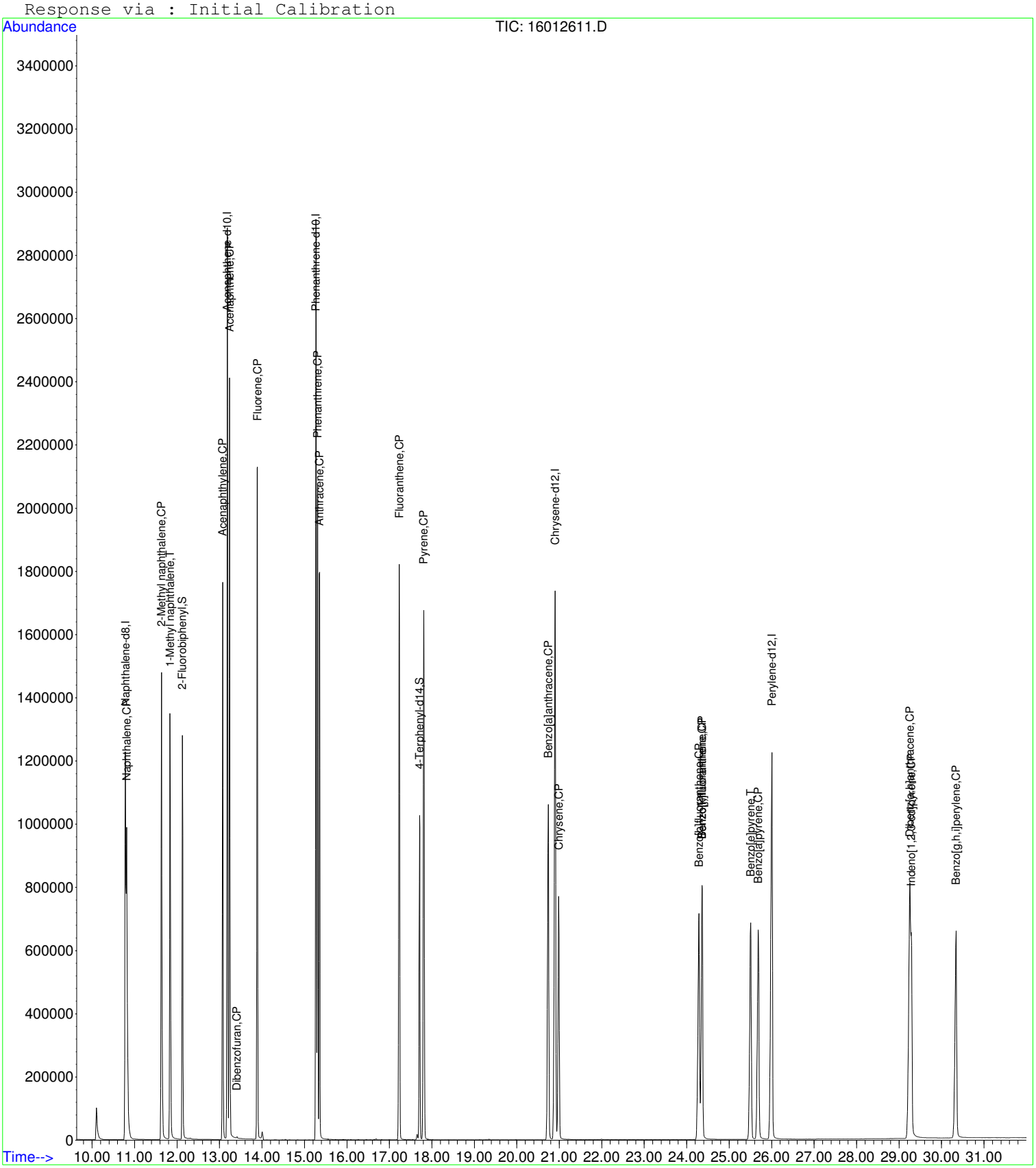
Target Compounds					Qvalue
2) Naphthalene	10.81	128	1167168	2198.44 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	958720	2293.46 ug/kg	98
4) 1-Methyl naphthalene	11.83	142	868184	2200.73 ug/kg	95
6) Dibenzofuran	13.41	168	3873	7.07 ug/kg	99
8) Acenaphthylene	13.07	152	1592321	2270.77 ug/kg	99
9) Acenaphthene	13.24	154	1021217	2403.54 ug/kg	99
10) Fluorene	13.89	166	1276059	2545.73 ug/kg	99
12) Phenanthrene	15.31	178	1734390	2327.69 ug/kg	99
13) Anthracene	15.36	178	1681552	2306.60 ug/kg	99
14) Fluoranthene	17.23	202	1786177	2417.45 ug/kg	99
15) Pyrene	17.81	202	1778177	2362.77 ug/kg	100
18) Benzo[a]anthracene	20.74	228	1504586	2371.50 ug/kg	100
19) Chrysene	20.99	228	1045327	1730.45 ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1399124	2350.54 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	1395386	2639.05 ug/kg	100
23) ~~Benzo(j)fluoranthene~~	~~24.36~~	~~252~~	~~1303711~~	~~2624.82 ug/kg~~	~~98~~
24) Benzo[e]pyrene	25.51	252	1301959	2342.78 ug/kg	99
25) Benzo[a]pyrene	25.68	252	1282202	2370.41 ug/kg	100
26) Dibenz[a,h]anthracene	29.25	278	1164891	2327.95 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1408528	2310.51 ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	1176633	2300.36 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012611.D Vial: 11
Acq On : 26 Jan 2016 8:04 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012612.D Vial: 12
Acq On : 26 Jan 2016 8:43 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2256776	4000.00	ug/kg	108
5) Acenaphthene-d10	13.18	164	1819151	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	2835818	4000.00	ug/kg	87
17) Chrysene-d12	20.90	240	2721810	4000.00	ug/kg	94
20) Perylene-d12	26.00	264	2158293	4000.00	ug/kg	93

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.15	172	422	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.02%#	
16) 4-Terphenyl-d14	17.72	244	2951	6.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.16%#	

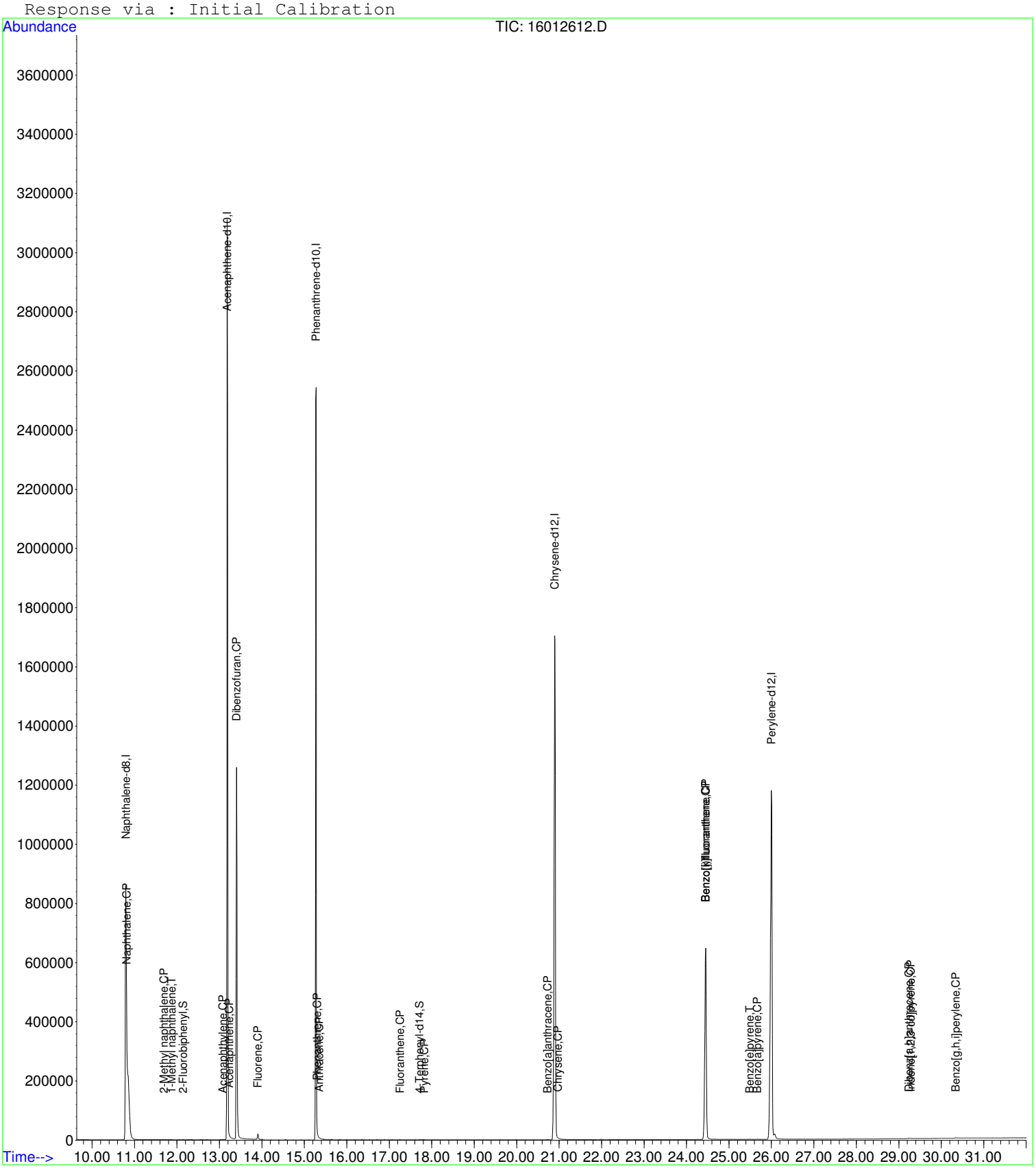
Target Compounds						Qvalue
2) Naphthalene	10.82	128	1045	1.85	ug/kg	77
3) 2-Methyl naphthalene	11.69	142	524	1.18	ug/kg	94
4) 1-Methyl naphthalene	11.88	142	428	1.02	ug/kg	94
6) Dibenzofuran	13.40	168	1285939	2175.16	ug/kg	100
8) Acenaphthylene	13.08	152	1592	2.10	ug/kg	96
9) Acenaphthene	13.24	154	1331	2.90	ug/kg	97
10) Fluorene	13.90	166	11770	21.77	ug/kg	96
12) Phenanthrene	15.30	178	1441	2.14	ug/kg	98
13) Anthracene	15.35	178	1393	2.11	ug/kg	97
14) Fluoranthene	17.25	202	1464	2.19	ug/kg	95
15) Pyrene	17.82	202	1694	2.49	ug/kg	97
18) Benzo[a]anthracene	20.73	228	1504	2.40	ug/kg	98
19) Chrysene	20.98	228	1272	2.13	ug/kg	96
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) ~~Benzo[k]fluoranthene~~	~~24.45~~	~~252~~	~~1139730~~	~~2229.72~~	~~ug/kg~~	~~96~~
23) Benzo(j)fluoranthene	24.45	252	1163368	2422.87	ug/kg	98
24) Benzo[e]pyrene	25.50	252	1410	2.62	ug/kg	92
25) Benzo[a]pyrene	25.67	252	1461	2.79	ug/kg	85
26) Dibenz[a,h]anthracene	29.24	278	1981	4.10	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.28	276	1973	3.35	ug/kg	96
28) Benzo[g,h,i]perylene	30.34	276	1993	4.03	ug/kg	93

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012612.D Vial: 12
Acq On : 26 Jan 2016 8:43 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012615.D Vial: 3
Acq On : 27 Jan 2016 11:08 am Operator:
Sample : SSCV 160127 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2058743	4000.00	ug/kg	98
5) Acenaphthene-d10	13.18	164	1745665	4000.00	ug/kg	96
11) Phenanthrene-d10	15.27	188	3186342	4000.00	ug/kg	97
17) Chrysene-d12	20.90	240	2845374	4000.00	ug/kg	99
20) Perylene-d12	26.00	264	2226993	4000.00	ug/kg	96

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1171215	2315.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.89%			
16) 4-Terphenyl-d14	17.71	244	1235718	2321.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.04%			

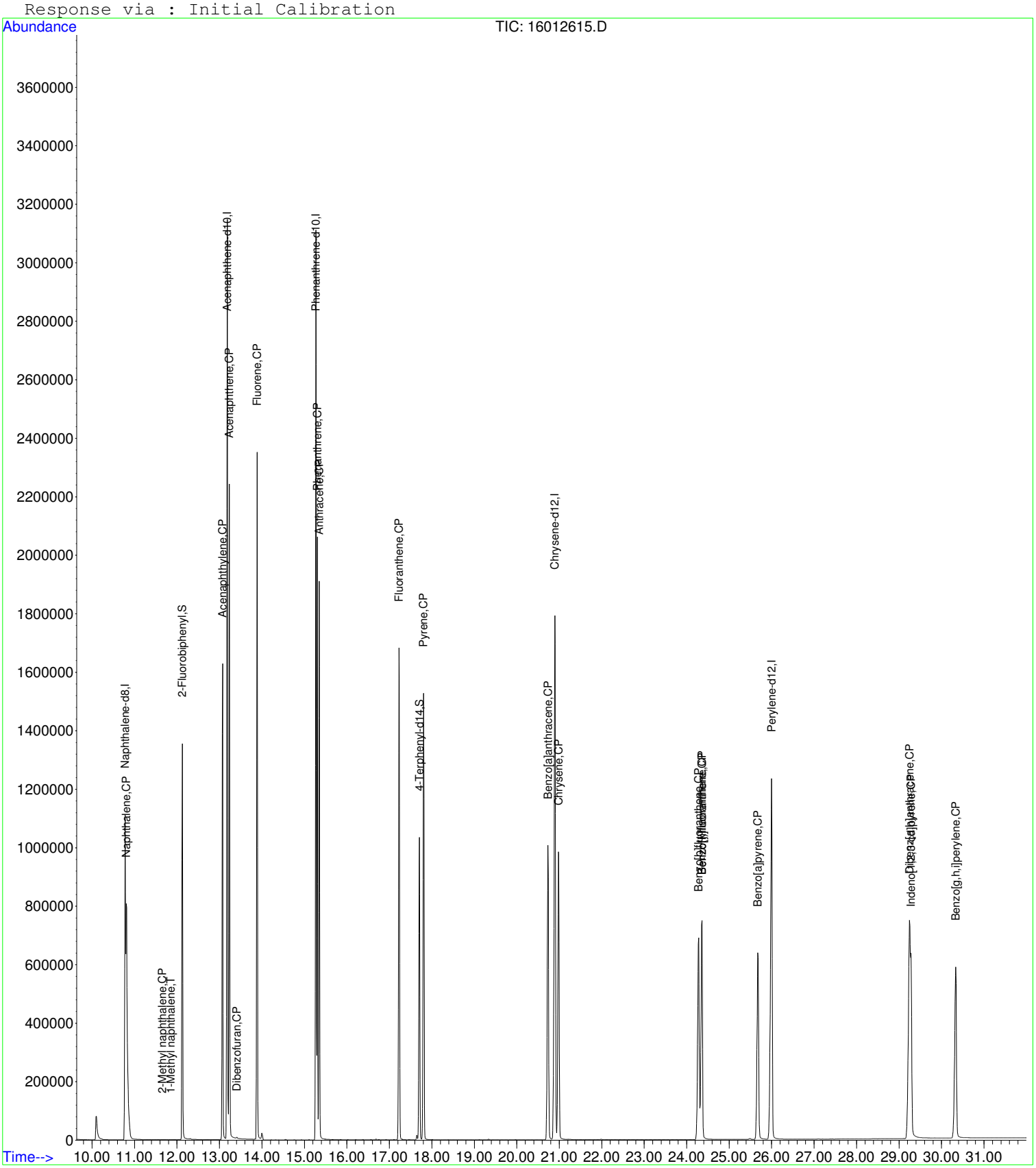
Target Compounds						Qvalue
2) Naphthalene	10.81	128	1077756	2092.43	ug/kg	100
3) 2-Methyl naphthalene	11.65	142	274	0.68	ug/kg	93
4) 1-Methyl naphthalene	11.85	142	435	1.14	ug/kg	98
6) Dibenzofuran	13.41	168	3680	6.49	ug/kg	100
8) Acenaphthylene	13.07	152	1559597	2148.73	ug/kg	98
9) Acenaphthene	13.23	154	1004536	2284.16	ug/kg	96
10) Fluorene	13.89	166	1176439	2267.45	ug/kg	99
12) Phenanthrene	15.30	178	1641177	2168.97	ug/kg	100
13) Anthracene	15.35	178	1652973	2232.79	ug/kg	100
14) Fluoranthene	17.23	202	1627306	2168.81	ug/kg	99
15) Pyrene	17.81	202	1636098	2140.80	ug/kg	100
18) Benzo[a]anthracene	20.73	228	1441199	2196.69	ug/kg	99
19) Chrysene	20.99	228	1359414	2176.19	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	1320758	2224.44	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	1314133	2491.60	ug/kg	100
23) ~~Benzo(j)fluoranthene~~	~~24.36~~	~~252~~	~~1233993~~	~~2490.68~~	~~ug/kg~~	~~97~~
24) Benzo[e]pyrene	0.00	252	0	N.D.		
25) Benzo[a]pyrene	25.67	252	1228299	2276.44	ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	1087317	2178.37	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.28	276	1329344	2186.08	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	1107890	2171.39	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012615.D Vial: 3
Acq On : 27 Jan 2016 11:08 am Operator:
Sample : SSCV 160127 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



ICP-MS4
For

DHL Work Order
1601231

ICP-MS4_160209E
For

DHL Work Order
1601231

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_160209E SOP:			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

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

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

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

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

VARIANCE REPORT

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

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

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

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

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

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

General Comments and Impact on Data: See Run Log

Analyst: [signature] Date of Completion: 02/10/2016

Second-Level Review: Janice Whitt Date Stamp: 2/12/2016

REVIEWED BY
By Janice Whitt at 3:26:50 PM, 2/12/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160209E** **Run No.:** 84080

Analytical Run Date: 2/9/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R84080	2/9/2016 10:18:00 AM		
L2-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:20:00 AM		
L-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:22:00 AM		
10X-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:24:00 AM		
5X-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:26:00 AM		
2X-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:29:00 AM		
H-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:31:00 AM		
H2-160209	1	ICPMS_TW	CAL	R84080	2/9/2016 10:32:00 AM		
ICSA-160209	1	ICPMS_TW	ICSA	R84080	2/9/2016 10:38:00 AM		
ICSAB-160209	1	ICPMS_TW	ICSB	R84080	2/9/2016 10:40:00 AM		
ICV-160209	1	ICPMS_TW	ICV	R84080	2/9/2016 10:47:00 AM		
LCVL-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 10:53:00 AM		
ICB-160209	1	ICPMS_TW	ICB	R84080	2/9/2016 10:59:00 AM		
CCV6-160209	1	ICPMS_TW	CCV	R84080	2/9/2016 3:01:00 PM		
LCVL6-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 3:07:00 PM		
CCB6-160209	1	ICPMS_TW	CCB	R84080	2/9/2016 3:12:00 PM		
MB-73501	5	ICPMS_TSDOD1	MBLK	73501	2/9/2016 3:14:00 PM		
LCS-73501	5	ICPMS_TSDOD1	LCS	73501	2/9/2016 3:16:00 PM		
LCSD-73501	5	ICPMS_TSDOD1	LCSD	73501	2/9/2016 3:18:00 PM		
1601231-23A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:22:00 PM		
1601231-23A SD	25	ICPMS_TSDOD1	SD	73501	2/9/2016 3:24:00 PM		
1601231-04A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:26:00 PM		
1601231-05A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:28:00 PM		
1601231-06A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:30:00 PM		
1601231-07A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:32:00 PM		
1601231-08A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:34:00 PM		
1601231-09A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:36:00 PM		
1601231-10A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:38:00 PM		
1601231-11A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:40:00 PM		
1601231-12A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:42:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160209E** **Run No.:** 84080

1601231-23A PDS	5	ICPMS_TSDOD1	PDS	73501	2/9/2016 3:44:00 PM		
1601231-23A MS	5	ICPMS_TSDOD1	MS	73501	2/9/2016 3:46:00 PM		
1601231-23A MSD	5	ICPMS_TSDOD1	MSD	73501	2/9/2016 3:47:00 PM		
CCV7-160209	1	ICPMS_TW	CCV	R84080	2/9/2016 3:49:00 PM		
LCVL7-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 3:53:00 PM		
CCB7-160209	1	ICPMS_TW	CCB	R84080	2/9/2016 3:55:00 PM		
1601231-13A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:58:00 PM		
1601231-14A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 3:59:00 PM		
1601231-15A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:01:00 PM		
1601231-16A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:03:00 PM		
1601231-17A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:05:00 PM		
1601231-18A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:07:00 PM		
1601231-19A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:09:00 PM		
1601231-20A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:11:00 PM		
1601231-21A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:13:00 PM		
1601231-22A	5	ICPMS_TSDOD1	SAMP	73501	2/9/2016 4:15:00 PM		
CCV8-160209	1	ICPMS_TW	CCV	R84080	2/9/2016 4:17:00 PM		
LCVL8-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 4:21:00 PM		
CCB8-160209	1	ICPMS_TW	CCB	R84080	2/9/2016 4:23:00 PM		
MB-73429	5	ICPMS_TSDOD1	MBLK	73429	2/9/2016 4:25:00 PM		
LCS-73429	5	ICPMS_TSDOD1	LCS	73429	2/9/2016 4:27:00 PM		
LCSD-73429	5	ICPMS_TSDOD1	LCSD	73429	2/9/2016 4:29:00 PM		
1601230-05A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:34:00 PM		
1601230-05ASD	25	ICPMS_TSDOD1	SD	73429	2/9/2016 4:36:00 PM		
1601230-06A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:38:00 PM		
1601230-07A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:40:00 PM		
1601230-08A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:42:00 PM		
1601230-09A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:44:00 PM		
1601230-10A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:46:00 PM		
1601230-11A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:48:00 PM		
1601230-12A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:50:00 PM		
1601230-13A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:52:00 PM		
1601230-14A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 4:54:00 PM		
1601230-05APDS	5	ICPMS_TSDOD1	PDS	73429	2/9/2016 4:56:00 PM		
1601230-05AMS	5	ICPMS_TSDOD1	MS	73429	2/9/2016 4:57:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160209E** **Run No.:** 84080

1601230-05AMSD	5	ICPMS_TSDOD1	MSD	73429	2/9/2016 4:59:00 PM		
CCV9-160209	1	ICPMS_TW	CCV	R84080	2/9/2016 5:01:00 PM		
LCVL9-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 5:05:00 PM		
CCB9-160209	1	ICPMS_TW	CCB	R84080	2/9/2016 5:07:00 PM		
1601230-15A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:09:00 PM		
1601230-17A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:11:00 PM		
1601230-18A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:13:00 PM		
1601230-19A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:15:00 PM		
1601230-20A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:17:00 PM		
1601230-21A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:19:00 PM		
1601230-22A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:21:00 PM		
1601231-01A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:23:00 PM		
1601231-02A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:25:00 PM		
1601231-03A	5	ICPMS_TSDOD1	SAMP	73429	2/9/2016 5:27:00 PM		
CCV10-160209	1	ICPMS_TW	CCV	R84080	2/9/2016 5:29:00 PM		
LCVL10-160209	1	ICPMS_TW	LCVL	R84080	2/9/2016 5:33:00 PM		
CCB10-160209	1	ICPMS_TW	CCB	R84080	2/9/2016 5:46:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160209.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	L2-160209	CAL ICPMS_TW	2102	
14	CalStd	L-160209	CAL ICPMS_TW	2103	
15	CalStd	10X-160209	CAL ICPMS_TW	2104	
16	CalStd	5X-160209	CAL ICPMS_TW	2105	
17	CalStd	2X-160209	CAL ICPMS_TW	2106	
18	CalStd	H-160209	CAL ICPMS_TW	2107	
19	CalStd	H2-160209	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICSA	ICSA-160209	ICSAICPMS_TW	2109	
23	ICSB	ICSAB-160209	ICSBICPMS_TW	2110	
24	ICB	BLANK	CCB ICPMS_TW	1101	
25	ICB	BLANK	CCB ICPMS_TW	1102	
26	ICV	ICV-160209	ICV ICPMS_TW	2111	
27	ICB	ICB-160209	ICB ICPMS_TW	1101	
28	LLICV	LCVL-160209	LCVLICPMS_TW	2112	
29	ICB	ICB-160209	ICB ICPMS_TW	1102	
30	ICB	ICB-160209	ICB ICPMS_TW	1103	
31	PB	MB-73560	MBLKICPMS_TS	2201	
32	LCS_S	LCS-73560	LCS ICPMS_TS	2202	
33	LCS_S	LCSD-73560	LCSDICPMS_TS	2203	
34	CCB	RINSE	CCB ICPMS_TW	1101	
35	AllRef	1602069-01C	SAMPICPMS_TS	2204	
36	SD	1602069-01C SD	SD ICPMS_TS	2205	
37	Sample	1602047-01C	SAMPICPMS_TS	2206	
38	Sample	1602047-02C	SAMPICPMS_TS	2207	
39	Sample	1602047-03C	SAMPICPMS_TS	2208	
40	Sample	1602066-01B	SAMPICPMS_TS	2209	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31		5	
32		5	
33		5	
34			
35		5	
36		25	
37		5	
38		5	
39		5	
40		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	Sample	1602066-02B	SAMPICPMS_TS	2210	
42	Sample	1601293-09B	SAMPICPMS_TS	2211	
43	Sample	1601293-10B	SAMPICPMS_TS	2212	
44	Sample	1601293-11B	SAMPICPMS_TS	2301	
45	Sample	1601293-12B	SAMPICPMS_TS	2302	

Sample List

46	PDS	1602069-01C PDS	PDS ICPMS_TS	2303
47	MS_S	1602069-01C MS	MS ICPMS_TS	2304
48	MS_S	1602069-01C MSD	MSD ICPMS_TS	2305
49	CCV	CCV1-160209	CCV ICPMS_TW	1207
50	CCB	CCB1-160209	CCB ICPMS_TW	1102
51	CCB	CCB1-160209	CCB ICPMS_TW	1103
52	LLCCV	LCVL1-160209	LCVLICPMS_TW	2112
53	CCB	CCB1-160209	CCB ICPMS_TW	1103
54	SAMP_W	1601222-01A	SAMP200.8	2308
55	Sample	1602037-01A	SAMPICPMS_TS	2306
56	Sample	1602077-01C	SAMPICPMS_TS	2307
57	CCV	CCV2-160209	CCV ICPMS_TW	1207
58	CCB	CCB2-160209	CCB ICPMS_TW	1102
59	LLCCV	LCVL2-160209	LCVLICPMS_TW	2112
60	CCB	CCB2-160209	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
41		5	
42		5	
43		5	
44		5	
45		5	
46		5	
47		5	
48		5	
49			
50			
51			
52			
53			
54		50	
55		5	
56		5	
57			
58			
59			
60			

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PB_W	MB-73557	MBLKICPMS_TW	3101	
62	LCS_W	LCS-73557	LCS ICPMS_TW	3102	
63	LCS_W	LCSD-73557	LCSDICPMS_TW	3103	
64	CCB	RINSE	CCB ICPMS_TW	1101	
65	AllRef	1602070-01A	SAMPICPMS_TW	3104	
66	SD	1602070-01A SD	SD ICPMS_TW	3105	
67	SAMP_W	1602072-01C	SAMP6020A_W	3106	
68	SAMP_W	1602076-01D	SAMPICPMS_TW	3107	
69	SAMP_W	1602076-02D	SAMPICPMS_TW	3108	
70	SAMP_W	1602073-01B	SAMPICPMS_TW	3109	
71	SAMP_W	1602073-02B	SAMPICPMS_TW	3110	
72	SAMP_W	1602073-03B	SAMPICPMS_TW	3111	
73	SAMP_W	1602073-04B	SAMPICPMS_TW	3112	

Sample List

74	SAMP_W	1602073-05B	SAMPICPMS_TW	3201
75	SAMP_W	1602073-06B	SAMPICPMS_TW	3202
76	PDS	1602070-01A PDS	PDS ICPMS_TW	3203
77	MS_W	1602070-01A MS	MS ICPMS_TW	3204
78	MS_W	1602070-01A MSD	MSD ICPMS_TW	3205
79	CCV	CCV3-160209	CCV ICPMS_TW	1207
80	CCB	CCB3-160209	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
61		1	
62		1	
63		1	
64			
65		1	
66		5	
67		1	
68		1	
69		1	
70		1	
71		1	
72		1	
73		1	
74		1	
75		1	
76		1	
77		1	
78		1	
79			
80			

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	LLCCV	LCVL3-160209	LCVLICPMS_TW	2512	
82	CCB	CCB3-160209	CCB ICPMS_TW	1103	
83	SAMP_W	1602073-07B	SAMPICPMS_TW	3206	
84	SAMP_W	1602073-08B	SAMPICPMS_TW	3207	
85	SAMP_W	1602070-02A	SAMPICPMS_TW	3208	
86	SAMP_W	1602070-03A	SAMPICPMS_TW	3209	
87	SAMP_W	1602070-04A	SAMPICPMS_TW	3210	
88	SAMP_W	1602070-05A	SAMPICPMS_TW	3211	
89	SAMP_W	1602070-06A	SAMPICPMS_TW	3212	
90	SAMP_W	1602070-07A	SAMPICPMS_TW	3301	
91	SAMP_W	1602070-07A	SAMPICPMS_TW	3302	
92	CCV	CCV4-160209	CCV ICPMS_TW	1207	
93	CCB	CCB4-160209	CCB ICPMS_TW	1102	
94	LLCCV	LCVL4-160209	LCVLICPMS_TW	2512	
95	CCB	CCB4-160209	CCB ICPMS_TW	1103	
96	PB_W	MB-73558	MBLKICPMS_DW	2401	
97	LCS_W	LCS-73558	LCS ICPMS_DW	2402	
98	LCS_W	LCSD-73558	LCSDICPMS_DW	2403	
99	CCB	RINSE	CCB ICPMS_TW	1101	
100	AllRef	1602070-07B	SAMPICPMS_DW	2404	

Sample List

#	Level	Dilution	Skip
81			
82			
83		1	
84		1	
85		1	
86		1	
87		1	
88		1	
89		1	
90		10	
91		1	
92			
93			
94			
95			
96		1	
97		1	
98		1	
99			
100		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	SD	1602070-07B SD	SD ICPMS_DW	2405	
102	SAMP_W	1602070-01B	SAMPICPMS_DW	2406	
103	SAMP_W	1602070-02B	SAMPICPMS_DW	2407	
104	SAMP_W	1602070-03B	SAMPICPMS_DW	2408	
105	SAMP_W	1602070-04B	SAMPICPMS_DW	2409	
106	SAMP_W	1602070-05B	SAMPICPMS_DW	2410	
107	SAMP_W	1602070-06B	SAMPICPMS_DW	2411	
108	PDS	1602070-07B PDS	PDS ICPMS_DW	2412	
109	MS_W	1602070-07B MS	MS ICPMS_DW	2501	
110	MS_W	1602070-07B MSD	MSD ICPMS_DW	2502	
111	CCB	RINSE	CCB ICPMS_TW	1101	
112	SAMP_W	1601293-11B	SAMPTCLP_MET	3507	
113	SAMP_W	1601293-12B	SAMPTCLP_MET	3508	
114	CCV	CCV5-160209	CCV ICPMS_TW	1207	
115	CCB	CCB5-160209	CCB ICPMS_TW	1102	
116	LLCCV	LCVL5-160209	LCVLICPMS_TW	2511	
117	CCB	CCB5-160209	CCB ICPMS_TW	1103	
118	PB_W	MB-73559	MBLKTCLP_MET	3401	
119	PB_W	MB-73515-TCLP	MBLKTCLP_MET	3402	
120	LCS_W	LCS-73559	LCS TCLP_MET	3403	

#	Level	Dilution	Skip
101		5	
102		1	
103		1	
104		1	
105		1	
106		1	
107		1	

Sample List

108	1	
109	1	
110	1	
111		
112	1	
113	1	
114		
115		
116		
117		
118	1	Skip
119	1	Skip
120	1	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	LCS_W	LCSD-73559	LCSDTCLP_MET	3404	
122	CCB	RINSE	CCB ICPMS_TW	1101	
123	AllRef	1601293-01B	SAMPTCLP_MET	3405	
124	SD	1601293-01B SD	SD TCLP_MET	3406	
125	SAMP_W	1601293-02B	SAMPTCLP_MET	3407	
126	SAMP_W	1601293-03B	SAMPTCLP_MET	3408	
127	SAMP_W	1601293-04B	SAMPTCLP_MET	3409	
128	SAMP_W	1601293-05B	SAMPTCLP_MET	3410	
129	SAMP_W	1601293-06B	SAMPTCLP_MET	3411	
130	SAMP_W	1601293-07B	SAMPTCLP_MET	3412	
131	SAMP_W	1601293-08B	SAMPTCLP_MET	3501	
132	SAMP_W	1601293-09B	SAMPTCLP_MET	3502	
133	SAMP_W	1601293-10B	SAMPTCLP_MET	3503	
134	PDS	1601293-01B PDS	PDS TCLP_MET	3504	
135	MS_W	1601293-01B MS	MS TCLP_MET	3505	
136	MS_W	1601293-01B MSD	MSD TCLP_MET	3506	
137	CCV	CCV6-160209	CCV ICPMS_TW	1207	
138	CCB	CCB6-160209	CCB ICPMS_TW	1102	
139	LLCCV	LCVL6-160209	LCVLICPMS_TW	2511	
140	CCB	CCB6-160209	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
121		1	Skip
122			Skip
123		1	Skip
124		5	Skip
125		1	Skip
126		1	Skip
127		1	Skip
128		5	Skip
129		5	Skip
130		5	Skip
131		5	Skip
132		5	Skip
133		5	Skip
134		1	Skip
135		1	Skip

Sample List

136	1	Skip
137		Skip
138		Skip
139		Skip
140		Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PB	MB-73501	MBLKICPMS_TSDOD	4101	
142	LCS_S	LCS-73501	LCS ICPMS_TSDOD	4102	
143	LCS_S	LCSD-73501	LCSDICPMS_TSDOD	4103	
144	CCB	RINSE	CCB ICPMS_TW	1101	
145	AllRef	1601231-23A	SAMPICPMS_TSDOD	4104	
146	SD	1601231-23A SD	SD ICPMS_TSDOD	4105	
147	Sample	1601231-04A	SAMPICPMS_TSDOD	4106	
148	Sample	1601231-05A	SAMPICPMS_TSDOD	4107	
149	Sample	1601231-06A	SAMPICPMS_TSDOD	4108	
150	Sample	1601231-07A	SAMPICPMS_TSDOD	4109	
151	Sample	1601231-08A	SAMPICPMS_TSDOD	4110	
152	Sample	1601231-09A	SAMPICPMS_TSDOD	4111	
153	Sample	1601231-10A	SAMPICPMS_TSDOD	4112	
154	Sample	1601231-11A	SAMPICPMS_TSDOD	4201	
155	Sample	1601231-12A	SAMPICPMS_TSDOD	4202	
156	PDS	1601231-23A PDS	PDS ICPMS_TSDOD	4203	
157	MS_S	1601231-23A MS	MS ICPMS_TSDOD	4204	
158	MS_S	1601231-23A MSD	MSD ICPMS_TSDOD	4205	
159	CCV	CCV7-160209	CCV ICPMS_TW	1207	
160	CCB	CCB7-160209	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
141		5	Skip
142		5	Skip
143		5	Skip
144			Skip
145		5	Skip
146		25	Skip
147		5	Skip
148		5	Skip
149		5	Skip
150		5	Skip
151		5	Skip
152		5	Skip
153		5	Skip
154		5	Skip
155		5	Skip
156		5	Skip
157		5	Skip
158		5	Skip
159			Skip
160			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	LLCCV	LCVL7-160209	LCVLICPMS_TW	2510	

Sample List

162	CCB	CCB7-160209	CCB ICPMS_TW	1103
163	Sample	1601231-13A	SAMPICPMS_TSDOD	4206
164	Sample	1601231-14A	SAMPICPMS_TSDOD	4207
165	Sample	1601231-15A	SAMPICPMS_TSDOD	4208
166	Sample	1601231-16A	SAMPICPMS_TSDOD	4209
167	Sample	1601231-17A	SAMPICPMS_TSDOD	4210
168	Sample	1601231-18A	SAMPICPMS_TSDOD	4211
169	Sample	1601231-19A	SAMPICPMS_TSDOD	4212
170	Sample	1601231-20A	SAMPICPMS_TSDOD	4301
171	Sample	1601231-21A	SAMPICPMS_TSDOD	4302
172	Sample	1601231-22A	SAMPICPMS_TSDOD	4303
173	CCV	CCV8-160209	CCV ICPMS_TW	1207
174	CCB	CCB8-160209	CCB ICPMS_TW	1102
175	LLCCV	LCVL8-160209	LCVLICPMS_TW	2510
176	CCB	CCB8-160209	CCB ICPMS_TW	1102
177	PB	MB-73429	MBLKICPMS_TSDOD	4310
178	LCS_S	LCS-73429	LCS ICPMS_TSDOD	4311
179	LCS_S	LCSD-73429	LCSDICPMS_TSDOD	4312
180	CCB	RINSE	CCB ICPMS_TW	1101

#	Level	Dilution	Skip
161			Skip
162			Skip
163		5	Skip
164		5	Skip
165		5	Skip
166		5	Skip
167		5	Skip
168		5	Skip
169		5	Skip
170		5	Skip
171		5	Skip
172		5	Skip
173			Skip
174			Skip
175			Skip
176			Skip
177		5	Skip
178		5	Skip
179		5	Skip
180			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	AllRef	1601230-05A	SAMPICPMS_TSDOD	4401	
182	SD	1601230-05A SD	SD ICPMS_TSDOD	4402	
183	Sample	1601230-06A	SAMPICPMS_TSDOD	4403	
184	Sample	1601230-07A	SAMPICPMS_TSDOD	4404	
185	Sample	1601230-08A	SAMPICPMS_TSDOD	4405	
186	Sample	1601230-09A	SAMPICPMS_TSDOD	4406	
187	Sample	1601230-10A	SAMPICPMS_TSDOD	4407	
188	Sample	1601230-11A	SAMPICPMS_TSDOD	4408	
189	Sample	1601230-12A	SAMPICPMS_TSDOD	4409	

Sample List

190	Sample	1601230-13A	SAMPICPMS_TSDOD	4410
191	Sample	1601230-14A	SAMPICPMS_TSDOD	4411
192	PDS	1601230-05A PDS	PDS ICPMS_TSDOD	4412
193	MS_S	1601230-05A MS	MS ICPMS_TSDOD	4501
194	MS_S	1601230-05A MSD	MSD ICPMS_TSDOD	4502
195	CCV	CCV9-160209	CCV ICPMS_TW	1207
196	CCB	CCB9-160209	CCB ICPMS_TW	1102
197	LLCCV	LCVL9-160209	LCVLICPMS_TW	2510
198	CCB	CCB9-160209	CCB ICPMS_TW	1103
199	Sample	1601230-15A	SAMPICPMS_TSDOD	4503
200	Sample	1601230-17A	SAMPICPMS_TSDOD	4504

#	Level	Dilution	Skip
181		5	Skip
182		25	Skip
183		5	Skip
184		5	Skip
185		5	Skip
186		5	Skip
187		5	Skip
188		5	Skip
189		5	Skip
190		5	Skip
191		5	Skip
192		5	Skip
193		5	Skip
194		5	Skip
195			Skip
196			Skip
197			Skip
198			Skip
199		5	Skip
200		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	Sample	1601230-18A	SAMPICPMS_TSDOD	4505	
202	Sample	1601230-19A	SAMPICPMS_TSDOD	4506	
203	Sample	1601230-20A	SAMPICPMS_TSDOD	4507	
204	Sample	1601230-21A	SAMPICPMS_TSDOD	4508	
205	Sample	1601230-22A	SAMPICPMS_TSDOD	4509	
206	Sample	1601231-01A	SAMPICPMS_TSDOD	4510	
207	Sample	1601231-02A	SAMPICPMS_TSDOD	4511	
208	Sample	1601231-03A	SAMPICPMS_TSDOD	4512	
209	CCV	CCV10-160209	CCV ICPMS_TW	1207	
210	CCB	CCB10-160209	CCB ICPMS_TW	1102	
211	LLCCV	LCVL10-160209	LCVLICPMS_TW	2510	
212	CCB	CCB10-160209	CCB ICPMS_TW	1102	
213	CCB	CCB10-160209	CCB ICPMS_TW	1102	
214	CCB	CCB10-160209	CCB ICPMS_TW	1102	
215	CCB	CCB10-160209	CCB ICPMS_TW	1103	
216	CCB	CCB10-160209	CCB ICPMS_TW	1103	
217	CCB	CCB10-160209	CCB ICPMS_TW	1103	

Sample List

#	Level	Dilution	Skip
201		5	Skip
202		5	Skip
203		5	Skip
204		5	Skip
205		5	Skip
206		5	Skip
207		5	Skip
208		5	Skip
209			Skip
210			Skip
211			Skip
212			Skip
213			Skip
214			Skip
215			Skip
216			Skip
217			Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/2/2016 8:36:00 AM**
Digestion:
Prep End Date:

Prep Batch **73429** 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 #
1601230-05A	Soil		1.10	50	50.000	1 of 1
1601230-06A	Soil		1.05	50	50.000	1 of 1
1601230-07A	Soil		1.12	50	50.000	1 of 1
1601230-08A	Soil		1.06	50	50.000	1 of 1
1601230-09A	Soil		1.15	50	50.000	1 of 1
1601230-10A	Soil		1.05	50	50.000	1 of 1
1601230-11A	Soil		1.12	50	50.000	1 of 1
1601230-12A	Soil		1.06	50	50.000	1 of 1
1601230-13A	Soil		1.06	50	50.000	1 of 1
1601230-14A	Soil		1.04	50	50.000	1 of 1
1601230-15A	Soil		1.17	50	50.000	1 of 1
1601230-17A	Soil		1.11	50	50.000	1 of 1
1601230-18A	Soil		1.01	50	50.000	1 of 1
1601230-19A	Soil		1.05	50	50.000	1 of 1
1601230-20A	Soil		1.08	50	50.000	1 of 1
1601230-21A	Soil		1.10	50	50.000	1 of 1
1601230-22A	Soil		1.03	50	50.000	1 of 1
1601231-01A	Soil		1.18	50	50.000	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601231-02A	Soil		1.09	50	50.000	1 of 1
Sieved sample will be in 2-oz glass jar						
1601231-03A	Soil		1.09	50	50.000	1 of 1
LCS-73429	Soil		1	50	50.000	of
LCSD-73429	Soil		1	50	50.000	of
MB-73429	Soil		1	50	50.000	of
MS 230-05A			1.06			
MSD 230-05A			1.01			

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

11:07-11:17
11:41-1:41
1:53-3:53
16:06-16:21

REVIEWED BY
By Janice Whitt at 2:52:00 PM, 2/12/2016

2/2/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26	
TEST DATE:	02/02/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	P-01, P-09	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

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

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

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

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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0104	5.0004	100.01	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0044	4.9944	99.89		
3		5.0069	4.9969	99.94		
AVERAGE (MEAN)		5.007	4.997	99.94		0.060
						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	0.2020	0.2016	100.80	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2007	0.2003	100.15		
3		0.2019	0.2015	100.75		
AVERAGE (MEAN)		0.202	0.201	100.57		0.359
						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)						

2/2/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:52:04 PM, 2/12/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/2/2016 8:36:00 AM**
Digestion: **Start: 2/2/2016 11:07:00 AM / Stop: 2/2/2016 4:21:00 PM**
Prep End Date: **2/2/2016 5:22:13 PM**

Prep Batch **73429** 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 #
1601230-05A	Soil		1.1	50	45.455	1 of 1
1601230-05AMS	Soil		1.06	50	47.170	of
1601230-05AMSD	Soil		1.01	50	49.505	of
1601230-05APDS	Soil		1.1	50	45.455	of
1601230-05ASD	Soil		1.1	50	45.455	of
1601230-06A	Soil		1.05	50	47.619	1 of 1
1601230-07A	Soil		1.12	50	44.643	1 of 1
1601230-08A	Soil		1.06	50	47.170	1 of 1
1601230-09A	Soil		1.15	50	43.478	1 of 1
1601230-10A	Soil		1.05	50	47.619	1 of 1
1601230-11A	Soil		1.12	50	44.643	1 of 1
1601230-12A	Soil		1.06	50	47.170	1 of 1
1601230-13A	Soil		1.06	50	47.170	1 of 1
1601230-14A	Soil		1.04	50	48.077	1 of 1
1601230-15A	Soil		1.17	50	42.735	1 of 1
1601230-17A	Soil		1.11	50	45.045	1 of 1
1601230-18A	Soil		1.01	50	49.505	1 of 1
1601230-19A	Soil		1.05	50	47.619	1 of 1
1601230-20A	Soil		1.08	50	46.296	1 of 1
1601230-21A	Soil		1.1	50	45.455	1 of 1
1601230-22A	Soil		1.03	50	48.544	1 of 1
1601231-01A	Soil		1.18	50	42.373	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601231-02A	Soil		1.09	50	45.872	1 of 1
Sieved sample will be in 2-oz glass jar						
1601231-03A	Soil		1.09	50	45.872	1 of 1
LCS-73429	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

REVIEWED BY
By Janice Whitt at 2:52:09 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/2/2016 8:36:00 AM**
Digestion: **Start: 2/2/2016 11:07:00 AM / Stop: 2/2/2016 4:21:00 PM**
Prep End Date: **2/2/2016 5:22:13 PM**

Prep Batch **73429** 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 #
LCSD-73429	Soil		1	50	50.000	of
MB-73429	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

REVIEWED BY
By Janice Whitt at 2:52:11 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/3/2016 5:26:19 PM**
Digestion:
Prep End Date:

Prep Batch **73501** 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 #
1601231-04A	Soil		1.07	50	50.000	1 of 1
1601231-05A	Soil		1.09	50	50.000	1 of 1
1601231-06A	Soil		1.01	50	50.000	1 of 1
1601231-07A	Soil		1.06	50	50.000	1 of 1
1601231-08A	Soil		1.11	50	50.000	1 of 1
1601231-09A	Soil		1.01	50	50.000	1 of 1
1601231-10A	Soil		1.14	50	50.000	1 of 1
1601231-11A	Soil		1.01	50	50.000	1 of 1
1601231-12A	Soil		1.07	50	50.000	1 of 1
1601231-13A	Soil		1.03	50	50.000	1 of 1
1601231-14A	Soil		1.08	50	50.000	1 of 1
1601231-15A	Soil		1.00	50	50.000	1 of 1
1601231-16A	Soil		1.13	50	50.000	1 of 1
1601231-17A	Soil		1.05	50	50.000	1 of 1
1601231-18A	Soil		1.04	50	50.000	1 of 1
1601231-19A	Soil		1.05	50	50.000	1 of 1
1601231-20A	Soil		1.02	50	50.000	1 of 1
1601231-21A	Soil		1.05	50	50.000	1 of 1
1601231-22A	Soil		1.07	50	50.000	1 of 1
1601231-23A	Soil		1.04	50	50.000	1 of 1
LCS-73501	Soil		1	50	50.000	of
LCSD-73501	Soil		1	50	50.000	of
MB-73501	Soil		1	50	50.000	of
MS 231-23A			1.04			
MSD 231-23A			1.04			

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

9:20-9:30 2:35-2:50
9:52-11:52
12:03-2:03

REVIEWED BY
By Janice Whitt at 2:53:30 PM, 2/12/2016

C Van Dyke 2/4/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26	
TEST DATE:	02/04/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	P-01, P-09	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

1) RECORD ROOM AND WATER TEMPERATURE	% TEST VOL = Volume of H2O at °C/Test Volume * 100
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0011	4.9911	99.82	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9965	4.9865	99.73		
3		4.9986	4.9886	99.77		
AVERAGE (MEAN)		4.999	4.989	99.77		0.046
						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	0.2034	0.2030	101.50	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2007	0.2003	100.15		
3		0.2046	0.2042	102.10		
AVERAGE (MEAN)		0.203	0.202	101.25		0.984
						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)						

2/4/2016

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:53:35 PM, 2/12/2016

Review and Approved / Date

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	Ryan Oliver	BALANCE #:	30	
TEST DATE:	02/09/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	See Below	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

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

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

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

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

PIPETTE ID: P-31	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0039	4.9939	99.88	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9989	4.9889	99.78		
3		5.0098	4.9998	100.00		
AVERAGE (MEAN)		5.004	4.994	99.88		0.109
						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	0.9983	0.9963	99.63	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0001	0.9981	99.81		
3		1.0016	0.9996	99.96		
AVERAGE (MEAN)		1.000	0.998	99.80		0.165
						PASS

PIPETTE ID: P-19	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	MEAN CRITERIA (± 2%)	% RSD Calculated
1	0.500	0.4955	0.4945	98.90	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.4996	0.4986	99.72		
3		0.4992	0.4982	99.64		
AVERAGE (MEAN)		0.498	0.497	99.42		0.454
						PASS

Preformed by Ryan Oliver

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:53:40 PM, 2/12/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/4/2016 8:30:00 AM**
Digestion: **Start: 2/4/2016 9:20:00 AM / Stop: 2/4/2016 2:50:00 PM**
Prep End Date: **2/4/2016 4:40:25 PM**

Prep Batch **73501** 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 #
1601231-04A	Soil		1.07	50	46.729	1 of 1
1601231-05A	Soil		1.09	50	45.872	1 of 1
1601231-06A	Soil		1.01	50	49.505	1 of 1
1601231-07A	Soil		1.06	50	47.170	1 of 1
1601231-08A	Soil		1.11	50	45.045	1 of 1
1601231-09A	Soil		1.01	50	49.505	1 of 1
1601231-10A	Soil		1.14	50	43.860	1 of 1
1601231-11A	Soil		1.01	50	49.505	1 of 1
1601231-12A	Soil		1.07	50	46.729	1 of 1
1601231-13A	Soil		1.03	50	48.544	1 of 1
1601231-14A	Soil		1.08	50	46.296	1 of 1
/						
1601231-15A	Soil		1	50	50.000	1 of 1
1601231-16A	Soil		1.13	50	44.248	1 of 1
1601231-17A	Soil		1.05	50	47.619	1 of 1
1601231-18A	Soil		1.04	50	48.077	1 of 1
1601231-19A	Soil		1.05	50	47.619	1 of 1
1601231-20A	Soil		1.02	50	49.020	1 of 1
1601231-21A	Soil		1.05	50	47.619	1 of 1
1601231-22A	Soil		1.07	50	46.729	1 of 1
1601231-23A	Soil		1.04	50	48.077	1 of 1
1601231-23A MS	Soil		1.04	50	48.077	of
1601231-23A MSD	Soil		1.04	50	48.077	of
1601231-23A PDS	Soil		1.04	50	48.077	of
1601231-23A SD	Soil		1.04	50	48.077	of
LCS-73501	Soil		1	50	50.000	of
LCSD-73501	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

REVIEWED BY
By Janice Whitt at 2:56:05 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/4/2016 8:30:00 AM**
Digestion: **Start: 2/4/2016 9:20:00 AM / Stop: 2/4/2016 2:50:00 PM**
Prep End Date: **2/4/2016 4:40:25 PM**

Prep Batch **73501** 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 #
MB-73501	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

REVIEWED BY
By Janice Whitt at 2:56:06 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601231-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	Sieved sample will be in 2-oz glass jar					
1601231-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-08A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

REVIEWED BY
By Janice Whitt at 2:56:35 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15 /					
1601231-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-16A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-19A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601231-20A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					
1601231-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

REVIEWED BY
By Janice Whitt at 2:56:36 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-27A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					

REVIEWED BY
By Janice Whitt at 2:56:38 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 5:00:00 PM**
Prep End Date: **1/28/2016 5:03:08 PM**

Prep Batch **73341** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601230-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601230-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
	Sieved sample will be in 2-oz glass jar					
1601230-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-08A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/27/15					
1601230-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-12A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/27/15					
1601230-13A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					

REVIEWED BY
By Janice Whitt at 2:55:11 PM, 2/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 5:00:00 PM**
Prep End Date: **1/28/2016 5:03:08 PM**

Prep Batch **73341** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601230-14A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601230-15A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601230-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					
1601230-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/27/15					

REVIEWED BY
By Janice Whitt at 2:55:13 PM, 2/12/2016

Calibration Summary Report

Date Acquired 2/9/2016 10:18
Data Batch 160209.b

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

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0013 * x + 2.9246E-004
Be	1.0000	y = 4.2403E-005 * x + 1.9660E-006
B	1.0000	y = 1.6130E-005 * x + 5.1240E-004
Na	1.0000	y = 7.6192E-004 * x + 0.0752
Mg	1.0000	y = 3.6804E-004 * x + 3.9472E-004
Al	1.0000	y = 1.3715E-004 * x + 0.0029
K	1.0000	y = 4.0607E-004 * x + 0.0475
Ca	0.9999	y = 2.2128E-005 * x + 3.1339E-004
Ti	1.0000	y = 1.5054E-004 * x + 3.7608E-006
V	1.0000	y = 0.0047 * x + 0.0037
Cr	1.0000	y = 0.0057 * x + 0.0018
Mn	1.0000	y = 0.0033 * x + 1.3518E-004
Fe	1.0000	y = 0.0048 * x + 0.0086
Co	1.0000	y = 0.0120 * x + 5.4917E-005
Ni	1.0000	y = 0.0032 * x + 5.4571E-004
Cu	1.0000	y = 0.0089 * x + 0.0073
Zn	1.0000	y = 0.0015 * x + 6.8581E-004
Se	1.0000	y = 7.8817E-005 * x + 1.4665E-004
Sr	1.0000	y = 6.6248E-004 * x + 7.3147E-006
Mo	0.9999	y = 5.4029E-004 * x + 5.2589E-006
Ag	1.0000	y = 0.0016 * x + 9.0905E-006
Cd	1.0000	y = 2.4632E-004 * x + 1.5433E-006
Sn	1.0000	y = 5.5829E-004 * x + 9.4979E-005
Sb	1.0000	y = 8.0451E-004 * x + 3.8429E-005
Tl	1.0000	y = 0.0016 * x + 6.5285E-006
Ba	1.0000	y = 2.7859E-004 * x + 2.3214E-006
Pb	1.0000	y = 0.0022 * x + 1.5638E-004
Li	1.0000	y = 3.1652E-005 * x + 3.9402E-006

REVIEWED BY
By Janice Whitt at 2:58:58 PM, 2/9/2016

Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	505.64	101
Be	500	505.07	101
B	500	512.01	102
Na	10000	9961.19	100
Mg	10000	10087.34	101
Al	10000	10023.86	100
K	10000	9997.39	100
Ca	10000	9727.16	97
Ti	500	482.64	97
V	500	503.56	101
Cr	500	497.58	100
Mn	500	498.94	100
Fe	10000	9973.21	100
Co	500	511.31	102
Ni	500	508.79	102
Cu	500	513.30	103
Zn	500	507.07	101
Se	500	513.59	103
Sr	500	484.96	97
Mo	500	478.26	96
Ag	500	498.52	100
Cd	500	499.31	100
Sn	500	488.48	98
Sb	500	500.48	100
Tl	500	507.53	102
Ba	500	502.41	100
Pb	500	505.84	101

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1998.09	100
Be	2000	1998.38	100
B	2000	1998.51	100
Na	25000	25033.71	100
Mg	25000	24967.84	100
K	25000	25004.19	100
Ca	25000	25144.49	99
Ti	2000	2005.61	100
V	2000	1999.44	100
Cr	2000	2001.01	100
Mn	2000	2000.53	100
Co	2000	1996.40	100
Ni	2000	1997.00	100
Cu	2000	1995.51	100
Zn	2000	1997.06	100
Se	2000	1995.86	100
Sr	2000	2004.90	100
Mo	2000	2007.13	100
Cd	2000	2000.07	100
Sn	2000	2003.64	100
Tl	2000	1997.59	100
Ba	2000	1999.45	100
Pb	2000	1998.02	100
Li	2000	2004.21	100

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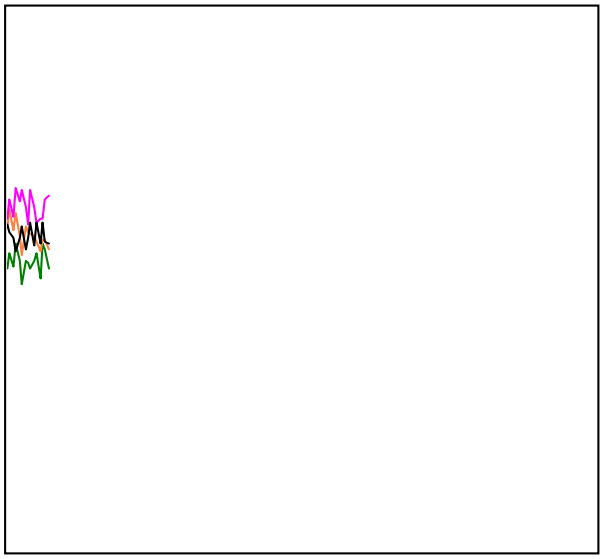
By Janice Whitt at 2:59:01 PM, 2/9/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	639	625.3	4.81
59	2000	1040	1065.2	3.96
89	2000	1106	1163.3	4.13
140	5000	3275	3166.7	3.78
205	5000	2826	2898.0	3.16
156/140	1	0.214 %	0.255 %	49.68
51	500	181	176.3	9.53
56	2000	1403	1442.5	3.99
75	20	3	7.5	49.04
78	50	17	13.7	28.29

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.52
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	10.7
Extract 2	-195.0	Cell Entrance	-40
Omega Bias	-105	Cell Exit	-60
Deflect	0.6		

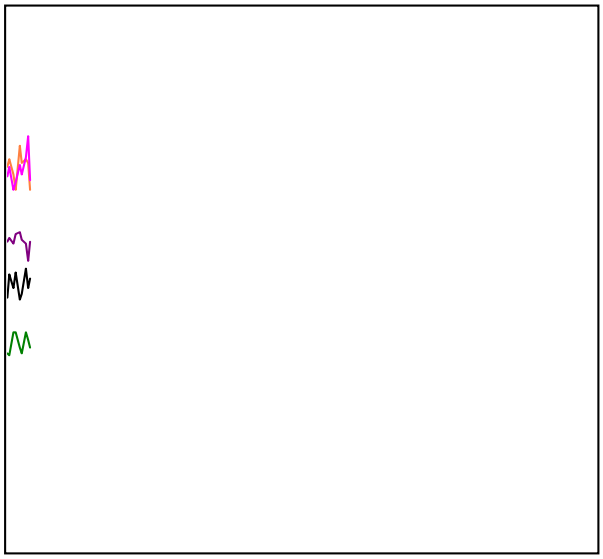
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.6	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)	1.16E+2	kPa
Analyzer Press	1.98E-4	Pa	Carrier Gas	0.52	L/min
Forward Power	1549	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	2000	1134	1136.6	2.65
59	5000	1878	1907.9	4.56
89	5000	3321	3522.9	3.84
140	5000	3407	3503.8	4.24
205	5000	2511	2453.8	4.15
156/140	2	1.086 %	0.859 %	24.30
51	50000	33495	33141.4	1.57
56	500000	217363	214693.7	1.82
75	10000	4862	4957.5	1.74
78	5000	2405	2415.0	2.34

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.52
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	10.7
Extract 2	-195.0	Cell Entrance	-40
Omega Bias	-105	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)	1.16E+2	kPa
Analyzer Press	1.17E-4	Pa	Carrier Gas	0.52	L/min
Forward Power	1551	W			

US EPA Tune Check Sample Report

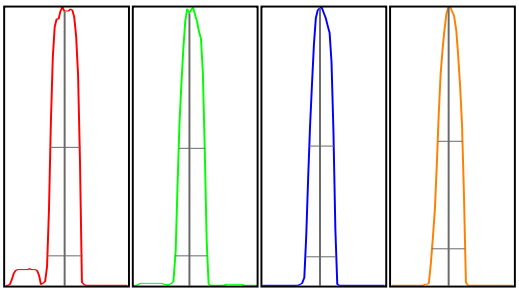
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	605354	1.99	5.00	
59	1091925	1.58	5.00	
115	1806355	1.51	5.00	
205	1503066	0.46	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	584721	604865	613932	610492	612760
59	1061942	1093882	1105192	1098320	1100290
115	1759083	1822479	1812555	1810413	1827243
205	1508353	1495047	1499331	1511834	1500765

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	86970	7.00	6.9 - 7.1		0.830	0.850	
59	182441	58.90	58.9 - 59.1		0.775	0.850	
115	324058	114.95	114.9 - 115.1		0.751	0.850	
205	264016	204.95	204.9 - 205.1		0.798	0.850	

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

Tune Parameters

Plasma Paramters

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

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-195.0	V	Cell Exit	-60	V
Omega Bias	-105	V	Deflect	7.0	V
Omega Lens	10.7	V	Plate Bias	-60	V

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Cell Parameters

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

P/A Factor Tuning Report

========== Current Sample ==========
Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 02/09/2016 10:18:53

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1881 V
PulseHV: 993 V

Acquired: 02/09/2016 09:46:12

Mass[u]	Element	P/A Factor
6	Li	0.102872
9	Be	0.113140
23	Na	0.118754
24	Mg	0.123109
27	Al	0.126739
39	K	0.129299
45	Sc	0.131454
48		0.131773
51	V	0.132903
52	Cr	0.136744
55	Mn	0.138311
59	Co	0.141897
60	Ni	0.143574
63	Cu	0.145513
66	Zn	0.144977
72		0.143787
74	Ge	0.144817
75	As	0.143443
88	Sr	0.145023
89		0.143695
95		0.143389
97	Mo	0.143804
98	Mo	0.144229
99	[Mo]	0.145699
101		0.146674
105		0.149288
111	Cd	0.150828
114	Cd	0.151100
115	In	0.150600
118	Sn	0.150542
121		0.150356
123	Sb	0.150762
135	Ba	0.149546
138		0.151411
175		0.156622
193		0.156654
205	Tl	0.157949
206	[Pb]	0.157543
207	[Pb]	0.158169
208	Pb	0.159077
209	Bi	0.158951
232		0.159491
238	U	0.159113
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

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By Janice Whitt at 2:59:10 PM, 2/9/2016

Calibration Blank Report

Date Acquired	2/9/2016 10:18	Sample Name	BLANK STD 1
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	5	68.88
9	Be	45	2	107.85
11	B	45	606	14.59
23	Na	45	88963	0.27
24	Mg	45	467	5.58
27	Al	45	3485	39.23
39	K	45	56109	1.04
44	Ca	45	371	9.13
47	Ti	45	4	43.40
51	V	45	4391	2.91
52	Cr	45	2184	3.05
55	Mn	45	160	27.08
56	Fe	45	10220	3.77
59	Co	72	47	32.74
60	Ni	72	463	4.00
63	Cu	72	6183	4.56
66	Zn	72	582	10.31
75	As	72	248	7.79
78	Se	72	125	7.59
88	Sr	115	63	31.58
95	Mo	115	46	51.91
107	Ag	115	79	41.69
111	Cd	115	13	0.00
118	Sn	115	820	6.79
121	Sb	115	332	7.40
137	Ba	115	20	33.35
205	Tl	209	127	14.65
208	Pb	209	3035	4.30

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1182420	0.56
72	Ge	849145	0.34
115	In	8639443	1.99
209	Bi	19405733	0.24

Calibration Standard Report

Date Acquired	2/9/2016 10:20	Sample Name	L2-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	43	10.91
9	Be	45	53	7.58
11	B	45	697	2.19
23	Na	45	106718	0.58
24	Mg	45	9394	0.21
27	Al	45	7996	12.08
39	K	45	65414	0.23
44	Ca	45	820	4.22
47	Ti	45	168	15.17
51	V	45	9895	1.04
52	Cr	45	8981	2.37
55	Mn	45	4248	2.56
56	Fe	45	136203	0.80
59	Co	72	10500	1.81
60	Ni	72	3628	2.71
63	Cu	72	14204	2.02
66	Zn	72	2026	1.98
75	As	72	1339	6.55
78	Se	72	174	7.39
88	Sr	115	5811	2.42
95	Mo	115	4357	4.91
107	Ag	115	13837	1.41
111	Cd	115	2112	5.45
118	Sn	115	5513	2.75
121	Sb	115	7364	1.45
137	Ba	115	2451	3.56
205	Tl	209	31983	1.27
208	Pb	209	45979	1.37

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1170281	0.86	1182420	98.97	70	120	
72	Ge	847210	0.45	849145	99.77	70	120	
115	In	8629218	0.65	8639443	99.88	70	120	
209	Bi	19345776	1.29	19405733	99.69	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:22	Sample Name	L-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	397	5.84
9	Be	45	502	3.40
11	B	45	771	3.30
23	Na	45	270982	0.27
24	Mg	45	87658	0.66
27	Al	45	34000	1.16
39	K	45	152235	0.45
44	Ca	45	5516	1.23
47	Ti	45	1722	3.49
51	V	45	59899	0.73
52	Cr	45	69191	0.39
55	Mn	45	42244	0.51
56	Fe	45	1122363	0.24
59	Co	72	106575	0.26
60	Ni	72	29350	1.68
63	Cu	72	86719	1.35
66	Zn	72	14650	3.47
75	As	72	11242	1.15
78	Se	72	835	2.17
88	Sr	115	55921	0.48
95	Mo	115	44440	1.68
107	Ag	115	138442	1.03
111	Cd	115	21811	2.02
118	Sn	115	48035	1.18
121	Sb	115	70194	0.74
137	Ba	115	24186	3.05
205	Tl	209	320882	0.82
208	Pb	209	430025	0.39

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1169988	1.09	1182420	98.95	70	120	
72	Ge	844777	0.52	849145	99.49	70	120	
115	In	8623663	1.73	8639443	99.82	70	120	
209	Bi	19437946	2.76	19405733	100.17	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:24	Sample Name	10X-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1876	2.88
9	Be	45	2416	1.36
11	B	45	1487	12.26
23	Na	45	975705	1.15
24	Mg	45	430490	0.84
27	Al	45	161533	0.37
39	K	45	531265	0.77
44	Ca	45	26008	1.70
47	Ti	45	8599	0.58
51	V	45	279692	1.41
52	Cr	45	334979	0.76
55	Mn	45	195010	0.43
56	Fe	45	5670652	1.42
59	Co	72	531331	0.56
60	Ni	72	144187	0.42
63	Cu	72	408607	0.41
66	Zn	72	72355	1.00
75	As	72	55056	0.40
78	Se	72	3583	2.32
88	Sr	115	277607	0.60
95	Mo	115	220977	0.96
107	Ag	115	684882	0.61
111	Cd	115	107771	0.96
118	Sn	115	236543	1.14
121	Sb	115	348078	0.56
137	Ba	115	121068	0.36
205	Tl	209	1601628	0.57
208	Pb	209	2138678	0.64

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1171418	0.32	1182420	99.07	70	120	
72	Ge	849379	0.48	849145	100.03	70	120	
115	In	8677642	0.30	8639443	100.44	70	120	
209	Bi	19256541	0.22	19405733	99.23	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:26	Sample Name	5X-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	3601	0.84
9	Be	45	5008	2.32
11	B	45	2467	0.95
23	Na	45	1846794	0.95
24	Mg	45	866910	0.51
27	Al	45	329500	0.47
39	K	45	998065	0.23
44	Ca	45	51039	1.02
47	Ti	45	17430	0.74
51	V	45	551618	0.21
52	Cr	45	666506	0.97
55	Mn	45	386869	0.33
56	Fe	45	11251396	0.25
59	Co	72	1051130	0.07
60	Ni	72	284105	0.41
63	Cu	72	798804	0.59
66	Zn	72	135949	0.36
75	As	72	108839	0.21
78	Se	72	6986	1.43
88	Sr	115	552284	1.03
95	Mo	115	441327	0.73
107	Ag	115	1364146	1.03
111	Cd	115	213739	1.23
118	Sn	115	466860	0.80
121	Sb	115	694762	1.03
137	Ba	115	239819	1.29
205	Tl	209	3195734	0.54
208	Pb	209	4261647	0.37

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1177802	0.79	1182420	99.61	70	120	
72	Ge	842936	0.37	849145	99.27	70	120	
115	In	8700307	1.85	8639443	100.70	70	120	
209	Bi	19522679	1.76	19405733	100.60	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:29	Sample Name	2X-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9078	1.74
9	Be	45	12588	0.73
11	B	45	5130	3.61
23	Na	45	4491087	1.05
24	Mg	45	2153376	0.59
27	Al	45	799570	0.80
39	K	45	2435388	0.33
44	Ca	45	126190	1.07
47	Ti	45	42518	0.05
51	V	45	1364057	0.31
52	Cr	45	1643034	0.52
55	Mn	45	956777	0.62
56	Fe	45	28145565	0.80
59	Co	72	2619159	0.64
60	Ni	72	702345	0.66
63	Cu	72	1969978	0.48
66	Zn	72	334401	0.46
75	As	72	273112	0.88
78	Se	72	17270	1.12
88	Sr	115	1392328	0.67
95	Mo	115	1119788	0.45
107	Ag	115	3436996	0.17
111	Cd	115	534570	0.45
118	Sn	115	1188598	0.85
121	Sb	115	1736564	0.72
137	Ba	115	602672	0.91
205	Tl	209	8023422	0.37
208	Pb	209	10703484	0.70

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1173005	0.57	1182420	99.20	70	120	
72	Ge	855491	0.23	849145	100.75	70	120	
115	In	8653697	0.42	8639443	100.16	70	120	
209	Bi	19292305	0.48	19405733	99.42	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:31	Sample Name	H-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	17949	1.52
9	Be	45	24953	0.99
11	B	45	10219	3.15
23	Na	45	8929752	1.54
24	Mg	45	4325635	0.66
27	Al	45	1605099	0.27
39	K	45	4784854	0.84
44	Ca	45	251127	1.10
47	Ti	45	84651	0.96
51	V	45	2751114	0.94
52	Cr	45	3286622	0.52
55	Mn	45	1913015	0.91
56	Fe	45	55229496	1.00
59	Co	72	5234284	0.47
60	Ni	72	1396877	0.91
63	Cu	72	3910032	0.58
66	Zn	72	657617	0.25
75	As	72	542507	0.31
78	Se	72	34545	0.92
88	Sr	115	2770133	0.50
95	Mo	115	2227989	0.51
107	Ag	115	6748891	1.14
111	Cd	115	1060433	1.04
118	Sn	115	2352114	0.98
121	Sb	115	3471880	0.59
137	Ba	115	1206773	1.06
205	Tl	209	15974672	2.21
208	Pb	209	21241382	0.40

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1165009	0.19	1182420	98.53	70	120	
72	Ge	850349	0.45	849145	100.14	70	120	
115	In	8621998	0.34	8639443	99.80	70	120	
209	Bi	19230822	1.60	19405733	99.10	70	120	

Calibration Standard Report

Date Acquired	2/9/2016 10:32	Sample Name	H2-160209
Data Batch	160209.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	72200	0.40
9	Be	45	96435	0.65
11	B	45	37268	0.65
23	Na	45	21789886	1.67
24	Mg	45	10457959	1.87
27	Al	45	5627	2.89
39	K	45	11608668	0.64
44	Ca	45	633591	0.84
47	Ti	45	343619	0.33
51	V	45	10658958	1.06
52	Cr	45	12906739	2.05
55	Mn	45	7492858	1.28
56	Fe	45	44316	12.63
59	Co	72	20189008	1.32
60	Ni	72	5414785	1.22
63	Cu	72	14998340	1.48
66	Zn	72	2556895	1.13
75	As	72	2117042	0.21
78	Se	72	132264	0.24
88	Sr	115	11172267	1.82
95	Mo	115	9121437	1.73
107	Ag	115	2813	19.32
111	Cd	115	4143605	0.69
118	Sn	115	9409500	0.28
121	Sb	115	2898	11.51
137	Ba	115	4685119	0.07
205	Tl	209	61469158	0.85
208	Pb	209	82027117	0.39

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1138133	1.05	1182420	96.25	70	120	
72	Ge	840018	0.20	849145	98.93	70	120	
115	In	8411111	0.51	8639443	97.36	70	120	
209	Bi	18803859	1.69	19405733	96.90	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	2/9/2016 10:38	Sample Name	ICSA-160209
Data Batch	160209.b	Comment	ICSAICPMS_TW
Data File Name	022ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.103	7	47.9	1.2	0.8	
11	B	19.190	952	7.2	30	30	
51	V	-0.176	3345	4.5	10	10	
52	Cr	0.307	4156	1.6	8	5	
55	Mn	1.323	5201	3.9	8	10	
59	Co	0.596	5979	1.6	8	10	
60	Ni	0.330	1331	7.4	8	10	
63	Cu	0.331	8468	0.9	8	10	
66	Zn	1.469	2418	7.1	10	5	
75	As	0.217	469	1.7	4	5	
78	Se	0.125	129	4.5	2	5	
88	Sr	1.732	9501	1.7	10	10	
107	Ag	0.466	6097	1.2	0.8	2	
111	Cd	0.612	1253	5.6	1.2	1	
118	Sn	0.653	3781	3.1	10	10	
121	Sb	0.271	2108	9.1	4	2.5	
137	Ba	0.373	873	6.6	8	10	
205	Tl	0.056	1776	8.6	4	1.5	
208	Pb	0.784	33741	1.5	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1158586	0.65	1182420	97.98	70	120	
72	Ge	826990	0.44	849145	97.39	70	120	
115	In	8227232	1.42	8639443	95.23	70	120	
209	Bi	18057954	0.39	19405733	93.05	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	2/9/2016 10:40	Sample Name	ICSAB-160209
Data Batch	160209.b	Comment	ICSBICPMS_TW
Data File Name	023ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	38.138	210220	0.94	40	95.3	80	120	
52	Cr	45	19.898	132148	0.53	20	99.5	80	120	
55	Mn	45	18.836	71646	1.08	20	94.2	80	120	
59	Co	72	39.170	394214	1.35	40	97.9	80	120	
60	Ni	72	37.173	100743	1.43	40	92.9	80	120	
63	Cu	72	19.934	155114	1.33	20	99.7	80	120	
66	Zn	72	19.807	25800	0.49	20	99.0	80	120	
75	As	72	19.681	20992	1.32	20	98.4	80	120	
78	Se	72	20.096	1446	1.38	20	100.5	80	120	
107	Ag	115	19.135	250523	0.19	20	95.7	80	120	
111	Cd	115	9.741	20012	1.34	10	97.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1153263	0.42	1182420	97.53	70	120	
72	Ge	835885	0.82	849145	98.44	70	120	
115	In	8336488	0.97	8639443	96.49	70	120	
209	Bi	18014973	1.77	19405733	92.83	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	2/9/2016 10:47	Sample Name	ICV-160209
Data Batch	160209.b	Comment	ICV ICPMS_TW
Data File Name	026_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	98.747	3723	1.17	100	98.7	90	110	
9	Be	45	98.697	4982	0.66	100	98.7	90	110	
11	B	45	106.168	2647	1.98	100	106.2	90	110	
23	Na	45	2452.887	2313089	0.27	2500	98.1	90	110	
24	Mg	45	2513.653	1101187	0.66	2500	100.5	90	110	
27	Al	45	2502.291	411843	0.60	2500	100.1	90	110	
39	K	45	2470.979	1250304	0.68	2500	98.8	90	110	
44	Ca	45	2279.172	60373	1.12	2500	91.2	90	110	
47	Ti	45	99.235	17780	3.50	100	99.2	90	110	
51	V	45	99.174	556886	0.22	100	99.2	90	110	
52	Cr	45	99.979	676168	0.19	100	100.0	90	110	
55	Mn	45	97.134	380488	0.87	100	97.1	90	110	
56	Fe	45	2526.846	14299339	1.47	2500	101.1	90	110	
59	Co	72	102.219	1068564	0.41	100	102.2	90	110	
60	Ni	72	101.004	283532	0.58	100	101.0	90	110	
63	Cu	72	100.743	788706	0.79	100	100.7	90	110	
66	Zn	72	99.939	132833	1.08	100	99.9	90	110	
75	As	72	99.877	109626	0.33	100	99.9	90	110	
78	Se	72	99.950	6968	1.78	100	100.0	90	110	
88	Sr	115	96.348	565590	0.85	100	96.3	90	110	
95	Mo	115	93.607	448191	1.71	100	93.6	90	110	
107	Ag	115	101.891	1417571	0.73	100	101.9	90	110	
111	Cd	115	96.255	210108	1.64	100	96.3	90	110	
118	Sn	115	98.501	488041	0.40	100	98.5	90	110	
121	Sb	115	100.097	713834	0.65	100	100.1	90	110	
137	Ba	115	97.662	241095	1.83	100	97.7	90	110	
205	Tl	209	98.640	3193104	0.96	100	98.6	90	110	
208	Pb	209	99.623	4305044	0.39	100	99.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1189808	0.75	1182420	100.62	70	120	
72	Ge	868307	0.47	849145	102.26	70	120	
115	In	8862305	2.33	8639443	102.58	70	120	
209	Bi	19775696	0.35	19405733	101.91	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 10:53	Sample Name	LCVL-160209
Data Batch	160209.b	Comment	LCVLICPMS_TW
Data File Name	028LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.035	422	7.66	10	110.4	70	130	
9	Be	45	1.276	67	6.51	1	127.6	70	130	
11	B	45	26.216	1118	3.43	20	131.1	70	130	Fail
23	Na	45	111.942	191829	1.00	100	111.9	70	130	
24	Mg	45	106.944	47506	1.55	100	106.9	70	130	
27	Al	45	111.679	21828	1.68	100	111.7	70	130	
39	K	45	111.064	110605	1.79	100	111.1	70	130	
44	Ca	45	104.236	3131	3.62	100	104.2	70	130	
47	Ti	45	5.498	993	5.40	5	110.0	70	130	
51	V	45	1.075	10451	1.42	1	107.5	70	130	
52	Cr	45	5.098	36724	1.53	5	102.0	70	130	
55	Mn	45	5.021	19906	1.51	5	100.4	70	130	
56	Fe	45	102.958	595026	0.49	100	103.0	70	130	
59	Co	72	5.251	55140	0.91	5	105.0	70	130	
60	Ni	72	5.324	15450	1.10	5	106.5	70	130	
63	Cu	72	5.098	46079	0.71	5	102.0	70	130	
66	Zn	72	5.475	7869	0.04	5	109.5	70	130	
75	As	72	5.158	5924	1.44	5	103.2	70	130	
78	Se	72	4.816	459	4.57	5	96.3	70	130	
88	Sr	115	5.024	29372	2.08	5	100.5	70	130	
95	Mo	115	4.850	23126	1.87	5	97.0	70	130	
107	Ag	115	2.131	29552	0.91	2	106.6	70	130	
111	Cd	115	1.013	2211	3.75	1	101.3	70	130	
118	Sn	115	5.261	26707	1.65	5	105.2	70	130	
121	Sb	115	2.044	14827	2.42	2	102.2	70	130	
137	Ba	115	5.094	12519	3.23	5	101.9	70	130	
205	Tl	209	1.022	32955	0.91	1	102.2	70	130	
208	Pb	209	1.038	47539	0.46	1	103.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195072	1.16	1182420	101.07	70	120	
72	Ge	871501	0.73	849145	102.63	70	120	
115	In	8808153	1.14	8639443	101.95	70	120	
209	Bi	19626632	1.23	19405733	101.14	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	2/9/2016 10:59	Sample Name	ICB-160209
Data Batch	160209.b	Comment	ICB ICPMS_TW
Data File Name	030_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.154	11	28.6	2	5	
9	Be	45	0.077	6	81.0	0.4	0.3	
11	B	45	7.191	759	6.2	10	10	
23	Na	45	4.301	94840	1.2	50	100	
24	Mg	45	-0.155	408	4.9	50	100	
27	Al	45	-2.107	3211	3.8	50	10	
39	K	45	0.859	57741	1.0	50	100	
44	Ca	45	-3.082	296	11.9	50	100	
47	Ti	45	0.018	8	107.8	4	3	
51	V	45	0.076	4915	4.0	4	3	
52	Cr	45	-0.009	2171	1.9	2	2	
55	Mn	45	-0.010	124	16.1	2	3	
56	Fe	45	0.017	10539	0.8	50	50	
59	Co	72	0.001	56	48.5	2	3	
60	Ni	72	-0.110	167	21.6	2	3	
63	Cu	72	-0.269	4278	2.2	2	2	
66	Zn	72	-0.113	450	10.0	4	2	
75	As	72	-0.025	229	1.7	2	2	
78	Se	72	-0.016	127	6.7	1	2	
88	Sr	115	-0.001	61	26.9	4	3	
95	Mo	115	-0.001	41	9.4	2	2	
107	Ag	115	0.005	154	23.9	0.4	1	
111	Cd	115	-0.005	2	86.6	0.4	0.3	
118	Sn	115	0.074	1206	3.5	4	3	
121	Sb	115	-0.016	227	27.5	2	0.8	
137	Ba	115	-0.001	19	62.0	2	3	
205	Tl	209	0.005	299	9.1	2	0.5	
208	Pb	209	-0.011	2591	3.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1207897	0.38	1182420	102.15	70	120	
72	Ge	876696	0.24	849145	103.24	70	120	
115	In	8857348	1.00	8639443	102.52	70	120	
209	Bi	19496716	1.72	19405733	100.47	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/9/2016 15:01	Sample Name	CCV6-160209
Data Batch	160209.b	Comment	CCV ICPMS_TW
Data File Name	137_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	217.096	8246	0.91	200	108.5	90	110	
9	Be	45	213.233	10847	1.99	200	106.6	90	110	
11	B	45	215.304	4780	2.77	200	107.7	90	110	
23	Na	45	5552.346	5164935	3.74	5000	111.0	90	110	Fail
24	Mg	45	5226.549	2307629	1.11	5000	104.5	90	110	
27	Al	45	5222.884	862695	0.67	5000	104.5	90	110	
39	K	45	5149.449	2564794	0.41	5000	103.0	90	110	
44	Ca	45	4955.375	131882	0.65	5000	99.1	90	110	
47	Ti	45	199.664	36053	0.76	200	99.8	90	110	
51	V	45	205.976	1161133	1.13	200	103.0	90	110	
52	Cr	45	203.223	1383217	0.32	200	101.6	90	110	
55	Mn	45	204.604	807717	0.41	200	102.3	90	110	
56	Fe	45	5099.012	29074190	0.47	5000	102.0	90	110	
59	Co	72	209.364	2202756	0.43	200	104.7	90	110	
60	Ni	72	208.164	587620	0.39	200	104.1	90	110	
63	Cu	72	209.555	1644392	1.36	200	104.8	90	110	
66	Zn	72	218.881	292095	1.22	200	109.4	90	110	
75	As	72	207.472	228930	0.56	200	103.7	90	110	
78	Se	72	208.792	14510	0.51	200	104.4	90	110	
88	Sr	115	195.755	1183845	0.54	200	97.9	90	110	
95	Mo	115	193.826	956016	0.46	200	96.9	90	110	
107	Ag	115	205.003	2938550	1.06	200	102.5	90	110	
111	Cd	115	202.666	455701	0.38	200	101.3	90	110	
118	Sn	115	201.361	1027012	1.01	200	100.7	90	110	
121	Sb	115	204.990	1505664	1.39	200	102.5	90	110	
137	Ba	115	205.591	522857	0.54	200	102.8	90	110	
205	Tl	209	209.666	7089752	0.28	200	104.8	90	110	
208	Pb	209	211.310	9534952	0.39	200	105.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1199385	0.75	1182420	101.43	70	120	
72	Ge	873962	0.86	849145	102.92	70	120	
115	In	9128720	0.84	8639443	105.66	70	120	
209	Bi	20660630	1.60	19405733	106.47	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 15:07	Sample Name	LCVL6-160209
Data Batch	160209.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	11.823	468	7.24	10	118.2	70	130	
9	Be	45	1.162	63	26.90	1	116.2	70	130	
11	B	45	29.162	1217	3.16	20	145.8	70	130	Fail
23	Na	45	210.122	291348	0.71	100	210.1	70	130	Fail
24	Mg	45	109.825	50526	1.30	100	109.8	70	130	
27	Al	45	152.051	29466	0.59	100	152.1	70	130	Fail
39	K	45	121.847	120004	1.27	100	121.8	70	130	
44	Ca	45	104.597	3254	2.56	100	104.6	70	130	
47	Ti	45	5.038	943	8.83	5	100.8	70	130	
51	V	45	1.106	11011	1.90	1	110.6	70	130	
52	Cr	45	5.103	38078	1.13	5	102.1	70	130	
55	Mn	45	5.164	21204	2.91	5	103.3	70	130	
56	Fe	45	104.464	625326	0.47	100	104.5	70	130	
59	Co	72	5.207	56929	0.74	5	104.1	70	130	
60	Ni	72	5.240	15838	2.65	5	104.8	70	130	
63	Cu	72	4.737	45049	0.14	5	94.7	70	130	
66	Zn	72	7.827	11443	1.17	5	156.5	70	130	Fail
75	As	72	5.275	6301	0.64	5	105.5	70	130	
78	Se	72	5.154	502	0.11	5	103.1	70	130	
88	Sr	115	5.039	31443	1.67	5	100.8	70	130	
95	Mo	115	4.769	24271	1.59	5	95.4	70	130	
107	Ag	115	2.094	30997	0.30	2	104.7	70	130	
111	Cd	115	1.013	2359	2.33	1	101.3	70	130	
118	Sn	115	5.129	27814	1.58	5	102.6	70	130	
121	Sb	115	2.132	16489	1.17	2	106.6	70	130	
137	Ba	115	5.100	13381	1.95	5	102.0	70	130	
205	Tl	209	1.025	35377	1.27	1	102.5	70	130	
208	Pb	209	1.009	49575	1.51	1	100.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1238016	0.69	1182420	104.70	70	120	
72	Ge	907321	0.52	849145	106.85	70	120	
115	In	9403505	2.18	8639443	108.84	70	120	
209	Bi	21008945	1.45	19405733	108.26	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/9/2016 15:12	Sample Name	CCB6-160209
Data Batch	160209.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	0.270	16	22.4	2	5	
9	Be	45	0.035	4	35.3	0.4	0.3	
11	B	45	4.421	732	14.9	10	10	
23	Na	45	83.552	174190	0.7	50	100	FailSoil
24	Mg	45	-0.288	362	10.9	50	100	
27	Al	45	19.870	7114	1.9	50	10	FailAq
39	K	45	12.063	65655	0.7	50	100	
44	Ca	45	-1.419	354	6.3	50	100	
47	Ti	45	0.005	6	91.6	4	3	
51	V	45	0.091	5193	2.6	4	3	
52	Cr	45	-0.029	2108	2.3	2	2	
55	Mn	45	0.028	284	15.3	2	3	
56	Fe	45	0.199	12026	3.2	50	50	
59	Co	72	0.005	107	6.2	2	3	
60	Ni	72	-0.064	309	9.1	2	3	
63	Cu	72	-0.554	2117	1.6	2	2	
66	Zn	72	0.352	1110	3.3	4	2	
75	As	72	-0.006	259	12.4	2	2	
78	Se	72	-0.341	109	9.9	1	2	
88	Sr	115	0.007	111	19.5	4	3	
95	Mo	115	-0.002	39	17.8	2	2	
107	Ag	115	0.014	287	4.2	0.4	1	
111	Cd	115	0.001	17	52.9	0.4	0.3	
118	Sn	115	-0.046	648	4.2	4	3	
121	Sb	115	0.021	521	4.7	2	0.8	
137	Ba	115	0.007	40	30.0	2	3	
205	Tl	209	0.007	384	2.6	2	0.5	
208	Pb	209	-0.037	1620	1.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1254089	0.53	1182420	106.06	70	120	
72	Ge	908645	0.13	849145	107.01	70	120	
115	In	9362778	0.42	8639443	108.37	70	120	
209	Bi	21236277	1.27	19405733	109.43	70	120	

Method Blank Report

Date Acquired	2/9/16 3:14 PM	Sample Name	MB-73501
Data Batch	160209.b	Comment	MBLKICPMS_TSDOD
Data File Name	141_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.322	18	43.23		
9	Be	45	0.023	4	87.67		
11	B	45	4.945	740	3.52		
23	Na	45	80.226	170434	0.25		FAIL
24	Mg	45	2.812	1787	3.72		
27	Al	45	-12.127	1605	9.48		
39	K	45	12.326	65568	1.66		
44	Ca	45	17.305	870	12.41		
47	Ti	45	0.140	31	44.61		
51	V	45	0.110	5286	0.46		
52	Cr	45	0.248	4063	6.93		
55	Mn	45	0.300	1402	6.43		
56	Fe	45	7.261	53931	0.58		
59	Co	72	0.010	162	8.31		
60	Ni	72	0.395	1652	7.97		
63	Cu	72	-0.310	4080	28.22		
66	Zn	72	3.785	5850	2.61		
75	As	72	-0.007	257	4.77		
78	Se	72	-0.173	121	5.33		
88	Sr	115	0.036	298	21.28		
95	Mo	115	0.025	179	31.70		
107	Ag	115	0.012	266	5.66		
111	Cd	115	0.001	18	57.27		
118	Sn	115	3.540	19718	3.82		
121	Sb	115	0.009	434	12.47		
137	Ba	115	0.105	300	8.01		
205	Tl	209	0.007	387	8.75		
208	Pb	209	0.042	5340	5.10		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1249830	0.42	1182420	105.70	70	120	
72	Ge	906499	0.84	849145	106.75	70	120	
115	In	9519130	1.17	8639443	110.18	70	120	
209	Bi	21504545	0.75	19405733	110.82	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/9/2016 15:16	Sample Name	LCS-73501
Data Batch	160209.b	Comment	LCS ICPMS_TSDOD
Data File Name	142_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	212.051	8261	0.83	200	106.0	80	120	
9	Be	45	208.359	10871	1.23	200	104.2	80	120	
11	B	45	211.646	4831	2.80	200	105.8	80	120	
23	Na	45	5292.004	5052743	1.38	1000	529.2	80	120	Fail
24	Mg	45	5171.185	2341681	0.32	1000	517.1	80	120	Fail
27	Al	45	1022.472	176141	0.49	1000	102.2	80	120	
39	K	45	5090.148	2601097	0.36	1000	509.0	80	120	Fail
44	Ca	45	4803.842	131151	0.18	1000	480.4	80	120	Fail
47	Ti	45	195.777	36256	2.30	200	97.9	80	120	
51	V	45	203.650	1177540	0.18	200	101.8	80	120	
52	Cr	45	201.798	1408831	0.24	200	100.9	80	120	
55	Mn	45	203.382	823490	0.39	200	101.7	80	120	
56	Fe	45	1032.611	6048391	1.73	1000	103.3	80	120	
59	Co	72	207.712	2238993	0.40	200	103.9	80	120	
60	Ni	72	205.572	594524	0.76	200	102.8	80	120	
63	Cu	72	204.213	1641928	0.67	200	102.1	80	120	
66	Zn	72	208.392	284941	0.51	200	104.2	80	120	
75	As	72	203.372	229918	0.56	200	101.7	80	120	
78	Se	72	205.856	14658	0.66	200	102.9	80	120	
88	Sr	115	194.003	1190460	0.57	200	97.0	80	120	
95	Mo	115	192.339	962577	1.41	200	96.2	80	120	
107	Ag	115	203.046	2953007	0.96	200	101.5	80	120	
111	Cd	115	201.875	460565	1.36	200	100.9	80	120	
118	Sn	115	203.800	1054753	0.29	200	101.9	80	120	
121	Sb	115	203.161	1514226	0.68	200	101.6	80	120	
137	Ba	115	202.694	523029	1.44	200	101.3	80	120	
205	Tl	209	210.638	7165822	1.77	200	105.3	80	120	
208	Pb	209	207.996	9442346	0.45	200	104.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1230229	0.94	1182420	104.04	70	120	
72	Ge	895452	1.36	849145	105.45	70	120	
115	In	9262889	0.94	8639443	107.22	70	120	
209	Bi	20787262	1.78	19405733	107.12	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/9/2016 15:18	Sample Name	LCSD-73501
Data Batch	160209.b	Comment	LCSDICPMS_TSDOD
Data File Name	143_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	215.813	8329	0.54	200	107.9	80	120	
9	Be	45	214.888	11107	0.77	200	107.4	80	120	
11	B	45	211.201	4776	3.82	200	105.6	80	120	
23	Na	45	5323.088	5034169	1.96	1000	532.3	80	120	Fail
24	Mg	45	5269.441	2363933	0.53	1000	526.9	80	120	Fail
27	Al	45	1053.005	179595	0.52	1000	105.3	80	120	
39	K	45	5171.772	2617187	0.15	1000	517.2	80	120	Fail
44	Ca	45	4941.602	133636	1.13	1000	494.2	80	120	Fail
47	Ti	45	198.189	36363	1.62	200	99.1	80	120	
51	V	45	207.585	1189008	0.44	200	103.8	80	120	
52	Cr	45	206.210	1426120	0.22	200	103.1	80	120	
55	Mn	45	206.333	827662	0.60	200	103.2	80	120	
56	Fe	45	1067.645	6194394	0.62	1000	106.8	80	120	
59	Co	72	208.863	2235605	0.66	200	104.4	80	120	
60	Ni	72	208.786	599654	0.45	200	104.4	80	120	
63	Cu	72	208.787	1666904	1.29	200	104.4	80	120	
66	Zn	72	212.440	288446	0.91	200	106.2	80	120	
75	As	72	206.272	231576	0.78	200	103.1	80	120	
78	Se	72	210.266	14866	1.72	200	105.1	80	120	
88	Sr	115	196.308	1203537	0.13	200	98.2	80	120	
95	Mo	115	194.941	974703	0.98	200	97.5	80	120	
107	Ag	115	205.557	2986768	0.23	200	102.8	80	120	
111	Cd	115	205.690	468852	0.51	200	102.8	80	120	
118	Sn	115	206.250	1066400	0.55	200	103.1	80	120	
121	Sb	115	204.413	1522187	1.17	200	102.2	80	120	
137	Ba	115	204.968	528470	1.06	200	102.5	80	120	
205	Tl	209	210.870	7281754	1.11	200	105.4	80	120	
208	Pb	209	208.003	9585557	0.75	200	104.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1218707	0.56	1182420	103.07	70	120	
72	Ge	889187	1.01	849145	104.72	70	120	
115	In	9254835	1.31	8639443	107.12	70	120	
209	Bi	21096580	0.32	19405733	108.71	70	120	

Sample Report

Date Acquired	2/9/16 3:22 PM	Sample Name	1601231-23A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	145_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	32.934	1263	2.81	2000	>RL
9	Be	45	1.718	90	6.29	2000	>RL
11	B	45	48.996	1572	7.18	2000	>RL
23	Na	45	262.121	331906	0.64	25000	>RL
24	Mg	45	9352.565	4155474	0.72	25000	>RL
27	Al	45	39114.071	6479254	0.93	10000	OUTCAL
39	K	45	8477.584	4212850	0.26	25000	>RL
44	Ca	45	211095.246	5638916	1.00	25000	OUTCAL
47	Ti	45	177.887	32328	1.87	2000	>RL
51	V	45	66.814	382109	0.55	2000	>RL
52	Cr	45	31.612	218433	0.64	2000	>RL
55	Mn	45	986.206	3917818	0.31	2000	>RL
56	Fe	45	34988.185	200731672	0.97	10000	OUTCAL
59	Co	72	12.045	124898	0.62	2000	>RL
60	Ni	72	20.061	56215	1.08	2000	>RL
63	Cu	72	14.608	118753	1.53	2000	>RL
66	Zn	72	127.457	167810	0.72	2000	>RL
75	As	72	11.559	12803	0.13	2000	>RL
78	Se	72	3.027	332	3.41	2000	>RL
88	Sr	115	401.541	2368988	0.59	2000	>RL
95	Mo	115	0.798	3888	1.17	2000	
107	Ag	115	0.085	1276	7.26	500	
111	Cd	115	0.467	1038	0.37	2000	>RL
118	Sn	115	3.986	20663	0.68	2000	
121	Sb	115	3.439	24980	2.24	500	>RL
137	Ba	115	454.182	1126769	0.74	2000	>RL
205	Tl	209	0.382	12788	0.86	2000	
208	Pb	209	127.777	5644498	0.59	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1207147	0.52	1182420	102.09	70	120	
72	Ge	861017	0.65	849145	101.40	70	120	
115	In	8905471	0.78	8639443	103.08	70	120	
209	Bi	20218301	0.27	19405733	104.19	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/9/2016 15:24	Sample Name	1601231-23A SD
Data Batch	160209.b	Comment	SD ICPMS_TSDOD
Data File Name	146_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	6.815	267	5.04	32.9	103.5	110	90	Good
9	Be	45	0.355	21	28.35	1.7	103.2	110	90	Good
11	B	45	7.794	776	0.89	49.0	79.5	110	90	
23	Na	45	94.926	179354	0.94	262.1	181.1	110	90	
24	Mg	45	1905.087	852639	0.04	9352.6	101.8	110	90	Good
27	Al	45	7722.216	1290805	0.45	39114.1	98.7	110	90	Good
39	K	45	1717.908	905507	0.19	8477.6	101.3	110	90	Good
44	Ca	45	42879.707	1153572	0.07	211095.2	101.6	110	90	Good
47	Ti	45	36.607	6701	4.42	177.9	102.9	110	90	Good
51	V	45	13.521	81453	0.43	66.8	101.2	110	90	Good
52	Cr	45	6.464	46755	1.22	31.6	102.2	110	90	Good
55	Mn	45	200.910	803717	0.71	986.2	101.9	110	90	Good
56	Fe	45	7271.026	42008282	1.01	34988.2	103.9	110	90	Good
59	Co	72	2.452	25825	1.10	12.0	101.8	110	90	Good
60	Ni	72	4.163	12211	2.87	20.1	103.8	110	90	Good
63	Cu	72	2.623	26852	1.85	14.6	89.8	110	90	
66	Zn	72	27.012	36549	1.31	127.5	106.0	110	90	Good
75	As	72	2.306	2795	1.74	11.6	99.7	110	90	Good
78	Se	72	0.456	159	0.94	3.0	75.3	110	90	
88	Sr	115	78.458	480030	1.22	401.5	97.7	110	90	Good
95	Mo	115	0.156	828	9.36	0.8	97.8	110	90	Good
107	Ag	115	0.028	488	4.00	0.1	163.0	110	90	
111	Cd	115	0.110	263	12.07	0.5	117.3	110	90	
118	Sn	115	0.735	4667	1.48	4.0	92.2	110	90	Good
121	Sb	115	0.669	5327	3.79	3.4	97.3	110	90	Good
137	Ba	115	89.286	229718	0.23	454.2	98.3	110	90	Good
205	Tl	209	0.089	3238	8.50	0.4	116.8	110	90	
208	Pb	209	25.202	1169809	0.65	127.8	98.6	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1215402	0.59	1182420	102.79	70	120	
72	Ge	873455	0.71	849145	102.86	70	120	
115	In	9235263	1.29	8639443	106.90	70	120	
209	Bi	21196424	0.33	19405733	109.23	70	120	

Sample Report

Date Acquired	2/9/16 3:26 PM	Sample Name	1601231-04A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	147SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	44.249	1676	4.51	2000	>RL
9	Be	45	2.009	104	8.81	2000	>RL
11	B	45	48.168	1539	2.08	2000	>RL
23	Na	45	1761.227	1691766	1.28	25000	>RL
24	Mg	45	11151.253	4900018	1.96	25000	>RL
27	Al	45	48616.805	7963535	1.94	10000	OUTCAL
39	K	45	13679.133	6687571	1.04	25000	>RL
44	Ca	45	57475.592	1518603	1.08	25000	OUTCAL
47	Ti	45	260.426	46807	1.70	2000	>RL
51	V	45	68.009	384535	1.09	2000	>RL
52	Cr	45	42.961	292770	1.08	2000	>RL
55	Mn	45	532.861	2093426	0.35	2000	>RL
56	Fe	45	46674.316	264798167	1.04	10000	OUTCAL
59	Co	72	15.652	159689	0.16	2000	>RL
60	Ni	72	28.477	78328	1.17	2000	>RL
63	Cu	72	33.143	257301	1.15	2000	>RL
66	Zn	72	303.122	391914	1.05	2000	>RL
75	As	72	16.840	18241	1.09	2000	>RL
78	Se	72	3.366	349	4.64	2000	>RL
88	Sr	115	238.128	1421251	0.33	2000	>RL
95	Mo	115	1.118	5489	0.77	2000	
107	Ag	115	0.180	2629	3.07	500	
111	Cd	115	0.680	1523	3.95	2000	>RL
118	Sn	115	4.584	23913	1.10	2000	>RL
121	Sb	115	2.566	18949	0.98	500	>RL
137	Ba	115	551.872	1385075	0.22	2000	>RL
205	Tl	209	0.452	15259	1.93	2000	
208	Pb	209	68.962	3080549	0.72	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1193744	0.71	1182420	100.96	70	120	
72	Ge	847209	0.35	849145	99.77	70	120	
115	In	9010211	1.65	8639443	104.29	70	120	
209	Bi	20441797	2.51	19405733	105.34	70	120	

Sample Report

Date Acquired	2/9/16 3:28 PM	Sample Name	1601231-05A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	148SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.488	1782	2.88	2000	>RL
9	Be	45	2.294	117	4.92	2000	>RL
11	B	45	58.768	1727	4.74	2000	>RL
23	Na	45	2408.955	2259176	0.56	25000	>RL
24	Mg	45	12143.554	5285134	1.62	25000	>RL
27	Al	45	53226.987	8635387	1.11	10000	OUTCAL
39	K	45	15092.293	7302608	1.77	25000	>RL
44	Ca	45	63589.548	1664131	0.79	25000	OUTCAL
47	Ti	45	316.004	56250	1.30	2000	>RL
51	V	45	75.377	421673	0.91	2000	>RL
52	Cr	45	47.538	320653	0.30	2000	>RL
55	Mn	45	566.556	2204647	0.46	2000	>RL
56	Fe	45	50011.728	281035571	1.49	10000	OUTCAL
59	Co	72	16.307	166365	0.25	2000	>RL
60	Ni	72	30.952	85089	1.99	2000	>RL
63	Cu	72	32.607	253247	0.40	2000	>RL
66	Zn	72	307.961	398187	1.18	2000	>RL
75	As	72	18.381	19888	0.60	2000	>RL
78	Se	72	3.105	332	6.03	2000	>RL
88	Sr	115	248.517	1472084	0.84	2000	>RL
95	Mo	115	1.285	6256	2.63	2000	
107	Ag	115	0.243	3487	3.35	500	
111	Cd	115	0.762	1691	2.76	2000	>RL
118	Sn	115	4.771	24665	0.73	2000	>RL
121	Sb	115	3.112	22729	0.50	500	>RL
137	Ba	115	613.188	1527376	1.06	2000	>RL
205	Tl	209	0.486	16249	1.99	2000	
208	Pb	209	71.728	3177394	0.93	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1182394	0.44	1182420	100.00	70	120	
72	Ge	847285	1.03	849145	99.78	70	120	
115	In	8940897	0.20	8639443	103.49	70	120	
209	Bi	20268752	1.13	19405733	104.45	70	120	

Sample Report

Date Acquired	2/9/16 3:30 PM	Sample Name	1601231-06A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	149SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	45.253	1717	2.30	2000	>RL
9	Be	45	2.117	110	7.37	2000	>RL
11	B	45	57.889	1729	4.47	2000	>RL
23	Na	45	1549.832	1501509	0.75	25000	>RL
24	Mg	45	11167.028	4913393	0.18	25000	>RL
27	Al	45	51822.240	8500123	1.10	10000	OUTCAL
39	K	45	14487.386	7089524	1.83	25000	>RL
44	Ca	45	56043.708	1482796	0.27	25000	OUTCAL
47	Ti	45	288.483	51920	1.16	2000	>RL
51	V	45	70.082	396691	0.94	2000	>RL
52	Cr	45	48.012	327385	0.79	2000	>RL
55	Mn	45	548.777	2158908	0.86	2000	>RL
56	Fe	45	48506.476	275598833	2.12	10000	OUTCAL
59	Co	72	15.650	163091	0.71	2000	>RL
60	Ni	72	29.329	82391	0.40	2000	>RL
63	Cu	72	31.981	253841	0.66	2000	>RL
66	Zn	72	300.805	397279	0.95	2000	>RL
75	As	72	16.962	18766	2.13	2000	>RL
78	Se	72	3.426	360	10.44	2000	>RL
88	Sr	115	217.151	1302462	1.07	2000	>RL
95	Mo	115	1.167	5754	2.04	2000	
107	Ag	115	0.177	2591	0.97	500	
111	Cd	115	0.684	1540	4.72	2000	>RL
118	Sn	115	4.746	24846	1.98	2000	>RL
121	Sb	115	2.711	20095	1.14	500	>RL
137	Ba	115	512.382	1292317	1.29	2000	>RL
205	Tl	209	0.460	15453	0.68	2000	
208	Pb	209	69.211	3076741	0.37	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195403	0.58	1182420	101.10	70	120	
72	Ge	865411	0.83	849145	101.92	70	120	
115	In	9053487	0.47	8639443	104.79	70	120	
209	Bi	20337483	0.69	19405733	104.80	70	120	

Sample Report

Date Acquired	2/9/16 3:32 PM	Sample Name	1601231-07A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	150SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.902	1870	5.17	2000	>RL
9	Be	45	1.897	101	11.35	2000	>RL
11	B	45	61.857	1858	9.16	2000	>RL
23	Na	45	361.390	431156	0.59	25000	>RL
24	Mg	45	10896.109	4932454	1.50	25000	>RL
27	Al	45	54835.144	9252783	1.68	10000	OUTCAL
39	K	45	15267.404	7682797	1.43	25000	>RL
44	Ca	45	52270.474	1422791	0.61	25000	OUTCAL
47	Ti	45	232.798	43105	1.66	2000	>RL
51	V	45	74.151	431511	0.89	2000	>RL
52	Cr	45	60.434	423358	0.27	2000	>RL
55	Mn	45	573.138	2319710	1.10	2000	>RL
56	Fe	45	51691.477	302168308	2.93	10000	OUTCAL
59	Co	72	16.985	179301	0.50	2000	>RL
60	Ni	72	32.073	91226	0.53	2000	>RL
63	Cu	72	43.635	348514	0.14	2000	>RL
66	Zn	72	483.601	646623	0.42	2000	>RL
75	As	72	21.293	23798	0.64	2000	>RL
78	Se	72	2.992	335	7.38	2000	>RL
88	Sr	115	216.277	1306905	0.20	2000	>RL
95	Mo	115	1.465	7270	3.42	2000	
107	Ag	115	0.349	5081	4.26	500	
111	Cd	115	1.087	2457	4.73	2000	>RL
118	Sn	115	5.383	28280	0.68	2000	>RL
121	Sb	115	4.902	36324	0.88	500	>RL
137	Ba	115	667.551	1696203	0.39	2000	>RL
205	Tl	209	0.460	15731	1.09	2000	
208	Pb	209	91.514	4143494	0.46	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1229808	0.66	1182420	104.01	70	120	
72	Ge	876651	0.15	849145	103.24	70	120	
115	In	9121155	0.74	8639443	105.58	70	120	
209	Bi	20720174	1.08	19405733	106.77	70	120	

Sample Report

Date Acquired	2/9/16 3:34 PM	Sample Name	1601231-08A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	151SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.536	1913	2.89	2000	>RL
9	Be	45	2.556	134	7.31	2000	>RL
11	B	45	66.267	1925	3.94	2000	>RL
23	Na	45	452.373	511019	0.47	25000	>RL
24	Mg	45	11645.459	5216541	0.58	25000	>RL
27	Al	45	56416.997	9420087	2.05	10000	OUTCAL
39	K	45	16368.358	8146722	1.99	25000	>RL
44	Ca	45	56911.960	1533000	0.70	25000	OUTCAL
47	Ti	45	223.400	40934	1.67	2000	>RL
51	V	45	79.176	455678	0.83	2000	>RL
52	Cr	45	62.955	436340	1.19	2000	>RL
55	Mn	45	590.441	2364752	0.88	2000	>RL
56	Fe	45	54178.814	313363676	1.16	10000	OUTCAL
59	Co	72	17.988	189980	0.56	2000	>RL
60	Ni	72	33.540	95422	0.69	2000	>RL
63	Cu	72	58.043	461696	1.00	2000	>RL
66	Zn	72	412.643	552092	0.76	2000	>RL
75	As	72	24.173	26996	1.34	2000	>RL
78	Se	72	3.818	392	8.83	2000	>RL
88	Sr	115	227.437	1362130	0.63	2000	>RL
95	Mo	115	1.820	8939	2.79	2000	
107	Ag	115	0.360	5189	3.16	500	
111	Cd	115	1.057	2368	5.37	2000	>RL
118	Sn	115	5.837	30321	1.44	2000	>RL
121	Sb	115	4.865	35732	1.74	500	>RL
137	Ba	115	705.560	1776947	0.23	2000	>RL
205	Tl	209	0.483	16168	2.08	2000	
208	Pb	209	105.516	4677828	0.47	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1216998	0.47	1182420	102.92	70	120	
72	Ge	877051	0.32	849145	103.29	70	120	
115	In	9040643	1.00	8639443	104.64	70	120	
209	Bi	20289606	0.98	19405733	104.55	70	120	

Sample Report

Date Acquired	2/9/16 3:36 PM	Sample Name	1601231-09A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	152SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	45.210	1725	2.42	2000	>RL
9	Be	45	1.923	100	6.41	2000	>RL
11	B	45	64.373	1865	3.35	2000	>RL
23	Na	45	344.868	406332	0.64	25000	>RL
24	Mg	45	10263.192	4541419	0.52	25000	>RL
27	Al	45	47706.814	7869520	0.07	10000	OUTCAL
39	K	45	13639.003	6715155	0.72	25000	>RL
44	Ca	45	64609.350	1719088	0.18	25000	OUTCAL
47	Ti	45	240.099	43455	0.54	2000	>RL
51	V	45	75.018	426733	0.76	2000	>RL
52	Cr	45	54.246	371713	0.27	2000	>RL
55	Mn	45	538.611	2130920	0.89	2000	>RL
56	Fe	45	45421.342	259532514	1.89	10000	OUTCAL
59	Co	72	15.060	158265	0.80	2000	>RL
60	Ni	72	33.226	94056	0.24	2000	>RL
63	Cu	72	49.693	394214	0.59	2000	>RL
66	Zn	72	411.155	547335	0.73	2000	>RL
75	As	72	19.892	22149	1.22	2000	>RL
78	Se	72	3.098	341	6.90	2000	>RL
88	Sr	115	235.579	1418363	0.50	2000	>RL
95	Mo	115	1.672	8256	1.43	2000	
107	Ag	115	0.334	4850	1.82	500	
111	Cd	115	0.998	2249	7.50	2000	>RL
118	Sn	115	5.659	29573	1.20	2000	>RL
121	Sb	115	5.112	37729	1.22	500	>RL
137	Ba	115	692.161	1752409	0.86	2000	>RL
205	Tl	209	0.418	14222	1.08	2000	
208	Pb	209	82.635	3714335	0.40	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1202225	0.89	1182420	101.67	70	120	
72	Ge	872692	0.83	849145	102.77	70	120	
115	In	9088368	1.29	8639443	105.20	70	120	
209	Bi	20567962	0.99	19405733	105.99	70	120	

Sample Report

Date Acquired	2/9/16 3:38 PM	Sample Name	1601231-10A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	153SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.838	1893	2.59	2000	>RL
9	Be	45	1.845	96	6.25	2000	>RL
11	B	45	66.251	1892	3.71	2000	>RL
23	Na	45	407.371	461531	0.07	25000	>RL
24	Mg	45	11153.261	4913270	0.38	25000	>RL
27	Al	45	44522.592	7311830	2.27	10000	OUTCAL
39	K	45	11066.161	5434826	1.22	25000	>RL
44	Ca	45	171936.474	4553841	0.44	25000	OUTCAL
47	Ti	45	215.237	38784	0.69	2000	>RL
51	V	45	80.706	456705	0.51	2000	>RL
52	Cr	45	41.427	283133	0.33	2000	>RL
55	Mn	45	834.681	3287576	0.91	2000	>RL
56	Fe	45	49877.691	283717073	0.66	10000	OUTCAL
59	Co	72	15.936	166323	1.06	2000	>RL
60	Ni	72	24.864	70018	1.39	2000	>RL
63	Cu	72	12.457	102871	0.92	2000	>RL
66	Zn	72	137.318	181947	1.12	2000	>RL
75	As	72	14.280	15861	0.35	2000	>RL
78	Se	72	3.546	369	4.06	2000	>RL
88	Sr	115	496.215	2981979	0.39	2000	>RL
95	Mo	115	1.086	5371	0.91	2000	
107	Ag	115	0.073	1116	7.94	500	
111	Cd	115	0.417	947	6.72	2000	>RL
118	Sn	115	4.087	21558	2.07	2000	>RL
121	Sb	115	1.775	13301	1.95	500	
137	Ba	115	334.721	845883	0.41	2000	>RL
205	Tl	209	0.395	13346	1.85	2000	
208	Pb	209	97.096	4336680	0.39	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1196844	0.31	1182420	101.22	70	120	
72	Ge	866674	0.61	849145	102.06	70	120	
115	In	9072036	1.23	8639443	105.01	70	120	
209	Bi	20444785	2.15	19405733	105.35	70	120	

Sample Report

Date Acquired	2/9/16 3:40 PM	Sample Name	1601231-11A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	154SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	42.842	1664	3.28	2000	>RL
9	Be	45	1.992	106	15.62	2000	>RL
11	B	45	59.064	1792	1.02	2000	>RL
23	Na	45	373.333	440065	0.44	25000	>RL
24	Mg	45	9919.887	4467122	0.19	25000	>RL
27	Al	45	42229.748	7089767	0.28	10000	OUTCAL
39	K	45	10084.171	5067820	0.31	25000	>RL
44	Ca	45	130644.949	3537263	0.86	25000	OUTCAL
47	Ti	45	181.482	33430	0.68	2000	>RL
51	V	45	73.825	427420	0.59	2000	>RL
52	Cr	45	40.907	285820	0.11	2000	>RL
55	Mn	45	687.716	2768986	0.03	2000	>RL
56	Fe	45	46035.310	267712309	2.93	10000	OUTCAL
59	Co	72	14.576	154206	1.64	2000	>RL
60	Ni	72	22.281	63649	0.24	2000	>RL
63	Cu	72	12.051	101084	0.75	2000	>RL
66	Zn	72	142.989	192005	0.42	2000	>RL
75	As	72	13.891	15648	1.55	2000	>RL
78	Se	72	3.233	353	2.25	2000	>RL
88	Sr	115	422.068	2544008	0.91	2000	>RL
95	Mo	115	0.975	4839	1.59	2000	
107	Ag	115	0.058	917	4.13	500	
111	Cd	115	0.341	780	8.25	2000	
118	Sn	115	4.034	21362	2.50	2000	>RL
121	Sb	115	2.135	15979	1.48	500	>RL
137	Ba	115	346.875	879277	0.91	2000	>RL
205	Tl	209	0.370	12657	2.09	2000	
208	Pb	209	108.715	4915783	0.22	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1223497	0.93	1182420	103.47	70	120	
72	Ge	878483	0.93	849145	103.45	70	120	
115	In	9101139	1.84	8639443	105.34	70	120	
209	Bi	20694349	0.73	19405733	106.64	70	120	

Sample Report

Date Acquired	2/9/16 3:42 PM	Sample Name	1601231-12A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	155SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.255	1876	4.77	2000	>RL
9	Be	45	2.103	112	7.24	2000	>RL
11	B	45	68.541	1982	5.54	2000	>RL
23	Na	45	377.021	444130	0.75	25000	>RL
24	Mg	45	11231.994	5064791	3.29	25000	>RL
27	Al	45	45249.449	7607997	2.54	10000	OUTCAL
39	K	45	11641.607	5849763	1.71	25000	>RL
44	Ca	45	180799.312	4902007	0.51	25000	OUTCAL
47	Ti	45	174.443	32178	1.07	2000	>RL
51	V	45	77.009	446305	1.08	2000	>RL
52	Cr	45	42.019	293960	0.46	2000	>RL
55	Mn	45	872.503	3517945	0.74	2000	>RL
56	Fe	45	49127.392	286063606	2.10	10000	OUTCAL
59	Co	72	15.601	164352	1.28	2000	>RL
60	Ni	72	24.711	70251	0.98	2000	>RL
63	Cu	72	11.865	99212	1.05	2000	>RL
66	Zn	72	137.905	184433	0.18	2000	>RL
75	As	72	14.998	16803	1.79	2000	>RL
78	Se	72	3.945	400	2.50	2000	>RL
88	Sr	115	487.571	2961742	0.58	2000	>RL
95	Mo	115	1.068	5338	4.81	2000	
107	Ag	115	0.122	1842	3.35	500	
111	Cd	115	0.408	936	6.63	2000	>RL
118	Sn	115	5.648	29786	2.89	2000	>RL
121	Sb	115	2.274	17123	2.64	500	>RL
137	Ba	115	340.696	870304	1.13	2000	>RL
205	Tl	209	0.397	13341	1.43	2000	
208	Pb	209	138.246	6138719	0.36	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1225217	0.53	1182420	103.62	70	120	
72	Ge	874838	0.73	849145	103.03	70	120	
115	In	9170385	1.22	8639443	106.15	70	120	
209	Bi	20325911	1.21	19405733	104.74	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/9/2016 15:44	Sample Name	1601231-23A PDS
Data Batch	160209.b	Comment	PDS ICPMS_TSDOD
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	231.034	8941	1.01	32.9	200	99.0	75	125	
9	Be	45	202.565	10500	1.19	1.7	200	100.4	75	125	
11	B	45	245.039	5455	2.29	49.0	200	98.0	75	125	
23	Na	45	5356.337	5078165	3.18	262.1	5000	101.9	75	125	
24	Mg	45	14667.949	6597734	1.96	9352.6	5000	106.3	75	125	
27	Al	45	44195.566	7411372	0.76	39114.1	5000	101.6	75	125	
39	K	45	13661.815	6838050	2.04	8477.6	5000	103.7	75	125	
44	Ca	45	########	5951669	2.36	211095.2	5000	179.5	75	125	Fail
47	Ti	45	379.295	69779	1.31	177.9	200	100.7	75	125	
51	V	45	270.640	1553058	0.44	66.8	200	101.9	75	125	
52	Cr	45	233.346	1617985	0.84	31.6	200	100.9	75	125	
55	Mn	45	1186.481	4771642	0.29	986.2	200	100.1	75	125	
56	Fe	45	40618.186	235908106	0.53	34988.2	5000	112.6	75	125	
59	Co	72	213.801	2240198	0.29	12.0	200	100.9	75	125	
60	Ni	72	216.534	608739	0.27	20.1	200	98.2	75	125	
63	Cu	72	207.867	1624415	0.61	14.6	200	96.6	75	125	
66	Zn	72	329.231	437227	0.87	127.5	200	100.9	75	125	
75	As	72	215.613	236929	0.82	11.6	200	102.0	75	125	
78	Se	72	209.166	14475	1.30	3.0	200	103.1	75	125	
88	Sr	115	600.351	3609532	0.18	401.5	200	99.4	75	125	
95	Mo	115	191.261	937929	0.64	0.8	200	95.2	75	125	
107	Ag	115	187.404	2670643	0.80	0.1	200	93.7	75	125	
111	Cd	115	192.894	431229	0.94	0.5	200	96.2	75	125	
118	Sn	115	205.224	1040775	1.22	4.0	200	100.6	75	125	
121	Sb	115	205.744	1502586	0.30	3.4	200	101.2	75	125	
137	Ba	115	661.089	1671535	0.54	454.2	200	103.5	75	125	
205	Tl	209	206.026	6801734	0.76	0.4	200	102.8	75	125	
208	Pb	209	335.326	14771615	0.79	127.8	200	103.8	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1222103	0.99	1182420	103.36	70	120	
72	Ge	870381	0.87	849145	102.50	70	120	
115	In	9076379	1.22	8639443	105.06	70	120	
209	Bi	20168931	0.43	19405733	103.93	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/9/2016 15:46	Sample Name	1601231-23A MS
Data Batch	160209.b	Comment	MS ICPMS_TSDOD
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	232.437	8989	1.11	32.9	200	99.8	80	120	
9	Be	45	204.349	10584	1.49	1.7	200	101.3	80	120	
11	B	45	237.923	5312	5.30	49.0	200	94.5	80	120	
23	Na	45	5284.442	5008716	0.78	262.1	1000	502.2	80	120	Fail
24	Mg	45	15006.243	6744867	0.37	9352.6	1000	565.4	80	120	Fail
27	Al	45	44033.469	7378208	1.85	39114.1	1000	491.9	80	120	Fail
39	K	45	14428.379	7212743	0.74	8477.6	1000	595.1	80	120	Fail
44	Ca	45	########	5856676	1.40	211095.2	1000	564.0	80	120	Fail
47	Ti	45	414.675	76235	0.50	177.9	200	118.4	80	120	
51	V	45	273.815	1570091	0.12	66.8	200	103.5	80	120	
52	Cr	45	230.861	1599563	0.63	31.6	200	99.6	80	120	
55	Mn	45	1191.559	4788625	0.28	986.2	200	102.7	80	120	
56	Fe	45	37678.297	218685565	1.11	34988.2	1000	269.0	80	120	Fail
59	Co	72	216.007	2252658	0.07	12.0	200	102.0	80	120	
60	Ni	72	222.049	621289	0.52	20.1	200	101.0	80	120	
63	Cu	72	213.910	1663605	0.28	14.6	200	99.7	80	120	
66	Zn	72	337.151	445629	0.65	127.5	200	104.8	80	120	
75	As	72	216.827	237134	0.19	11.6	200	102.6	80	120	
78	Se	72	210.989	14532	0.62	3.0	200	104.0	80	120	
88	Sr	115	592.925	3571271	1.09	401.5	200	95.7	80	120	
95	Mo	115	183.467	901209	0.61	0.8	200	91.3	80	120	
107	Ag	115	194.035	2769761	1.02	0.1	200	97.0	80	120	
111	Cd	115	197.221	441650	0.67	0.5	200	98.4	80	120	
118	Sn	115	202.837	1030397	0.31	4.0	200	99.4	80	120	
121	Sb	115	79.795	583973	0.16	3.4	200	38.2	80	120	Fail
137	Ba	115	641.820	1625579	0.14	454.2	200	93.8	80	120	
205	Tl	209	207.735	6799146	0.77	0.4	200	103.7	80	120	
208	Pb	209	318.361	13903092	0.30	127.8	200	95.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1221168	0.42	1182420	103.28	70	120	
72	Ge	866246	0.28	849145	102.01	70	120	
115	In	9091663	0.80	8639443	105.23	70	120	
209	Bi	19995197	0.80	19405733	103.04	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/9/2016 15:47	Sample Name	1601231-23A MSD
Data Batch	160209.b	Comment	MSD ICPMS_TSDOD
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	237.595	9136	1.23	32.9	200	102.3	80	120	
9	Be	45	206.541	10637	1.64	1.7	200	102.4	80	120	
11	B	45	243.475	5390	3.08	49.0	200	97.2	80	120	
23	Na	45	5367.699	5057403	2.31	262.1	1000	510.6	80	120	Fail
24	Mg	45	14991.978	6699618	0.22	9352.6	1000	563.9	80	120	Fail
27	Al	45	43345.122	7221393	0.77	39114.1	1000	423.1	80	120	Fail
39	K	45	14024.146	6971329	1.56	8477.6	1000	554.7	80	120	Fail
44	Ca	45	########	5828433	0.73	211095.2	1000	584.5	80	120	Fail
47	Ti	45	395.278	72249	0.92	177.9	200	108.7	80	120	
51	V	45	275.694	1571701	0.67	66.8	200	104.4	80	120	
52	Cr	45	233.110	1605798	0.93	31.6	200	100.7	80	120	
55	Mn	45	1183.244	4727829	0.26	986.2	200	98.5	80	120	
56	Fe	45	37065.157	213888654	1.98	34988.2	1000	207.7	80	120	Fail
59	Co	72	214.989	2249236	0.87	12.0	200	101.5	80	120	
60	Ni	72	222.502	624558	0.59	20.1	200	101.2	80	120	
63	Cu	72	216.792	1691362	0.78	14.6	200	101.1	80	120	
66	Zn	72	331.101	439082	0.67	127.5	200	101.8	80	120	
75	As	72	217.820	238985	0.92	11.6	200	103.1	80	120	
78	Se	72	210.191	14525	0.13	3.0	200	103.6	80	120	
88	Sr	115	597.951	3567244	0.73	401.5	200	98.2	80	120	
95	Mo	115	185.359	901876	0.82	0.8	200	92.3	80	120	
107	Ag	115	196.051	2772340	1.30	0.1	200	98.0	80	120	
111	Cd	115	198.244	439753	0.41	0.5	200	98.9	80	120	
118	Sn	115	203.881	1025902	0.47	4.0	200	99.9	80	120	
121	Sb	115	90.487	655904	0.80	3.4	200	43.5	80	120	Fail
137	Ba	115	710.748	1783135	0.32	454.2	200	128.3	80	120	Fail
205	Tl	209	208.808	6858105	1.86	0.4	200	104.2	80	120	
208	Pb	209	313.002	13717473	0.75	127.8	200	92.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1214188	0.91	1182420	102.69	70	120	
72	Ge	869083	0.70	849145	102.35	70	120	
115	In	9005538	0.71	8639443	104.24	70	120	
209	Bi	20066588	0.70	19405733	103.41	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/9/2016 15:49	Sample Name	CCV7-160209
Data Batch	160209.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	215.295	8264	0.87	200	107.6	90	110	
9	Be	45	212.252	10911	1.23	200	106.1	90	110	
11	B	45	212.333	4773	2.41	200	106.2	90	110	
23	Na	45	5267.332	4955553	1.26	5000	105.3	90	110	
24	Mg	45	5202.325	2321274	0.45	5000	104.0	90	110	
27	Al	45	5192.752	866852	0.52	5000	103.9	90	110	
39	K	45	5198.502	2616195	0.67	5000	104.0	90	110	
44	Ca	45	4958.351	133372	0.64	5000	99.2	90	110	
47	Ti	45	200.230	36543	1.55	200	100.1	90	110	
51	V	45	206.149	1174415	0.58	200	103.1	90	110	
52	Cr	45	203.137	1397297	0.75	200	101.6	90	110	
55	Mn	45	204.828	817196	0.39	200	102.4	90	110	
56	Fe	45	5104.589	29416060	0.06	5000	102.1	90	110	
59	Co	72	210.203	2235818	0.31	200	105.1	90	110	
60	Ni	72	209.515	597923	0.78	200	104.8	90	110	
63	Cu	72	210.533	1670096	0.70	200	105.3	90	110	
66	Zn	72	221.246	298474	0.16	200	110.6	90	110	Fail
75	As	72	209.006	233148	0.26	200	104.5	90	110	
78	Se	72	212.095	14899	0.91	200	106.0	90	110	
88	Sr	115	196.220	1197995	0.55	200	98.1	90	110	
95	Mo	115	192.705	959553	0.43	200	96.4	90	110	
107	Ag	115	206.667	2990464	0.60	200	103.3	90	110	
111	Cd	115	204.572	464390	0.38	200	102.3	90	110	
118	Sn	115	200.104	1030438	0.34	200	100.1	90	110	
121	Sb	115	205.623	1524912	0.29	200	102.8	90	110	
137	Ba	115	205.858	528534	0.19	200	102.9	90	110	
205	Tl	209	211.498	7245701	1.53	200	105.7	90	110	
208	Pb	209	208.494	9532507	0.24	200	104.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1212135	0.72	1182420	102.51	70	120	
72	Ge	883515	0.27	849145	104.05	70	120	
115	In	9216622	1.21	8639443	106.68	70	120	
209	Bi	20930911	0.60	19405733	107.86	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 15:53	Sample Name	LCVL7-160209
Data Batch	160209.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	11.346	440	5.71	10	113.5	70	130	
9	Be	45	1.243	66	16.61	1	124.3	70	130	
11	B	45	19.766	1008	9.64	20	98.8	70	130	
23	Na	45	151.907	231631	0.55	100	151.9	70	130	Fail
24	Mg	45	109.332	49283	0.53	100	109.3	70	130	
27	Al	45	89.752	18504	1.05	100	89.8	70	130	
39	K	45	124.113	118681	0.20	100	124.1	70	130	
44	Ca	45	111.577	3375	1.57	100	111.6	70	130	
47	Ti	45	5.186	951	8.80	5	103.7	70	130	
51	V	45	1.028	10341	1.75	1	102.8	70	130	
52	Cr	45	5.200	37976	0.56	5	104.0	70	130	
55	Mn	45	5.148	20714	1.10	5	103.0	70	130	
56	Fe	45	104.860	614924	0.46	100	104.9	70	130	
59	Co	72	5.250	56174	1.09	5	105.0	70	130	
60	Ni	72	5.228	15468	0.81	5	104.6	70	130	
63	Cu	72	4.797	44558	0.80	5	95.9	70	130	
66	Zn	72	5.304	7786	3.23	5	106.1	70	130	
75	As	72	5.104	5976	3.25	5	102.1	70	130	
78	Se	72	5.331	503	3.36	5	106.6	70	130	
88	Sr	115	5.094	30660	2.19	5	101.9	70	130	
95	Mo	115	4.902	24054	1.63	5	98.0	70	130	
107	Ag	115	2.162	30862	1.85	2	108.1	70	130	
111	Cd	115	1.042	2340	1.37	1	104.2	70	130	
118	Sn	115	5.296	27663	0.96	5	105.9	70	130	
121	Sb	115	2.157	16080	0.94	2	107.8	70	130	
137	Ba	115	5.236	13245	2.41	5	104.7	70	130	
205	Tl	209	1.072	36428	1.10	1	107.2	70	130	
208	Pb	209	1.066	51401	0.76	1	106.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1212861	0.52	1182420	102.57	70	120	
72	Ge	887978	0.44	849145	104.57	70	120	
115	In	9065799	0.78	8639443	104.93	70	120	
209	Bi	20692199	0.98	19405733	106.63	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/9/2016 15:55	Sample Name	CCB7-160209
Data Batch	160209.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	0.458	22	34.2	2	5	
9	Be	45	0.077	6	39.7	0.4	0.3	
11	B	45	1.738	656	10.9	10	10	
23	Na	45	39.037	127288	0.4	50	100	
24	Mg	45	0.386	651	10.0	50	100	
27	Al	45	22.596	7331	2.4	50	10	FailAq
39	K	45	11.528	63213	0.9	50	100	
44	Ca	45	1.055	408	4.3	50	100	
47	Ti	45	0.036	11	34.6	4	3	
51	V	45	0.019	4612	0.9	4	3	
52	Cr	45	0.006	2278	4.5	2	2	
55	Mn	45	0.047	350	6.7	2	3	
56	Fe	45	1.401	18552	3.1	50	50	
59	Co	72	0.016	217	28.2	2	3	
60	Ni	72	-0.056	323	11.9	2	3	
63	Cu	72	-0.523	2317	4.2	2	2	
66	Zn	72	0.359	1097	8.0	4	2	
75	As	72	-0.005	255	6.7	2	2	
78	Se	72	-0.051	127	5.9	1	2	
88	Sr	115	0.029	238	13.0	4	3	
95	Mo	115	0.016	126	30.8	2	2	
107	Ag	115	0.021	377	9.0	0.4	1	
111	Cd	115	0.009	34	29.6	0.4	0.3	
118	Sn	115	-0.004	838	14.6	4	3	
121	Sb	115	0.031	576	3.9	2	0.8	
137	Ba	115	0.018	66	2.9	2	3	
205	Tl	209	0.037	1370	2.4	2	0.5	
208	Pb	209	0.021	4117	2.0	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1212476	0.70	1182420	102.54	70	120	
72	Ge	889393	1.26	849145	104.74	70	120	
115	In	9074547	2.60	8639443	105.04	70	120	
209	Bi	20316066	1.60	19405733	104.69	70	120	

Sample Report

Date Acquired	2/9/16 3:58 PM	Sample Name	1601231-13A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	163SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.009	1972	4.42	2000	>RL
9	Be	45	2.302	121	8.66	2000	>RL
11	B	45	73.418	2068	6.94	2000	>RL
23	Na	45	927.845	952995	0.49	25000	>RL
24	Mg	45	11817.414	5299618	0.70	25000	>RL
27	Al	45	51381.189	8589355	0.63	10000	OUTCAL
39	K	45	12192.502	6090317	2.06	25000	>RL
44	Ca	45	161592.553	4357168	1.38	25000	OUTCAL
47	Ti	45	282.909	51890	0.92	2000	>RL
51	V	45	85.807	494014	1.34	2000	>RL
52	Cr	45	51.542	358052	0.42	2000	>RL
55	Mn	45	531.862	2132592	0.11	2000	>RL
56	Fe	45	55934.107	323924849	1.94	10000	OUTCAL
59	Co	72	17.019	178156	0.57	2000	>RL
60	Ni	72	31.616	89179	0.64	2000	>RL
63	Cu	72	194.548	1518984	1.07	2000	>RL
66	Zn	72	397.187	526751	1.36	2000	>RL
75	As	72	20.001	22182	0.92	2000	>RL
78	Se	72	3.472	365	5.67	2000	>RL
88	Sr	115	406.117	2412178	0.88	2000	>RL
95	Mo	115	2.052	9988	3.10	2000	>RL
107	Ag	115	0.142	2081	5.62	500	
111	Cd	115	0.550	1229	10.98	2000	>RL
118	Sn	115	4.611	23932	1.58	2000	>RL
121	Sb	115	4.329	31567	2.17	500	>RL
137	Ba	115	1297.071	3239387	0.34	2000	>RL
205	Tl	209	0.465	15565	0.47	2000	
208	Pb	209	699.684	30993970	0.68	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1218408	0.91	1182420	103.04	70	120	
72	Ge	869319	0.28	849145	102.38	70	120	
115	In	8966206	1.62	8639443	103.78	70	120	
209	Bi	20283980	0.43	19405733	104.53	70	120	

Sample Report

Date Acquired	2/9/16 3:59 PM	Sample Name	1601231-14A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	164SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.129	2063	2.76	2000	>RL
9	Be	45	2.317	123	4.02	2000	>RL
11	B	45	72.963	2068	1.77	2000	>RL
23	Na	45	1689.515	1667857	0.69	25000	>RL
24	Mg	45	12502.058	5633027	0.73	25000	>RL
27	Al	45	55026.231	9241655	1.17	10000	OUTCAL
39	K	45	12407.913	6225468	1.80	25000	>RL
44	Ca	45	161368.933	4371371	0.45	25000	OUTCAL
47	Ti	45	347.025	63955	0.72	2000	>RL
51	V	45	91.387	528321	0.87	2000	>RL
52	Cr	45	54.411	379631	0.76	2000	>RL
55	Mn	45	577.009	2324517	0.46	2000	>RL
56	Fe	45	56763.375	330238840	1.35	10000	OUTCAL
59	Co	72	18.880	199180	0.74	2000	>RL
60	Ni	72	32.492	92356	1.03	2000	>RL
63	Cu	72	423.895	3327931	0.66	2000	>RL
66	Zn	72	586.207	783198	1.34	2000	>RL
75	As	72	21.176	23654	1.07	2000	>RL
78	Se	72	3.805	391	2.89	2000	>RL
88	Sr	115	418.476	2495276	0.46	2000	>RL
95	Mo	115	1.877	9173	0.85	2000	
107	Ag	115	0.197	2870	6.35	500	
111	Cd	115	0.644	1440	7.81	2000	>RL
118	Sn	115	5.030	26130	0.58	2000	>RL
121	Sb	115	5.666	41373	1.81	500	>RL
137	Ba	115	1028.040	2577702	0.44	2000	>RL
205	Tl	209	0.469	15728	1.41	2000	
208	Pb	209	1143.283	50670886	1.13	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1224124	0.50	1182420	103.53	70	120	
72	Ge	876111	0.66	849145	103.18	70	120	
115	In	9001149	1.35	8639443	104.19	70	120	
209	Bi	20298211	1.22	19405733	104.60	70	120	

Sample Report

Date Acquired	2/9/16 4:01 PM	Sample Name	1601231-15A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	165SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.971	1908	0.90	2000	>RL
9	Be	45	2.170	115	11.84	2000	>RL
11	B	45	71.924	2055	6.73	2000	>RL
23	Na	45	1582.256	1573036	1.08	25000	>RL
24	Mg	45	11236.764	5080239	3.02	25000	>RL
27	Al	45	47716.492	8042425	3.23	10000	OUTCAL
39	K	45	10996.463	5542218	0.95	25000	>RL
44	Ca	45	164475.574	4470361	1.29	25000	OUTCAL
47	Ti	45	244.631	45233	0.73	2000	>RL
51	V	45	79.337	460804	1.79	2000	>RL
52	Cr	45	48.495	339732	0.97	2000	>RL
55	Mn	45	471.997	1907904	1.45	2000	>RL
56	Fe	45	50712.772	296033162	2.02	10000	OUTCAL
59	Co	72	16.106	169967	1.56	2000	>RL
60	Ni	72	27.974	79611	1.52	2000	>RL
63	Cu	72	118.861	938106	0.27	2000	>RL
66	Zn	72	419.818	561284	1.07	2000	>RL
75	As	72	18.415	20612	1.20	2000	>RL
78	Se	72	3.295	356	11.55	2000	>RL
88	Sr	115	365.853	2198623	0.45	2000	>RL
95	Mo	115	1.840	9065	2.58	2000	
107	Ag	115	0.134	1990	3.79	500	
111	Cd	115	0.509	1151	5.59	2000	>RL
118	Sn	115	4.527	23785	1.51	2000	>RL
121	Sb	115	2.332	17362	2.48	500	>RL
137	Ba	115	1127.225	2848611	0.39	2000	>RL
205	Tl	209	0.419	14097	1.24	2000	
208	Pb	209	285.328	12687438	1.20	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1228174	0.95	1182420	103.87	70	120	
72	Ge	876496	0.91	849145	103.22	70	120	
115	In	9071190	0.68	8639443	105.00	70	120	
209	Bi	20357734	0.85	19405733	104.91	70	120	

Sample Report

Date Acquired	2/9/16 4:03 PM	Sample Name	1601231-16A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	166SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.171	2197	2.08	2000	>RL
9	Be	45	2.395	128	15.40	2000	>RL
11	B	45	69.086	2006	10.52	2000	>RL
23	Na	45	289.229	364437	0.27	25000	>RL
24	Mg	45	11958.336	5426295	1.52	25000	>RL
27	Al	45	49123.549	8309811	3.42	10000	OUTCAL
39	K	45	12050.657	6091629	2.20	25000	>RL
44	Ca	45	108938.701	2972256	0.09	25000	OUTCAL
47	Ti	45	136.529	25344	0.55	2000	>RL
51	V	45	77.939	454463	0.57	2000	>RL
52	Cr	45	45.094	317270	0.50	2000	>RL
55	Mn	45	607.356	2464273	0.58	2000	>RL
56	Fe	45	57919.370	339376164	0.99	10000	OUTCAL
59	Co	72	19.935	211033	1.16	2000	>RL
60	Ni	72	30.764	87777	1.01	2000	>RL
63	Cu	72	16.413	135460	0.23	2000	>RL
66	Zn	72	174.653	234585	0.51	2000	>RL
75	As	72	16.302	18334	1.54	2000	>RL
78	Se	72	4.228	422	2.55	2000	>RL
88	Sr	115	339.433	2069307	0.07	2000	>RL
95	Mo	115	1.468	7345	4.02	2000	
107	Ag	115	0.064	1007	2.94	500	
111	Cd	115	0.379	874	5.93	2000	
118	Sn	115	4.481	23896	0.55	2000	>RL
121	Sb	115	2.369	17894	0.90	500	>RL
137	Ba	115	488.477	1252292	0.65	2000	>RL
205	Tl	209	0.436	14731	1.21	2000	
208	Pb	209	43.962	1966789	0.19	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1232851	0.39	1182420	104.27	70	120	
72	Ge	879189	0.73	849145	103.54	70	120	
115	In	9202711	1.10	8639443	106.52	70	120	
209	Bi	20456273	1.06	19405733	105.41	70	120	

Sample Report

Date Acquired	2/9/16 4:05 PM	Sample Name	1601231-17A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	167SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	55.060	2149	1.37	2000	>RL
9	Be	45	2.599	138	13.06	2000	>RL
11	B	45	72.616	2071	1.91	2000	>RL
23	Na	45	311.911	384919	0.25	25000	>RL
24	Mg	45	12986.000	5880078	0.29	25000	>RL
27	Al	45	52805.618	8913325	1.43	10000	OUTCAL
39	K	45	11896.200	6001091	0.81	25000	>RL
44	Ca	45	122944.731	3347168	0.50	25000	OUTCAL
47	Ti	45	151.742	28106	1.40	2000	>RL
51	V	45	86.544	503054	0.56	2000	>RL
52	Cr	45	46.271	324793	0.87	2000	>RL
55	Mn	45	592.643	2399421	0.79	2000	>RL
56	Fe	45	56043.900	327679605	1.88	10000	OUTCAL
59	Co	72	19.275	204867	0.61	2000	>RL
60	Ni	72	29.625	84877	0.30	2000	>RL
63	Cu	72	19.107	157268	1.19	2000	>RL
66	Zn	72	168.034	226616	0.55	2000	>RL
75	As	72	17.070	19260	0.43	2000	>RL
78	Se	72	4.147	418	4.13	2000	>RL
88	Sr	115	380.068	2309766	0.12	2000	>RL
95	Mo	115	1.371	6844	2.61	2000	
107	Ag	115	0.067	1042	7.30	500	
111	Cd	115	0.397	911	5.86	2000	
118	Sn	115	4.224	22506	2.40	2000	>RL
121	Sb	115	1.861	14082	2.54	500	
137	Ba	115	572.756	1463669	0.29	2000	>RL
205	Tl	209	0.458	15193	1.63	2000	
208	Pb	209	51.963	2281859	0.23	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1230200	0.16	1182420	104.04	70	120	
72	Ge	882662	0.37	849145	103.95	70	120	
115	In	9175098	1.77	8639443	106.20	70	120	
209	Bi	20083119	0.92	19405733	103.49	70	120	

Sample Report

Date Acquired	2/9/16 4:07 PM	Sample Name	1601231-18A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	168SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.764	2055	1.20	2000	>RL
9	Be	45	2.407	128	3.53	2000	>RL
11	B	45	73.236	2079	4.77	2000	>RL
23	Na	45	311.738	383906	0.75	25000	>RL
24	Mg	45	13325.400	6020248	0.72	25000	>RL
27	Al	45	57076.024	9612274	0.83	10000	OUTCAL
39	K	45	12110.690	6094726	0.12	25000	>RL
44	Ca	45	140175.968	3807733	0.37	25000	OUTCAL
47	Ti	45	174.306	32214	0.45	2000	>RL
51	V	45	93.560	542257	0.63	2000	>RL
52	Cr	45	47.165	330295	0.36	2000	>RL
55	Mn	45	533.870	2156713	0.52	2000	>RL
56	Fe	45	54047.177	315308565	0.23	10000	OUTCAL
59	Co	72	19.201	204297	0.83	2000	>RL
60	Ni	72	30.469	87374	0.59	2000	>RL
63	Cu	72	18.542	152970	0.86	2000	>RL
66	Zn	72	179.680	242541	0.58	2000	>RL
75	As	72	16.393	18526	1.39	2000	>RL
78	Se	72	3.456	370	0.55	2000	>RL
88	Sr	115	398.764	2425876	0.30	2000	>RL
95	Mo	115	1.323	6613	2.16	2000	
107	Ag	115	0.072	1122	5.62	500	
111	Cd	115	0.397	913	7.33	2000	
118	Sn	115	4.679	24862	0.67	2000	>RL
121	Sb	115	2.795	20997	1.92	500	>RL
137	Ba	115	753.818	1928552	0.96	2000	>RL
205	Tl	209	0.490	16610	0.49	2000	
208	Pb	209	46.326	2079526	0.04	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1227485	0.42	1182420	103.81	70	120	
72	Ge	883618	0.42	849145	104.06	70	120	
115	In	9183708	1.19	8639443	106.30	70	120	
209	Bi	20527005	1.26	19405733	105.78	70	120	

Sample Report

Date Acquired	2/9/16 4:09 PM	Sample Name	1601231-19A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	169SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	45.540	1801	2.61	2000	>RL
9	Be	45	1.859	101	9.95	2000	>RL
11	B	45	53.607	1716	1.51	2000	>RL
23	Na	45	963.064	1007859	0.61	25000	>RL
24	Mg	45	10857.451	4978821	1.18	25000	>RL
27	Al	45	43382.400	7416229	1.36	10000	OUTCAL
39	K	45	9592.556	4911515	1.35	25000	>RL
44	Ca	45	139293.224	3840236	0.38	25000	OUTCAL
47	Ti	45	417.377	78276	1.34	2000	>RL
51	V	45	89.515	526759	0.35	2000	>RL
52	Cr	45	45.570	323957	1.07	2000	>RL
55	Mn	45	519.685	2130762	0.79	2000	>RL
56	Fe	45	46986.401	278231305	2.55	10000	OUTCAL
59	Co	72	15.566	167269	0.91	2000	>RL
60	Ni	72	31.138	90172	1.99	2000	>RL
63	Cu	72	29.273	240132	0.82	2000	>RL
66	Zn	72	235.252	320508	0.62	2000	>RL
75	As	72	17.488	19943	2.35	2000	>RL
78	Se	72	3.493	376	14.77	2000	>RL
88	Sr	115	387.428	2400482	0.99	2000	>RL
95	Mo	115	1.537	7818	0.93	2000	
107	Ag	115	0.126	1941	4.16	500	
111	Cd	115	0.446	1041	3.21	2000	>RL
118	Sn	115	5.506	29644	0.40	2000	>RL
121	Sb	115	2.915	22310	3.32	500	>RL
137	Ba	115	870.727	2269117	1.67	2000	>RL
205	Tl	209	0.424	14413	2.71	2000	
208	Pb	209	40.204	1808489	0.77	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1245808	0.65	1182420	105.36	70	120	
72	Ge	892361	0.61	849145	105.09	70	120	
115	In	9358200	2.64	8639443	108.32	70	120	
209	Bi	20563363	0.61	19405733	105.97	70	120	

Sample Report

Date Acquired	2/9/16 4:11 PM	Sample Name	1601231-20A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	170SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	50.372	1998	2.56	2000	>RL
9	Be	45	2.074	112	11.13	2000	>RL
11	B	45	65.695	1965	7.74	2000	>RL
23	Na	45	1440.097	1465476	0.11	25000	>RL
24	Mg	45	13467.241	6195526	0.33	25000	>RL
27	Al	45	50781.180	8709132	0.34	10000	OUTCAL
39	K	45	11078.220	5682129	0.57	25000	>RL
44	Ca	45	182603.987	5050696	1.06	25000	OUTCAL
47	Ti	45	537.613	101164	0.38	2000	>RL
51	V	45	98.427	580651	0.10	2000	>RL
52	Cr	45	44.519	317598	1.13	2000	>RL
55	Mn	45	683.633	2812033	0.79	2000	>RL
56	Fe	45	49229.850	292433393	1.46	10000	OUTCAL
59	Co	72	17.949	190404	0.64	2000	>RL
60	Ni	72	30.679	87711	0.90	2000	>RL
63	Cu	72	29.516	238975	0.96	2000	>RL
66	Zn	72	194.745	262024	1.27	2000	>RL
75	As	72	17.350	19533	0.66	2000	>RL
78	Se	72	3.774	391	4.14	2000	>RL
88	Sr	115	519.588	3173502	0.15	2000	>RL
95	Mo	115	1.353	6788	3.23	2000	
107	Ag	115	0.132	1992	8.96	500	
111	Cd	115	0.506	1162	10.30	2000	>RL
118	Sn	115	5.053	26884	0.83	2000	>RL
121	Sb	115	3.125	23526	2.43	500	>RL
137	Ba	115	875.340	2248154	0.72	2000	>RL
205	Tl	209	0.511	17093	2.72	2000	
208	Pb	209	47.780	2117547	0.31	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1249932	0.64	1182420	105.71	70	120	
72	Ge	880958	0.81	849145	103.75	70	120	
115	In	9219771	0.93	8639443	106.72	70	120	
209	Bi	20268296	1.37	19405733	104.44	70	120	

Sample Report

Date Acquired	2/9/16 4:13 PM	Sample Name	1601231-21A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	171SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.323	2119	2.01	2000	>RL
9	Be	45	2.054	112	15.72	2000	>RL
11	B	45	69.568	2047	7.25	2000	>RL
23	Na	45	1223.289	1261918	0.28	25000	>RL
24	Mg	45	13836.255	6380559	1.03	25000	>RL
27	Al	45	54205.952	9317446	1.69	10000	OUTCAL
39	K	45	11483.200	5901051	0.72	25000	>RL
44	Ca	45	194832.838	5401655	0.53	25000	OUTCAL
47	Ti	45	425.927	80341	1.21	2000	>RL
51	V	45	101.716	601340	1.10	2000	>RL
52	Cr	45	58.685	418899	1.01	2000	>RL
55	Mn	45	796.886	3285478	2.18	2000	>RL
56	Fe	45	52558.024	312937348	1.06	10000	OUTCAL
59	Co	72	19.843	212505	1.96	2000	>RL
60	Ni	72	38.553	111165	0.86	2000	>RL
63	Cu	72	25.081	206005	0.17	2000	>RL
66	Zn	72	212.964	289283	1.19	2000	>RL
75	As	72	19.219	21818	1.14	2000	>RL
78	Se	72	3.738	392	0.80	2000	>RL
88	Sr	115	501.596	3052203	0.65	2000	>RL
95	Mo	115	1.512	7552	1.72	2000	
107	Ag	115	0.140	2105	7.30	500	
111	Cd	115	0.534	1225	5.82	2000	>RL
118	Sn	115	4.937	26187	1.15	2000	>RL
121	Sb	115	4.288	32042	0.33	500	>RL
137	Ba	115	949.624	2430277	0.59	2000	>RL
205	Tl	209	0.514	17253	1.28	2000	
208	Pb	209	107.599	4779729	0.65	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1252925	1.18	1182420	105.96	70	120	
72	Ge	889545	1.06	849145	104.76	70	120	
115	In	9190645	2.94	8639443	106.38	70	120	
209	Bi	20329440	0.70	19405733	104.76	70	120	

Sample Report

Date Acquired	2/9/16 4:15 PM	Sample Name	1601231-22A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	172SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	33.217	1321	2.10	2000	>RL
9	Be	45	1.769	96	14.77	2000	>RL
11	B	45	48.838	1628	4.16	2000	>RL
23	Na	45	418.320	493132	0.28	25000	>RL
24	Mg	45	9536.941	4394205	0.59	25000	>RL
27	Al	45	40163.590	6898708	0.64	10000	OUTCAL
39	K	45	9451.251	4863777	1.23	25000	>RL
44	Ca	45	201351.128	5577614	0.88	25000	OUTCAL
47	Ti	45	195.383	36819	1.41	2000	>RL
51	V	45	70.492	417775	0.72	2000	>RL
52	Cr	45	35.551	254435	0.77	2000	>RL
55	Mn	45	1004.629	4138383	0.56	2000	>RL
56	Fe	45	37600.451	223700196	1.35	10000	OUTCAL
59	Co	72	13.154	140991	1.24	2000	>RL
60	Ni	72	22.536	65223	1.18	2000	>RL
63	Cu	72	14.516	122027	1.07	2000	>RL
66	Zn	72	160.548	218349	0.69	2000	>RL
75	As	72	13.149	15019	1.09	2000	>RL
78	Se	72	2.878	332	8.15	2000	>RL
88	Sr	115	389.464	2347857	0.96	2000	>RL
95	Mo	115	0.906	4504	1.58	2000	
107	Ag	115	0.102	1546	3.10	500	
111	Cd	115	0.576	1306	7.77	2000	>RL
118	Sn	115	4.121	21799	2.21	2000	>RL
121	Sb	115	4.162	30819	0.38	500	>RL
137	Ba	115	455.840	1155555	0.22	2000	>RL
205	Tl	209	0.373	12541	2.91	2000	
208	Pb	209	173.763	7722753	0.82	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1251807	0.96	1182420	105.87	70	120	
72	Ge	890020	0.48	849145	104.81	70	120	
115	In	9099387	0.39	8639443	105.32	70	120	
209	Bi	20344710	0.72	19405733	104.84	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/9/2016 16:17	Sample Name	CCV8-160209
Data Batch	160209.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	208.439	8061	2.07	200	104.2	90	110	
9	Be	45	209.549	10852	1.85	200	104.8	90	110	
11	B	45	196.345	4493	4.52	200	98.2	90	110	
23	Na	45	5307.481	5029585	1.63	5000	106.1	90	110	
24	Mg	45	5150.195	2314867	0.53	5000	103.0	90	110	
27	Al	45	5122.485	861443	0.77	5000	102.4	90	110	
39	K	45	5196.548	2634420	0.31	5000	103.9	90	110	
44	Ca	45	4960.438	134405	0.89	5000	99.2	90	110	
47	Ti	45	195.692	35975	1.45	200	97.8	90	110	
51	V	45	206.193	1183306	1.02	200	103.1	90	110	
52	Cr	45	203.570	1410565	0.44	200	101.8	90	110	
55	Mn	45	205.472	825769	0.43	200	102.7	90	110	
56	Fe	45	5157.998	29941849	0.38	5000	103.2	90	110	
59	Co	72	210.496	2244423	0.71	200	105.2	90	110	
60	Ni	72	210.505	602247	0.96	200	105.3	90	110	
63	Cu	72	211.631	1682890	0.13	200	105.8	90	110	
66	Zn	72	221.625	299718	0.46	200	110.8	90	110	Fail
75	As	72	210.637	235545	0.19	200	105.3	90	110	
78	Se	72	213.021	15001	0.82	200	106.5	90	110	
88	Sr	115	196.465	1196139	0.50	200	98.2	90	110	
95	Mo	115	193.129	958970	0.69	200	96.6	90	110	
107	Ag	115	206.906	2985632	0.79	200	103.5	90	110	
111	Cd	115	205.848	465976	0.83	200	102.9	90	110	
118	Sn	115	201.191	1033083	0.76	200	100.6	90	110	
121	Sb	115	205.560	1520058	0.33	200	102.8	90	110	
137	Ba	115	205.891	527125	0.69	200	102.9	90	110	
205	Tl	209	206.457	6973589	0.97	200	103.2	90	110	
208	Pb	209	208.538	9400696	0.39	200	104.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1221003	0.39	1182420	103.26	70	120	
72	Ge	885709	0.53	849145	104.31	70	120	
115	In	9191637	2.07	8639443	106.39	70	120	
209	Bi	20638081	1.16	19405733	106.35	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 16:21	Sample Name	LCVL8-160209
Data Batch	160209.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	10.683	421	1.78	10	106.8	70	130	
9	Be	45	1.021	56	29.21	1	102.1	70	130	
11	B	45	22.785	1082	5.83	20	113.9	70	130	
23	Na	45	147.156	230422	0.92	100	147.2	70	130	Fail
24	Mg	45	108.383	49543	0.90	100	108.4	70	130	
27	Al	45	91.151	19000	2.10	100	91.2	70	130	
39	K	45	123.888	120229	1.68	100	123.9	70	130	
44	Ca	45	111.786	3428	3.69	100	111.8	70	130	
47	Ti	45	4.842	901	1.13	5	96.8	70	130	
51	V	45	0.998	10317	1.26	1	99.8	70	130	
52	Cr	45	5.036	37364	0.57	5	100.7	70	130	
55	Mn	45	5.075	20704	1.60	5	101.5	70	130	
56	Fe	45	105.230	625701	0.47	100	105.2	70	130	
59	Co	72	5.146	55870	1.22	5	102.9	70	130	
60	Ni	72	5.133	15419	3.32	5	102.7	70	130	
63	Cu	72	4.794	45193	1.09	5	95.9	70	130	
66	Zn	72	5.286	7875	3.36	5	105.7	70	130	
75	As	72	5.285	6269	1.96	5	105.7	70	130	
78	Se	72	5.101	494	4.58	5	102.0	70	130	
88	Sr	115	5.111	31029	1.06	5	102.2	70	130	
95	Mo	115	4.824	23876	1.69	5	96.5	70	130	
107	Ag	115	2.142	30833	1.40	2	107.1	70	130	
111	Cd	115	1.009	2286	1.49	1	100.9	70	130	
118	Sn	115	5.285	27852	2.79	5	105.7	70	130	
121	Sb	115	2.160	16242	1.43	2	108.0	70	130	
137	Ba	115	5.295	13510	0.72	5	105.9	70	130	
205	Tl	209	1.058	35561	0.65	1	105.8	70	130	
208	Pb	209	1.093	52030	0.17	1	109.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1229840	0.26	1182420	104.01	70	120	
72	Ge	901001	0.36	849145	106.11	70	120	
115	In	9144939	1.75	8639443	105.85	70	120	
209	Bi	20457597	1.80	19405733	105.42	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/9/2016 16:23	Sample Name	CCB8-160209
Data Batch	160209.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	0.499	25	36.8	2	5	
9	Be	45	0.067	6	28.9	0.4	0.3	
11	B	45	0.937	658	4.7	10	10	
23	Na	45	34.644	126759	0.6	50	100	
24	Mg	45	0.306	633	12.6	50	100	
27	Al	45	8.048	5054	4.3	50	10	
39	K	45	14.836	66707	1.5	50	100	
44	Ca	45	2.047	447	2.8	50	100	
47	Ti	45	0.016	8	65.5	4	3	
51	V	45	-0.025	4485	4.7	4	3	
52	Cr	45	-0.002	2286	8.0	2	2	
55	Mn	45	0.055	393	18.9	2	3	
56	Fe	45	1.918	22151	3.9	50	50	
59	Co	72	0.013	191	24.1	2	3	
60	Ni	72	-0.060	321	8.8	2	3	
63	Cu	72	-0.540	2232	0.5	2	2	
66	Zn	72	0.085	741	4.7	4	2	
75	As	72	-0.014	250	3.6	2	2	
78	Se	72	0.060	138	4.2	1	2	
88	Sr	115	0.023	207	13.2	4	3	
95	Mo	115	0.006	81	48.0	2	2	
107	Ag	115	0.020	379	8.8	0.4	1	
111	Cd	115	0.008	33	30.0	0.4	0.3	
118	Sn	115	-0.043	652	18.5	4	3	
121	Sb	115	0.006	398	13.0	2	0.8	
137	Ba	115	0.033	107	34.8	2	3	
205	Tl	209	0.023	902	1.5	2	0.5	
208	Pb	209	0.032	4589	1.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1247311	1.17	1182420	105.49	70	120	
72	Ge	908994	0.99	849145	107.05	70	120	
115	In	9238394	1.56	8639443	106.93	70	120	
209	Bi	20327914	0.67	19405733	104.75	70	120	

Method Blank Report

Date Acquired	2/9/16 4:25 PM	Sample Name	MB-73429
Data Batch	160209.b	Comment	MBLKICPMS_TSDOD
Data File Name	177_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.319	18	17.29		
9	Be	45	0.004	3	21.65		
11	B	45	-1.008	624	15.31		
23	Na	45	42.824	135786	0.53		
24	Mg	45	3.333	2041	4.34		
27	Al	45	24.071	7865	5.10		
39	K	45	18.390	69137	0.54		
44	Ca	45	32.106	1289	9.38		
47	Ti	45	0.133	30	40.05		
51	V	45	-0.005	4645	4.72		
52	Cr	45	0.936	8999	2.65		
55	Mn	45	2.316	9765	1.42		J
56	Fe	45	519.224	3117242	1.00		FAIL
59	Co	72	0.026	339	8.25		
60	Ni	72	0.239	1210	5.10		
63	Cu	72	-0.323	4031	0.92		
66	Zn	72	5.305	8051	1.17		J
75	As	72	-0.005	262	10.14		
78	Se	72	0.058	139	18.63		
88	Sr	115	0.063	474	10.89		
95	Mo	115	0.114	641	3.90		
107	Ag	115	0.020	393	12.31		
111	Cd	115	0.000	14	58.06		
118	Sn	115	3.538	19913	2.00		
121	Sb	115	0.001	376	13.93		
137	Ba	115	0.114	327	8.35		
205	Tl	209	0.015	656	9.16		
208	Pb	209	0.070	6522	2.35		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1258831	0.38	1182420	106.46	70	120	
72	Ge	917990	0.40	849145	108.11	70	120	
115	In	9617343	1.45	8639443	111.32	70	120	
209	Bi	21054776	0.86	19405733	108.50	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/9/2016 16:27	Sample Name	LCS-73429
Data Batch	160209.b	Comment	LCS ICPMS_TSDOD
Data File Name	178_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.937	8241	0.92	200	103.5	80	120	
9	Be	45	207.510	11066	0.65	200	103.8	80	120	
11	B	45	199.190	4684	2.03	200	99.6	80	120	
23	Na	45	5273.304	5146692	2.28	1000	527.3	80	120	Fail
24	Mg	45	5137.670	2378046	0.98	1000	513.8	80	120	Fail
27	Al	45	1027.273	180862	0.97	1000	102.7	80	120	
39	K	45	5194.382	2711828	0.66	1000	519.4	80	120	Fail
44	Ca	45	4856.789	135524	0.94	1000	485.7	80	120	Fail
47	Ti	45	201.674	38179	1.15	200	100.8	80	120	
51	V	45	205.333	1213509	0.09	200	102.7	80	120	
52	Cr	45	202.647	1446027	0.60	200	101.3	80	120	
55	Mn	45	204.278	845425	1.24	200	102.1	80	120	
56	Fe	45	1100.794	6589070	1.01	1000	110.1	80	120	Fail
59	Co	72	209.129	2284450	0.35	200	104.6	80	120	
60	Ni	72	210.773	617774	0.52	200	105.4	80	120	
63	Cu	72	292.216	2378141	0.75	200	146.1	80	120	Fail
66	Zn	72	604.852	836961	0.83	200	302.4	80	120	Fail
75	As	72	211.409	242197	0.78	200	105.7	80	120	
78	Se	72	209.003	15080	1.24	200	104.5	80	120	
88	Sr	115	196.009	1222032	0.46	200	98.0	80	120	
95	Mo	115	193.390	983323	0.79	200	96.7	80	120	
107	Ag	115	203.132	3001606	0.23	200	101.6	80	120	
111	Cd	115	200.424	464581	0.46	200	100.2	80	120	
118	Sn	115	204.975	1077805	0.31	200	102.5	80	120	
121	Sb	115	204.202	1546404	0.80	200	102.1	80	120	
137	Ba	115	202.884	531913	0.58	200	101.4	80	120	
205	Tl	209	207.392	7007189	0.23	200	103.7	80	120	
208	Pb	209	208.900	9418430	0.31	200	104.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1257381	0.19	1182420	106.34	70	120	
72	Ge	907391	0.59	849145	106.86	70	120	
115	In	9410755	0.62	8639443	108.93	70	120	
209	Bi	20645551	1.94	19405733	106.39	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/9/2016 16:29	Sample Name	LCSD-73429
Data Batch	160209.b	Comment	LCSDICPMS_TSDOD
Data File Name	179_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	209.881	8285	1.08	200	104.9	80	120	
9	Be	45	211.100	11160	1.53	200	105.6	80	120	
11	B	45	207.315	4806	1.22	200	103.7	80	120	
23	Na	45	5411.628	5232770	0.62	1000	541.2	80	120	Fail
24	Mg	45	5275.660	2420628	0.52	1000	527.6	80	120	Fail
27	Al	45	1029.309	179624	0.78	1000	102.9	80	120	
39	K	45	5274.618	2728904	0.74	1000	527.5	80	120	Fail
44	Ca	45	4982.699	137819	1.68	1000	498.3	80	120	Fail
47	Ti	45	205.118	38494	1.38	200	102.6	80	120	
51	V	45	210.836	1235071	1.07	200	105.4	80	120	
52	Cr	45	208.187	1472615	1.26	200	104.1	80	120	
55	Mn	45	208.175	854036	0.66	200	104.1	80	120	
56	Fe	45	1056.886	6271653	0.88	1000	105.7	80	120	Fail
59	Co	72	209.914	2310196	0.76	200	105.0	80	120	
60	Ni	72	210.265	620882	0.42	200	105.1	80	120	
63	Cu	72	210.535	1727999	0.35	200	105.3	80	120	
66	Zn	72	213.969	298681	0.41	200	107.0	80	120	
75	As	72	211.710	244352	0.47	200	105.9	80	120	
78	Se	72	212.938	15477	0.76	200	106.5	80	120	
88	Sr	115	200.926	1236269	0.38	200	100.5	80	120	
95	Mo	115	198.086	993994	0.44	200	99.0	80	120	
107	Ag	115	209.812	3059595	0.53	200	104.9	80	120	
111	Cd	115	206.534	472480	0.74	200	103.3	80	120	
118	Sn	115	210.042	1089969	0.80	200	105.0	80	120	
121	Sb	115	208.958	1561622	0.43	200	104.5	80	120	
137	Ba	115	210.381	544341	0.52	200	105.2	80	120	
205	Tl	209	211.056	7143420	0.51	200	105.5	80	120	
208	Pb	209	211.897	9570189	0.39	200	105.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1246477	0.96	1182420	105.42	70	120	
72	Ge	914171	0.75	849145	107.66	70	120	
115	In	9287263	0.41	8639443	107.50	70	120	
209	Bi	20679969	1.53	19405733	106.57	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/9/2016 16:36	Sample Name	1601230-05A SD
Data Batch	160209.b	Comment	SD ICPMS_TSDOD
Data File Name	182_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	10.332	413	5.50	51.1	101.1	110	90	Good
9	Be	45	0.484	28	43.45	2.6	94.8	110	90	Good
11	B	45	14.650	933	3.98	70.7	103.6	110	90	Good
23	Na	45	142.730	229396	0.32	596.0	119.7	110	90	
24	Mg	45	2550.784	1170950	0.36	12723.4	100.2	110	90	Good
27	Al	45	12098.373	2072503	0.60	60147.7	100.6	110	90	Good
39	K	45	3100.441	1628872	0.41	15213.3	101.9	110	90	Good
44	Ca	45	8304.687	229508	0.43	40405.0	102.8	110	90	Good
47	Ti	45	44.736	8401	2.46	218.7	102.3	110	90	Good
51	V	45	17.288	105552	0.93	85.1	101.5	110	90	Good
52	Cr	45	11.118	80845	0.71	54.8	101.4	110	90	Good
55	Mn	45	121.275	497746	0.73	595.0	101.9	110	90	Good
56	Fe	45	11196.396	66356973	1.42	54247.9	103.2	110	90	Good
59	Co	72	4.035	43987	1.83	19.6	103.1	110	90	Good
60	Ni	72	7.058	21096	0.47	35.0	100.9	110	90	Good
63	Cu	72	6.269	57303	1.18	32.6	96.2	110	90	Good
66	Zn	72	63.288	87845	0.93	305.5	103.6	110	90	Good
75	As	72	4.531	5433	1.40	22.9	98.9	110	90	Good
78	Se	72	0.587	175	8.92	4.0	73.7	110	90	
88	Sr	115	48.589	306916	0.58	246.3	98.6	110	90	Good
95	Mo	115	0.261	1393	4.80	1.3	98.7	110	90	Good
107	Ag	115	0.056	930	1.29	0.2	137.7	110	90	
111	Cd	115	0.114	283	14.74	0.5	109.5	110	90	Good
118	Sn	115	0.912	5753	5.85	4.9	93.1	110	90	Good
121	Sb	115	0.501	4210	3.26	2.5	99.6	110	90	Good
137	Ba	115	96.503	256329	0.84	491.3	98.2	110	90	Good
205	Tl	209	0.122	4381	2.60	0.5	114.4	110	90	
208	Pb	209	20.974	976062	1.09	106.0	98.9	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1246802	0.46	1182420	105.44	70	120	
72	Ge	904458	0.19	849145	106.51	70	120	
115	In	9535773	2.32	8639443	110.37	70	120	
209	Bi	21244807	1.72	19405733	109.48	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/9/2016 16:56	Sample Name	1601230-05A PDS
Data Batch	160209.b	Comment	PDS ICPMS_TSDOD
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	239.795	9593	0.78	51.1	200	94.4	75	125	
9	Be	45	200.469	10741	1.55	2.6	200	99.0	75	125	
11	B	45	263.669	6020	2.44	70.7	200	96.5	75	125	
23	Na	45	5696.393	5577973	0.91	596.0	5000	102.0	75	125	
24	Mg	45	17915.879	8330327	0.94	12723.4	5000	103.8	75	125	
27	Al	45	65730.025	11392408	0.97	60147.7	5000	111.6	75	125	
39	K	45	20406.828	10528369	1.79	15213.3	5000	103.9	75	125	
44	Ca	45	45586.759	1274724	0.97	40405.0	5000	103.6	75	125	
47	Ti	45	417.882	79475	0.63	218.7	200	99.6	75	125	
51	V	45	285.618	1694081	0.34	85.1	200	100.2	75	125	
52	Cr	45	253.060	1813660	0.27	54.8	200	99.1	75	125	
55	Mn	45	788.313	3277396	0.26	595.0	200	96.7	75	125	
56	Fe	45	59427.478	356809488	0.67	54247.9	5000	103.6	75	125	
59	Co	72	220.551	2401433	0.23	19.6	200	100.5	75	125	
60	Ni	72	231.809	677166	0.45	35.0	200	98.4	75	125	
63	Cu	72	226.726	1840584	0.60	32.6	200	97.1	75	125	
66	Zn	72	503.316	694293	1.42	305.5	200	98.9	75	125	
75	As	72	225.568	257555	0.62	22.9	200	101.3	75	125	
78	Se	72	208.168	14972	1.25	4.0	200	102.1	75	125	
88	Sr	115	452.184	2739177	0.74	246.3	200	102.9	75	125	
95	Mo	115	189.521	936315	0.48	1.3	200	94.1	75	125	
107	Ag	115	192.068	2757884	0.47	0.2	200	95.9	75	125	
111	Cd	115	194.975	439144	0.78	0.5	200	97.2	75	125	
118	Sn	115	209.680	1071297	0.38	4.9	200	102.4	75	125	
121	Sb	115	210.453	1548550	0.05	2.5	200	104.0	75	125	
137	Ba	115	705.821	1797878	1.15	491.3	200	107.3	75	125	
205	Tl	209	203.330	6702141	0.75	0.5	200	101.4	75	125	
208	Pb	209	307.841	13539552	1.23	106.0	200	100.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1263283	0.09	1182420	106.84	70	120	
72	Ge	904429	0.25	849145	106.51	70	120	
115	In	9146176	1.88	8639443	105.87	70	120	
209	Bi	20137258	0.30	19405733	103.77	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/9/2016 16:57	Sample Name	1601230-05A MS
Data Batch	160209.b	Comment	MS ICPMS_TSDOD
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	242.762	9600	1.68	51.1	200	95.8	80	120	
9	Be	45	199.305	10556	2.35	2.6	200	98.4	80	120	
11	B	45	249.724	5668	3.74	70.7	200	89.5	80	120	
23	Na	45	5525.819	5351686	1.99	596.0	1000	493.0	80	120	Fail
24	Mg	45	17829.578	8193373	1.04	12723.4	1000	510.6	80	120	Fail
27	Al	45	64052.356	10973198	1.21	60147.7	1000	390.5	80	120	Fail
39	K	45	20714.834	10564219	1.90	15213.3	1000	550.2	80	120	Fail
44	Ca	45	43787.806	1210303	0.56	40405.0	1000	338.3	80	120	Fail
47	Ti	45	433.928	81568	1.09	218.7	200	107.6	80	120	
51	V	45	286.718	1681006	0.85	85.1	200	100.8	80	120	
52	Cr	45	248.234	1758652	1.07	54.8	200	96.7	80	120	
55	Mn	45	765.272	3144992	0.99	595.0	200	85.2	80	120	
56	Fe	45	53722.286	318823445	1.31	54247.9	1000	-52.6	80	120	Fail
59	Co	72	216.978	2344636	0.80	19.6	200	98.7	80	120	
60	Ni	72	230.258	667514	1.18	35.0	200	97.6	80	120	
63	Cu	72	228.241	1838747	1.07	32.6	200	97.8	80	120	
66	Zn	72	492.244	673850	0.72	305.5	200	93.4	80	120	
75	As	72	220.156	249468	0.68	22.9	200	98.6	80	120	
78	Se	72	202.304	14443	0.55	4.0	200	99.2	80	120	
88	Sr	115	443.080	2619518	0.40	246.3	200	98.4	80	120	
95	Mo	115	180.797	871752	0.71	1.3	200	89.7	80	120	
107	Ag	115	199.892	2801025	0.32	0.2	200	99.8	80	120	
111	Cd	115	199.548	438625	0.61	0.5	200	99.5	80	120	
118	Sn	115	199.530	994909	0.83	4.9	200	97.3	80	120	
121	Sb	115	69.304	497893	0.46	2.5	200	33.4	80	120	Fail
137	Ba	115	666.529	1657064	0.23	491.3	200	87.6	80	120	
205	Tl	209	203.743	6696090	0.51	0.5	200	101.6	80	120	
208	Pb	209	304.313	13346697	0.78	106.0	200	99.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1248786	1.30	1182420	105.61	70	120	
72	Ge	897580	0.63	849145	105.70	70	120	
115	In	8924451	0.94	8639443	103.30	70	120	
209	Bi	20082736	1.81	19405733	103.49	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/9/2016 16:59	Sample Name	1601230-05A MSD
Data Batch	160209.b	Comment	MSD ICPMS_TSDOD
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	238.170	9458	2.03	51.1	200	93.5	80	120	
9	Be	45	195.902	10420	3.03	2.6	200	96.7	80	120	
11	B	45	251.539	5730	2.81	70.7	200	90.4	80	120	
23	Na	45	5409.961	5262322	1.88	596.0	1000	481.4	80	120	Fail
24	Mg	45	16624.266	7672877	2.33	12723.4	1000	390.1	80	120	Fail
27	Al	45	60612.803	10426513	2.19	60147.7	1000	46.5	80	120	Fail
39	K	45	19218.557	9845017	0.08	15213.3	1000	400.5	80	120	Fail
44	Ca	45	40998.232	1137967	0.50	40405.0	1000	59.3	80	120	Fail
47	Ti	45	415.844	78502	1.13	218.7	200	98.6	80	120	
51	V	45	276.202	1626174	0.44	85.1	200	95.5	80	120	
52	Cr	45	244.179	1736987	0.71	54.8	200	94.7	80	120	
55	Mn	45	729.330	3009694	0.25	595.0	200	67.2	80	120	Fail
56	Fe	45	49312.855	293929846	2.26	54247.9	1000	-493.5	80	120	Fail
59	Co	72	214.268	2325923	0.59	19.6	200	97.3	80	120	
60	Ni	72	225.154	655740	0.38	35.0	200	95.1	80	120	
63	Cu	72	222.602	1801769	0.20	32.6	200	95.0	80	120	
66	Zn	72	470.393	646954	0.68	305.5	200	82.5	80	120	
75	As	72	217.237	247303	0.39	22.9	200	97.2	80	120	
78	Se	72	201.685	14466	0.28	4.0	200	98.8	80	120	
88	Sr	115	414.599	2515512	0.81	246.3	200	84.1	80	120	
95	Mo	115	176.030	871022	0.82	1.3	200	87.4	80	120	
107	Ag	115	192.372	2766302	0.54	0.2	200	96.1	80	120	
111	Cd	115	193.696	436929	1.06	0.5	200	96.6	80	120	
118	Sn	115	195.639	1001127	0.60	4.9	200	95.4	80	120	
121	Sb	115	67.949	500992	0.92	2.5	200	32.7	80	120	Fail
137	Ba	115	607.822	1550790	0.30	491.3	200	58.3	80	120	Fail
205	Tl	209	205.722	6724518	1.95	0.5	200	102.6	80	120	
208	Pb	209	291.002	12694358	1.08	106.0	200	92.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1253996	1.14	1182420	106.05	70	120	
72	Ge	901727	0.72	849145	106.19	70	120	
115	In	9158971	1.25	8639443	106.01	70	120	
209	Bi	19975573	1.93	19405733	102.94	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/9/2016 17:01	Sample Name	CCV9-160209
Data Batch	160209.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	206.370	8061	2.06	200	103.2	90	110	
9	Be	45	208.460	10904	1.01	200	104.2	90	110	
11	B	45	207.736	4764	2.28	200	103.9	90	110	
23	Na	45	5284.422	5058494	1.36	5000	105.7	90	110	
24	Mg	45	5197.814	2359750	1.19	5000	104.0	90	110	
27	Al	45	5223.941	887258	0.76	5000	104.5	90	110	
39	K	45	5253.468	2689471	0.62	5000	105.1	90	110	
44	Ca	45	4990.671	136580	0.31	5000	99.8	90	110	
47	Ti	45	200.116	37159	2.11	200	100.1	90	110	
51	V	45	208.377	1207843	0.87	200	104.2	90	110	
52	Cr	45	204.830	1433580	0.75	200	102.4	90	110	
55	Mn	45	205.247	833170	0.60	200	102.6	90	110	
56	Fe	45	5174.379	30339598	0.75	5000	103.5	90	110	
59	Co	72	209.604	2278099	0.51	200	104.8	90	110	
60	Ni	72	208.481	607962	0.13	200	104.2	90	110	
63	Cu	72	209.064	1694700	1.28	200	104.5	90	110	
66	Zn	72	218.350	301004	0.58	200	109.2	90	110	
75	As	72	211.732	241342	0.81	200	105.9	90	110	
78	Se	72	213.133	15298	0.67	200	106.6	90	110	
88	Sr	115	196.272	1212219	1.05	200	98.1	90	110	
95	Mo	115	193.396	974137	0.73	200	96.7	90	110	
107	Ag	115	204.826	2998198	0.48	200	102.4	90	110	
111	Cd	115	203.380	467026	1.61	200	101.7	90	110	
118	Sn	115	198.787	1035477	0.50	200	99.4	90	110	
121	Sb	115	203.543	1526857	0.63	200	101.8	90	110	
137	Ba	115	203.836	529384	0.57	200	101.9	90	110	
205	Tl	209	213.687	7059523	2.15	200	106.8	90	110	
208	Pb	209	212.993	9389587	0.60	200	106.5	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1233280	0.42	1182420	104.30	70	120	
72	Ge	902797	0.37	849145	106.32	70	120	
115	In	9322181	0.54	8639443	107.90	70	120	
209	Bi	20181658	0.62	19405733	104.00	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 17:05	Sample Name	LCVL9-160209
Data Batch	160209.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	11.481	454	4.87	10	114.8	70	130	
9	Be	45	1.022	56	9.94	1	102.2	70	130	
11	B	45	27.412	1180	5.28	20	137.1	70	130	Fail
23	Na	45	138.366	223317	0.44	100	138.4	70	130	Fail
24	Mg	45	109.247	50186	0.65	100	109.2	70	130	
27	Al	45	90.398	18968	2.31	100	90.4	70	130	
39	K	45	125.979	121893	0.49	100	126.0	70	130	
44	Ca	45	101.954	3176	3.22	100	102.0	70	130	
47	Ti	45	5.044	943	8.92	5	100.9	70	130	
51	V	45	1.271	11945	1.02	1	127.1	70	130	
52	Cr	45	5.125	38174	1.28	5	102.5	70	130	
55	Mn	45	5.135	21056	0.36	5	102.7	70	130	
56	Fe	45	105.853	632543	1.10	100	105.9	70	130	
59	Co	72	5.231	57399	0.67	5	104.6	70	130	
60	Ni	72	5.308	16098	4.19	5	106.2	70	130	
63	Cu	72	4.719	45064	2.87	5	94.4	70	130	
66	Zn	72	5.448	8184	3.27	5	109.0	70	130	
75	As	72	5.299	6352	2.34	5	106.0	70	130	
78	Se	72	5.453	525	4.12	5	109.1	70	130	
88	Sr	115	5.103	31599	0.65	5	102.1	70	130	
95	Mo	115	4.837	24416	2.18	5	96.7	70	130	
107	Ag	115	2.155	31635	0.22	2	107.7	70	130	
111	Cd	115	1.007	2327	4.10	1	100.7	70	130	
118	Sn	115	5.205	27987	0.82	5	104.1	70	130	
121	Sb	115	2.119	16259	1.19	2	106.0	70	130	
137	Ba	115	5.240	13636	1.15	5	104.8	70	130	
205	Tl	209	1.063	36240	1.48	1	106.3	70	130	
208	Pb	209	1.085	52375	2.27	1	108.5	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1236087	0.38	1182420	104.54	70	120	
72	Ge	910611	0.58	849145	107.24	70	120	
115	In	9327293	1.42	8639443	107.96	70	120	
209	Bi	20747259	0.89	19405733	106.91	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/9/2016 17:07	Sample Name	CCB9-160209
Data Batch	160209.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	0.403	21	22.9	2	5	
9	Be	45	0.106	8	12.5	0.4	0.3	
11	B	45	5.224	739	2.5	10	10	
23	Na	45	24.102	115920	0.3	50	100	
24	Mg	45	1.182	1028	7.2	50	100	
27	Al	45	33.186	9287	0.9	50	10	FailAq
39	K	45	12.566	65089	0.6	50	100	
44	Ca	45	-2.818	311	4.8	50	100	
47	Ti	45	0.005	6	91.6	4	3	
51	V	45	0.186	5675	5.3	4	3	
52	Cr	45	0.032	2511	2.6	2	2	
55	Mn	45	0.053	382	13.7	2	3	
56	Fe	45	2.046	22744	1.8	50	50	
59	Co	72	0.017	231	16.9	2	3	
60	Ni	72	-0.062	313	8.4	2	3	
63	Cu	72	-0.530	2312	6.9	2	2	
66	Zn	72	0.402	1180	4.5	4	2	
75	As	72	0.030	300	6.4	2	2	
78	Se	72	-0.078	128	8.5	1	2	
88	Sr	115	0.019	188	37.3	4	3	
95	Mo	115	0.012	110	5.2	2	2	
107	Ag	115	0.030	541	4.3	0.4	1	
111	Cd	115	0.007	30	48.4	0.4	0.3	
118	Sn	115	-0.021	792	9.6	4	3	
121	Sb	115	0.019	507	5.7	2	0.8	
137	Ba	115	0.019	73	22.7	2	3	
205	Tl	209	0.032	1215	11.6	2	0.5	
208	Pb	209	0.044	5159	7.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1238421	0.34	1182420	104.74	70	120	
72	Ge	908906	0.72	849145	107.04	70	120	
115	In	9499137	0.83	8639443	109.95	70	120	
209	Bi	20380696	1.47	19405733	105.02	70	120	

Sample Report

Date Acquired	2/9/16 5:23 PM	Sample Name	1601231-01A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	206SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	55.796	2108	2.00	2000	>RL
9	Be	45	2.124	110	5.02	2000	>RL
11	B	45	73.707	2027	1.87	2000	>RL
23	Na	45	577.797	614126	0.94	25000	>RL
24	Mg	45	13235.816	5803860	0.82	25000	>RL
27	Al	45	54562.812	8919147	1.75	10000	OUTCAL
39	K	45	15735.381	7669279	1.82	25000	>RL
44	Ca	45	105383.041	2778515	1.03	25000	OUTCAL
47	Ti	45	376.062	67452	2.32	2000	>RL
51	V	45	100.847	566950	0.56	2000	>RL
52	Cr	45	58.361	396140	0.23	2000	>RL
55	Mn	45	707.278	2773160	1.12	2000	>RL
56	Fe	45	59160.867	334987453	2.06	10000	OUTCAL
59	Co	72	19.392	201993	0.56	2000	>RL
60	Ni	72	36.404	102109	1.15	2000	>RL
63	Cu	72	57.038	447594	0.55	2000	>RL
66	Zn	72	372.388	491476	1.42	2000	>RL
75	As	72	22.497	24797	0.63	2000	>RL
78	Se	72	4.011	400	7.35	2000	>RL
88	Sr	115	359.924	2114038	0.64	2000	>RL
95	Mo	115	1.963	9449	0.98	2000	
107	Ag	115	0.212	3037	3.69	500	
111	Cd	115	0.873	1920	3.35	2000	>RL
118	Sn	115	6.671	33859	0.35	2000	>RL
121	Sb	115	3.228	23361	2.49	500	>RL
137	Ba	115	1099.195	2714913	0.82	2000	>RL
205	Tl	209	0.488	16151	1.63	2000	
208	Pb	209	96.448	4228461	0.81	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1191360	0.56	1182420	100.76	70	120	
72	Ge	865047	0.21	849145	101.87	70	120	
115	In	8865736	0.10	8639443	102.62	70	120	
209	Bi	20062804	0.31	19405733	103.39	70	120	

Sample Report

Date Acquired	2/9/16 5:25 PM	Sample Name	1601231-02A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	207SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.826	1865	1.91	2000	>RL
9	Be	45	2.006	103	16.48	2000	>RL
11	B	45	61.066	1767	4.32	2000	>RL
23	Na	45	616.918	643373	0.28	25000	>RL
24	Mg	45	11760.155	5107164	2.26	25000	>RL
27	Al	45	48915.984	7919362	0.64	10000	OUTCAL
39	K	45	13727.310	6632865	2.45	25000	>RL
44	Ca	45	90939.965	2374644	1.18	25000	OUTCAL
47	Ti	45	307.233	54575	1.35	2000	>RL
51	V	45	90.999	507098	0.49	2000	>RL
52	Cr	45	50.645	340748	0.20	2000	>RL
55	Mn	45	636.066	2469889	0.20	2000	>RL
56	Fe	45	50830.810	285045162	0.98	10000	OUTCAL
59	Co	72	16.570	169946	0.42	2000	>RL
60	Ni	72	32.647	90211	1.14	2000	>RL
63	Cu	72	48.460	375350	0.87	2000	>RL
66	Zn	72	341.919	444355	0.77	2000	>RL
75	As	72	22.626	24555	1.23	2000	>RL
78	Se	72	3.367	351	9.69	2000	>RL
88	Sr	115	322.014	1865807	0.39	2000	>RL
95	Mo	115	1.835	8718	3.54	2000	
107	Ag	115	0.191	2705	2.61	500	
111	Cd	115	0.700	1522	14.34	2000	>RL
118	Sn	115	5.636	28352	1.18	2000	>RL
121	Sb	115	4.053	28851	2.04	500	>RL
137	Ba	115	1141.269	2780693	0.32	2000	>RL
205	Tl	209	0.449	14535	0.66	2000	
208	Pb	209	77.498	3319535	0.74	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179889	0.15	1182420	99.79	70	120	
72	Ge	851744	0.79	849145	100.31	70	120	
115	In	8746245	0.87	8639443	101.24	70	120	
209	Bi	19597830	0.24	19405733	100.99	70	120	

Sample Report

Date Acquired	2/9/16 5:27 PM	Sample Name	1601231-03A
Data Batch	160209.b	Comment	SAMPICPMS_TSDOD
Data File Name	208SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.259	1977	5.45	2000	>RL
9	Be	45	1.925	100	12.10	2000	>RL
11	B	45	61.705	1798	6.16	2000	>RL
23	Na	45	463.558	511023	0.77	25000	>RL
24	Mg	45	12230.785	5369610	2.46	25000	>RL
27	Al	45	50629.962	8285807	2.19	10000	OUTCAL
39	K	45	14380.542	7022296	1.80	25000	>RL
44	Ca	45	98211.279	2592477	0.19	25000	OUTCAL
47	Ti	45	374.349	67223	0.90	2000	>RL
51	V	45	93.326	525623	0.46	2000	>RL
52	Cr	45	55.468	377063	0.33	2000	>RL
55	Mn	45	629.725	2471956	0.79	2000	>RL
56	Fe	45	54277.029	307684121	0.73	10000	OUTCAL
59	Co	72	17.906	185738	0.91	2000	>RL
60	Ni	72	35.680	99672	1.92	2000	>RL
63	Cu	72	47.396	371432	1.41	2000	>RL
66	Zn	72	353.525	464639	0.36	2000	>RL
75	As	72	20.270	22273	0.68	2000	>RL
78	Se	72	3.689	377	3.70	2000	>RL
88	Sr	115	335.318	1963046	0.42	2000	>RL
95	Mo	115	1.745	8378	0.66	2000	
107	Ag	115	0.184	2628	4.75	500	
111	Cd	115	0.786	1723	3.44	2000	>RL
118	Sn	115	6.216	31507	0.76	2000	>RL
121	Sb	115	3.086	22279	1.77	500	>RL
137	Ba	115	1024.581	2522194	0.73	2000	>RL
205	Tl	209	0.457	15020	2.80	2000	
208	Pb	209	96.105	4183201	0.42	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1192791	0.77	1182420	100.88	70	120	
72	Ge	861413	0.28	849145	101.44	70	120	
115	In	8838820	2.11	8639443	102.31	70	120	
209	Bi	19918933	0.58	19405733	102.64	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/9/2016 17:29	Sample Name	CCV10-160209
Data Batch	160209.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	203.507	7703	1.62	200	101.8	90	110	
9	Be	45	210.769	10684	1.34	200	105.4	90	110	
11	B	45	197.554	4420	5.01	200	98.8	90	110	
23	Na	45	5314.810	4929708	0.26	5000	106.3	90	110	
24	Mg	45	5159.942	2270200	0.49	5000	103.2	90	110	
27	Al	45	5157.946	849057	0.98	5000	103.2	90	110	
39	K	45	5257.552	2608355	0.53	5000	105.2	90	110	
44	Ca	45	4948.209	131237	1.62	5000	99.0	90	110	
47	Ti	45	198.648	35743	1.15	200	99.3	90	110	
51	V	45	206.390	1159420	0.87	200	103.2	90	110	
52	Cr	45	205.501	1393817	0.29	200	102.8	90	110	
55	Mn	45	207.214	815139	0.10	200	103.6	90	110	
56	Fe	45	5316.983	30211839	1.41	5000	106.3	90	110	
59	Co	72	208.906	2211961	0.44	200	104.5	90	110	
60	Ni	72	206.179	585740	0.47	200	103.1	90	110	
63	Cu	72	209.091	1651168	0.42	200	104.5	90	110	
66	Zn	72	219.310	294522	0.43	200	109.7	90	110	
75	As	72	211.544	234904	0.20	200	105.8	90	110	
78	Se	72	210.599	14728	1.27	200	105.3	90	110	
88	Sr	115	197.143	1182353	0.11	200	98.6	90	110	
95	Mo	115	194.052	949193	0.75	200	97.0	90	110	
107	Ag	115	205.137	2915815	0.52	200	102.6	90	110	
111	Cd	115	203.949	454783	0.44	200	102.0	90	110	
118	Sn	115	200.307	1013202	0.04	200	100.2	90	110	
121	Sb	115	205.288	1495477	0.60	200	102.6	90	110	
137	Ba	115	206.572	521003	0.89	200	103.3	90	110	
205	Tl	209	210.434	6924521	0.73	200	105.2	90	110	
208	Pb	209	210.234	9231507	0.13	200	105.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195211	0.89	1182420	101.08	70	120	
72	Ge	879505	0.30	849145	103.58	70	120	
115	In	9052919	0.84	8639443	104.79	70	120	
209	Bi	20107714	2.01	19405733	103.62	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/9/2016 17:33	Sample Name	LCVL10-160209
Data Batch	160209.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	10.658	421	9.07	10	106.6	70	130	
9	Be	45	1.035	57	23.83	1	103.5	70	130	
11	B	45	25.202	1133	7.94	20	126.0	70	130	
23	Na	45	133.892	218598	0.70	100	133.9	70	130	Fail
24	Mg	45	107.754	49390	1.50	100	107.8	70	130	
27	Al	45	89.245	18732	1.73	100	89.2	70	130	
39	K	45	127.778	122513	0.46	100	127.8	70	130	
44	Ca	45	104.053	3227	3.84	100	104.1	70	130	
47	Ti	45	4.851	906	7.76	5	97.0	70	130	
51	V	45	1.067	10738	2.68	1	106.7	70	130	
52	Cr	45	5.131	38131	1.74	5	102.6	70	130	
55	Mn	45	5.057	20691	2.09	5	101.1	70	130	
56	Fe	45	106.026	632111	0.70	100	106.0	70	130	
59	Co	72	5.276	56916	1.95	5	105.5	70	130	
60	Ni	72	5.233	15610	1.51	5	104.7	70	130	
63	Cu	72	4.840	45278	1.62	5	96.8	70	130	
66	Zn	72	5.515	8139	1.77	5	110.3	70	130	
75	As	72	5.275	6218	1.31	5	105.5	70	130	
78	Se	72	5.659	531	6.67	5	113.2	70	130	
88	Sr	115	5.004	30509	1.84	5	100.1	70	130	
95	Mo	115	4.850	24109	2.33	5	97.0	70	130	
107	Ag	115	2.132	30820	1.48	2	106.6	70	130	
111	Cd	115	1.098	2497	1.99	1	109.8	70	130	
118	Sn	115	5.251	27793	2.30	5	105.0	70	130	
121	Sb	115	2.113	15961	1.68	2	105.6	70	130	
137	Ba	115	5.176	13265	2.15	5	103.5	70	130	
205	Tl	209	1.051	35090	0.03	1	105.1	70	130	
208	Pb	209	1.050	49760	0.27	1	105.0	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1233316	1.11	1182420	104.30	70	120	
72	Ge	895381	0.89	849145	105.44	70	120	
115	In	9183564	1.06	8639443	106.30	70	120	
209	Bi	20315081	1.07	19405733	104.69	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/9/2016 17:46	Sample Name	CCB10-160209
Data Batch	160209.b	Comment	CCB ICPMS_TW
Data File Name	217_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.254	15	24.0	2	5	
9	Be	45	0.036	4	70.5	0.4	0.3	
11	B	45	-0.009	640	3.3	10	10	
23	Na	45	15.976	109191	1.1	50	100	
24	Mg	45	0.220	594	8.9	50	100	
27	Al	45	36.017	9854	2.4	50	10	FailAq
39	K	45	15.368	67081	0.9	50	100	
44	Ca	45	-1.160	359	5.2	50	100	
47	Ti	45	-0.019	1	173.2	4	3	
51	V	45	0.136	5433	3.2	4	3	
52	Cr	45	-0.001	2301	1.7	2	2	
55	Mn	45	0.033	303	8.7	2	3	
56	Fe	45	0.858	15889	2.4	50	50	
59	Co	72	0.001	63	24.1	2	3	
60	Ni	72	-0.058	324	13.4	2	3	
63	Cu	72	-0.552	2129	5.3	2	2	
66	Zn	72	0.404	1181	10.4	4	2	
75	As	72	-0.003	262	6.6	2	2	
78	Se	72	0.214	148	7.6	1	2	
88	Sr	115	0.005	97	29.5	4	3	
95	Mo	115	-0.004	31	53.9	2	2	
107	Ag	115	0.015	302	10.6	0.4	1	
111	Cd	115	-0.001	11	69.3	0.4	0.3	
118	Sn	115	-0.073	507	12.8	4	3	
121	Sb	115	-0.006	314	4.8	2	0.8	
137	Ba	115	0.002	27	0.0	2	3	
205	Tl	209	0.005	307	15.2	2	0.5	
208	Pb	209	-0.018	2422	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1249279	0.86	1182420	105.65	70	120	
72	Ge	907267	0.71	849145	106.84	70	120	
115	In	9301739	1.19	8639443	107.67	70	120	
209	Bi	20559676	2.73	19405733	105.95	70	120	

ICP-MS4_160211A
For

DHL Work Order
1601231

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_160211A SOP:			
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
_X_ 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%)		_X_ 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
No LCSD, MS, MSD prepped with this batch; Not required for field blanks; Data accepted

Analyst: Date of Completion: 02/11/2016

Second-Level Review: Janice Whitt Date Stamp: 2/11/2016

REVIEWED BY
By Janice Whitt at 1:38:59 PM, 2/11/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211A** **Run No.:** 84112

Analytical Run Date: 2/11/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R84112	2/11/2016 10:09:00 AM		
L2-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:11:00 AM		
L-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:13:00 AM		
10X-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:15:00 AM		
5X-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:17:00 AM		
2X-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:19:00 AM		
H-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:21:00 AM		
H2-160211	1	ICPMS_TW	CAL	R84112	2/11/2016 10:23:00 AM		
ICSA-160211	1	ICPMS_TW	ICSA	R84112	2/11/2016 10:31:00 AM		
ICSAB-160211	1	ICPMS_TW	ICSB	R84112	2/11/2016 10:33:00 AM		
ICV-160211	1	ICPMS_TW	ICV	R84112	2/11/2016 10:41:00 AM		
LCVL-160211	1	ICPMS_TW	LCVL	R84112	2/11/2016 10:46:00 AM		
ICB-160211	1	ICPMS_TW	ICB	R84112	2/11/2016 10:50:00 AM		
CCV3-160211	1	ICPMS_TW	CCV	R84112	2/11/2016 12:11:00 PM		
LCVL3-160211	1	ICPMS_TW	LCVL	R84112	2/11/2016 12:15:00 PM		
CCB3-160211	1	ICPMS_TW	CCB	R84112	2/11/2016 12:18:00 PM		
MB-73575	1	ICPMS_TWDOD	MBLK	73575	2/11/2016 12:20:00 PM		
LCS-73575	1	ICPMS_TWDOD	LCS	73575	2/11/2016 12:22:00 PM		
1601190-07A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:26:00 PM		
1601205-19A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:28:00 PM		
1601214-10A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:30:00 PM		
1601230-16A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:32:00 PM		
1601231-28A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:34:00 PM		
1601247-13A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:36:00 PM		
1601285-19A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:38:00 PM		
1601289-07A	1	ICPMS_TWDOD	SAMP	73575	2/11/2016 12:40:00 PM		
CCV4-160211	1	ICPMS_TW	CCV	R84112	2/11/2016 12:42:00 PM		
LCVL4-160211	1	ICPMS_TW	LCVL	R84112	2/11/2016 12:46:00 PM		
CCB4-160211	1	ICPMS_TW	CCB	R84112	2/11/2016 12:49:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICB	BLANK	CCB ICPMS_TW	1103	
23	ICSA	ICSA-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33		10	
34		50	
35		50	
36		50	
37		10	
38		10	
39		10	
40		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			
42			
43			
44			
45			
46		1	
47		1	
48		1	
49			
50		10	
51		50	
52		50	
53		10	
54		10	
55		10	
56		10	
57		10	
58		10	
59		10	
60		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	
62		10	
63		10	
64			
65			
66			
67			
68		10	
69		10	
70		1	
71			
72			
73			
74			
75		1	
76		1	
77			
78		1	
79		1	
80		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	
82		1	
83		1	
84		1	
85		1	
86			
87			
88			
89			
90		5	Skip
91		5	Skip
92		5	Skip
93			Skip
94		5	Skip
95		25	Skip
96		5	Skip
97		5	Skip
98		5	Skip
99		5	Skip
100		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	Skip
102		5	Skip
103		5	Skip
104		5	Skip
105		5	Skip
106		5	Skip
107		5	Skip

Sample List

108		Skip
109		Skip
110		Skip
111		Skip
112	5	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	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	Skip
122			Skip
123			Skip
124			Skip
125			Skip
126		5	Skip
127		5	Skip
128		5	Skip
129			Skip
130		5	Skip
131		25	Skip
132		5	Skip
133		5	Skip
134		5	Skip
135		5	Skip

Sample List

136		5	Skip
137		5	Skip
138		5	Skip
139		5	Skip
140		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	Skip
142		5	Skip
143		5	Skip
144			Skip
145			Skip
146			Skip
147			Skip
148		5	Skip
149		5	Skip
150		5	Skip
151		5	Skip
152		5	Skip
153		5	Skip
154		5	Skip
155		5	Skip
156		5	Skip
157		5	Skip
158			Skip
159			Skip
160			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			Skip
162		5	Skip
163		5	Skip
164		5	Skip
165			Skip
166		5	Skip
167		25	Skip
168		5	Skip
169		5	Skip
170		5	Skip
171		5	Skip
172		5	Skip
173		5	Skip
174		5	Skip
175		5	Skip
176		5	Skip
177		5	Skip
178		5	Skip
179		5	Skip
180			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	CCB	CCB10-160211	CCB ICPMS_TW	1102
199	CCB	CCB10-160211	CCB ICPMS_TW	1102
200	CCB	CCB10-160211	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
181			Skip
182			Skip
183			Skip
184		5	Skip
185		5	Skip
186		5	Skip
187		5	Skip
188		5	Skip
189		5	Skip
190		5	Skip
191		5	Skip
192		5	Skip
193		5	Skip
194			Skip
195			Skip
196			Skip
197			Skip
198			Skip
199			Skip
200			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	CCB10-160211	CCB ICPMS_TW	1103	
202	CCB	CCB10-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
201			Skip
202			Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sample List

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	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-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	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		10	Skip
34		50	Skip
35		50	Skip
36		50	Skip
37		10	Skip
38		10	Skip
39		10	Skip
40		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			Skip
42			Skip
43			Skip
44			Skip
45			Skip
46		1	Skip
47		1	Skip
48		1	Skip
49			Skip
50		10	Skip
51		50	Skip
52		50	Skip
53		10	Skip
54		10	Skip
55		10	Skip
56		10	Skip
57		10	Skip
58		10	Skip
59		10	Skip
60		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	Skip
62		10	Skip
63		10	Skip
64			Skip
65			Skip
66			Skip
67			Skip
68		10	Skip
69		10	Skip
70		1	Skip
71			Skip
72			Skip
73			Skip
74			Skip
75		1	Skip
76		1	Skip
77			Skip
78		1	Skip
79		1	Skip
80		1	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	Skip
82		1	Skip
83		1	Skip
84		1	Skip
85		1	Skip
86			Skip
87			Skip
88			Skip
89			Skip
90		5	
91		5	
92		5	
93			
94		5	
95		25	
96		5	
97		5	
98		5	
99		5	
100		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	
102		5	
103		5	
104		5	
105		5	
106		5	
107		5	

Sample List

108						
109						
110						
111						
112		5				
113		5				
114		5				
115		5				
116		5				
117		5				
118		5				
119		5				
120		5				

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	Sample	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	
122			
123			
124			
125			
126		5	
127		5	
128		5	
129			
130		5	
131		25	
132		5	
133		5	
134		5	
135		5	

Sample List

136	5
137	5
138	5
139	5
140	5

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	
142		5	
143		5	
144			
145			
146			
147			
148		5	
149		5	
150		5	
151		5	
152		5	
153		5	
154		5	
155		5	
156		5	
157		5	
158			
159			
160			

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			
162		5	
163		5	
164		5	
165			
166		5	
167		25	
168		5	
169		5	
170		5	
171		5	
172		5	
173		5	
174		5	
175		5	
176		5	
177		5	
178		5	
179		5	
180			

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	PB_W	MB-73610	MBLK200.8	3408
199	LCS_200	LCS-73610	LCS 200.8	3409
200	LCS_200	LCSD-73610	LCSD200.8	3410

#	Level	Dilution	Skip
181			
182			
183			
184		5	
185		5	
186		5	
187		5	
188		5	
189		5	
190		5	
191		5	
192		5	
193		5	
194			
195			
196			
197			
198		1	
199		1	
200		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	RINSE	CCB ICPMS_TW	1101	
202	AllRef	1602093-02A	SAMP200.8	3411	
203	SD	1602093-02A SD	SD 200.8	3412	
204	SAMP_W	1602094-01A	SAMP200.8	3501	
205	SAMP_W	1602097-01A	SAMP200.8	3502	
206	SAMP_W	1602097-02A	SAMP200.8	3503	
207	SAMP_W	1602058-01A	SAMP200.8	3504	
208	SAMP_W	1602111-01A	SAMP200.8	3505	
209	SAMP_W	1602093-01A	SAMP200.8	3506	
210	SAMP_W	1602098-01A	SAMP200.8	3507	
211	SAMP_W	1602098-02A	SAMP200.8	3508	
212	SAMP_W	1602098-03A	SAMP200.8	3509	
213	PDS	1602093-02A PDS	PDS 200.8	3510	
214	MS_W	1602093-02A MS	MS 200.8	3511	
215	MS_W	1602093-02A MSD	MSD 200.8	3512	
216	CCV	CCV11-160211	CCV ICPMS_TW	1207	
217	CCB	CCB11-160211	CCB ICPMS_TW	1102	

Sample List

218	LLCCV	LCVL11-160211	LCVLICPMS_TW	2510
219	CCB	CCB11-160211	CCB ICPMS_TW	1102
220	CCB	CCB11-160211	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
201			
202		1	
203		5	
204		1	
205		1	
206		1	
207		1	
208		1	
209		1	
210		1	
211		1	
212		1	
213		1	
214		1	
215		1	
216			
217			
218			
219			
220			

#	Sample Type	Sample Name	Comment	Vial#	File Name
221	CCB	CCB11-160211	CCB ICPMS_TW	1102	
222	CCB	CCB11-160211	CCB ICPMS_TW	1103	
223	CCB	CCB11-160211	CCB ICPMS_TW	1103	
224	CCB	CCB11-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
221			
222			
223			
224			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:30:00 AM**
Digestion:
Prep End Date:

Prep Batch **73575** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List
Hot Block #3
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601190-07A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601205-19A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601214-10A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601230-16A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601231-28A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601247-13A	Equip Blank		50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601285-19A	Equip Blank		50	50	1.000	1 of 1
1601289-07A	Equip Blank		50	50	1.000	1 of 1
LCS-73575	Aqueous		50	50	1.000	of
MB-73575	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	69	ml	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	1	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	1	ml	05/30/2025

9:40 - 1:40

REVIEWED BY
By Janice Whitt at 1:32:51 PM, 2/11/2016

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	04/19/2016

Cas Van Dyke 2/9/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26	
TEST DATE:	02/09/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	P-01, P-09	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

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

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

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

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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0065	4.9965	99.93	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0052	4.9952	99.90		
3		5.0061	4.9961	99.92		
AVERAGE (MEAN)		5.006	4.996	99.92		0.013
						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	0.2021	0.2017	100.85	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2009	0.2005	100.25		
3		0.2022	0.2018	100.90		
AVERAGE (MEAN)		0.202	0.201	100.66		0.359
						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)						

Cam VaRyle 2/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 1:33:00 PM, 2/11/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:30:00 AM**
Digestion: **Start: 2/9/2016 9:40:00 AM / Stop: 2/9/2016 1:40:00 PM**
Prep End Date: **2/9/2016 2:22:29 PM**

Prep Batch **73575** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #3
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601190-07A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601205-19A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601214-10A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601230-16A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601231-28A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601247-13A	Equip Blank	<2	50	50	1.000	1 of 1
see JD & Karyn before starting prep!						
1601285-19A	Equip Blank	<2	50	50	1.000	1 of 1
1601289-07A	Equip Blank	<2	50	50	1.000	1 of 1
LCS-73575	Aqueous		50	50	1.000	of
LSC only QC required.						
MB-73575	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	69	ml	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	1	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	1	ml	05/30/2025

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	04/19/2016

REVIEWED BY
By Janice Whitt at 1:32:55 PM, 2/11/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	Ryan Oliver	BALANCE #:	30	
TEST DATE:	02/11/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	See Below	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

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

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

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

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

PIPETTE ID: P-31	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0130	5.0030	100.06	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0156	5.0056	100.11		
3		5.0111	5.0011	100.02		
AVERAGE (MEAN)		5.013	5.003	100.06		0.045
						PASS

PIPETTE ID: P-21	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	MEAN CRITERIA (± 2%)	% RSD Calculated
1	1.00	1.0046	1.0026	100.26	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0055	1.0035	100.35		
3		1.0035	1.0015	100.15		
AVERAGE (MEAN)		1.005	1.003	100.25		0.100
						PASS

PIPETTE ID: P-19	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	MEAN CRITERIA (± 2%)	% RSD Calculated
1	0.500	0.5008	0.4998	99.96	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5000	0.4990	99.80		
3		0.5005	0.4995	99.90		
AVERAGE (MEAN)		0.500	0.499	99.89		0.081
						PASS

2/11/16

Analyst/ Date

REVIEWED BY
By Janice Whitt at 1:33:04 PM, 2/11/2016

Review and Approved / Date

Calibration Summary Report

Date Acquired 2/11/2016 10:09
Data Batch 160211.b

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

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0012 * x + 4.0986E-004
Be	1.0000	y = 4.2145E-005 * x + 5.0492E-006
B	1.0000	y = 1.6041E-005 * x + 0.0013
Na	1.0000	y = 7.3867E-004 * x + 0.1241
Mg	1.0000	y = 3.6206E-004 * x + 5.9939E-004
Al	1.0000	y = 1.3935E-004 * x + 7.2438E-004
K	1.0000	y = 4.1039E-004 * x + 0.0553
Ca	0.9999	y = 2.1328E-005 * x + 3.0899E-004
Ti	1.0000	y = 1.4346E-004 * x + 8.4928E-006
V	1.0000	y = 0.0044 * x + 0.0048
Cr	1.0000	y = 0.0052 * x + 0.0014
Mn	1.0000	y = 0.0030 * x + 9.1931E-005
Fe	1.0000	y = 0.0044 * x + 0.0069
Co	1.0000	y = 0.0112 * x + 6.8772E-005
Ni	1.0000	y = 0.0029 * x + 3.8739E-004
Cu	1.0000	y = 0.0081 * x + 0.0041
Zn	1.0000	y = 0.0014 * x + 3.4258E-004
Se	1.0000	y = 7.8347E-005 * x + 1.5354E-004
Sr	0.9999	y = 6.6703E-004 * x + 2.8777E-005
Mo	0.9999	y = 5.0226E-004 * x + 2.8798E-006
Ag	1.0000	y = 0.0015 * x + 9.1528E-006
Cd	1.0000	y = 2.3433E-004 * x + 1.3076E-006
Sn	0.9999	y = 5.4214E-004 * x + 8.3474E-005
Sb	1.0000	y = 7.7902E-004 * x + 3.7286E-005
Tl	1.0000	y = 0.0016 * x + 6.3451E-006
Ba	1.0000	y = 2.7004E-004 * x + 3.1401E-006
Pb	1.0000	y = 0.0021 * x + 2.2125E-004
Li	1.0000	y = 3.3115E-005 * x + 3.3795E-005

REVIEWED BY
By Janice Whitt at 1:33:09 PM, 2/11/2016

Calibration Summary Report

Level 7 Cal

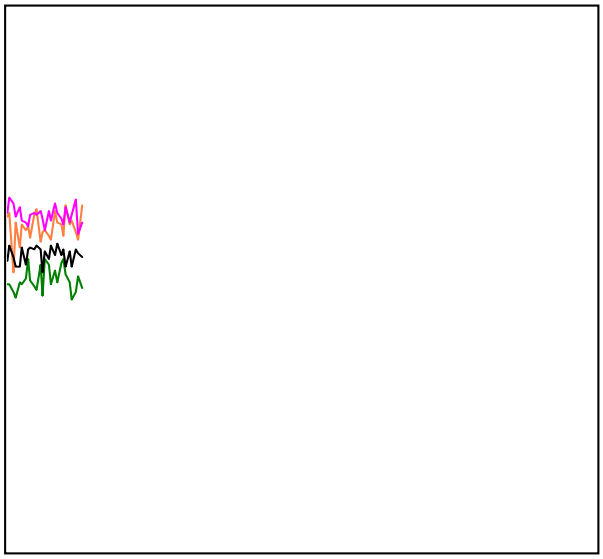
Ele	Conc	Calc	%Rec
As	500	500.19	100
Be	500	500.65	100
B	500	491.98	98
Na	10000	10135.77	101
Mg	10000	10013.92	100
Al	10000	9965.62	100
K	10000	9954.34	100
Ca	10000	9776.01	98
Ti	500	491.13	98
V	500	503.06	101
Cr	500	500.02	100
Mn	500	506.78	101
Fe	10000	9985.39	100
Co	500	505.29	101
Ni	500	516.35	103
Cu	500	513.28	103
Zn	500	508.16	102
Se	500	502.62	101
Sr	500	475.53	95
Mo	500	480.26	96
Ag	500	500.74	100
Cd	500	495.79	99
Sn	500	480.25	96
Sb	500	500.13	100
Tl	500	499.31	100
Ba	500	498.78	100
Pb	500	498.75	100

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.77	100
Be	2000	1999.70	100
B	2000	2003.75	100
Na	25000	24930.44	100
Mg	25000	24982.76	100
K	25000	25019.20	100
Ca	25000	25103.71	100
Ti	2000	2002.96	100
V	2000	1999.40	100
Cr	2000	1999.95	100
Mn	2000	1997.69	100
Co	2000	1998.22	100
Ni	2000	1994.82	100
Cu	2000	1995.61	100
Zn	2000	1996.91	100
Se	2000	1998.26	100
Sr	2000	2008.22	100
Mo	2000	2006.96	100
Cd	2000	2001.34	100
Sn	2000	2006.59	100
Tl	2000	1999.72	100
Ba	2000	2000.42	100
Pb	2000	2000.07	100
Li	2000	2001.70	100

REVIEWED BY
By Janice Whitt at 1:33:17 PM, 2/11/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	488	469.7	6.15
59	2000	970	998.7	4.43
89	2000	1276	1190.1	4.62
140	5000	3023	3086.3	2.71
205	5000	2703	2725.2	2.77
156/140	1	0.397 %	0.342 %	42.05
51	500	269	278.3	7.97
56	2000	1375	1349.5	3.62
75	20	7	10.2	37.34
78	50	11	17.1	28.73

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	0.8		

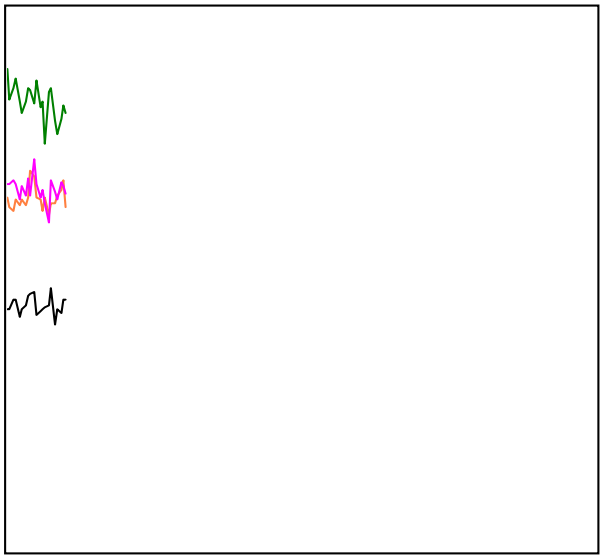
Cell Parameters

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

Meters

IF/BK Press	2.11E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.91E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1548	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	619	644.3	7.01
59	2000	1613	1652.6	4.03
89	5000	3161	3240.9	3.18
140	5000	3283	3327.2	3.39
205	5000	2313	2260.6	3.62
156/140	2	0.640 %	1.012 %	21.58
51	50000	45711	45364.8	1.97
56	500000	235037	235912.9	2.22
75	10000	5638	5758.9	1.61
78	5000	2524	2535.2	2.16

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

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

Meters

IF/BK Press	2.10E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.06E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1551	W			

US EPA Tune Check Sample Report

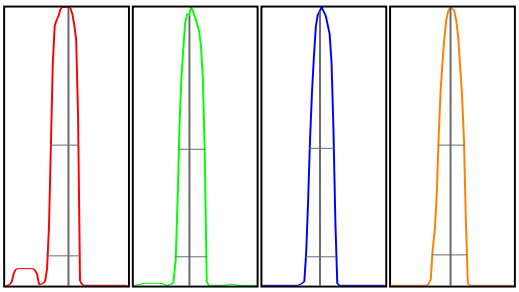
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	534704	1.02	5.00	
59	941453	1.23	5.00	
115	1653750	1.03	5.00	
205	1460212	1.45	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	533550	526966	533226	539263	540513
59	948990	921100	947093	943693	946389
115	1671687	1629463	1644343	1665399	1657858
205	1495345	1448627	1449294	1443357	1464439

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	82074	7.05	6.9 - 7.1		0.777	0.850	
59	158774	58.90	58.9 - 59.1		0.738	0.850	
115	300724	114.95	114.9 - 115.1		0.737	0.850	
205	250726	205.00	204.9 - 205.1		0.835	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	0.50	L/min	Makeup/Dilution Gas	0.55	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	9.9	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 1:33:21 PM, 2/11/2016

P/A Factor Tuning Report

========== Current Sample ==========
Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 02/11/2016 10:09:01

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1848 V
PulseHV: 1001 V

Acquired: 02/11/2016 09:34:13

Mass[u]	Element	P/A Factor
6	Li	0.107993
9	Be	0.119345
23	Na	0.126112
24	Mg	0.130717
27	Al	0.134962
39	K	0.137420
45	Sc	0.139263
48		0.139807
51	V	0.140606
52	Cr	0.144564
55	Mn	0.146422
59	Co	0.149854
60	Ni	0.150630
63	Cu	0.152433
66	Zn	0.152951
72		0.151718
74	Ge	0.152204
75	As	0.151776
88	Sr	0.152988
89		0.151579
95		0.151877
97	Mo	0.151763
98	Mo	0.152696
99	[Mo]	0.154122
101		0.153910
105		0.156808
111	Cd	0.158676
114	Cd	0.159510
115	In	0.159157
118	Sn	0.158444
121		0.158339
123	Sb	0.158311
135	Ba	0.157291
138		0.159919
175		0.164337
193		0.165694
205	Tl	0.167002
206	[Pb]	0.165897
207	[Pb]	0.166755
208	Pb	0.167681
209	Bi	0.167109
232		0.167037
238	U	0.167466
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 1:33:26 PM, 2/11/2016

Calibration Blank Report

Date Acquired	2/11/2016 10:09	Sample Name	BLANK STD 1
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	40	13.92
9	Be	45	6	50.00
11	B	45	1487	12.57
23	Na	45	147026	1.23
24	Mg	45	710	1.24
27	Al	45	858	9.12
39	K	45	65455	0.91
44	Ca	45	366	3.46
47	Ti	45	10	100.00
51	V	45	5704	1.27
52	Cr	45	1663	3.82
55	Mn	45	109	6.37
56	Fe	45	8199	4.23
59	Co	72	58	23.31
60	Ni	72	326	8.95
63	Cu	72	3440	3.19
66	Zn	72	288	22.05
75	As	72	344	10.81
78	Se	72	129	3.90
88	Sr	115	244	8.22
95	Mo	115	24	55.10
107	Ag	115	78	24.37
111	Cd	115	11	75.52
118	Sn	115	709	5.84
121	Sb	115	317	1.82
137	Ba	115	27	69.58
205	Tl	209	113	16.38
208	Pb	209	3954	5.62

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1184753	1.01
72	Ge	840651	0.48
115	In	8493915	0.52
209	Bi	17861880	1.91

Calibration Standard Report

Date Acquired	2/11/2016 10:11	Sample Name	L2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	74	27.92
9	Be	45	64	5.63
11	B	45	1443	4.09
23	Na	45	168610	0.43
24	Mg	45	9870	2.40
27	Al	45	4196	3.11
39	K	45	75308	1.06
44	Ca	45	849	6.64
47	Ti	45	160	15.02
51	V	45	11293	1.92
52	Cr	45	7973	1.07
55	Mn	45	3899	1.71
56	Fe	45	114405	1.08
59	Co	72	9909	2.36
60	Ni	72	3140	3.75
63	Cu	72	10819	1.32
66	Zn	72	1619	7.37
75	As	72	1401	2.90
78	Se	72	206	4.96
88	Sr	115	5728	1.11
95	Mo	115	4123	5.12
107	Ag	115	12867	0.42
111	Cd	115	2124	5.90
118	Sn	115	5199	3.39
121	Sb	115	7176	4.63
137	Ba	115	2279	3.72
205	Tl	209	29949	0.66
208	Pb	209	42556	0.94

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1167604	0.50	1184753	98.55	70	120	
72	Ge	833315	0.89	840651	99.13	70	120	
115	In	8374446	1.49	8493915	98.59	70	120	
209	Bi	17876407	0.21	17861880	100.08	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:13	Sample Name	L-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	409	6.88
9	Be	45	473	2.33
11	B	45	1391	2.54
23	Na	45	325741	0.70
24	Mg	45	88699	0.80
27	Al	45	34548	1.01
39	K	45	163070	0.73
44	Ca	45	5268	2.04
47	Ti	45	1722	7.18
51	V	45	58776	1.43
52	Cr	45	63758	1.47
55	Mn	45	37455	1.31
56	Fe	45	1063777	0.61
59	Co	72	98079	0.70
60	Ni	72	26816	1.40
63	Cu	72	75521	0.35
66	Zn	72	12839	2.59
75	As	72	10758	0.61
78	Se	72	848	2.64
88	Sr	115	54230	1.04
95	Mo	115	41441	2.24
107	Ag	115	126650	0.86
111	Cd	115	20348	2.46
118	Sn	115	45100	0.94
121	Sb	115	67842	0.53
137	Ba	115	22882	1.53
205	Tl	209	288951	0.19
208	Pb	209	393739	0.37

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1158016	0.81	1184753	97.74	70	120	
72	Ge	830667	0.87	840651	98.81	70	120	
115	In	8294239	2.05	8493915	97.65	70	120	
209	Bi	18095999	0.83	17861880	101.31	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:15	Sample Name	10X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1977	2.57
9	Be	45	2439	2.53
11	B	45	2195	3.91
23	Na	45	1005870	0.24
24	Mg	45	425249	0.65
27	Al	45	163164	1.12
39	K	45	542996	0.20
44	Ca	45	24948	2.17
47	Ti	45	8241	1.78
51	V	45	260331	0.78
52	Cr	45	302128	0.43
55	Mn	45	180444	0.33
56	Fe	45	5184295	0.15
59	Co	72	478322	0.24
60	Ni	72	128931	0.60
63	Cu	72	351761	0.67
66	Zn	72	61977	0.57
75	As	72	51402	0.34
78	Se	72	3473	1.92
88	Sr	115	265890	0.71
95	Mo	115	198828	0.52
107	Ag	115	618442	0.64
111	Cd	115	98576	0.98
118	Sn	115	218110	1.31
121	Sb	115	326284	1.89
137	Ba	115	112318	0.79
205	Tl	209	1411926	1.06
208	Pb	209	1887750	1.17

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1165132	0.11	1184753	98.34	70	120	
72	Ge	827538	1.30	840651	98.44	70	120	
115	In	8417971	0.31	8493915	99.11	70	120	
209	Bi	17650108	1.70	17861880	98.81	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:17	Sample Name	5X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	3825	2.75
9	Be	45	4977	3.33
11	B	45	3234	2.40
23	Na	45	1890800	0.64
24	Mg	45	857591	0.34
27	Al	45	328156	0.42
39	K	45	1015322	0.20
44	Ca	45	49361	0.42
47	Ti	45	16778	1.67
51	V	45	520316	0.44
52	Cr	45	611083	0.68
55	Mn	45	365350	0.62
56	Fe	45	10625381	0.57
59	Co	72	956297	0.09
60	Ni	72	254913	0.68
63	Cu	72	699385	0.40
66	Zn	72	123033	0.41
75	As	72	102914	0.83
78	Se	72	6829	2.79
88	Sr	115	531111	0.92
95	Mo	115	397973	0.22
107	Ag	115	1234338	0.54
111	Cd	115	196664	0.71
118	Sn	115	438022	0.71
121	Sb	115	649258	0.74
137	Ba	115	224693	0.58
205	Tl	209	2838152	0.67
208	Pb	209	3830880	0.65

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1177682	0.41	1184753	99.40	70	120	
72	Ge	827010	1.03	840651	98.38	70	120	
115	In	8438848	1.74	8493915	99.35	70	120	
209	Bi	17711136	1.55	17861880	99.16	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:19	Sample Name	2X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9658	2.11
9	Be	45	12322	1.23
11	B	45	5971	2.42
23	Na	45	4505098	0.40
24	Mg	45	2129433	0.12
27	Al	45	823070	0.52
39	K	45	2455942	0.28
44	Ca	45	123246	1.36
47	Ti	45	40830	1.12
51	V	45	1283104	0.37
52	Cr	45	1517387	0.80
55	Mn	45	901721	0.98
56	Fe	45	25709917	1.58
59	Co	72	2361605	0.90
60	Ni	72	630953	1.05
63	Cu	72	1734104	0.59
66	Zn	72	308629	1.06
75	As	72	256677	0.50
78	Se	72	16922	0.74
88	Sr	115	1326851	0.49
95	Mo	115	1002555	0.20
107	Ag	115	3060369	0.53
111	Cd	115	489532	0.64
118	Sn	115	1092795	0.63
121	Sb	115	1643531	0.11
137	Ba	115	568399	0.15
205	Tl	209	7273682	1.34
208	Pb	209	9627007	0.36

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1163620	0.45	1184753	98.22	70	120	
72	Ge	834344	1.06	840651	99.25	70	120	
115	In	8428006	0.92	8493915	99.22	70	120	
209	Bi	18038290	0.41	17861880	100.99	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:21	Sample Name	H-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	19203	1.27
9	Be	45	24724	1.25
11	B	45	10720	5.01
23	Na	45	8915586	0.56
24	Mg	45	4247903	0.15
27	Al	45	1627604	0.43
39	K	45	4849998	0.40
44	Ca	45	244621	0.65
47	Ti	45	82550	1.31
51	V	45	2602857	0.81
52	Cr	45	3046407	0.83
55	Mn	45	1810611	0.38
56	Fe	45	51586214	1.31
59	Co	72	4739701	0.46
60	Ni	72	1272433	0.22
63	Cu	72	3472262	0.21
66	Zn	72	611505	0.75
75	As	72	512239	0.37
78	Se	72	33032	0.45
88	Sr	115	2666337	1.04
95	Mo	115	2027628	0.80
107	Ag	115	6152755	0.45
111	Cd	115	976533	0.32
118	Sn	115	2189262	1.03
121	Sb	115	3275287	0.75
137	Ba	115	1132236	1.47
205	Tl	209	14482301	2.11
208	Pb	209	19307726	1.70

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1171532	1.22	1184753	98.88	70	120	
72	Ge	835596	0.49	840651	99.40	70	120	
115	In	8405773	0.77	8493915	98.96	70	120	
209	Bi	18221030	1.28	17861880	102.01	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:23	Sample Name	H2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	76770	1.19
9	Be	45	97562	0.30
11	B	45	38658	2.26
23	Na	45	21460194	1.76
24	Mg	45	10471711	1.81
27	Al	45	1873	7.72
39	K	45	11949321	1.64
44	Ca	45	620161	1.31
47	Ti	45	332625	0.94
51	V	45	10205493	0.21
52	Cr	45	12035506	1.01
55	Mn	45	7052917	1.77
56	Fe	45	37438	11.43
59	Co	72	18515582	2.40
60	Ni	72	4854920	0.70
63	Cu	72	13324408	1.66
66	Zn	72	2372747	0.50
75	As	72	2021874	0.73
78	Se	72	129347	0.47
88	Sr	115	10956976	2.18
95	Mo	115	8244820	0.61
107	Ag	115	2351	18.12
111	Cd	115	3835832	1.01
118	Sn	115	8898526	1.12
121	Sb	115	2701	10.10
137	Ba	115	4418330	0.27
205	Tl	209	56166661	0.67
208	Pb	209	74961575	0.74

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1157576	0.50	1184753	97.71	70	120	
72	Ge	825387	0.62	840651	98.18	70	120	
115	In	8179208	0.22	8493915	96.29	70	120	
209	Bi	17647678	1.52	17861880	98.80	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	2/11/2016 10:31	Sample Name	ICSA-160211
Data Batch	160211.b	Comment	ICSAICPMS_TW
Data File Name	023ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.102	11	44.3	1.2	0.8	
11	B	14.663	1702	2.6	30	30	
51	V	0.043	5710	4.0	10	10	
52	Cr	0.301	3390	2.1	8	5	
55	Mn	1.285	4576	2.1	8	10	
59	Co	0.583	5385	1.8	8	10	
60	Ni	0.338	1127	2.0	8	10	
63	Cu	0.514	6709	3.5	8	10	
66	Zn	1.537	2078	2.4	10	5	
75	As	0.205	538	4.1	4	5	
78	Se	0.428	152	17.9	2	5	
88	Sr	1.690	9221	1.3	10	10	
107	Ag	0.443	5243	0.4	0.8	2	
111	Cd	0.605	1141	7.6	1.2	1	
118	Sn	0.503	2844	6.5	10	10	
121	Sb	0.282	2048	3.6	4	2.5	
137	Ba	0.351	781	3.1	8	10	
205	Tl	0.040	1151	0.7	4	1.5	
208	Pb	0.524	22130	0.1	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141506	0.81	1184753	96.35	70	120	
72	Ge	813608	1.04	840651	96.78	70	120	
115	In	7977859	0.58	8493915	93.92	70	120	
209	Bi	16578181	0.95	17861880	92.81	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	2/11/2016 10:33	Sample Name	ICSAB-160211
Data Batch	160211.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	37.404	194546	0.55	40	93.5	80	120	
52	Cr	45	19.494	117807	1.19	20	97.5	80	120	
55	Mn	45	18.693	65478	0.49	20	93.5	80	120	
59	Co	72	37.580	345139	1.28	40	94.0	80	120	
60	Ni	72	35.599	86178	1.43	40	89.0	80	120	
63	Cu	72	19.382	131579	0.49	20	96.9	80	120	
66	Zn	72	18.739	22346	0.31	20	93.7	80	120	
75	As	72	18.972	19343	0.11	20	94.9	80	120	
78	Se	72	19.480	1374	2.93	20	97.4	80	120	
107	Ag	115	18.482	217117	1.51	20	92.4	80	120	
111	Cd	115	9.572	18029	2.30	10	95.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1146691	0.59	1184753	96.79	70	120	
72	Ge	818060	0.62	840651	97.31	70	120	
115	In	8033501	0.63	8493915	94.58	70	120	
209	Bi	16755728	1.69	17861880	93.81	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	2/11/2016 10:41	Sample Name	ICV-160211
Data Batch	160211.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	100.209	4007	1.41	100	100.2	90	110	
9	Be	45	98.965	4993	1.62	100	99.0	90	110	
11	B	45	84.046	3113	3.86	100	84.0	90	110	Fail
23	Na	45	2517.869	2371893	0.91	2500	100.7	90	110	
24	Mg	45	2567.934	1112203	1.08	2500	102.7	90	110	
27	Al	45	2503.980	418003	1.58	2500	100.2	90	110	
39	K	45	2457.983	1272045	0.49	2500	98.3	90	110	
44	Ca	45	2354.173	60399	1.04	2500	94.2	90	110	
47	Ti	45	99.882	17137	3.48	100	99.9	90	110	
51	V	45	100.734	536502	1.03	100	100.7	90	110	
52	Cr	45	101.940	635150	0.81	100	101.9	90	110	
55	Mn	45	98.754	360185	1.04	100	98.8	90	110	
56	Fe	45	2590.795	13663627	1.60	2500	103.6	90	110	
59	Co	72	103.157	980742	1.17	100	103.2	90	110	
60	Ni	72	103.552	258900	0.99	100	103.6	90	110	
63	Cu	72	102.978	708804	0.62	100	103.0	90	110	
66	Zn	72	101.985	124605	1.21	100	102.0	90	110	
75	As	72	100.615	104706	0.35	100	100.6	90	110	
78	Se	72	101.941	6894	2.07	100	101.9	90	110	
88	Sr	115	96.079	548435	0.56	100	96.1	90	110	
95	Mo	115	95.506	410327	1.10	100	95.5	90	110	
107	Ag	115	103.195	1290503	0.69	100	103.2	90	110	
111	Cd	115	99.442	199335	1.46	100	99.4	90	110	
118	Sn	115	99.242	460892	1.18	100	99.2	90	110	
121	Sb	115	101.731	678219	1.20	100	101.7	90	110	
137	Ba	115	100.129	231308	0.55	100	100.1	90	110	
205	Tl	209	97.975	2890054	0.55	100	98.0	90	110	
208	Pb	209	99.683	3927898	0.80	100	99.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195723	1.32	1184753	100.93	70	120	
72	Ge	846983	1.27	840651	100.75	70	120	
115	In	8556463	2.07	8493915	100.74	70	120	
209	Bi	18537601	2.64	17861880	103.78	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 10:46	Sample Name	LCVL-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	030LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.127	475	8.19	10	111.3	70	130	
9	Be	45	1.101	61	15.58	1	110.1	70	130	
11	B	45	-3.052	1425	10.65	20	-15.3	70	130	Fail
23	Na	45	101.479	234920	0.69	100	101.5	70	130	
24	Mg	45	108.199	46936	0.63	100	108.2	70	130	
27	Al	45	113.232	19474	3.17	100	113.2	70	130	
39	K	45	106.246	116654	0.60	100	106.2	70	130	
44	Ca	45	107.558	3071	2.26	100	107.6	70	130	
47	Ti	45	5.322	911	2.79	5	106.4	70	130	
51	V	45	1.250	12181	1.82	1	125.0	70	130	
52	Cr	45	5.194	33515	1.05	5	103.9	70	130	
55	Mn	45	5.164	18691	1.05	5	103.3	70	130	
56	Fe	45	104.137	549965	0.89	100	104.1	70	130	
59	Co	72	5.233	49631	1.37	5	104.7	70	130	
60	Ni	72	5.313	13546	0.75	5	106.3	70	130	
63	Cu	72	5.286	39537	2.04	5	105.7	70	130	
66	Zn	72	5.545	7025	3.80	5	110.9	70	130	
75	As	72	5.100	5618	2.50	5	102.0	70	130	
78	Se	72	5.466	491	2.84	5	109.3	70	130	
88	Sr	115	4.828	27783	0.89	5	96.6	70	130	
95	Mo	115	4.858	20889	1.31	5	97.2	70	130	
107	Ag	115	2.081	26081	0.98	2	104.0	70	130	
111	Cd	115	1.048	2110	4.35	1	104.8	70	130	
118	Sn	115	5.121	24452	0.98	5	102.4	70	130	
121	Sb	115	2.025	13806	1.71	2	101.3	70	130	
137	Ba	115	4.947	11449	2.09	5	98.9	70	130	
205	Tl	209	1.022	29325	1.36	1	102.2	70	130	
208	Pb	209	0.999	42091	1.68	1	99.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1180059	0.66	1184753	99.60	70	120	
72	Ge	843888	0.73	840651	100.39	70	120	
115	In	8551879	1.93	8493915	100.68	70	120	
209	Bi	17961075	1.94	17861880	100.56	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	2/11/2016 10:50	Sample Name	ICB-160211
Data Batch	160211.b	Comment	ICB ICPMS_TW
Data File Name	032_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.000	40	20.5	2	5	
9	Be	45	0.014	7	91.7	0.4	0.3	
11	B	45	-20.047	1106	7.5	10	10	
23	Na	45	-1.867	145216	0.4	50	100	
24	Mg	45	0.204	797	8.9	50	100	
27	Al	45	4.082	1530	3.2	50	10	
39	K	45	5.941	68259	0.7	50	100	
44	Ca	45	-0.693	348	3.5	50	100	
47	Ti	45	-0.033	4	43.4	4	3	
51	V	45	0.224	6863	3.2	4	3	
52	Cr	45	0.027	1830	7.6	2	2	
55	Mn	45	0.014	160	16.3	2	3	
56	Fe	45	0.573	11176	3.8	50	50	
59	Co	72	0.001	70	17.2	2	3	
60	Ni	72	-0.022	277	9.4	2	3	
63	Cu	72	-0.057	3104	3.8	2	2	
66	Zn	72	0.079	390	12.4	4	2	
75	As	72	-0.012	338	8.7	2	2	
78	Se	72	0.251	148	8.1	1	2	
88	Sr	115	0.005	272	10.3	4	3	
95	Mo	115	0.009	62	3.1	2	2	
107	Ag	115	0.008	178	14.1	0.4	1	
111	Cd	115	0.000	11	62.5	0.4	0.3	
118	Sn	115	0.084	1084	7.2	4	3	
121	Sb	115	-0.010	247	12.9	2	0.8	
137	Ba	115	0.008	43	66.6	2	3	
205	Tl	209	0.006	277	8.7	2	0.5	
208	Pb	209	-0.036	2602	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1183169	0.38	1184753	99.87	70	120	
72	Ge	854937	0.34	840651	101.70	70	120	
115	In	8420624	1.01	8493915	99.14	70	120	
209	Bi	17894220	1.85	17861880	100.18	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 12:11	Sample Name	CCV3-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	071_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	196.572	7771	2.09	200	98.3	90	110	
9	Be	45	196.373	9833	0.17	200	98.2	90	110	
11	B	45	165.063	4634	4.32	200	82.5	90	110	Fail
23	Na	45	5402.948	4887187	2.14	5000	108.1	90	110	
24	Mg	45	4976.352	2140078	0.89	5000	99.5	90	110	
27	Al	45	4914.494	814077	0.51	5000	98.3	90	110	
39	K	45	5049.184	2526163	0.10	5000	101.0	90	110	
44	Ca	45	4876.577	123880	0.94	5000	97.5	90	110	
47	Ti	45	197.646	33686	3.32	200	98.8	90	110	
51	V	45	201.843	1062075	1.34	200	100.9	90	110	
52	Cr	45	199.207	1231277	0.41	200	99.6	90	110	
55	Mn	45	202.421	733237	0.80	200	101.2	90	110	
56	Fe	45	4954.703	25950523	0.94	5000	99.1	90	110	
59	Co	72	202.873	1918146	0.66	200	101.4	90	110	
60	Ni	72	205.092	509631	0.33	200	102.5	90	110	
63	Cu	72	207.164	1414623	0.47	200	103.6	90	110	
66	Zn	72	204.445	248152	0.85	200	102.2	90	110	
75	As	72	200.951	207635	0.79	200	100.5	90	110	
78	Se	72	201.754	13442	2.32	200	100.9	90	110	
88	Sr	115	191.459	1077282	0.85	200	95.7	90	110	
95	Mo	115	190.472	806799	0.36	200	95.2	90	110	
107	Ag	115	200.362	2470027	0.33	200	100.2	90	110	
111	Cd	115	199.735	394724	0.44	200	99.9	90	110	
118	Sn	115	192.081	878887	0.28	200	96.0	90	110	
121	Sb	115	199.226	1309124	0.29	200	99.6	90	110	
137	Ba	115	198.577	452238	0.17	200	99.3	90	110	
205	Tl	209	199.207	5653522	1.03	200	99.6	90	110	
208	Pb	209	201.715	7643993	0.14	200	100.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1187576	1.29	1184753	100.24	70	120	
72	Ge	842239	0.31	840651	100.19	70	120	
115	In	8434208	1.43	8493915	99.30	70	120	
209	Bi	17835810	1.94	17861880	99.85	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 12:15	Sample Name	LCVL3-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	073LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.106	439	10.70	10	101.1	70	130	
9	Be	45	1.128	63	23.52	1	112.8	70	130	
11	B	45	-4.071	1417	7.58	20	-20.4	70	130	Fail
23	Na	45	135.006	266396	1.37	100	135.0	70	130	Fail
24	Mg	45	107.701	47126	1.66	100	107.7	70	130	
27	Al	45	111.973	19433	0.84	100	112.0	70	130	
39	K	45	115.066	121969	0.49	100	115.1	70	130	
44	Ca	45	113.686	3254	1.21	100	113.7	70	130	
47	Ti	45	4.785	828	10.51	5	95.7	70	130	
51	V	45	1.291	12502	0.44	1	129.1	70	130	
52	Cr	45	5.224	33988	3.08	5	104.5	70	130	
55	Mn	45	5.182	18920	1.01	5	103.6	70	130	
56	Fe	45	103.664	552250	0.28	100	103.7	70	130	
59	Co	72	5.228	49988	1.59	5	104.6	70	130	
60	Ni	72	5.306	13638	0.46	5	106.1	70	130	
63	Cu	72	5.377	40480	0.48	5	107.5	70	130	
66	Zn	72	5.705	7277	3.72	5	114.1	70	130	
75	As	72	5.162	5727	0.70	5	103.2	70	130	
78	Se	72	5.666	508	2.62	5	113.3	70	130	
88	Sr	115	4.968	28359	1.06	5	99.4	70	130	
95	Mo	115	4.930	21031	0.87	5	98.6	70	130	
107	Ag	115	2.121	26381	1.04	2	106.0	70	130	
111	Cd	115	1.024	2045	3.11	1	102.4	70	130	
118	Sn	115	5.236	24796	1.13	5	104.7	70	130	
121	Sb	115	2.147	14505	1.77	2	107.4	70	130	
137	Ba	115	5.216	11978	4.95	5	104.3	70	130	
205	Tl	209	1.025	29440	1.46	1	102.5	70	130	
208	Pb	209	0.981	41433	1.80	1	98.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1190384	1.44	1184753	100.48	70	120	
72	Ge	850753	0.67	840651	101.20	70	120	
115	In	8487466	2.72	8493915	99.92	70	120	
209	Bi	17978934	1.15	17861880	100.66	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 12:18	Sample Name	CCB3-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	074_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.172	34	11.2	2	5	
9	Be	45	0.052	9	17.6	0.4	0.3	
11	B	45	-29.344	941	8.2	10	10	
23	Na	45	-0.765	148093	1.2	50	100	
24	Mg	45	-0.053	696	4.3	50	100	
27	Al	45	12.264	2917	2.1	50	10	FailAq
39	K	45	7.846	70089	1.0	50	100	
44	Ca	45	0.363	380	10.6	50	100	
47	Ti	45	-0.046	2	86.6	4	3	
51	V	45	0.249	7086	1.2	4	3	
52	Cr	45	0.047	1975	2.0	2	2	
55	Mn	45	0.020	184	27.4	2	3	
56	Fe	45	0.429	10565	3.5	50	50	
59	Co	72	0.003	89	10.8	2	3	
60	Ni	72	-0.008	314	2.7	2	3	
63	Cu	72	-0.031	3308	5.5	2	2	
66	Zn	72	0.106	428	17.5	4	2	
75	As	72	-0.028	324	3.8	2	2	
78	Se	72	0.475	164	8.6	1	2	
88	Sr	115	0.018	349	16.6	4	3	
95	Mo	115	0.008	58	16.6	2	2	
107	Ag	115	0.019	319	8.5	0.4	1	
111	Cd	115	-0.001	10	120.2	0.4	0.3	
118	Sn	115	0.038	888	6.8	4	3	
121	Sb	115	0.028	506	18.0	2	0.8	
137	Ba	115	0.011	51	16.4	2	3	
205	Tl	209	0.007	318	6.8	2	0.5	
208	Pb	209	-0.058	1790	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1198711	0.53	1184753	101.18	70	120	
72	Ge	862210	0.98	840651	102.56	70	120	
115	In	8540032	0.37	8493915	100.54	70	120	
209	Bi	18135972	1.91	17861880	101.53	70	120	

Method Blank Report

Date Acquired	2/11/16 12:20 PM	Sample Name	MB-73575
Data Batch	160211.b	Comment	MBLKICPMS_TWDOD
Data File Name	075_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.194	33	17.41		
9	Be	45	0.006	6	65.74		
11	B	45	-22.342	1071	10.98		
23	Na	45	-5.217	143489	0.52		
24	Mg	45	2.342	1727	4.15		
27	Al	45	3.001	1363	3.70		
39	K	45	9.349	70502	1.10		
44	Ca	45	10.584	638	13.29		
47	Ti	45	0.031	16	101.28		
51	V	45	0.496	8353	1.60		
52	Cr	45	0.068	2096	2.87		
55	Mn	45	0.069	361	12.40		
56	Fe	45	2.298	20350	0.64		
59	Co	72	0.003	91	8.45		
60	Ni	72	0.022	392	2.73		
63	Cu	72	0.228	5153	2.30		
66	Zn	72	0.676	1142	12.92		
75	As	72	0.016	373	1.45		
78	Se	72	0.384	159	2.84		
88	Sr	115	0.030	427	13.05		
95	Mo	115	0.009	66	44.43		
107	Ag	115	0.016	283	5.13		
111	Cd	115	0.001	13	66.12		
118	Sn	115	0.080	1107	2.11		
121	Sb	115	0.032	542	15.26		
137	Ba	115	0.070	193	14.11		
205	Tl	209	0.007	326	11.78		
208	Pb	209	-0.054	1995	7.99		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1193162	0.67	1184753	100.71	70	120	
72	Ge	868351	0.71	840651	103.30	70	120	
115	In	8716271	2.56	8493915	102.62	70	120	
209	Bi	18737820	2.26	17861880	104.90	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 12:22	Sample Name	LCS-73575
Data Batch	160211.b	Comment	LCS ICPMS_TWDOD
Data File Name	076_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	201.080	7920	0.65	200	100.5	80	120	
9	Be	45	205.038	10231	0.82	200	102.5	80	120	
11	B	45	170.965	4732	4.77	200	85.5	80	120	
23	Na	45	5015.360	4530670	0.62	5000	100.3	80	120	
24	Mg	45	4984.169	2136055	0.81	5000	99.7	80	120	
27	Al	45	4955.246	817979	0.40	5000	99.1	80	120	
39	K	45	4931.296	2460147	0.81	5000	98.6	80	120	
44	Ca	45	4766.398	120662	0.64	5000	95.3	80	120	
47	Ti	45	193.282	32823	1.46	200	96.6	80	120	
51	V	45	199.346	1045299	0.60	200	99.7	80	120	
52	Cr	45	199.045	1225971	0.36	200	99.5	80	120	
55	Mn	45	200.982	725453	0.81	200	100.5	80	120	
56	Fe	45	5029.444	26247893	0.49	5000	100.6	80	120	
59	Co	72	201.048	1908888	0.67	200	100.5	80	120	
60	Ni	72	204.487	510268	0.49	200	102.2	80	120	
63	Cu	72	204.106	1399686	0.38	200	102.1	80	120	
66	Zn	72	200.927	244911	0.59	200	100.5	80	120	
75	As	72	198.355	205818	0.62	200	99.2	80	120	
78	Se	72	199.430	13345	0.66	200	99.7	80	120	
88	Sr	115	186.962	1062364	0.16	200	93.5	80	120	
95	Mo	115	189.483	810561	0.27	200	94.7	80	120	
107	Ag	115	197.436	2458062	1.30	200	98.7	80	120	
111	Cd	115	195.410	389994	0.52	200	97.7	80	120	
118	Sn	115	191.086	883010	0.23	200	95.5	80	120	
121	Sb	115	196.018	1300842	0.54	200	98.0	80	120	
137	Ba	115	195.777	450283	0.63	200	97.9	80	120	
205	Tl	209	196.470	5692685	0.75	200	98.2	80	120	
208	Pb	209	197.565	7643593	0.55	200	98.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1183331	0.40	1184753	99.88	70	120	
72	Ge	845794	0.23	840651	100.61	70	120	
115	In	8516738	0.17	8493915	100.27	70	120	
209	Bi	18208664	1.99	17861880	101.94	70	120	

Sample Report

Date Acquired	2/11/16 12:34 PM	Sample Name	1601231-28A
Data Batch	160211.b	Comment	SAMPICPMS_TWDOD
Data File Name	082_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.394	24	11.02	2000	
9	Be	45	-0.052	3	147.99	2000	
11	B	45	-12.935	1212	3.66	2000	
23	Na	45	57.125	192324	0.57	25000	
24	Mg	45	2.835	1880	3.89	25000	
27	Al	45	29.369	5571	2.11	10000	J
39	K	45	16.929	71928	0.57	25000	
44	Ca	45	31.465	1133	3.17	25000	
47	Ti	45	0.148	34	106.59	2000	
51	V	45	0.503	8132	1.78	2000	
52	Cr	45	0.252	3138	3.10	2000	
55	Mn	45	0.122	536	6.27	2000	
56	Fe	45	3.981	28303	2.17	10000	
59	Co	72	0.006	111	12.49	2000	
60	Ni	72	0.097	566	3.02	2000	
63	Cu	72	0.144	4425	5.63	2000	
66	Zn	72	0.513	910	4.03	2000	
75	As	72	0.042	389	4.02	2000	
78	Se	72	0.261	146	0.77	2000	
88	Sr	115	0.163	1131	7.20	2000	
95	Mo	115	0.012	74	36.47	2000	
107	Ag	115	0.011	212	3.27	500	
111	Cd	115	0.001	12	83.33	2000	
118	Sn	115	0.002	693	0.96	2000	
121	Sb	115	0.002	320	18.25	500	
137	Ba	115	0.088	222	26.68	2000	
205	Tl	209	0.002	163	5.40	2000	
208	Pb	209	-0.026	2991	3.52	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1156418	0.71	1184753	97.61	70	120	
72	Ge	841598	1.12	840651	100.11	70	120	
115	In	8214311	1.00	8493915	96.71	70	120	
209	Bi	17989039	0.51	17861880	100.71	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 12:42	Sample Name	CCV4-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	086_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	202.980	7911	2.28	200	101.5	90	110	
9	Be	45	205.332	10139	1.54	200	102.7	90	110	
11	B	45	158.661	4451	3.22	200	79.3	90	110	Fail
23	Na	45	5091.441	4549065	0.78	5000	101.8	90	110	
24	Mg	45	5078.721	2153859	0.47	5000	101.6	90	110	
27	Al	45	4971.832	812187	0.94	5000	99.4	90	110	
39	K	45	5037.468	2485485	0.45	5000	100.7	90	110	
44	Ca	45	4848.692	121465	1.27	5000	97.0	90	110	
47	Ti	45	198.258	33314	0.68	200	99.1	90	110	
51	V	45	201.207	1043888	0.83	200	100.6	90	110	
52	Cr	45	202.015	1231166	0.39	200	101.0	90	110	
55	Mn	45	204.493	730362	0.78	200	102.2	90	110	
56	Fe	45	5037.466	26017333	2.12	5000	100.7	90	110	
59	Co	72	202.234	1911112	0.68	200	101.1	90	110	
60	Ni	72	203.897	506392	0.45	200	101.9	90	110	
63	Cu	72	205.858	1404969	1.16	200	102.9	90	110	
66	Zn	72	204.059	247543	0.84	200	102.0	90	110	
75	As	72	198.844	205360	0.69	200	99.4	90	110	
78	Se	72	202.158	13462	0.33	200	101.1	90	110	
88	Sr	115	188.222	1062688	0.72	200	94.1	90	110	
95	Mo	115	190.454	809487	0.64	200	95.2	90	110	
107	Ag	115	199.595	2469127	0.77	200	99.8	90	110	
111	Cd	115	199.110	394876	1.01	200	99.6	90	110	
118	Sn	115	190.845	876317	0.86	200	95.4	90	110	
121	Sb	115	197.412	1301752	0.64	200	98.7	90	110	
137	Ba	115	197.708	451809	0.63	200	98.9	90	110	
205	Tl	209	199.290	5742748	0.24	200	99.6	90	110	
208	Pb	209	199.813	7687170	0.29	200	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171053	1.25	1184753	98.84	70	120	
72	Ge	841833	0.73	840651	100.14	70	120	
115	In	8465060	2.29	8493915	99.66	70	120	
209	Bi	18106015	1.70	17861880	101.37	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 12:46	Sample Name	LCVL4-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	088LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.799	423	5.48	10	98.0	70	130	
9	Be	45	1.007	56	21.43	1	100.7	70	130	
11	B	45	-6.752	1354	1.68	20	-33.8	70	130	Fail
23	Na	45	81.848	217741	0.49	100	81.8	70	130	
24	Mg	45	106.805	46325	1.10	100	106.8	70	130	
27	Al	45	115.688	19872	1.59	100	115.7	70	130	
39	K	45	111.178	119006	0.08	100	111.2	70	130	
44	Ca	45	117.880	3330	3.89	100	117.9	70	130	
47	Ti	45	5.121	877	1.74	5	102.4	70	130	
51	V	45	1.395	12932	2.54	1	139.5	70	130	Fail
52	Cr	45	5.198	33532	0.25	5	104.0	70	130	
55	Mn	45	5.115	18513	1.83	5	102.3	70	130	
56	Fe	45	103.873	548441	0.50	100	103.9	70	130	
59	Co	72	5.181	49585	0.42	5	103.6	70	130	
60	Ni	72	5.272	13565	0.97	5	105.4	70	130	
63	Cu	72	5.100	38609	2.19	5	102.0	70	130	
66	Zn	72	5.651	7218	1.17	5	113.0	70	130	
75	As	72	5.137	5707	2.25	5	102.7	70	130	
78	Se	72	5.456	495	4.31	5	109.1	70	130	
88	Sr	115	4.949	28141	1.09	5	99.0	70	130	
95	Mo	115	4.918	20899	1.35	5	98.4	70	130	
107	Ag	115	2.136	26462	0.22	2	106.8	70	130	
111	Cd	115	1.018	2028	6.50	1	101.8	70	130	
118	Sn	115	5.203	24546	2.00	5	104.1	70	130	
121	Sb	115	2.113	14228	0.98	2	105.7	70	130	
137	Ba	115	4.985	11402	1.29	5	99.7	70	130	
205	Tl	209	1.014	29475	0.30	1	101.4	70	130	
208	Pb	209	0.974	41630	1.21	1	97.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179693	0.40	1184753	99.57	70	120	
72	Ge	851525	0.88	840651	101.29	70	120	
115	In	8451510	1.25	8493915	99.50	70	120	
209	Bi	18186517	0.66	17861880	101.82	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 12:49	Sample Name	CCB4-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	089_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.390	25	34.0	2	5	
9	Be	45	0.001	6	16.7	0.4	0.3	
11	B	45	-28.908	934	10.0	10	10	
23	Na	45	-22.525	126722	0.5	50	100	
24	Mg	45	-0.437	520	8.3	50	100	
27	Al	45	7.265	2048	2.2	50	10	
39	K	45	5.656	67882	0.7	50	100	
44	Ca	45	1.333	398	9.7	50	100	
47	Ti	45	-0.026	6	124.9	4	3	
51	V	45	0.276	7112	5.4	4	3	
52	Cr	45	0.045	1933	2.9	2	2	
55	Mn	45	0.024	193	19.0	2	3	
56	Fe	45	0.391	10194	0.7	50	50	
59	Co	72	0.011	167	35.4	2	3	
60	Ni	72	0.007	346	19.4	2	3	
63	Cu	72	-0.105	2747	4.8	2	2	
66	Zn	72	0.193	526	17.8	4	2	
75	As	72	-0.004	344	7.8	2	2	
78	Se	72	0.126	139	8.2	1	2	
88	Sr	115	0.010	303	6.7	4	3	
95	Mo	115	0.012	78	13.8	2	2	
107	Ag	115	0.020	321	19.3	0.4	1	
111	Cd	115	0.004	19	62.0	0.4	0.3	
118	Sn	115	0.013	771	5.9	4	3	
121	Sb	115	0.017	431	9.2	2	0.8	
137	Ba	115	0.019	71	28.6	2	3	
205	Tl	209	0.010	412	7.2	2	0.5	
208	Pb	209	-0.047	2169	6.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179075	0.57	1184753	99.52	70	120	
72	Ge	847831	0.81	840651	100.85	70	120	
115	In	8506507	1.01	8493915	100.15	70	120	
209	Bi	17967770	0.37	17861880	100.59	70	120	

ICP-MS4_160211F
For

DHL Work Order
1601231

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_160211F SOP:			
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: 02/12/2016

Second-Level Review: Date Stamp: **02/15/2016**

REVIEWED/APPROVED

By Sherri Herschmann at 2:14:11 PM, 2/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211F** **Run No.:** 84127

Analytical Run Date: 2/11/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R84127	2/11/2016 10:09:00 AM		
L2-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:11:00 AM		
L-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:13:00 AM		
10X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:15:00 AM		
5X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:17:00 AM		
2X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:19:00 AM		
H-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:21:00 AM		
H2-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:23:00 AM		
ICSA-160211	1	ICPMS_TW	ICSA	R84127	2/11/2016 10:31:00 AM		
ICSAB-160211	1	ICPMS_TW	ICSB	R84127	2/11/2016 10:33:00 AM		
ICV-160211	1	ICPMS_TW	ICV	R84127	2/11/2016 10:41:00 AM		
LCVL-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 10:46:00 AM		
ICB-160211	1	ICPMS_TW	ICB	R84127	2/11/2016 10:50:00 AM		
CCV4-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 12:42:00 PM		
LCVL4-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 12:46:00 PM		
CCB4-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 12:49:00 PM		
MB-73587	5	ICPMS_TSDOD1	MBLK	73587	2/11/2016 1:01:00 PM		
LCS-73587	5	ICPMS_TSDOD1	LCS	73587	2/11/2016 1:03:00 PM		
LCSD-73587	5	ICPMS_TSDOD1	LCSD	73587	2/11/2016 1:05:00 PM		
1601232-15A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:09:00 PM		
1601232-15A SD	25	ICPMS_TSDOD1	SD	73587	2/11/2016 1:11:00 PM		
1601231-24A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:13:00 PM		
1601231-25A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:15:00 PM		
1601231-26A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:17:00 PM		
1601231-27A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:19:00 PM		
1601232-01A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:21:00 PM		
1601232-02A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:23:00 PM		
1601232-03A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:25:00 PM		
1601232-04A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:27:00 PM		
1601232-05A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:29:00 PM		

REVIEWED/APPROVED

By Sherri Herschmann at 2:14:40 PM, 2/15/2016

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Run ID: ICP-MS4_160211F **Run No.:** 84127

1601232-15A PDS	5	ICPMS_TSDOD1	PDS	73587	2/11/2016 1:31:00 PM		
1601232-15A MS	5	ICPMS_TSDOD1	MS	73587	2/11/2016 1:33:00 PM		
1601232-15A MSD	5	ICPMS_TSDOD1	MSD	73587	2/11/2016 1:35:00 PM		
CCV5-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 1:37:00 PM		
LCVL5-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 1:42:00 PM		
CCB5-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 1:47:00 PM		
1601232-06A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:49:00 PM		
1601232-07A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:51:00 PM		
1601232-08A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:53:00 PM		
1601232-09A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:55:00 PM		
1601232-10A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:57:00 PM		
1601232-11A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:59:00 PM		
1601232-12A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:01:00 PM		
1601232-13A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:03:00 PM		
1601232-14A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:05:00 PM		
1601232-16A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:07:00 PM		
CCV6-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 2:09:00 PM		
LCVL6-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 2:15:00 PM		
CCB6-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 2:18:00 PM		
MB-73600	5	ICPMS_TSDOD1	MBLK	73600	2/11/2016 2:20:00 PM		
LCS-73600	5	ICPMS_TSDOD1	LCS	73600	2/11/2016 2:22:00 PM		
LCSD-73600	5	ICPMS_TSDOD1	LCSD	73600	2/11/2016 2:24:00 PM		
1601232-17A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:28:00 PM		
1601232-17A SD	25	ICPMS_TSDOD1	SD	73600	2/11/2016 2:30:00 PM		
1601232-18A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:33:00 PM		
1601232-19A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:35:00 PM		
1601232-20A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:37:00 PM		
1601232-21A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:39:00 PM		
1601232-22A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:41:00 PM		
1601232-23A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:43:00 PM		
1601232-24A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:45:00 PM		
1601232-25A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:47:00 PM		
1601232-26A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:49:00 PM		
1601232-17A PDS	5	ICPMS_TSDOD1	PDS	73600	2/11/2016 2:51:00 PM		
1601232-17A MS	5	ICPMS_TSDOD1	MS	73600	2/11/2016 2:53:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Run ID: ICP-MS4_160211F **Run No.:** 84127

1601232-17A MSD	5	ICPMS_TSDOD1	MSD	73600	2/11/2016 2:55:00 PM		
CCV7-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 2:56:00 PM		
LCVL7-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 3:06:00 PM		
CCB7-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 3:25:00 PM		
1601232-27A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:27:00 PM		
1601247-01A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:29:00 PM		
1601247-02A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:31:00 PM		
1601247-03A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:33:00 PM		
1601247-04A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:35:00 PM		
1601247-05A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:37:00 PM		
1601247-06A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:39:00 PM		
1601247-07A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:41:00 PM		
1601247-08A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:43:00 PM		
1601247-09A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:45:00 PM		
CCV8-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 3:47:00 PM		
LCVL8-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 4:00:00 PM		
CCB8-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 4:02:00 PM		
MB-73601	5	ICPMS_TSDOD1	MBLK	73601	2/11/2016 4:04:00 PM		
LCS-73601	5	ICPMS_TSDOD1	LCS	73601	2/11/2016 4:06:00 PM		
LCSD-73601	5	ICPMS_TSDOD1	LCSD	73601	2/11/2016 4:08:00 PM		
1601247-16A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:12:00 PM		
1601247-16A SD	25	ICPMS_TSDOD1	SD	73601	2/11/2016 4:14:00 PM		
1601247-10A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:16:00 PM		
1601247-11A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:18:00 PM		
1601247-12A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:20:00 PM		
1601247-14A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:22:00 PM		
1601247-15A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:24:00 PM		
1601247-17A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:26:00 PM		
1601247-18A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:28:00 PM		
1601247-19A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:30:00 PM		
1601247-20A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:32:00 PM		
1601247-16A PDS	5	ICPMS_TSDOD1	PDS	73601	2/11/2016 4:34:00 PM		
1601247-16A MS	5	ICPMS_TSDOD1	MS	73601	2/11/2016 4:36:00 PM		
1601247-16A MSD	5	ICPMS_TSDOD1	MSD	73601	2/11/2016 4:38:00 PM		
CCV9-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 4:40:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211F** **Run No.:** 84127

LCVL9-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 4:44:00 PM		
CCB9-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 4:46:00 PM		
1601247-21A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:48:00 PM		
1601247-22A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:50:00 PM		
1601285-01A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:52:00 PM		
1601285-02A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:54:00 PM		
1601285-03A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:56:00 PM		
1601285-04A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:58:00 PM		
1601285-05A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:00:00 PM		
1601285-06A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:02:00 PM		
1601285-07A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:04:00 PM		
1601285-08A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:06:00 PM		
CCV10-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 5:08:00 PM		
LCVL10-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 5:12:00 PM		
CCB10-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 5:15:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICB	BLANK	CCB ICPMS_TW	1103	
23	ICSA	ICSA-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33		10	
34		50	
35		50	
36		50	
37		10	
38		10	
39		10	
40		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			
42			
43			
44			
45			
46		1	
47		1	
48		1	
49			
50		10	
51		50	
52		50	
53		10	
54		10	
55		10	
56		10	
57		10	
58		10	
59		10	
60		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	
62		10	
63		10	
64			
65			
66			
67			
68		10	
69		10	
70		1	
71			
72			
73			
74			
75		1	
76		1	
77			
78		1	
79		1	
80		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	
82		1	
83		1	
84		1	
85		1	
86			
87			
88			
89			
90		5	Skip
91		5	Skip
92		5	Skip
93			Skip
94		5	Skip
95		25	Skip
96		5	Skip
97		5	Skip
98		5	Skip
99		5	Skip
100		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	Skip
102		5	Skip
103		5	Skip
104		5	Skip
105		5	Skip
106		5	Skip
107		5	Skip

Sample List

108			Skip
109			Skip
110			Skip
111			Skip
112		5	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	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	Skip
122			Skip
123			Skip
124			Skip
125			Skip
126		5	Skip
127		5	Skip
128		5	Skip
129			Skip
130		5	Skip
131		25	Skip
132		5	Skip
133		5	Skip
134		5	Skip
135		5	Skip

Sample List

136		5	Skip
137		5	Skip
138		5	Skip
139		5	Skip
140		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	Skip
142		5	Skip
143		5	Skip
144			Skip
145			Skip
146			Skip
147			Skip
148		5	Skip
149		5	Skip
150		5	Skip
151		5	Skip
152		5	Skip
153		5	Skip
154		5	Skip
155		5	Skip
156		5	Skip
157		5	Skip
158			Skip
159			Skip
160			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			Skip
162		5	Skip
163		5	Skip
164		5	Skip
165			Skip
166		5	Skip
167		25	Skip
168		5	Skip
169		5	Skip
170		5	Skip
171		5	Skip
172		5	Skip
173		5	Skip
174		5	Skip
175		5	Skip
176		5	Skip
177		5	Skip
178		5	Skip
179		5	Skip
180			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	CCB	CCB10-160211	CCB ICPMS_TW	1102
199	CCB	CCB10-160211	CCB ICPMS_TW	1102
200	CCB	CCB10-160211	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
181			Skip
182			Skip
183			Skip
184		5	Skip
185		5	Skip
186		5	Skip
187		5	Skip
188		5	Skip
189		5	Skip
190		5	Skip
191		5	Skip
192		5	Skip
193		5	Skip
194			Skip
195			Skip
196			Skip
197			Skip
198			Skip
199			Skip
200			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	CCB10-160211	CCB ICPMS_TW	1103	
202	CCB	CCB10-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
201			Skip
202			Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sample List

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	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-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	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		10	Skip
34		50	Skip
35		50	Skip
36		50	Skip
37		10	Skip
38		10	Skip
39		10	Skip
40		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			Skip
42			Skip
43			Skip
44			Skip
45			Skip
46		1	Skip
47		1	Skip
48		1	Skip
49			Skip
50		10	Skip
51		50	Skip
52		50	Skip
53		10	Skip
54		10	Skip
55		10	Skip
56		10	Skip
57		10	Skip
58		10	Skip
59		10	Skip
60		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	Skip
62		10	Skip
63		10	Skip
64			Skip
65			Skip
66			Skip
67			Skip
68		10	Skip
69		10	Skip
70		1	Skip
71			Skip
72			Skip
73			Skip
74			Skip
75		1	Skip
76		1	Skip
77			Skip
78		1	Skip
79		1	Skip
80		1	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	Skip
82		1	Skip
83		1	Skip
84		1	Skip
85		1	Skip
86			Skip
87			Skip
88			Skip
89			Skip
90		5	
91		5	
92		5	
93			
94		5	
95		25	
96		5	
97		5	
98		5	
99		5	
100		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	
102		5	
103		5	
104		5	
105		5	
106		5	
107		5	

Sample List

108					
109					
110					
111					
112		5			
113		5			
114		5			
115		5			
116		5			
117		5			
118		5			
119		5			
120		5			

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	Sample	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	
122			
123			
124			
125			
126		5	
127		5	
128		5	
129			
130		5	
131		25	
132		5	
133		5	
134		5	
135		5	

Sample List

136	5
137	5
138	5
139	5
140	5

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	
142		5	
143		5	
144			
145			
146			
147			
148		5	
149		5	
150		5	
151		5	
152		5	
153		5	
154		5	
155		5	
156		5	
157		5	
158			
159			
160			

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			
162		5	
163		5	
164		5	
165			
166		5	
167		25	
168		5	
169		5	
170		5	
171		5	
172		5	
173		5	
174		5	
175		5	
176		5	
177		5	
178		5	
179		5	
180			

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	PB_W	MB-73610	MBLK200.8	3408
199	LCS_200	LCS-73610	LCS 200.8	3409
200	LCS_200	LCSD-73610	LCSD200.8	3410

#	Level	Dilution	Skip
181			
182			
183			
184		5	
185		5	
186		5	
187		5	
188		5	
189		5	
190		5	
191		5	
192		5	
193		5	
194			
195			
196			
197			
198		1	
199		1	
200		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	RINSE	CCB ICPMS_TW	1101	
202	AllRef	1602093-02A	SAMP200.8	3411	
203	SD	1602093-02A SD	SD 200.8	3412	
204	SAMP_W	1602094-01A	SAMP200.8	3501	
205	SAMP_W	1602097-01A	SAMP200.8	3502	
206	SAMP_W	1602097-02A	SAMP200.8	3503	
207	SAMP_W	1602058-01A	SAMP200.8	3504	
208	SAMP_W	1602111-01A	SAMP200.8	3505	
209	SAMP_W	1602093-01A	SAMP200.8	3506	
210	SAMP_W	1602098-01A	SAMP200.8	3507	
211	SAMP_W	1602098-02A	SAMP200.8	3508	
212	SAMP_W	1602098-03A	SAMP200.8	3509	
213	PDS	1602093-02A PDS	PDS 200.8	3510	
214	MS_W	1602093-02A MS	MS 200.8	3511	
215	MS_W	1602093-02A MSD	MSD 200.8	3512	
216	CCV	CCV11-160211	CCV ICPMS_TW	1207	
217	CCB	CCB11-160211	CCB ICPMS_TW	1102	

Sample List

218	LLCCV	LCVL11-160211	LCVLICPMS_TW	2510
219	CCB	CCB11-160211	CCB ICPMS_TW	1102
220	CCB	CCB11-160211	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
201			
202		1	
203		5	
204		1	
205		1	
206		1	
207		1	
208		1	
209		1	
210		1	
211		1	
212		1	
213		1	
214		1	
215		1	
216			
217			
218			
219			
220			

#	Sample Type	Sample Name	Comment	Vial#	File Name
221	CCB	CCB11-160211	CCB ICPMS_TW	1102	
222	CCB	CCB11-160211	CCB ICPMS_TW	1103	
223	CCB	CCB11-160211	CCB ICPMS_TW	1103	
224	CCB	CCB11-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
221			
222			
223			
224			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion:
Prep End Date:

Prep Batch **73587** 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 #
1601231-24A	Soil		1.00	50	50.000	1 of 1
1601231-25A	Soil		1.09	50	50.000	1 of 1
1601231-26A	Soil		1.13	50	50.000	1 of 1
1601231-27A	Soil		1.03	50	50.000	1 of 1
1601232-01A	Soil		1.03	50	50.000	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		1.05	50	50.000	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		1.08	50	50.000	1 of 1
1601232-04A	Soil		1.03	50	50.000	1 of 1
1601232-05A	Soil		1.07	50	50.000	1 of 1
1601232-06A	Soil		1.12	50	50.000	1 of 1
1601232-07A	Soil		1.06	50	50.000	1 of 1
1601232-08A	Soil		1.00	50	50.000	1 of 1
1601232-09A	Soil		1.13	50	50.000	1 of 1
1601232-10A	Soil		1.02	50	50.000	1 of 1
1601232-11A	Soil		1.01	50	50.000	1 of 1
1601232-12A	Soil		1.00	50	50.000	1 of 1
1601232-13A	Soil		1.07	50	50.000	1 of 1
1601232-14A	Soil		1.04	50	50.000	1 of 1
1601232-15A	Soil		1.02	50	50.000	1 of 1
1601232-16A	Soil		1.13	50	50.000	1 of 1
LCS-73587	Soil		1	50	50.000	of
LCSD-73587	Soil		1	50	50.000	of
MB-73587	Soil		1	50	50.000	of

MS 1.05 MSD 1.03

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

10:46-10:56
11:06-1:06
1:32-3:32
3:39-3:54

REVIEWED/APPROVED
By Sherri Herschmann at 2:17:06 PM, 2/15/2016

2/9/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26	
TEST DATE:	02/09/2016	Water is at Room Temperatue (70-73°F) / (21-23°C)		
PIPETTER LAB ID:	P-01, P-09	WATER TEMP (°C):	21-23°C	
TEST VOLUME:	See Below	WATER DENSITY:	0.998	(0.9980-0.9976)

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

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

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

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

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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0065	4.9965	99.93	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0052	4.9952	99.90		
3		5.0061	4.9961	99.92		
AVERAGE (MEAN)		5.006	4.996	99.92		0.013
						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	0.2021	0.2017	100.85	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2009	0.2005	100.25		
3		0.2022	0.2018	100.90		
AVERAGE (MEAN)		0.202	0.201	100.66		0.359
						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)						

Cas Vo Ryle 2/9/16
Analyst / Date

Sherri Herschmann 02/15/2016
Review and Approved / Date

REVIEWED/APPROVED
By Sherri Herschmann at 2:15:19 PM, 2/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion: **Start: 2/9/2016 10:46:00 AM / Stop: 2/9/2016 3:54:00 PM**
Prep End Date: **2/9/2016 5:30:00 PM**

Prep Batch **73587** 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 #
1601231-24A	Soil		1	50	50.000	1 of 1
1601231-25A	Soil		1.09	50	45.872	1 of 1
1601231-26A	Soil		1.13	50	44.248	1 of 1
1601231-27A	Soil		1.03	50	48.544	1 of 1
1601232-01A	Soil		1.03	50	48.544	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		1.05	50	47.619	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		1.08	50	46.296	1 of 1
1601232-04A	Soil		1.03	50	48.544	1 of 1
1601232-05A	Soil		1.07	50	46.729	1 of 1
1601232-06A	Soil		1.12	50	44.643	1 of 1
1601232-07A	Soil		1.06	50	47.170	1 of 1
1601232-08A	Soil		1	50	50.000	1 of 1
1601232-09A	Soil		1.13	50	44.248	1 of 1
1601232-10A	Soil		1.02	50	49.020	1 of 1
1601232-11A	Soil		1.01	50	49.505	1 of 1
1601232-12A	Soil		1	50	50.000	1 of 1
1601232-13A	Soil		1.07	50	46.729	1 of 1
1601232-14A	Soil		1.04	50	48.077	1 of 1
/						
1601232-15A	Soil		1.02	50	49.020	1 of 1
1601232-15A MS	Soil		1.05	50	47.619	of
1601232-15A MSD	Soil		1.03	50	48.544	of
1601232-15A PDS	Soil		1.02	50	49.020	of
1601232-15A SD	Soil		1.02	50	49.020	of
1601232-16A	Soil		1.13	50	44.248	1 of 1

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion: **Start: 2/9/2016 10:46:00 AM / Stop: 2/9/2016 3:54:00 PM**
Prep End Date: **2/9/2016 5:30:00 PM**

Prep Batch **73587** 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 #
LCS-73587	Soil		1	50	50.000	of
LCSD-73587	Soil		1	50	50.000	of
MB-73587	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

Calibration Summary Report

Date Acquired 2/11/2016 10:09
Data Batch 160211.b

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

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0012 * x + 4.0986E-004
Be	1.0000	y = 4.2145E-005 * x + 5.0492E-006
B	1.0000	y = 1.6041E-005 * x + 0.0013
Na	1.0000	y = 7.3867E-004 * x + 0.1241
Mg	1.0000	y = 3.6206E-004 * x + 5.9939E-004
Al	1.0000	y = 1.3935E-004 * x + 7.2438E-004
K	1.0000	y = 4.1039E-004 * x + 0.0553
Ca	0.9999	y = 2.1328E-005 * x + 3.0899E-004
Ti	1.0000	y = 1.4346E-004 * x + 8.4928E-006
V	1.0000	y = 0.0044 * x + 0.0048
Cr	1.0000	y = 0.0052 * x + 0.0014
Mn	1.0000	y = 0.0030 * x + 9.1931E-005
Fe	1.0000	y = 0.0044 * x + 0.0069
Co	1.0000	y = 0.0112 * x + 6.8772E-005
Ni	1.0000	y = 0.0029 * x + 3.8739E-004
Cu	1.0000	y = 0.0081 * x + 0.0041
Zn	1.0000	y = 0.0014 * x + 3.4258E-004
Se	1.0000	y = 7.8347E-005 * x + 1.5354E-004
Sr	0.9999	y = 6.6703E-004 * x + 2.8777E-005
Mo	0.9999	y = 5.0226E-004 * x + 2.8798E-006
Ag	1.0000	y = 0.0015 * x + 9.1528E-006
Cd	1.0000	y = 2.3433E-004 * x + 1.3076E-006
Sn	0.9999	y = 5.4214E-004 * x + 8.3474E-005
Sb	1.0000	y = 7.7902E-004 * x + 3.7286E-005
Tl	1.0000	y = 0.0016 * x + 6.3451E-006
Ba	1.0000	y = 2.7004E-004 * x + 3.1401E-006
Pb	1.0000	y = 0.0021 * x + 2.2125E-004
Li	1.0000	y = 3.3115E-005 * x + 3.3795E-005

REVIEWED BY
By Janice Whitt at 1:33:09 PM, 2/11/2016

Calibration Summary Report

Level 7 Cal

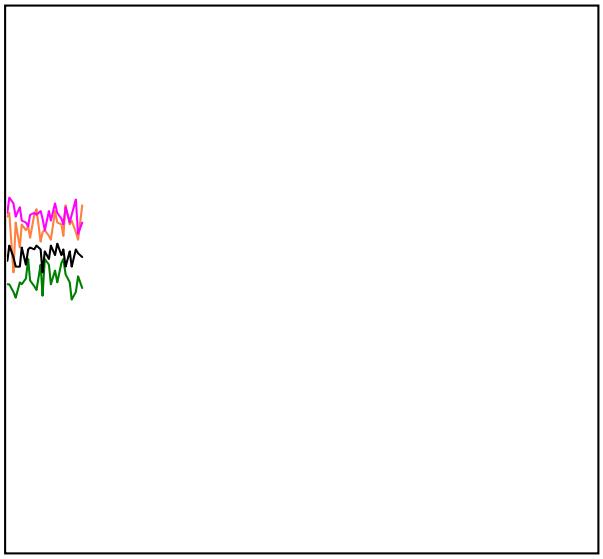
Ele	Conc	Calc	%Rec
As	500	500.19	100
Be	500	500.65	100
B	500	491.98	98
Na	10000	10135.77	101
Mg	10000	10013.92	100
Al	10000	9965.62	100
K	10000	9954.34	100
Ca	10000	9776.01	98
Ti	500	491.13	98
V	500	503.06	101
Cr	500	500.02	100
Mn	500	506.78	101
Fe	10000	9985.39	100
Co	500	505.29	101
Ni	500	516.35	103
Cu	500	513.28	103
Zn	500	508.16	102
Se	500	502.62	101
Sr	500	475.53	95
Mo	500	480.26	96
Ag	500	500.74	100
Cd	500	495.79	99
Sn	500	480.25	96
Sb	500	500.13	100
Tl	500	499.31	100
Ba	500	498.78	100
Pb	500	498.75	100

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.77	100
Be	2000	1999.70	100
B	2000	2003.75	100
Na	25000	24930.44	100
Mg	25000	24982.76	100
K	25000	25019.20	100
Ca	25000	25103.71	100
Ti	2000	2002.96	100
V	2000	1999.40	100
Cr	2000	1999.95	100
Mn	2000	1997.69	100
Co	2000	1998.22	100
Ni	2000	1994.82	100
Cu	2000	1995.61	100
Zn	2000	1996.91	100
Se	2000	1998.26	100
Sr	2000	2008.22	100
Mo	2000	2006.96	100
Cd	2000	2001.34	100
Sn	2000	2006.59	100
Tl	2000	1999.72	100
Ba	2000	2000.42	100
Pb	2000	2000.07	100
Li	2000	2001.70	100

REVIEWED BY
By Janice Whitt at 1:33:17 PM, 2/11/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	488	469.7	6.15
59	2000	970	998.7	4.43
89	2000	1276	1190.1	4.62
140	5000	3023	3086.3	2.71
205	5000	2703	2725.2	2.77
156/140	1	0.397 %	0.342 %	42.05
51	500	269	278.3	7.97
56	2000	1375	1349.5	3.62
75	20	7	10.2	37.34
78	50	11	17.1	28.73

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	0.8		

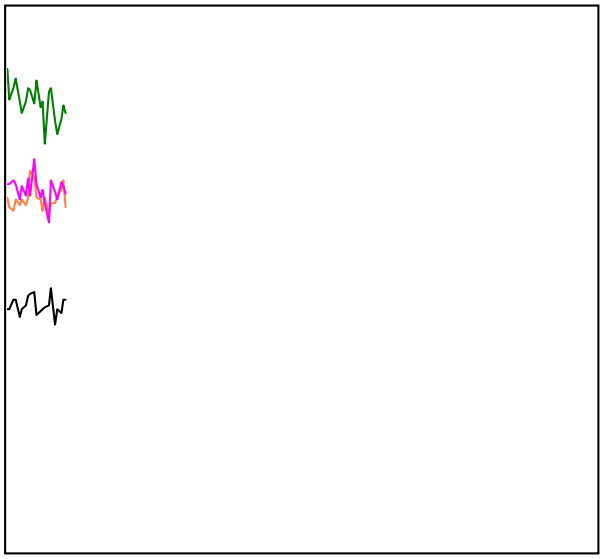
Cell Parameters

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

Meters

IF/BK Press	2.11E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.91E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1548	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	619	644.3	7.01
59	2000	1613	1652.6	4.03
89	5000	3161	3240.9	3.18
140	5000	3283	3327.2	3.39
205	5000	2313	2260.6	3.62
156/140	2	0.640 %	1.012 %	21.58
51	50000	45711	45364.8	1.97
56	500000	235037	235912.9	2.22
75	10000	5638	5758.9	1.61
78	5000	2524	2535.2	2.16

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

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

Meters

IF/BK Press	2.10E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.06E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1551	W			

US EPA Tune Check Sample Report

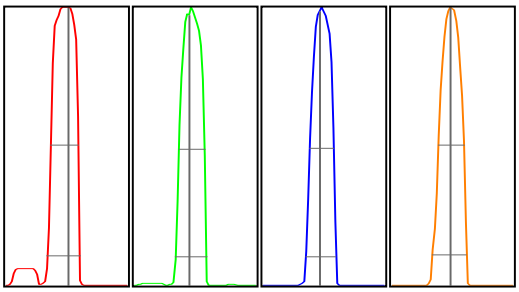
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	534704	1.02	5.00	
59	941453	1.23	5.00	
115	1653750	1.03	5.00	
205	1460212	1.45	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	533550	526966	533226	539263	540513
59	948990	921100	947093	943693	946389
115	1671687	1629463	1644343	1665399	1657858
205	1495345	1448627	1449294	1443357	1464439

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	82074	7.05	6.9 - 7.1		0.777	0.850	
59	158774	58.90	58.9 - 59.1		0.738	0.850	
115	300724	114.95	114.9 - 115.1		0.737	0.850	
205	250726	205.00	204.9 - 205.1		0.835	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	0.50	L/min	Makeup/Dilution Gas	0.55	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	9.9	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 1:33:21 PM, 2/11/2016

P/A Factor Tuning Report

========== Current Sample ==========
Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 02/11/2016 10:09:01

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1848 V
PulseHV: 1001 V

Acquired: 02/11/2016 09:34:13

Mass[u]	Element	P/A Factor
6	Li	0.107993
9	Be	0.119345
23	Na	0.126112
24	Mg	0.130717
27	Al	0.134962
39	K	0.137420
45	Sc	0.139263
48		0.139807
51	V	0.140606
52	Cr	0.144564
55	Mn	0.146422
59	Co	0.149854
60	Ni	0.150630
63	Cu	0.152433
66	Zn	0.152951
72		0.151718
74	Ge	0.152204
75	As	0.151776
88	Sr	0.152988
89		0.151579
95		0.151877
97	Mo	0.151763
98	Mo	0.152696
99	[Mo]	0.154122
101		0.153910
105		0.156808
111	Cd	0.158676
114	Cd	0.159510
115	In	0.159157
118	Sn	0.158444
121		0.158339
123	Sb	0.158311
135	Ba	0.157291
138		0.159919
175		0.164337
193		0.165694
205	Tl	0.167002
206	[Pb]	0.165897
207	[Pb]	0.166755
208	Pb	0.167681
209	Bi	0.167109
232		0.167037
238	U	0.167466
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 1:33:26 PM, 2/11/2016

Calibration Blank Report

Date Acquired	2/11/2016 10:09	Sample Name	BLANK STD 1
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	40	13.92
9	Be	45	6	50.00
11	B	45	1487	12.57
23	Na	45	147026	1.23
24	Mg	45	710	1.24
27	Al	45	858	9.12
39	K	45	65455	0.91
44	Ca	45	366	3.46
47	Ti	45	10	100.00
51	V	45	5704	1.27
52	Cr	45	1663	3.82
55	Mn	45	109	6.37
56	Fe	45	8199	4.23
59	Co	72	58	23.31
60	Ni	72	326	8.95
63	Cu	72	3440	3.19
66	Zn	72	288	22.05
75	As	72	344	10.81
78	Se	72	129	3.90
88	Sr	115	244	8.22
95	Mo	115	24	55.10
107	Ag	115	78	24.37
111	Cd	115	11	75.52
118	Sn	115	709	5.84
121	Sb	115	317	1.82
137	Ba	115	27	69.58
205	Tl	209	113	16.38
208	Pb	209	3954	5.62

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1184753	1.01
72	Ge	840651	0.48
115	In	8493915	0.52
209	Bi	17861880	1.91

Calibration Standard Report

Date Acquired	2/11/2016 10:11	Sample Name	L2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	74	27.92
9	Be	45	64	5.63
11	B	45	1443	4.09
23	Na	45	168610	0.43
24	Mg	45	9870	2.40
27	Al	45	4196	3.11
39	K	45	75308	1.06
44	Ca	45	849	6.64
47	Ti	45	160	15.02
51	V	45	11293	1.92
52	Cr	45	7973	1.07
55	Mn	45	3899	1.71
56	Fe	45	114405	1.08
59	Co	72	9909	2.36
60	Ni	72	3140	3.75
63	Cu	72	10819	1.32
66	Zn	72	1619	7.37
75	As	72	1401	2.90
78	Se	72	206	4.96
88	Sr	115	5728	1.11
95	Mo	115	4123	5.12
107	Ag	115	12867	0.42
111	Cd	115	2124	5.90
118	Sn	115	5199	3.39
121	Sb	115	7176	4.63
137	Ba	115	2279	3.72
205	Tl	209	29949	0.66
208	Pb	209	42556	0.94

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1167604	0.50	1184753	98.55	70	120	
72	Ge	833315	0.89	840651	99.13	70	120	
115	In	8374446	1.49	8493915	98.59	70	120	
209	Bi	17876407	0.21	17861880	100.08	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:13	Sample Name	L-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	409	6.88
9	Be	45	473	2.33
11	B	45	1391	2.54
23	Na	45	325741	0.70
24	Mg	45	88699	0.80
27	Al	45	34548	1.01
39	K	45	163070	0.73
44	Ca	45	5268	2.04
47	Ti	45	1722	7.18
51	V	45	58776	1.43
52	Cr	45	63758	1.47
55	Mn	45	37455	1.31
56	Fe	45	1063777	0.61
59	Co	72	98079	0.70
60	Ni	72	26816	1.40
63	Cu	72	75521	0.35
66	Zn	72	12839	2.59
75	As	72	10758	0.61
78	Se	72	848	2.64
88	Sr	115	54230	1.04
95	Mo	115	41441	2.24
107	Ag	115	126650	0.86
111	Cd	115	20348	2.46
118	Sn	115	45100	0.94
121	Sb	115	67842	0.53
137	Ba	115	22882	1.53
205	Tl	209	288951	0.19
208	Pb	209	393739	0.37

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1158016	0.81	1184753	97.74	70	120	
72	Ge	830667	0.87	840651	98.81	70	120	
115	In	8294239	2.05	8493915	97.65	70	120	
209	Bi	18095999	0.83	17861880	101.31	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:15	Sample Name	10X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1977	2.57
9	Be	45	2439	2.53
11	B	45	2195	3.91
23	Na	45	1005870	0.24
24	Mg	45	425249	0.65
27	Al	45	163164	1.12
39	K	45	542996	0.20
44	Ca	45	24948	2.17
47	Ti	45	8241	1.78
51	V	45	260331	0.78
52	Cr	45	302128	0.43
55	Mn	45	180444	0.33
56	Fe	45	5184295	0.15
59	Co	72	478322	0.24
60	Ni	72	128931	0.60
63	Cu	72	351761	0.67
66	Zn	72	61977	0.57
75	As	72	51402	0.34
78	Se	72	3473	1.92
88	Sr	115	265890	0.71
95	Mo	115	198828	0.52
107	Ag	115	618442	0.64
111	Cd	115	98576	0.98
118	Sn	115	218110	1.31
121	Sb	115	326284	1.89
137	Ba	115	112318	0.79
205	Tl	209	1411926	1.06
208	Pb	209	1887750	1.17

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1165132	0.11	1184753	98.34	70	120	
72	Ge	827538	1.30	840651	98.44	70	120	
115	In	8417971	0.31	8493915	99.11	70	120	
209	Bi	17650108	1.70	17861880	98.81	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:17	Sample Name	5X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	3825	2.75
9	Be	45	4977	3.33
11	B	45	3234	2.40
23	Na	45	1890800	0.64
24	Mg	45	857591	0.34
27	Al	45	328156	0.42
39	K	45	1015322	0.20
44	Ca	45	49361	0.42
47	Ti	45	16778	1.67
51	V	45	520316	0.44
52	Cr	45	611083	0.68
55	Mn	45	365350	0.62
56	Fe	45	10625381	0.57
59	Co	72	956297	0.09
60	Ni	72	254913	0.68
63	Cu	72	699385	0.40
66	Zn	72	123033	0.41
75	As	72	102914	0.83
78	Se	72	6829	2.79
88	Sr	115	531111	0.92
95	Mo	115	397973	0.22
107	Ag	115	1234338	0.54
111	Cd	115	196664	0.71
118	Sn	115	438022	0.71
121	Sb	115	649258	0.74
137	Ba	115	224693	0.58
205	Tl	209	2838152	0.67
208	Pb	209	3830880	0.65

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1177682	0.41	1184753	99.40	70	120	
72	Ge	827010	1.03	840651	98.38	70	120	
115	In	8438848	1.74	8493915	99.35	70	120	
209	Bi	17711136	1.55	17861880	99.16	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:19	Sample Name	2X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9658	2.11
9	Be	45	12322	1.23
11	B	45	5971	2.42
23	Na	45	4505098	0.40
24	Mg	45	2129433	0.12
27	Al	45	823070	0.52
39	K	45	2455942	0.28
44	Ca	45	123246	1.36
47	Ti	45	40830	1.12
51	V	45	1283104	0.37
52	Cr	45	1517387	0.80
55	Mn	45	901721	0.98
56	Fe	45	25709917	1.58
59	Co	72	2361605	0.90
60	Ni	72	630953	1.05
63	Cu	72	1734104	0.59
66	Zn	72	308629	1.06
75	As	72	256677	0.50
78	Se	72	16922	0.74
88	Sr	115	1326851	0.49
95	Mo	115	1002555	0.20
107	Ag	115	3060369	0.53
111	Cd	115	489532	0.64
118	Sn	115	1092795	0.63
121	Sb	115	1643531	0.11
137	Ba	115	568399	0.15
205	Tl	209	7273682	1.34
208	Pb	209	9627007	0.36

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1163620	0.45	1184753	98.22	70	120	
72	Ge	834344	1.06	840651	99.25	70	120	
115	In	8428006	0.92	8493915	99.22	70	120	
209	Bi	18038290	0.41	17861880	100.99	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:21	Sample Name	H-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	19203	1.27
9	Be	45	24724	1.25
11	B	45	10720	5.01
23	Na	45	8915586	0.56
24	Mg	45	4247903	0.15
27	Al	45	1627604	0.43
39	K	45	4849998	0.40
44	Ca	45	244621	0.65
47	Ti	45	82550	1.31
51	V	45	2602857	0.81
52	Cr	45	3046407	0.83
55	Mn	45	1810611	0.38
56	Fe	45	51586214	1.31
59	Co	72	4739701	0.46
60	Ni	72	1272433	0.22
63	Cu	72	3472262	0.21
66	Zn	72	611505	0.75
75	As	72	512239	0.37
78	Se	72	33032	0.45
88	Sr	115	2666337	1.04
95	Mo	115	2027628	0.80
107	Ag	115	6152755	0.45
111	Cd	115	976533	0.32
118	Sn	115	2189262	1.03
121	Sb	115	3275287	0.75
137	Ba	115	1132236	1.47
205	Tl	209	14482301	2.11
208	Pb	209	19307726	1.70

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1171532	1.22	1184753	98.88	70	120	
72	Ge	835596	0.49	840651	99.40	70	120	
115	In	8405773	0.77	8493915	98.96	70	120	
209	Bi	18221030	1.28	17861880	102.01	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:23	Sample Name	H2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	76770	1.19
9	Be	45	97562	0.30
11	B	45	38658	2.26
23	Na	45	21460194	1.76
24	Mg	45	10471711	1.81
27	Al	45	1873	7.72
39	K	45	11949321	1.64
44	Ca	45	620161	1.31
47	Ti	45	332625	0.94
51	V	45	10205493	0.21
52	Cr	45	12035506	1.01
55	Mn	45	7052917	1.77
56	Fe	45	37438	11.43
59	Co	72	18515582	2.40
60	Ni	72	4854920	0.70
63	Cu	72	13324408	1.66
66	Zn	72	2372747	0.50
75	As	72	2021874	0.73
78	Se	72	129347	0.47
88	Sr	115	10956976	2.18
95	Mo	115	8244820	0.61
107	Ag	115	2351	18.12
111	Cd	115	3835832	1.01
118	Sn	115	8898526	1.12
121	Sb	115	2701	10.10
137	Ba	115	4418330	0.27
205	Tl	209	56166661	0.67
208	Pb	209	74961575	0.74

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1157576	0.50	1184753	97.71	70	120	
72	Ge	825387	0.62	840651	98.18	70	120	
115	In	8179208	0.22	8493915	96.29	70	120	
209	Bi	17647678	1.52	17861880	98.80	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	2/11/2016 10:31	Sample Name	ICSA-160211
Data Batch	160211.b	Comment	ICSAICPMS_TW
Data File Name	023ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.102	11	44.3	1.2	0.8	
11	B	14.663	1702	2.6	30	30	
51	V	0.043	5710	4.0	10	10	
52	Cr	0.301	3390	2.1	8	5	
55	Mn	1.285	4576	2.1	8	10	
59	Co	0.583	5385	1.8	8	10	
60	Ni	0.338	1127	2.0	8	10	
63	Cu	0.514	6709	3.5	8	10	
66	Zn	1.537	2078	2.4	10	5	
75	As	0.205	538	4.1	4	5	
78	Se	0.428	152	17.9	2	5	
88	Sr	1.690	9221	1.3	10	10	
107	Ag	0.443	5243	0.4	0.8	2	
111	Cd	0.605	1141	7.6	1.2	1	
118	Sn	0.503	2844	6.5	10	10	
121	Sb	0.282	2048	3.6	4	2.5	
137	Ba	0.351	781	3.1	8	10	
205	Tl	0.040	1151	0.7	4	1.5	
208	Pb	0.524	22130	0.1	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141506	0.81	1184753	96.35	70	120	
72	Ge	813608	1.04	840651	96.78	70	120	
115	In	7977859	0.58	8493915	93.92	70	120	
209	Bi	16578181	0.95	17861880	92.81	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	2/11/2016 10:33	Sample Name	ICSAB-160211
Data Batch	160211.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	37.404	194546	0.55	40	93.5	80	120	
52	Cr	45	19.494	117807	1.19	20	97.5	80	120	
55	Mn	45	18.693	65478	0.49	20	93.5	80	120	
59	Co	72	37.580	345139	1.28	40	94.0	80	120	
60	Ni	72	35.599	86178	1.43	40	89.0	80	120	
63	Cu	72	19.382	131579	0.49	20	96.9	80	120	
66	Zn	72	18.739	22346	0.31	20	93.7	80	120	
75	As	72	18.972	19343	0.11	20	94.9	80	120	
78	Se	72	19.480	1374	2.93	20	97.4	80	120	
107	Ag	115	18.482	217117	1.51	20	92.4	80	120	
111	Cd	115	9.572	18029	2.30	10	95.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1146691	0.59	1184753	96.79	70	120	
72	Ge	818060	0.62	840651	97.31	70	120	
115	In	8033501	0.63	8493915	94.58	70	120	
209	Bi	16755728	1.69	17861880	93.81	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	2/11/2016 10:41	Sample Name	ICV-160211
Data Batch	160211.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	100.209	4007	1.41	100	100.2	90	110	
9	Be	45	98.965	4993	1.62	100	99.0	90	110	
11	B	45	84.046	3113	3.86	100	84.0	90	110	Fail
23	Na	45	2517.869	2371893	0.91	2500	100.7	90	110	
24	Mg	45	2567.934	1112203	1.08	2500	102.7	90	110	
27	Al	45	2503.980	418003	1.58	2500	100.2	90	110	
39	K	45	2457.983	1272045	0.49	2500	98.3	90	110	
44	Ca	45	2354.173	60399	1.04	2500	94.2	90	110	
47	Ti	45	99.882	17137	3.48	100	99.9	90	110	
51	V	45	100.734	536502	1.03	100	100.7	90	110	
52	Cr	45	101.940	635150	0.81	100	101.9	90	110	
55	Mn	45	98.754	360185	1.04	100	98.8	90	110	
56	Fe	45	2590.795	13663627	1.60	2500	103.6	90	110	
59	Co	72	103.157	980742	1.17	100	103.2	90	110	
60	Ni	72	103.552	258900	0.99	100	103.6	90	110	
63	Cu	72	102.978	708804	0.62	100	103.0	90	110	
66	Zn	72	101.985	124605	1.21	100	102.0	90	110	
75	As	72	100.615	104706	0.35	100	100.6	90	110	
78	Se	72	101.941	6894	2.07	100	101.9	90	110	
88	Sr	115	96.079	548435	0.56	100	96.1	90	110	
95	Mo	115	95.506	410327	1.10	100	95.5	90	110	
107	Ag	115	103.195	1290503	0.69	100	103.2	90	110	
111	Cd	115	99.442	199335	1.46	100	99.4	90	110	
118	Sn	115	99.242	460892	1.18	100	99.2	90	110	
121	Sb	115	101.731	678219	1.20	100	101.7	90	110	
137	Ba	115	100.129	231308	0.55	100	100.1	90	110	
205	Tl	209	97.975	2890054	0.55	100	98.0	90	110	
208	Pb	209	99.683	3927898	0.80	100	99.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195723	1.32	1184753	100.93	70	120	
72	Ge	846983	1.27	840651	100.75	70	120	
115	In	8556463	2.07	8493915	100.74	70	120	
209	Bi	18537601	2.64	17861880	103.78	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 10:46	Sample Name	LCVL-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	030LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.127	475	8.19	10	111.3	70	130	
9	Be	45	1.101	61	15.58	1	110.1	70	130	
11	B	45	-3.052	1425	10.65	20	-15.3	70	130	Fail
23	Na	45	101.479	234920	0.69	100	101.5	70	130	
24	Mg	45	108.199	46936	0.63	100	108.2	70	130	
27	Al	45	113.232	19474	3.17	100	113.2	70	130	
39	K	45	106.246	116654	0.60	100	106.2	70	130	
44	Ca	45	107.558	3071	2.26	100	107.6	70	130	
47	Ti	45	5.322	911	2.79	5	106.4	70	130	
51	V	45	1.250	12181	1.82	1	125.0	70	130	
52	Cr	45	5.194	33515	1.05	5	103.9	70	130	
55	Mn	45	5.164	18691	1.05	5	103.3	70	130	
56	Fe	45	104.137	549965	0.89	100	104.1	70	130	
59	Co	72	5.233	49631	1.37	5	104.7	70	130	
60	Ni	72	5.313	13546	0.75	5	106.3	70	130	
63	Cu	72	5.286	39537	2.04	5	105.7	70	130	
66	Zn	72	5.545	7025	3.80	5	110.9	70	130	
75	As	72	5.100	5618	2.50	5	102.0	70	130	
78	Se	72	5.466	491	2.84	5	109.3	70	130	
88	Sr	115	4.828	27783	0.89	5	96.6	70	130	
95	Mo	115	4.858	20889	1.31	5	97.2	70	130	
107	Ag	115	2.081	26081	0.98	2	104.0	70	130	
111	Cd	115	1.048	2110	4.35	1	104.8	70	130	
118	Sn	115	5.121	24452	0.98	5	102.4	70	130	
121	Sb	115	2.025	13806	1.71	2	101.3	70	130	
137	Ba	115	4.947	11449	2.09	5	98.9	70	130	
205	Tl	209	1.022	29325	1.36	1	102.2	70	130	
208	Pb	209	0.999	42091	1.68	1	99.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1180059	0.66	1184753	99.60	70	120	
72	Ge	843888	0.73	840651	100.39	70	120	
115	In	8551879	1.93	8493915	100.68	70	120	
209	Bi	17961075	1.94	17861880	100.56	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	2/11/2016 10:50	Sample Name	ICB-160211
Data Batch	160211.b	Comment	ICB ICPMS_TW
Data File Name	032_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.000	40	20.5	2	5	
9	Be	45	0.014	7	91.7	0.4	0.3	
11	B	45	-20.047	1106	7.5	10	10	
23	Na	45	-1.867	145216	0.4	50	100	
24	Mg	45	0.204	797	8.9	50	100	
27	Al	45	4.082	1530	3.2	50	10	
39	K	45	5.941	68259	0.7	50	100	
44	Ca	45	-0.693	348	3.5	50	100	
47	Ti	45	-0.033	4	43.4	4	3	
51	V	45	0.224	6863	3.2	4	3	
52	Cr	45	0.027	1830	7.6	2	2	
55	Mn	45	0.014	160	16.3	2	3	
56	Fe	45	0.573	11176	3.8	50	50	
59	Co	72	0.001	70	17.2	2	3	
60	Ni	72	-0.022	277	9.4	2	3	
63	Cu	72	-0.057	3104	3.8	2	2	
66	Zn	72	0.079	390	12.4	4	2	
75	As	72	-0.012	338	8.7	2	2	
78	Se	72	0.251	148	8.1	1	2	
88	Sr	115	0.005	272	10.3	4	3	
95	Mo	115	0.009	62	3.1	2	2	
107	Ag	115	0.008	178	14.1	0.4	1	
111	Cd	115	0.000	11	62.5	0.4	0.3	
118	Sn	115	0.084	1084	7.2	4	3	
121	Sb	115	-0.010	247	12.9	2	0.8	
137	Ba	115	0.008	43	66.6	2	3	
205	Tl	209	0.006	277	8.7	2	0.5	
208	Pb	209	-0.036	2602	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1183169	0.38	1184753	99.87	70	120	
72	Ge	854937	0.34	840651	101.70	70	120	
115	In	8420624	1.01	8493915	99.14	70	120	
209	Bi	17894220	1.85	17861880	100.18	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 12:42	Sample Name	CCV4-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	086_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	202.980	7911	2.28	200	101.5	90	110	
9	Be	45	205.332	10139	1.54	200	102.7	90	110	
11	B	45	158.661	4451	3.22	200	79.3	90	110	Fail
23	Na	45	5091.441	4549065	0.78	5000	101.8	90	110	
24	Mg	45	5078.721	2153859	0.47	5000	101.6	90	110	
27	Al	45	4971.832	812187	0.94	5000	99.4	90	110	
39	K	45	5037.468	2485485	0.45	5000	100.7	90	110	
44	Ca	45	4848.692	121465	1.27	5000	97.0	90	110	
47	Ti	45	198.258	33314	0.68	200	99.1	90	110	
51	V	45	201.207	1043888	0.83	200	100.6	90	110	
52	Cr	45	202.015	1231166	0.39	200	101.0	90	110	
55	Mn	45	204.493	730362	0.78	200	102.2	90	110	
56	Fe	45	5037.466	26017333	2.12	5000	100.7	90	110	
59	Co	72	202.234	1911112	0.68	200	101.1	90	110	
60	Ni	72	203.897	506392	0.45	200	101.9	90	110	
63	Cu	72	205.858	1404969	1.16	200	102.9	90	110	
66	Zn	72	204.059	247543	0.84	200	102.0	90	110	
75	As	72	198.844	205360	0.69	200	99.4	90	110	
78	Se	72	202.158	13462	0.33	200	101.1	90	110	
88	Sr	115	188.222	1062688	0.72	200	94.1	90	110	
95	Mo	115	190.454	809487	0.64	200	95.2	90	110	
107	Ag	115	199.595	2469127	0.77	200	99.8	90	110	
111	Cd	115	199.110	394876	1.01	200	99.6	90	110	
118	Sn	115	190.845	876317	0.86	200	95.4	90	110	
121	Sb	115	197.412	1301752	0.64	200	98.7	90	110	
137	Ba	115	197.708	451809	0.63	200	98.9	90	110	
205	Tl	209	199.290	5742748	0.24	200	99.6	90	110	
208	Pb	209	199.813	7687170	0.29	200	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171053	1.25	1184753	98.84	70	120	
72	Ge	841833	0.73	840651	100.14	70	120	
115	In	8465060	2.29	8493915	99.66	70	120	
209	Bi	18106015	1.70	17861880	101.37	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 12:46	Sample Name	LCVL4-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	088LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.799	423	5.48	10	98.0	70	130	
9	Be	45	1.007	56	21.43	1	100.7	70	130	
11	B	45	-6.752	1354	1.68	20	-33.8	70	130	Fail
23	Na	45	81.848	217741	0.49	100	81.8	70	130	
24	Mg	45	106.805	46325	1.10	100	106.8	70	130	
27	Al	45	115.688	19872	1.59	100	115.7	70	130	
39	K	45	111.178	119006	0.08	100	111.2	70	130	
44	Ca	45	117.880	3330	3.89	100	117.9	70	130	
47	Ti	45	5.121	877	1.74	5	102.4	70	130	
51	V	45	1.395	12932	2.54	1	139.5	70	130	Fail
52	Cr	45	5.198	33532	0.25	5	104.0	70	130	
55	Mn	45	5.115	18513	1.83	5	102.3	70	130	
56	Fe	45	103.873	548441	0.50	100	103.9	70	130	
59	Co	72	5.181	49585	0.42	5	103.6	70	130	
60	Ni	72	5.272	13565	0.97	5	105.4	70	130	
63	Cu	72	5.100	38609	2.19	5	102.0	70	130	
66	Zn	72	5.651	7218	1.17	5	113.0	70	130	
75	As	72	5.137	5707	2.25	5	102.7	70	130	
78	Se	72	5.456	495	4.31	5	109.1	70	130	
88	Sr	115	4.949	28141	1.09	5	99.0	70	130	
95	Mo	115	4.918	20899	1.35	5	98.4	70	130	
107	Ag	115	2.136	26462	0.22	2	106.8	70	130	
111	Cd	115	1.018	2028	6.50	1	101.8	70	130	
118	Sn	115	5.203	24546	2.00	5	104.1	70	130	
121	Sb	115	2.113	14228	0.98	2	105.7	70	130	
137	Ba	115	4.985	11402	1.29	5	99.7	70	130	
205	Tl	209	1.014	29475	0.30	1	101.4	70	130	
208	Pb	209	0.974	41630	1.21	1	97.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179693	0.40	1184753	99.57	70	120	
72	Ge	851525	0.88	840651	101.29	70	120	
115	In	8451510	1.25	8493915	99.50	70	120	
209	Bi	18186517	0.66	17861880	101.82	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 12:49	Sample Name	CCB4-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	089_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.390	25	34.0	2	5	
9	Be	45	0.001	6	16.7	0.4	0.3	
11	B	45	-28.908	934	10.0	10	10	
23	Na	45	-22.525	126722	0.5	50	100	
24	Mg	45	-0.437	520	8.3	50	100	
27	Al	45	7.265	2048	2.2	50	10	
39	K	45	5.656	67882	0.7	50	100	
44	Ca	45	1.333	398	9.7	50	100	
47	Ti	45	-0.026	6	124.9	4	3	
51	V	45	0.276	7112	5.4	4	3	
52	Cr	45	0.045	1933	2.9	2	2	
55	Mn	45	0.024	193	19.0	2	3	
56	Fe	45	0.391	10194	0.7	50	50	
59	Co	72	0.011	167	35.4	2	3	
60	Ni	72	0.007	346	19.4	2	3	
63	Cu	72	-0.105	2747	4.8	2	2	
66	Zn	72	0.193	526	17.8	4	2	
75	As	72	-0.004	344	7.8	2	2	
78	Se	72	0.126	139	8.2	1	2	
88	Sr	115	0.010	303	6.7	4	3	
95	Mo	115	0.012	78	13.8	2	2	
107	Ag	115	0.020	321	19.3	0.4	1	
111	Cd	115	0.004	19	62.0	0.4	0.3	
118	Sn	115	0.013	771	5.9	4	3	
121	Sb	115	0.017	431	9.2	2	0.8	
137	Ba	115	0.019	71	28.6	2	3	
205	Tl	209	0.010	412	7.2	2	0.5	
208	Pb	209	-0.047	2169	6.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179075	0.57	1184753	99.52	70	120	
72	Ge	847831	0.81	840651	100.85	70	120	
115	In	8506507	1.01	8493915	100.15	70	120	
209	Bi	17967770	0.37	17861880	100.59	70	120	

Method Blank Report

Date Acquired	2/11/16 1:01 PM	Sample Name	MB-73587
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	090_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.453	22	27.27		
9	Be	45	-0.046	4	15.75		
11	B	45	-37.861	760	3.82		
23	Na	45	-20.916	127308	0.75		
24	Mg	45	3.549	2208	4.02		
27	Al	45	5.594	1762	8.91		
39	K	45	8.450	68797	0.83		
44	Ca	45	31.350	1145	1.18		
47	Ti	45	0.099	27	45.07		
51	V	45	0.390	7653	1.67		
52	Cr	45	0.290	3409	5.05		
55	Mn	45	0.372	1436	4.26		
56	Fe	45	21.770	120564	0.63		
59	Co	72	0.011	162	18.42		
60	Ni	72	0.424	1376	4.48		
63	Cu	72	1.444	13261	2.64		
66	Zn	72	1.489	2090	5.39		
75	As	72	-0.007	337	3.97		
78	Se	72	0.328	151	9.85		
88	Sr	115	0.046	509	11.39		
95	Mo	115	0.068	317	6.32		
107	Ag	115	0.012	222	18.08		
111	Cd	115	0.006	22	8.65		
118	Sn	115	3.407	16465	6.97		
121	Sb	115	-0.006	276	16.47		
137	Ba	115	0.093	241	7.61		
205	Tl	209	0.005	264	45.28		
208	Pb	209	0.024	5083	9.81		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171594	0.39	1184753	98.89	70	120	
72	Ge	840739	0.30	840651	100.01	70	120	
115	In	8529865	2.08	8493915	100.42	70	120	
209	Bi	18627919	1.17	17861880	104.29	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 13:03	Sample Name	LCS-73587
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	091_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.629	7990	0.53	200	103.3	80	120	
9	Be	45	206.533	10119	1.13	200	103.3	80	120	
11	B	45	164.757	4530	3.44	200	82.4	80	120	
23	Na	45	5139.421	4555122	0.27	1000	513.9	80	120	Fail
24	Mg	45	5178.702	2179258	0.60	1000	517.9	80	120	Fail
27	Al	45	1029.205	167487	0.68	1000	102.9	80	120	
39	K	45	5087.826	2490189	0.13	1000	508.8	80	120	Fail
44	Ca	45	4981.248	123802	0.85	1000	498.1	80	120	Fail
47	Ti	45	200.519	33433	2.23	200	100.3	80	120	
51	V	45	205.364	1057166	0.37	200	102.7	80	120	
52	Cr	45	206.015	1245833	1.24	200	103.0	80	120	
55	Mn	45	207.569	735646	1.19	200	103.8	80	120	
56	Fe	45	1026.861	5268419	0.20	1000	102.7	80	120	
59	Co	72	205.338	1929516	0.93	200	102.7	80	120	
60	Ni	72	205.619	507801	0.51	200	102.8	80	120	
63	Cu	72	207.387	1407447	0.33	200	103.7	80	120	
66	Zn	72	202.920	244787	0.50	200	101.5	80	120	
75	As	72	200.590	205988	0.70	200	100.3	80	120	
78	Se	72	198.473	13145	0.51	200	99.2	80	120	
88	Sr	115	187.844	1068172	0.75	200	93.9	80	120	
95	Mo	115	190.503	815571	1.29	200	95.3	80	120	
107	Ag	115	198.682	2475399	0.23	200	99.3	80	120	
111	Cd	115	195.105	389704	1.38	200	97.6	80	120	
118	Sn	115	196.963	910821	0.57	200	98.5	80	120	
121	Sb	115	198.547	1318540	0.25	200	99.3	80	120	
137	Ba	115	196.548	452389	1.18	200	98.3	80	120	
205	Tl	209	200.296	5749812	0.46	200	100.1	80	120	
208	Pb	209	203.829	7812746	0.28	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1161902	0.51	1184753	98.07	70	120	
72	Ge	837067	0.25	840651	99.57	70	120	
115	In	8523627	1.18	8493915	100.35	70	120	
209	Bi	18043884	2.62	17861880	101.02	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 13:05	Sample Name	LCSD-73587
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	092_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	208.074	8063	1.75	200	104.0	80	120	
9	Be	45	209.016	10263	0.76	200	104.5	80	120	
11	B	45	164.753	4540	0.79	200	82.4	80	120	
23	Na	45	5151.136	4575103	0.59	1000	515.1	80	120	Fail
24	Mg	45	5153.854	2173400	0.44	1000	515.4	80	120	Fail
27	Al	45	1023.381	166893	0.85	1000	102.3	80	120	
39	K	45	5086.640	2494985	0.62	1000	508.7	80	120	Fail
44	Ca	45	4953.145	123373	1.08	1000	495.3	80	120	Fail
47	Ti	45	204.641	34197	1.84	200	102.3	80	120	
51	V	45	205.251	1058854	0.52	200	102.6	80	120	
52	Cr	45	205.280	1244052	0.91	200	102.6	80	120	
55	Mn	45	208.626	740986	0.23	200	104.3	80	120	
56	Fe	45	1030.558	5298746	0.28	1000	103.1	80	120	
59	Co	72	205.466	1936678	0.75	200	102.7	80	120	
60	Ni	72	208.565	516658	0.78	200	104.3	80	120	
63	Cu	72	207.451	1412191	0.33	200	103.7	80	120	
66	Zn	72	202.683	245241	0.62	200	101.3	80	120	
75	As	72	201.583	207638	0.16	200	100.8	80	120	
78	Se	72	199.845	13276	0.97	200	99.9	80	120	
88	Sr	115	191.295	1073394	0.59	200	95.6	80	120	
95	Mo	115	195.560	826129	0.74	200	97.8	80	120	
107	Ag	115	202.533	2490013	0.41	200	101.3	80	120	
111	Cd	115	199.280	392741	0.18	200	99.6	80	120	
118	Sn	115	198.896	907572	0.25	200	99.4	80	120	
121	Sb	115	201.118	1317998	0.32	200	100.6	80	120	
137	Ba	115	201.263	457113	0.30	200	100.6	80	120	
205	Tl	209	204.384	5822924	0.71	200	102.2	80	120	
208	Pb	209	203.792	7751110	0.32	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1164410	0.64	1184753	98.28	70	120	
72	Ge	839640	0.65	840651	99.88	70	120	
115	In	8411125	1.37	8493915	99.03	70	120	
209	Bi	17899913	1.55	17861880	100.21	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 13:11	Sample Name	1601232-15A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	095_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	9.976	427	6.42	51.7	96.4	110	90	Good
9	Be	45	0.535	32	9.45	2.4	111.4	110	90	
11	B	45	-24.114	1019	3.82	47.8	-252.4	110	90	
23	Na	45	86.822	220648	0.95	570.5	76.1	110	90	
24	Mg	45	3094.656	1313994	0.88	14984.7	103.3	110	90	Good
27	Al	45	12604.238	2059595	0.78	61220.1	102.9	110	90	Good
39	K	45	3463.692	1730840	0.75	16759.3	103.3	110	90	Good
44	Ca	45	14660.167	366870	1.44	70969.3	103.3	110	90	Good
47	Ti	45	41.969	7064	6.31	207.8	101.0	110	90	Good
51	V	45	16.956	93233	0.75	83.5	101.5	110	90	Good
52	Cr	45	11.180	69760	1.32	54.2	103.2	110	90	Good
55	Mn	45	156.310	558888	1.07	762.2	102.5	110	90	Good
56	Fe	45	12054.635	62299242	0.57	57933.7	104.0	110	90	Good
59	Co	72	4.201	39339	1.07	20.3	103.4	110	90	Good
60	Ni	72	7.277	18192	0.66	34.9	104.1	110	90	Good
63	Cu	72	5.577	40976	1.49	26.9	103.8	110	90	Good
66	Zn	72	52.942	63757	2.38	251.7	105.2	110	90	Good
75	As	72	3.469	3881	2.80	17.3	100.4	110	90	Good
78	Se	72	0.896	186	13.62	3.9	114.5	110	90	
88	Sr	115	71.728	406113	0.92	361.5	99.2	110	90	Good
95	Mo	115	0.283	1231	6.71	1.3	106.9	110	90	Good
107	Ag	115	0.048	678	3.00	0.1	168.2	110	90	
111	Cd	115	0.182	372	7.62	0.9	98.7	110	90	Good
118	Sn	115	0.894	4815	7.36	4.9	91.7	110	90	Good
121	Sb	115	0.522	3765	3.86	2.6	99.9	110	90	Good
137	Ba	115	92.017	210818	0.35	457.6	100.5	110	90	Good
205	Tl	209	0.114	3469	3.72	0.5	111.9	110	90	
208	Pb	209	15.427	609196	0.53	77.1	100.1	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1172148	1.24	1184753	98.94	70	120	
72	Ge	832910	0.75	840651	99.08	70	120	
115	In	8484123	1.14	8493915	99.88	70	120	
209	Bi	18468575	0.98	17861880	103.40	70	120	

Sample Report

Date Acquired	2/11/16 1:13 PM	Sample Name	1601231-24A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	096SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	30.904	1211	1.08	2000	>RL
9	Be	45	1.538	80	3.31	2000	>RL
11	B	45	-1.886	1405	3.37	2000	
23	Na	45	177.304	292241	0.14	25000	>RL
24	Mg	45	8975.255	3723890	1.02	25000	>RL
27	Al	45	37834.953	6041080	1.32	10000	OUTCAL
39	K	45	8246.479	3940416	0.29	25000	>RL
44	Ca	45	201940.241	4934494	1.53	25000	OUTCAL
47	Ti	45	187.390	30812	1.39	2000	>RL
51	V	45	65.383	335663	1.51	2000	>RL
52	Cr	45	31.719	190507	0.77	2000	>RL
55	Mn	45	954.613	3335596	0.57	2000	>RL
56	Fe	45	34004.725	171776295	0.60	10000	OUTCAL
59	Co	72	11.922	107376	0.52	2000	>RL
60	Ni	72	20.206	48089	1.09	2000	>RL
63	Cu	72	12.801	86310	1.52	2000	>RL
66	Zn	72	134.931	156032	0.50	2000	>RL
75	As	72	11.487	11612	1.26	2000	>RL
78	Se	72	2.643	289	1.48	2000	>RL
88	Sr	115	366.692	1999463	0.46	2000	>RL
95	Mo	115	0.957	3953	3.91	2000	
107	Ag	115	0.083	1063	10.82	500	
111	Cd	115	0.483	937	3.96	2000	>RL
118	Sn	115	3.843	17716	1.19	2000	
121	Sb	115	2.640	17112	0.50	500	>RL
137	Ba	115	462.591	1021117	0.25	2000	>RL
205	Tl	209	0.337	9359	2.32	2000	
208	Pb	209	115.950	4255128	0.42	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1145764	1.23	1184753	96.71	70	120	
72	Ge	801960	0.73	840651	95.40	70	120	
115	In	8175309	1.55	8493915	96.25	70	120	
209	Bi	17262983	1.34	17861880	96.65	70	120	

Sample Report

Date Acquired	2/11/16 1:15 PM	Sample Name	1601231-25A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	097SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	44.650	1702	1.52	2000	>RL
9	Be	45	1.911	96	15.13	2000	>RL
11	B	45	20.485	1782	7.90	2000	>RL
23	Na	45	210.357	314487	0.84	25000	>RL
24	Mg	45	11061.954	4506816	0.43	25000	>RL
27	Al	45	48056.377	7535758	0.33	10000	OUTCAL
39	K	45	9885.663	4626783	0.43	25000	>RL
44	Ca	45	239823.902	5755517	0.56	25000	OUTCAL
47	Ti	45	258.483	41728	2.25	2000	>RL
51	V	45	83.768	420766	0.78	2000	>RL
52	Cr	45	37.732	222248	0.63	2000	>RL
55	Mn	45	1217.712	4178543	0.71	2000	>RL
56	Fe	45	42287.409	209781872	0.94	10000	OUTCAL
59	Co	72	13.397	118458	1.34	2000	>RL
60	Ni	72	24.036	56097	0.81	2000	>RL
63	Cu	72	13.974	92203	1.05	2000	>RL
66	Zn	72	138.305	157001	0.67	2000	>RL
75	As	72	13.209	13060	1.87	2000	>RL
78	Se	72	3.513	338	4.63	2000	>RL
88	Sr	115	694.363	3718483	0.79	2000	>RL
95	Mo	115	1.054	4272	0.40	2000	
107	Ag	115	0.077	971	6.55	500	
111	Cd	115	0.451	859	6.75	2000	>RL
118	Sn	115	4.299	19380	1.34	2000	>RL
121	Sb	115	2.411	15380	1.11	500	>RL
137	Ba	115	475.544	1030950	1.06	2000	>RL
205	Tl	209	0.429	11858	2.54	2000	
208	Pb	209	78.844	2886353	0.56	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1125174	0.84	1184753	94.97	70	120	
72	Ge	787316	0.72	840651	93.66	70	120	
115	In	8028071	0.98	8493915	94.52	70	120	
209	Bi	17214398	1.37	17861880	96.38	70	120	

Sample Report

Date Acquired	2/11/16 1:17 PM	Sample Name	1601231-26A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	098SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	45.605	1732	2.16	2000	>RL
9	Be	45	1.955	98	12.37	2000	>RL
11	B	45	13.037	1643	0.54	2000	>RL
23	Na	45	223.212	324171	0.37	25000	>RL
24	Mg	45	11287.180	4584805	0.88	25000	>RL
27	Al	45	48705.294	7615271	1.85	10000	OUTCAL
39	K	45	9832.629	4588369	0.38	25000	>RL
44	Ca	45	225889.853	5404889	1.35	25000	OUTCAL
47	Ti	45	233.838	37643	1.28	2000	>RL
51	V	45	84.986	425539	0.42	2000	>RL
52	Cr	45	38.461	225826	0.74	2000	>RL
55	Mn	45	1175.000	4019710	1.05	2000	>RL
56	Fe	45	43844.621	216840689	1.27	10000	OUTCAL
59	Co	72	14.406	127206	1.00	2000	>RL
60	Ni	72	25.478	59367	1.39	2000	>RL
63	Cu	72	14.722	96840	0.17	2000	>RL
66	Zn	72	143.999	163247	0.42	2000	>RL
75	As	72	14.264	14058	2.34	2000	>RL
78	Se	72	3.580	341	6.68	2000	>RL
88	Sr	115	641.492	3507614	0.44	2000	>RL
95	Mo	115	1.218	5039	1.07	2000	
107	Ag	115	0.071	927	3.76	500	
111	Cd	115	0.527	1022	3.81	2000	>RL
118	Sn	115	4.129	19035	1.79	2000	>RL
121	Sb	115	2.319	15112	0.66	500	>RL
137	Ba	115	442.116	978625	0.43	2000	>RL
205	Tl	209	0.466	12796	1.58	2000	
208	Pb	209	96.433	3509649	0.48	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1121814	1.06	1184753	94.69	70	120	
72	Ge	786282	0.58	840651	93.53	70	120	
115	In	8197567	0.98	8493915	96.51	70	120	
209	Bi	17117007	1.29	17861880	95.83	70	120	

Sample Report

Date Acquired	2/11/16 1:19 PM	Sample Name	1601231-27A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	099SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	44.422	1702	5.55	2000	>RL
9	Be	45	1.809	92	5.65	2000	>RL
11	B	45	14.818	1690	6.70	2000	>RL
23	Na	45	209.048	315169	0.35	25000	>RL
24	Mg	45	10902.184	4467108	0.70	25000	>RL
27	Al	45	46887.296	7393316	1.41	10000	OUTCAL
39	K	45	9425.774	4439621	0.68	25000	>RL
44	Ca	45	230221.847	5556519	0.46	25000	OUTCAL
47	Ti	45	260.908	42366	2.51	2000	>RL
51	V	45	82.348	416127	1.54	2000	>RL
52	Cr	45	37.862	224292	2.10	2000	>RL
55	Mn	45	1146.222	3955951	1.01	2000	>RL
56	Fe	45	40974.701	204445947	2.04	10000	OUTCAL
59	Co	72	13.612	121005	1.22	2000	>RL
60	Ni	72	24.614	57747	0.44	2000	>RL
63	Cu	72	14.902	98636	0.80	2000	>RL
66	Zn	72	129.112	147370	0.34	2000	>RL
75	As	72	12.999	12926	0.99	2000	>RL
78	Se	72	3.709	352	6.68	2000	>RL
88	Sr	115	1587.252	8664510	1.75	2000	>RL
95	Mo	115	1.092	4513	2.85	2000	
107	Ag	115	0.067	878	5.18	500	
111	Cd	115	0.447	869	2.88	2000	>RL
118	Sn	115	4.080	18783	2.31	2000	>RL
121	Sb	115	2.093	13646	0.99	500	>RL
137	Ba	115	434.455	960040	0.32	2000	>RL
205	Tl	209	0.448	12312	0.48	2000	
208	Pb	209	79.147	2881295	0.49	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1131612	1.14	1184753	95.51	70	120	
72	Ge	791506	0.73	840651	94.15	70	120	
115	In	8183608	0.97	8493915	96.35	70	120	
209	Bi	17118043	1.17	17861880	95.84	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 13:31	Sample Name	1601232-15A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	105_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	248.531	9723	2.09	51.7	200	98.4	75	125	
9	Be	45	202.465	10045	1.78	2.4	200	100.0	75	125	
11	B	45	237.083	5952	0.76	47.8	200	94.7	75	125	
23	Na	45	5598.130	5011258	1.20	570.5	5000	100.6	75	125	
24	Mg	45	20582.382	8768265	0.75	14984.7	5000	112.0	75	125	
27	Al	45	68050.254	11158168	1.68	61220.1	5000	136.6	75	125	Fail
39	K	45	22137.847	10754122	0.79	16759.3	5000	107.6	75	125	
44	Ca	45	77375.833	1941994	0.06	70969.3	5000	128.1	75	125	Fail
47	Ti	45	410.359	69277	3.17	207.8	200	101.3	75	125	
51	V	45	283.768	1477018	0.78	83.5	200	100.1	75	125	
52	Cr	45	256.147	1568148	0.41	54.2	200	101.0	75	125	
55	Mn	45	964.830	3462244	1.73	762.2	200	101.3	75	125	
56	Fe	45	64320.583	333667098	1.15	57933.7	5000	127.7	75	125	Fail
59	Co	72	222.684	2072929	0.91	20.3	200	101.2	75	125	
60	Ni	72	233.656	571596	0.68	34.9	200	99.4	75	125	
63	Cu	72	223.143	1499955	1.00	26.9	200	98.1	75	125	
66	Zn	72	449.287	536568	0.59	251.7	200	98.8	75	125	
75	As	72	214.107	217788	0.02	17.3	200	98.4	75	125	
78	Se	72	199.245	13072	1.13	3.9	200	97.7	75	125	
88	Sr	115	551.324	3079677	1.06	361.5	200	94.9	75	125	
95	Mo	115	192.932	811532	0.17	1.3	200	95.8	75	125	
107	Ag	115	188.937	2313136	1.15	0.1	200	94.4	75	125	
111	Cd	115	190.624	374082	1.17	0.9	200	94.9	75	125	
118	Sn	115	203.503	924642	0.12	4.9	200	99.3	75	125	
121	Sb	115	208.909	1363313	0.56	2.6	200	103.1	75	125	
137	Ba	115	655.128	1481551	0.31	457.6	200	98.8	75	125	
205	Tl	209	199.816	5606354	1.06	0.5	200	99.7	75	125	
208	Pb	209	280.713	10513801	0.27	77.1	200	101.8	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1176537	0.26	1184753	99.31	70	120	
72	Ge	829230	0.06	840651	98.64	70	120	
115	In	8376253	1.73	8493915	98.61	70	120	
209	Bi	17627114	0.85	17861880	98.69	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 13:33	Sample Name	1601232-15A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	106_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	249.251	9709	1.31	51.7	200	98.8	80	120	
9	Be	45	198.264	9795	1.66	2.4	200	97.9	80	120	
11	B	45	243.864	6053	3.09	47.8	200	98.0	80	120	
23	Na	45	5500.130	4904745	0.30	570.5	1000	493.0	80	120	Fail
24	Mg	45	21157.433	8974248	0.58	14984.7	1000	617.3	80	120	Fail
27	Al	45	72578.062	11848947	1.04	61220.1	1000	1135.8	80	120	Fail
39	K	45	23040.656	11141217	0.82	16759.3	1000	628.1	80	120	Fail
44	Ca	45	78813.949	1969520	0.10	70969.3	1000	784.5	80	120	Fail
47	Ti	45	458.699	77098	2.14	207.8	200	125.5	80	120	Fail
51	V	45	290.387	1504826	0.55	83.5	200	103.4	80	120	
52	Cr	45	255.091	1554930	0.21	54.2	200	100.4	80	120	
55	Mn	45	983.572	3514099	1.16	762.2	200	110.7	80	120	
56	Fe	45	61419.462	317225081	0.90	57933.7	1000	348.6	80	120	Fail
59	Co	72	219.146	2014705	0.61	20.3	200	99.4	80	120	
60	Ni	72	236.851	572252	1.09	34.9	200	101.0	80	120	
63	Cu	72	226.815	1505719	0.82	26.9	200	100.0	80	120	
66	Zn	72	462.788	545852	1.01	251.7	200	105.5	80	120	
75	As	72	212.133	213114	0.84	17.3	200	97.4	80	120	
78	Se	72	199.580	12931	0.64	3.9	200	97.8	80	120	
88	Sr	115	586.605	3188401	0.94	361.5	200	112.6	80	120	
95	Mo	115	180.070	736936	0.47	1.3	200	89.4	80	120	
107	Ag	115	198.491	2364195	0.75	0.1	200	99.2	80	120	
111	Cd	115	196.861	375856	0.36	0.9	200	98.0	80	120	
118	Sn	115	199.103	880187	0.59	4.9	200	97.1	80	120	
121	Sb	115	67.154	426574	0.78	2.6	200	32.3	80	120	Fail
137	Ba	115	676.548	1488630	0.89	457.6	200	109.5	80	120	
205	Tl	209	199.394	5574112	0.37	0.5	200	99.4	80	120	
208	Pb	209	281.427	10502522	0.78	77.1	200	102.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171453	0.45	1184753	98.88	70	120	
72	Ge	818985	1.04	840651	97.42	70	120	
115	In	8148702	1.36	8493915	95.94	70	120	
209	Bi	17563066	0.99	17861880	98.33	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 13:35	Sample Name	1601232-15A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	107_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	251.236	9586	0.54	51.7	200	99.7	80	120	
9	Be	45	202.706	9810	0.84	2.4	200	100.2	80	120	
11	B	45	245.933	5969	2.09	47.8	200	99.1	80	120	
23	Na	45	5548.407	4845970	1.41	570.5	1000	497.8	80	120	Fail
24	Mg	45	20721.501	8610412	0.90	14984.7	1000	573.7	80	120	Fail
27	Al	45	71060.997	11365055	0.56	61220.1	1000	984.1	80	120	Fail
39	K	45	22848.475	10824133	0.33	16759.3	1000	608.9	80	120	Fail
44	Ca	45	78151.141	1913210	0.22	70969.3	1000	718.2	80	120	Fail
47	Ti	45	450.396	74163	0.96	207.8	200	121.3	80	120	Fail
51	V	45	292.056	1482631	0.81	83.5	200	104.3	80	120	
52	Cr	45	257.858	1539770	0.47	54.2	200	101.8	80	120	
55	Mn	45	989.067	3461853	0.66	762.2	200	113.4	80	120	
56	Fe	45	61661.334	312004468	1.23	57933.7	1000	372.8	80	120	Fail
59	Co	72	224.583	2027280	0.50	20.3	200	102.1	80	120	
60	Ni	72	241.381	572623	1.17	34.9	200	103.2	80	120	
63	Cu	72	231.472	1508638	0.29	26.9	200	102.3	80	120	
66	Zn	72	453.841	525552	0.83	251.7	200	101.0	80	120	
75	As	72	214.734	211805	0.05	17.3	200	98.7	80	120	
78	Se	72	201.643	12827	0.14	3.9	200	98.9	80	120	
88	Sr	115	584.567	3157719	0.49	361.5	200	111.5	80	120	
95	Mo	115	181.296	737371	0.88	1.3	200	90.0	80	120	
107	Ag	115	198.622	2351213	0.53	0.1	200	99.2	80	120	
111	Cd	115	198.475	376633	0.44	0.9	200	98.8	80	120	
118	Sn	115	198.533	872246	0.41	4.9	200	96.8	80	120	
121	Sb	115	64.622	407968	0.51	2.6	200	31.0	80	120	Fail
137	Ba	115	670.698	1466698	0.60	457.6	200	106.6	80	120	
205	Tl	209	202.791	5578755	0.74	0.5	200	101.1	80	120	
208	Pb	209	283.695	10417976	0.66	77.1	200	103.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1147606	0.30	1184753	96.86	70	120	
72	Ge	804137	0.89	840651	95.66	70	120	
115	In	8098408	1.12	8493915	95.34	70	120	
209	Bi	17285386	1.38	17861880	96.77	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 13:37	Sample Name	CCV5-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	108_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	202.382	7686	1.85	200	101.2	90	110	
9	Be	45	201.611	9701	2.64	200	100.8	90	110	
11	B	45	156.247	4293	1.76	200	78.1	90	110	Fail
23	Na	45	5027.698	4379324	0.52	5000	100.6	90	110	
24	Mg	45	5013.749	2071967	0.59	5000	100.3	90	110	
27	Al	45	4895.121	779208	0.46	5000	97.9	90	110	
39	K	45	4988.082	2398803	0.37	5000	99.8	90	110	
44	Ca	45	4854.082	118482	1.39	5000	97.1	90	110	
47	Ti	45	197.482	32335	1.64	200	98.7	90	110	
51	V	45	202.372	1023143	0.46	200	101.2	90	110	
52	Cr	45	201.128	1194501	0.88	200	100.6	90	110	
55	Mn	45	203.997	710022	0.37	200	102.0	90	110	
56	Fe	45	5009.947	25213285	0.95	5000	100.2	90	110	
59	Co	72	205.730	1873457	0.92	200	102.9	90	110	
60	Ni	72	207.692	497052	0.78	200	103.8	90	110	
63	Cu	72	210.044	1381370	0.76	200	105.0	90	110	
66	Zn	72	206.711	241646	0.80	200	103.4	90	110	
75	As	72	200.347	199371	0.83	200	100.2	90	110	
78	Se	72	202.519	12996	1.73	200	101.3	90	110	
88	Sr	115	190.593	1026389	0.40	200	95.3	90	110	
95	Mo	115	194.965	790329	1.51	200	97.5	90	110	
107	Ag	115	205.251	2421632	0.93	200	102.6	90	110	
111	Cd	115	201.903	381878	0.36	200	101.0	90	110	
118	Sn	115	196.593	861003	0.90	200	98.3	90	110	
121	Sb	115	203.008	1276874	1.16	200	101.5	90	110	
137	Ba	115	204.639	446053	0.87	200	102.3	90	110	
205	Tl	209	200.856	5677790	0.01	200	100.4	90	110	
208	Pb	209	201.733	7613996	0.69	200	100.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141066	0.54	1184753	96.31	70	120	
72	Ge	811201	1.01	840651	96.50	70	120	
115	In	8072337	1.18	8493915	95.04	70	120	
209	Bi	17763218	1.97	17861880	99.45	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 13:42	Sample Name	LCVL5-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	110LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.056	424	8.21	10	100.6	70	130	
9	Be	45	1.247	67	17.90	1	124.7	70	130	
11	B	45	-12.749	1216	8.35	20	-63.7	70	130	Fail
23	Na	45	81.376	213023	0.64	100	81.4	70	130	
24	Mg	45	107.870	45851	1.62	100	107.9	70	130	
27	Al	45	117.331	19745	1.45	100	117.3	70	130	
39	K	45	111.324	116718	0.67	100	111.3	70	130	
44	Ca	45	107.606	3012	7.12	100	107.6	70	130	
47	Ti	45	4.969	834	10.69	5	99.4	70	130	
51	V	45	1.277	12077	2.62	1	127.7	70	130	
52	Cr	45	5.262	33250	1.04	5	105.2	70	130	
55	Mn	45	5.175	18359	1.58	5	103.5	70	130	
56	Fe	45	105.054	543610	0.73	100	105.1	70	130	
59	Co	72	5.194	48767	0.98	5	103.9	70	130	
60	Ni	72	5.265	13290	0.93	5	105.3	70	130	
63	Cu	72	5.189	38474	1.75	5	103.8	70	130	
66	Zn	72	6.532	8140	2.91	5	130.6	70	130	Fail
75	As	72	5.085	5545	1.32	5	101.7	70	130	
78	Se	72	5.625	496	1.53	5	112.5	70	130	
88	Sr	115	4.991	28037	1.04	5	99.8	70	130	
95	Mo	115	4.924	20672	1.24	5	98.5	70	130	
107	Ag	115	2.154	26365	0.59	2	107.7	70	130	
111	Cd	115	1.008	1982	4.22	1	100.8	70	130	
118	Sn	115	5.241	24415	1.77	5	104.8	70	130	
121	Sb	115	2.152	14305	2.53	2	107.6	70	130	
137	Ba	115	5.202	11755	0.55	5	104.0	70	130	
205	Tl	209	1.033	29327	2.28	1	103.3	70	130	
208	Pb	209	1.006	41903	0.37	1	100.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1156366	0.63	1184753	97.60	70	120	
72	Ge	835347	0.19	840651	99.37	70	120	
115	In	8349401	0.85	8493915	98.30	70	120	
209	Bi	17765635	0.63	17861880	99.46	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 13:47	Sample Name	CCB5-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	111_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.275	29	6.9	2	5	
9	Be	45	-0.073	2	65.5	0.4	0.3	
11	B	45	-32.951	854	6.6	10	10	
23	Na	45	-25.803	123459	0.4	50	100	
24	Mg	45	0.023	714	4.8	50	100	
27	Al	45	7.511	2080	8.0	50	10	
39	K	45	4.403	67055	0.4	50	100	
44	Ca	45	0.680	380	6.3	50	100	
47	Ti	45	-0.033	4	86.6	4	3	
51	V	45	0.318	7305	2.6	4	3	
52	Cr	45	0.043	1913	3.5	2	2	
55	Mn	45	0.047	276	24.4	2	3	
56	Fe	45	1.091	13786	0.3	50	50	
59	Co	72	0.005	103	20.1	2	3	
60	Ni	72	-0.026	262	8.3	2	3	
63	Cu	72	-0.155	2407	3.3	2	2	
66	Zn	72	0.086	396	9.7	4	2	
75	As	72	-0.008	339	7.3	2	2	
78	Se	72	0.131	139	2.7	1	2	
88	Sr	115	0.009	300	2.9	4	3	
95	Mo	115	0.005	47	21.4	2	2	
107	Ag	115	0.019	317	20.0	0.4	1	
111	Cd	115	0.000	11	105.4	0.4	0.3	
118	Sn	115	-0.012	661	1.3	4	3	
121	Sb	115	0.019	450	7.1	2	0.8	
137	Ba	115	0.009	47	25.8	2	3	
205	Tl	209	0.012	441	11.3	2	0.5	
208	Pb	209	-0.046	2189	5.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1175236	0.97	1184753	99.20	70	120	
72	Ge	847875	0.30	840651	100.86	70	120	
115	In	8581166	1.61	8493915	101.03	70	120	
209	Bi	17862269	0.83	17861880	100.00	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 14:09	Sample Name	CCV6-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	122_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.410	7901	1.19	200	98.7	90	110	
9	Be	45	205.929	10441	0.68	200	103.0	90	110	
11	B	45	158.387	4565	2.08	200	79.2	90	110	Fail
23	Na	45	5106.700	4684800	0.21	5000	102.1	90	110	
24	Mg	45	5065.768	2206013	0.56	5000	101.3	90	110	
27	Al	45	4995.244	837854	0.22	5000	99.9	90	110	
39	K	45	5100.573	2583272	0.48	5000	102.0	90	110	
44	Ca	45	4917.868	126487	1.15	5000	98.4	90	110	
47	Ti	45	199.015	34339	0.71	200	99.5	90	110	
51	V	45	202.843	1080647	0.07	200	101.4	90	110	
52	Cr	45	203.555	1273890	0.35	200	101.8	90	110	
55	Mn	45	205.251	752784	0.97	200	102.6	90	110	
56	Fe	45	5057.961	26821789	1.18	5000	101.2	90	110	
59	Co	72	206.058	1981839	1.11	200	103.0	90	110	
60	Ni	72	207.516	524543	0.98	200	103.8	90	110	
63	Cu	72	208.773	1450178	1.51	200	104.4	90	110	
66	Zn	72	205.100	253231	0.45	200	102.6	90	110	
75	As	72	202.474	212807	0.29	200	101.2	90	110	
78	Se	72	204.768	13878	2.87	200	102.4	90	110	
88	Sr	115	190.863	1098380	0.39	200	95.4	90	110	
95	Mo	115	191.818	831017	0.42	200	95.9	90	110	
107	Ag	115	200.550	2528702	0.63	200	100.3	90	110	
111	Cd	115	198.920	402069	0.93	200	99.5	90	110	
118	Sn	115	192.961	903059	0.59	200	96.5	90	110	
121	Sb	115	198.699	1335457	0.18	200	99.3	90	110	
137	Ba	115	199.117	463806	0.54	200	99.6	90	110	
205	Tl	209	200.586	5768136	0.63	200	100.3	90	110	
208	Pb	209	202.506	7775152	0.87	200	101.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1202371	0.15	1184753	101.49	70	120	
72	Ge	856757	0.63	840651	101.92	70	120	
115	In	8625535	0.38	8493915	101.55	70	120	
209	Bi	18070577	2.25	17861880	101.17	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 14:15	Sample Name	LCVL6-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	124LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.052	435	7.12	10	100.5	70	130	
9	Be	45	1.093	61	13.32	1	109.3	70	130	
11	B	45	-16.113	1184	4.49	20	-80.6	70	130	Fail
23	Na	45	75.908	213958	0.56	100	75.9	70	130	
24	Mg	45	107.583	46965	1.72	100	107.6	70	130	
27	Al	45	118.843	20525	2.56	100	118.8	70	130	
39	K	45	106.179	117351	0.41	100	106.2	70	130	
44	Ca	45	102.469	2962	3.37	100	102.5	70	130	
47	Ti	45	5.028	867	11.13	5	100.6	70	130	
51	V	45	1.274	12386	2.29	1	127.4	70	130	
52	Cr	45	5.226	33926	1.83	5	104.5	70	130	
55	Mn	45	5.160	18796	1.87	5	103.2	70	130	
56	Fe	45	103.944	552408	0.61	100	103.9	70	130	
59	Co	72	5.184	49451	0.72	5	103.7	70	130	
60	Ni	72	5.249	13464	0.65	5	105.0	70	130	
63	Cu	72	5.219	39301	4.06	5	104.4	70	130	
66	Zn	72	6.264	7943	3.84	5	125.3	70	130	
75	As	72	5.163	5714	1.54	5	103.3	70	130	
78	Se	72	5.621	504	5.42	5	112.4	70	130	
88	Sr	115	4.956	28310	1.00	5	99.1	70	130	
95	Mo	115	4.871	20796	1.60	5	97.4	70	130	
107	Ag	115	2.120	26392	0.99	2	106.0	70	130	
111	Cd	115	1.014	2028	1.80	1	101.4	70	130	
118	Sn	115	5.139	24363	0.75	5	102.8	70	130	
121	Sb	115	2.087	14121	2.98	2	104.4	70	130	
137	Ba	115	5.035	11571	2.95	5	100.7	70	130	
205	Tl	209	1.008	29017	1.27	1	100.8	70	130	
208	Pb	209	0.970	41124	1.35	1	97.0	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1187426	0.25	1184753	100.23	70	120	
72	Ge	848736	0.60	840651	100.96	70	120	
115	In	8489597	0.34	8493915	99.95	70	120	
209	Bi	18029401	2.88	17861880	100.94	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 14:18	Sample Name	CCB6-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	125_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.356	26	28.7	2	5	
9	Be	45	-0.011	5	75.8	0.4	0.3	
11	B	45	-39.657	723	6.0	10	10	
23	Na	45	-26.382	122108	0.3	50	100	
24	Mg	45	0.141	759	6.7	50	100	
27	Al	45	7.256	2026	1.8	50	10	
39	K	45	4.160	66477	1.3	50	100	
44	Ca	45	0.981	385	6.2	50	100	
47	Ti	45	-0.033	4	114.6	4	3	
51	V	45	0.338	7358	2.9	4	3	
52	Cr	45	0.026	1798	5.3	2	2	
55	Mn	45	0.043	259	6.4	2	3	
56	Fe	45	1.332	14934	4.4	50	50	
59	Co	72	0.004	92	41.7	2	3	
60	Ni	72	-0.022	269	11.2	2	3	
63	Cu	72	-0.169	2276	5.9	2	2	
66	Zn	72	0.125	437	0.8	4	2	
75	As	72	-0.001	341	5.6	2	2	
78	Se	72	0.118	136	13.1	1	2	
88	Sr	115	0.001	243	6.3	4	3	
95	Mo	115	0.005	44	11.5	2	2	
107	Ag	115	0.008	177	14.2	0.4	1	
111	Cd	115	0.003	17	34.6	0.4	0.3	
118	Sn	115	-0.035	529	13.3	4	3	
121	Sb	115	-0.011	237	6.1	2	0.8	
137	Ba	115	0.012	52	20.5	2	3	
205	Tl	209	0.007	316	8.0	2	0.5	
208	Pb	209	-0.058	1722	3.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1167107	0.63	1184753	98.51	70	120	
72	Ge	834810	0.86	840651	99.31	70	120	
115	In	8230778	0.56	8493915	96.90	70	120	
209	Bi	17704418	0.87	17861880	99.12	70	120	

Method Blank Report

Date Acquired	2/11/16 2:20 PM	Sample Name	MB-73600
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	126_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.436	23	25.47		
9	Be	45	-0.005	6	26.96		
11	B	45	-43.905	647	10.46		
23	Na	45	-22.566	125912	0.78		
24	Mg	45	2.402	1721	2.45		
27	Al	45	1.996	1175	9.25		
39	K	45	6.268	67763	1.13		
44	Ca	45	12.602	677	1.45		
47	Ti	45	0.106	28	34.63		
51	V	45	0.348	7441	4.82		
52	Cr	45	0.790	6457	8.39		
55	Mn	45	0.133	583	19.55		
56	Fe	45	10.342	61545	2.32		
59	Co	72	0.008	136	13.54		
60	Ni	72	0.489	1525	6.68		
63	Cu	72	0.071	3889	0.75		
66	Zn	72	2.265	3003	1.29		
75	As	72	-0.017	324	2.45		
78	Se	72	0.284	147	19.29		
88	Sr	115	0.032	429	15.35		
95	Mo	115	0.019	104	10.26		
107	Ag	115	0.011	218	18.45		
111	Cd	115	-0.002	8	89.21		
118	Sn	115	3.506	16991	5.08		
121	Sb	115	-0.015	219	7.82		
137	Ba	115	0.109	280	8.33		
205	Tl	209	0.006	289	14.52		
208	Pb	209	0.000	4029	3.49		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171851	0.64	1184753	98.91	70	120	
72	Ge	833547	1.11	840651	99.15	70	120	
115	In	8567082	1.18	8493915	100.86	70	120	
209	Bi	18313051	2.74	17861880	102.53	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 14:22	Sample Name	LCS-73600
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	127_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	199.968	7757	1.14	200	100.0	80	120	
9	Be	45	202.768	9965	2.56	200	101.4	80	120	
11	B	45	149.571	4258	4.30	200	74.8	80	120	
23	Na	45	5066.425	4506055	1.10	1000	506.6	80	120	Fail
24	Mg	45	5053.675	2132994	0.84	1000	505.4	80	120	Fail
27	Al	45	1007.811	164515	1.08	1000	100.8	80	120	
39	K	45	5083.059	2495397	0.86	1000	508.3	80	120	Fail
44	Ca	45	4951.310	123431	1.45	1000	495.1	80	120	Fail
47	Ti	45	200.445	33523	1.67	200	100.2	80	120	
51	V	45	201.760	1041834	0.82	200	100.9	80	120	
52	Cr	45	201.492	1222185	0.70	200	100.7	80	120	
55	Mn	45	202.700	720505	0.33	200	101.3	80	120	
56	Fe	45	1021.942	5258788	0.34	1000	102.2	80	120	
59	Co	72	202.799	1898076	0.79	200	101.4	80	120	
60	Ni	72	204.472	502953	0.09	200	102.2	80	120	
63	Cu	72	203.562	1376045	0.90	200	101.8	80	120	
66	Zn	72	201.395	241977	2.24	200	100.7	80	120	
75	As	72	199.872	204434	1.11	200	99.9	80	120	
78	Se	72	198.694	13106	0.57	200	99.3	80	120	
88	Sr	115	193.355	1073782	0.02	200	96.7	80	120	
95	Mo	115	194.165	811805	0.69	200	97.1	80	120	
107	Ag	115	205.157	2496300	0.37	200	102.6	80	120	
111	Cd	115	195.721	381778	0.51	200	97.9	80	120	
118	Sn	115	197.428	891613	0.12	200	98.7	80	120	
121	Sb	115	203.191	1317994	1.21	200	101.6	80	120	
137	Ba	115	197.855	444734	0.53	200	98.9	80	120	
205	Tl	209	198.797	5596895	0.61	200	99.4	80	120	
208	Pb	209	200.708	7544448	0.38	200	100.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1165403	1.12	1184753	98.37	70	120	
72	Ge	833725	0.24	840651	99.18	70	120	
115	In	8325203	1.65	8493915	98.01	70	120	
209	Bi	17687808	0.77	17861880	99.03	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 14:24	Sample Name	LCSD-73600
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	128_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.898	7882	0.95	200	98.9	80	120	
9	Be	45	198.793	10031	1.30	200	99.4	80	120	
11	B	45	157.799	4532	0.42	200	78.9	80	120	
23	Na	45	5025.899	4590904	1.05	1000	502.6	80	120	Fail
24	Mg	45	5035.746	2182416	1.15	1000	503.6	80	120	Fail
27	Al	45	1004.499	168369	1.16	1000	100.4	80	120	
39	K	45	5066.215	2553922	0.21	1000	506.6	80	120	Fail
44	Ca	45	4911.244	125711	0.89	1000	491.1	80	120	Fail
47	Ti	45	200.745	34470	1.33	200	100.4	80	120	
51	V	45	200.135	1061160	0.73	200	100.1	80	120	
52	Cr	45	200.208	1246920	0.33	200	100.1	80	120	
55	Mn	45	202.017	737352	0.47	200	101.0	80	120	
56	Fe	45	1017.262	5375095	0.38	1000	101.7	80	120	
59	Co	72	202.547	1938112	0.75	200	101.3	80	120	
60	Ni	72	205.248	516163	2.19	200	102.6	80	120	
63	Cu	72	203.190	1404286	1.30	200	101.6	80	120	
66	Zn	72	201.178	247134	0.55	200	100.6	80	120	
75	As	72	199.357	208478	0.96	200	99.7	80	120	
78	Se	72	197.452	13317	0.76	200	98.7	80	120	
88	Sr	115	192.187	1100158	0.94	200	96.1	80	120	
95	Mo	115	191.805	826582	0.11	200	95.9	80	120	
107	Ag	115	202.037	2534020	0.47	200	101.0	80	120	
111	Cd	115	193.939	389928	0.55	200	97.0	80	120	
118	Sn	115	194.425	905093	0.72	200	97.2	80	120	
121	Sb	115	200.954	1343495	0.98	200	100.5	80	120	
137	Ba	115	195.019	451868	1.23	200	97.5	80	120	
205	Tl	209	197.994	5673063	0.58	200	99.0	80	120	
208	Pb	209	199.173	7619507	0.89	200	99.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1196580	0.41	1184753	101.00	70	120	
72	Ge	852399	0.37	840651	101.40	70	120	
115	In	8579921	0.13	8493915	101.01	70	120	
209	Bi	18003532	1.41	17861880	100.79	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 14:30	Sample Name	1601232-17A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	131_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	7.793	370	4.60	40.2	96.9	110	90	Good
9	Be	45	0.423	29	5.97	2.1	103.0	110	90	Good
11	B	45	-30.930	963	5.49	9.5	#####	110	90	
23	Na	45	158.395	305711	0.54	884.3	89.6	110	90	
24	Mg	45	1774.090	815166	0.32	8758.2	101.3	110	90	Good
27	Al	45	9804.399	1733226	0.80	49101.0	99.8	110	90	Good
39	K	45	2079.199	1151928	0.58	10236.0	101.6	110	90	Good
44	Ca	45	4496.942	121999	0.27	22086.7	101.8	110	90	Good
47	Ti	45	54.056	9843	4.80	273.5	98.8	110	90	Good
51	V	45	13.270	80252	0.92	65.9	100.7	110	90	Good
52	Cr	45	9.013	61177	1.98	43.8	102.8	110	90	Good
55	Mn	45	97.247	376170	0.56	477.3	101.9	110	90	Good
56	Fe	45	8955.845	50074449	0.99	43811.2	102.2	110	90	Good
59	Co	72	2.856	28705	0.62	14.0	101.8	110	90	Good
60	Ni	72	5.819	15675	1.98	27.6	105.3	110	90	Good
63	Cu	72	95.012	690181	0.24	467.0	101.7	110	90	Good
66	Zn	72	65.846	84983	1.52	319.6	103.0	110	90	Good
75	As	72	2.520	3124	2.00	12.7	99.4	110	90	Good
78	Se	72	0.856	197	5.61	3.4	125.1	110	90	
88	Sr	115	42.673	259849	0.27	216.5	98.6	110	90	Good
95	Mo	115	0.400	1858	9.38	1.9	106.8	110	90	Good
107	Ag	115	0.054	808	1.67	0.2	154.2	110	90	
111	Cd	115	0.112	251	13.30	0.5	115.9	110	90	
118	Sn	115	0.997	5688	4.49	5.5	91.1	110	90	Good
121	Sb	115	0.404	3209	9.04	2.1	97.8	110	90	Good
137	Ba	115	65.671	161736	0.77	334.2	98.3	110	90	Good
205	Tl	209	0.094	2959	4.96	0.4	107.3	110	90	Good
208	Pb	209	15.291	620587	0.18	77.4	98.8	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1267906	0.25	1184753	107.02	70	120	
72	Ge	893403	0.28	840651	106.28	70	120	
115	In	9122613	2.20	8493915	107.40	70	120	
209	Bi	18980909	1.66	17861880	106.26	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 14:51	Sample Name	1601232-17A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	141_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.296	9078	1.70	40.2	200	88.5	75	125	
9	Be	45	188.232	9968	0.99	2.1	200	93.1	75	125	
11	B	45	194.208	5490	4.19	9.5	200	92.4	75	125	
23	Na	45	5781.765	5518489	2.67	884.3	5000	97.9	75	125	
24	Mg	45	13696.089	6227860	0.75	8758.2	5000	98.8	75	125	
27	Al	45	54376.054	9516087	1.20	49101.0	5000	105.5	75	125	
39	K	45	14856.024	7725699	1.45	10236.0	5000	92.4	75	125	
44	Ca	45	26557.356	711703	0.67	22086.7	5000	89.4	75	125	
47	Ti	45	459.227	82745	0.78	273.5	200	92.9	75	125	
51	V	45	255.414	1419557	0.38	65.9	200	94.8	75	125	
52	Cr	45	235.288	1537630	0.81	43.8	200	95.7	75	125	
55	Mn	45	659.268	2525074	0.20	477.3	200	91.0	75	125	
56	Fe	45	47705.754	264138594	0.49	43811.2	5000	77.9	75	125	
59	Co	72	209.313	2036072	1.07	14.0	200	97.6	75	125	
60	Ni	72	220.402	563425	0.83	27.6	200	96.4	75	125	
63	Cu	72	657.057	4608182	0.24	467.0	200	95.0	75	125	
66	Zn	72	509.968	636379	1.31	319.6	200	95.2	75	125	
75	As	72	204.008	216859	0.56	12.7	200	95.7	75	125	
78	Se	72	196.620	13480	0.81	3.4	200	96.6	75	125	
88	Sr	115	405.631	2337737	0.32	216.5	200	94.6	75	125	
95	Mo	115	185.380	804334	1.28	1.9	200	91.8	75	125	
107	Ag	115	197.955	2499802	0.83	0.2	200	98.9	75	125	
111	Cd	115	185.667	375858	0.79	0.5	200	92.6	75	125	
118	Sn	115	195.802	917734	0.50	5.5	200	95.2	75	125	
121	Sb	115	202.069	1360237	0.31	2.1	200	100.0	75	125	
137	Ba	115	528.972	1234003	0.26	334.2	200	97.4	75	125	
205	Tl	209	188.276	5402943	0.88	0.4	200	93.9	75	125	
208	Pb	209	269.918	10340168	0.61	77.4	200	96.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1255794	0.59	1184753	106.00	70	120	
72	Ge	866505	0.73	840651	103.08	70	120	
115	In	8640092	1.41	8493915	101.72	70	120	
209	Bi	18028487	0.59	17861880	100.93	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 14:53	Sample Name	1601232-17A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	142_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	228.508	9443	0.89	40.2	200	94.1	80	120	
9	Be	45	193.758	10150	1.93	2.1	200	95.9	80	120	
11	B	45	198.059	5508	2.96	9.5	200	94.3	80	120	
23	Na	45	5947.241	5611820	0.74	884.3	1000	506.3	80	120	Fail
24	Mg	45	14031.133	6311884	0.30	8758.2	1000	527.3	80	120	Fail
27	Al	45	53200.179	9211154	0.47	49101.0	1000	409.9	80	120	Fail
39	K	45	15605.110	8025014	0.97	10236.0	1000	536.9	80	120	Fail
44	Ca	45	27101.626	718517	1.07	22086.7	1000	501.5	80	120	Fail
47	Ti	45	520.086	92705	0.39	273.5	200	123.3	80	120	Fail
51	V	45	263.699	1449721	0.60	65.9	200	98.9	80	120	
52	Cr	45	236.459	1528713	0.65	43.8	200	96.3	80	120	
55	Mn	45	663.755	2515036	0.67	477.3	200	93.2	80	120	
56	Fe	45	46021.377	252090897	0.48	43811.2	1000	221.0	80	120	Fail
59	Co	72	210.297	2040962	0.61	14.0	200	98.1	80	120	
60	Ni	72	226.290	577143	0.39	27.6	200	99.3	80	120	
63	Cu	72	665.743	4658688	1.25	467.0	200	99.4	80	120	
66	Zn	72	516.432	642978	0.93	319.6	200	98.4	80	120	
75	As	72	207.053	219593	0.71	12.7	200	97.2	80	120	
78	Se	72	195.300	13361	0.74	3.4	200	95.9	80	120	
88	Sr	115	413.426	2357266	0.80	216.5	200	98.5	80	120	
95	Mo	115	182.839	784971	0.65	1.9	200	90.5	80	120	
107	Ag	115	196.182	2451247	0.34	0.2	200	98.0	80	120	
111	Cd	115	189.869	380293	0.35	0.5	200	94.7	80	120	
118	Sn	115	194.366	901368	0.10	5.5	200	94.4	80	120	
121	Sb	115	84.062	560054	0.43	2.1	200	41.0	80	120	Fail
137	Ba	115	546.004	1260231	0.51	334.2	200	105.9	80	120	
205	Tl	209	194.358	5524456	0.27	0.4	200	97.0	80	120	
208	Pb	209	271.900	10316455	0.90	77.4	200	97.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1242352	0.55	1184753	104.86	70	120	
72	Ge	864536	0.52	840651	102.84	70	120	
115	In	8547786	1.03	8493915	100.63	70	120	
209	Bi	17859328	1.39	17861880	99.99	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 14:55	Sample Name	1601232-17A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	143_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	238.388	9810	1.38	40.2	200	99.1	80	120	
9	Be	45	193.132	10078	1.12	2.1	200	95.5	80	120	
11	B	45	212.579	5774	3.18	9.5	200	101.5	80	120	
23	Na	45	5947.604	5590469	2.67	884.3	1000	506.3	80	120	Fail
24	Mg	45	15060.445	6748051	1.15	8758.2	1000	630.2	80	120	Fail
27	Al	45	59570.556	10273088	1.81	49101.0	1000	1047.0	80	120	Fail
39	K	45	16846.777	8622872	0.98	10236.0	1000	661.1	80	120	Fail
44	Ca	45	29516.210	779343	0.71	22086.7	1000	743.0	80	120	Fail
47	Ti	45	534.635	94920	1.71	273.5	200	130.6	80	120	Fail
51	V	45	270.579	1481399	0.27	65.9	200	102.3	80	120	
52	Cr	45	242.671	1562564	0.82	43.8	200	99.4	80	120	
55	Mn	45	727.548	2745502	0.57	477.3	200	125.1	80	120	Fail
56	Fe	45	50747.952	276869891	1.64	43811.2	1000	693.7	80	120	Fail
59	Co	72	215.159	2068882	0.13	14.0	200	100.6	80	120	
60	Ni	72	231.981	586203	0.16	27.6	200	102.2	80	120	
63	Cu	72	735.675	5100049	0.40	467.0	200	134.4	80	120	Fail
66	Zn	72	557.767	688001	0.98	319.6	200	119.1	80	120	
75	As	72	206.980	217490	0.38	12.7	200	97.2	80	120	
78	Se	72	196.016	13286	0.42	3.4	200	96.3	80	120	
88	Sr	115	438.611	2527032	0.79	216.5	200	111.1	80	120	
95	Mo	115	181.384	786802	0.95	1.9	200	89.8	80	120	
107	Ag	115	196.680	2482899	1.19	0.2	200	98.3	80	120	
111	Cd	115	189.034	382572	0.04	0.5	200	94.3	80	120	
118	Sn	115	190.915	894623	0.57	5.5	200	92.7	80	120	
121	Sb	115	82.719	556835	0.85	2.1	200	40.3	80	120	Fail
137	Ba	115	574.533	1339912	0.97	334.2	200	120.2	80	120	Fail
205	Tl	209	198.454	5531927	0.92	0.4	200	99.0	80	120	
208	Pb	209	288.175	10723614	0.41	77.4	200	105.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1237397	1.06	1184753	104.44	70	120	
72	Ge	856567	0.47	840651	101.89	70	120	
115	In	8637063	1.00	8493915	101.69	70	120	
209	Bi	17513892	1.04	17861880	98.05	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 14:56	Sample Name	CCV7-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	144_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	196.411	7871	0.75	200	98.2	90	110	
9	Be	45	201.750	10242	0.74	200	100.9	90	110	
11	B	45	162.508	4648	5.84	200	81.3	90	110	Fail
23	Na	45	5068.650	4656497	0.34	5000	101.4	90	110	
24	Mg	45	5037.336	2196321	0.46	5000	100.7	90	110	
27	Al	45	4960.574	833081	0.80	5000	99.2	90	110	
39	K	45	5081.462	2576992	0.49	5000	101.6	90	110	
44	Ca	45	4890.862	125953	1.00	5000	97.8	90	110	
47	Ti	45	196.514	33948	1.02	200	98.3	90	110	
51	V	45	201.637	1075615	1.12	200	100.8	90	110	
52	Cr	45	200.763	1257969	0.40	200	100.4	90	110	
55	Mn	45	204.773	751948	0.57	200	102.4	90	110	
56	Fe	45	5097.009	27059433	1.28	5000	101.9	90	110	
59	Co	72	206.228	1960898	0.62	200	103.1	90	110	
60	Ni	72	207.910	519533	0.92	200	104.0	90	110	
63	Cu	72	208.992	1435181	0.86	200	104.5	90	110	
66	Zn	72	204.423	249532	1.09	200	102.2	90	110	
75	As	72	202.936	210863	0.58	200	101.5	90	110	
78	Se	72	206.039	13803	0.53	200	103.0	90	110	
88	Sr	115	189.825	1088802	0.78	200	94.9	90	110	
95	Mo	115	192.001	829127	0.71	200	96.0	90	110	
107	Ag	115	200.159	2515488	0.75	200	100.1	90	110	
111	Cd	115	197.953	398832	0.28	200	99.0	90	110	
118	Sn	115	191.127	891627	0.16	200	95.6	90	110	
121	Sb	115	196.564	1316726	1.00	200	98.3	90	110	
137	Ba	115	196.452	456161	0.06	200	98.2	90	110	
205	Tl	209	199.722	5694954	0.36	200	99.9	90	110	
208	Pb	209	200.330	7627092	0.30	200	100.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1203877	0.91	1184753	101.61	70	120	
72	Ge	847010	0.46	840651	100.76	70	120	
115	In	8602579	2.72	8493915	101.28	70	120	
209	Bi	17922529	2.63	17861880	100.34	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 15:06	Sample Name	LCVL7-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	146LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.719	429	9.16	10	97.2	70	130	
9	Be	45	1.164	65	15.02	1	116.4	70	130	
11	B	45	-17.310	1181	6.08	20	-86.6	70	130	Fail
23	Na	45	78.146	219617	0.16	100	78.1	70	130	
24	Mg	45	106.430	47265	1.17	100	106.4	70	130	
27	Al	45	103.204	18247	1.91	100	103.2	70	130	
39	K	45	111.018	121751	0.94	100	111.0	70	130	
44	Ca	45	107.597	3145	2.55	100	107.6	70	130	
47	Ti	45	5.145	902	10.06	5	102.9	70	130	
51	V	45	1.729	15021	1.58	1	172.9	70	130	Fail
52	Cr	45	5.206	34376	1.09	5	104.1	70	130	
55	Mn	45	5.179	19188	1.15	5	103.6	70	130	
56	Fe	45	103.449	559242	1.12	100	103.4	70	130	
59	Co	72	5.101	49775	1.18	5	102.0	70	130	
60	Ni	72	5.185	13608	1.14	5	103.7	70	130	
63	Cu	72	5.073	39175	0.60	5	101.5	70	130	
66	Zn	72	5.489	7157	2.76	5	109.8	70	130	
75	As	72	5.093	5771	0.16	5	101.9	70	130	
78	Se	72	5.731	523	13.94	5	114.6	70	130	
88	Sr	115	4.936	28394	0.93	5	98.7	70	130	
95	Mo	115	4.912	21116	2.61	5	98.2	70	130	
107	Ag	115	2.131	26703	0.28	2	106.5	70	130	
111	Cd	115	0.962	1938	2.74	1	96.2	70	130	
118	Sn	115	5.034	24044	0.95	5	100.7	70	130	
121	Sb	115	2.060	14038	2.94	2	103.0	70	130	
137	Ba	115	5.142	11895	1.45	5	102.8	70	130	
205	Tl	209	1.017	28787	0.34	1	101.7	70	130	
208	Pb	209	0.961	40052	0.48	1	96.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1207834	1.04	1184753	101.95	70	120	
72	Ge	868197	0.60	840651	103.28	70	120	
115	In	8549492	1.40	8493915	100.65	70	120	
209	Bi	17710891	1.57	17861880	99.15	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 15:25	Sample Name	CCB7-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	147_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.255	30	13.3	2	5	
9	Be	45	-0.093	1	86.6	0.4	0.3	
11	B	45	-41.023	716	5.0	10	10	
23	Na	45	-32.303	119962	0.3	50	100	
24	Mg	45	-0.471	513	6.2	50	100	
27	Al	45	7.464	2111	2.2	50	10	
39	K	45	4.372	68260	0.4	50	100	
44	Ca	45	0.521	383	9.6	50	100	
47	Ti	45	-0.020	7	100.0	4	3	
51	V	45	0.689	9394	1.5	4	3	
52	Cr	45	0.042	1939	5.3	2	2	
55	Mn	45	0.033	229	9.9	2	3	
56	Fe	45	0.662	11774	3.2	50	50	
59	Co	72	0.001	68	27.1	2	3	
60	Ni	72	-0.011	302	9.4	2	3	
63	Cu	72	-0.179	2247	2.9	2	2	
66	Zn	72	0.089	400	11.7	4	2	
75	As	72	0.018	367	10.0	2	2	
78	Se	72	0.356	154	10.8	1	2	
88	Sr	115	-0.005	218	17.1	4	3	
95	Mo	115	-0.001	21	9.1	2	2	
107	Ag	115	0.012	227	9.2	0.4	1	
111	Cd	115	0.001	13	66.2	0.4	0.3	
118	Sn	115	-0.054	470	16.6	4	3	
121	Sb	115	-0.008	269	23.6	2	0.8	
137	Ba	115	0.011	52	28.8	2	3	
205	Tl	209	0.005	250	14.8	2	0.5	
208	Pb	209	-0.079	970	10.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1196582	0.50	1184753	101.00	70	120	
72	Ge	850014	0.49	840651	101.11	70	120	
115	In	8640729	0.29	8493915	101.73	70	120	
209	Bi	18149508	3.31	17861880	101.61	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 15:47	Sample Name	CCV8-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	158_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	203.017	7713	0.81	200	101.5	90	110	
9	Be	45	208.500	10037	1.13	200	104.2	90	110	
11	B	45	153.355	4243	4.99	200	76.7	90	110	Fail
23	Na	45	5107.725	4449315	1.70	5000	102.2	90	110	
24	Mg	45	5099.211	2108499	1.39	5000	102.0	90	110	
27	Al	45	4986.096	794092	1.09	5000	99.7	90	110	
39	K	45	5101.053	2453058	1.02	5000	102.0	90	110	
44	Ca	45	4989.678	121849	1.27	5000	99.8	90	110	
47	Ti	45	199.352	32657	1.31	200	99.7	90	110	
51	V	45	204.775	1035754	0.25	200	102.4	90	110	
52	Cr	45	205.725	1222422	0.74	200	102.9	90	110	
55	Mn	45	207.210	721569	0.43	200	103.6	90	110	
56	Fe	45	5215.267	26260095	1.37	5000	104.3	90	110	
59	Co	72	205.851	1905859	0.86	200	102.9	90	110	
60	Ni	72	207.642	505215	0.55	200	103.8	90	110	
63	Cu	72	207.405	1386868	1.06	200	103.7	90	110	
66	Zn	72	204.384	242939	2.56	200	102.2	90	110	
75	As	72	202.293	204674	1.15	200	101.1	90	110	
78	Se	72	202.809	13232	1.74	200	101.4	90	110	
88	Sr	115	188.587	1055394	0.97	200	94.3	90	110	
95	Mo	115	191.118	805196	0.62	200	95.6	90	110	
107	Ag	115	200.113	2453725	1.52	200	100.1	90	110	
111	Cd	115	196.216	385685	1.48	200	98.1	90	110	
118	Sn	115	190.096	865172	1.38	200	95.0	90	110	
121	Sb	115	197.692	1292121	0.20	200	98.8	90	110	
137	Ba	115	200.242	453589	1.33	200	100.1	90	110	
205	Tl	209	201.579	5694874	0.94	200	100.8	90	110	
208	Pb	209	202.401	7634188	0.76	200	101.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141656	0.93	1184753	96.36	70	120	
72	Ge	824767	1.17	840651	98.11	70	120	
115	In	8388051	0.17	8493915	98.75	70	120	
209	Bi	17748313	0.69	17861880	99.36	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 16:00	Sample Name	LCVL8-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	160LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.650	444	4.34	10	106.5	70	130	
9	Be	45	0.953	52	22.18	1	95.3	70	130	
11	B	45	-24.110	999	6.89	20	-120.5	70	130	Fail
23	Na	45	72.493	204225	0.22	100	72.5	70	130	
24	Mg	45	105.558	44622	0.59	100	105.6	70	130	
27	Al	45	104.218	17526	1.54	100	104.2	70	130	
39	K	45	109.672	115256	0.99	100	109.7	70	130	
44	Ca	45	114.739	3168	3.79	100	114.7	70	130	
47	Ti	45	4.973	830	5.43	5	99.5	70	130	
51	V	45	1.635	13819	1.34	1	163.5	70	130	Fail
52	Cr	45	5.252	33001	1.96	5	105.0	70	130	
55	Mn	45	5.202	18345	1.10	5	104.0	70	130	
56	Fe	45	103.513	532582	0.67	100	103.5	70	130	
59	Co	72	5.097	47461	0.86	5	101.9	70	130	
60	Ni	72	5.172	12955	0.54	5	103.4	70	130	
63	Cu	72	5.030	37096	2.01	5	100.6	70	130	
66	Zn	72	5.484	6824	1.72	5	109.7	70	130	
75	As	72	5.160	5575	1.52	5	103.2	70	130	
78	Se	72	5.642	493	6.51	5	112.8	70	130	
88	Sr	115	4.744	26807	0.70	5	94.9	70	130	
95	Mo	115	4.792	20230	0.67	5	95.8	70	130	
107	Ag	115	2.092	25750	2.18	2	104.6	70	130	
111	Cd	115	0.961	1901	3.88	1	96.1	70	130	
118	Sn	115	4.953	23243	1.61	5	99.1	70	130	
121	Sb	115	2.037	13632	2.52	2	101.8	70	130	
137	Ba	115	4.839	10997	3.67	5	96.8	70	130	
205	Tl	209	0.973	27436	0.66	1	97.3	70	130	
208	Pb	209	0.923	38494	1.57	1	92.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1149553	0.72	1184753	97.03	70	120	
72	Ge	828507	0.65	840651	98.56	70	120	
115	In	8395122	0.62	8493915	98.84	70	120	
209	Bi	17637564	1.21	17861880	98.74	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 16:02	Sample Name	CCB8-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	161_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.291	28	7.1	2	5	
9	Be	45	-0.031	4	13.3	0.4	0.3	
11	B	45	-44.074	637	5.5	10	10	
23	Na	45	-36.287	112883	0.7	50	100	
24	Mg	45	-0.205	609	13.3	50	100	
27	Al	45	13.030	2947	3.2	50	10	FailAq
39	K	45	3.355	65688	1.4	50	100	
44	Ca	45	1.512	396	25.8	50	100	
47	Ti	45	-0.039	3	100.1	4	3	
51	V	45	0.648	8895	2.8	4	3	
52	Cr	45	0.056	1966	7.5	2	2	
55	Mn	45	0.039	244	7.8	2	3	
56	Fe	45	1.165	13988	2.6	50	50	
59	Co	72	0.002	73	43.8	2	3	
60	Ni	72	-0.029	252	15.8	2	3	
63	Cu	72	-0.223	1920	3.0	2	2	
66	Zn	72	0.458	840	3.4	4	2	
75	As	72	0.055	400	3.3	2	2	
78	Se	72	0.354	152	15.9	1	2	
88	Sr	115	-0.004	221	16.6	4	3	
95	Mo	115	0.002	31	32.7	2	2	
107	Ag	115	0.008	180	6.7	0.4	1	
111	Cd	115	0.007	24	67.3	0.4	0.3	
118	Sn	115	-0.044	499	6.7	4	3	
121	Sb	115	-0.008	257	3.4	2	0.8	
137	Ba	115	0.010	49	17.2	2	3	
205	Tl	209	0.002	179	13.1	2	0.5	
208	Pb	209	-0.074	1123	3.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1160013	0.62	1184753	97.91	70	120	
72	Ge	837992	0.31	840651	99.68	70	120	
115	In	8359175	2.64	8493915	98.41	70	120	
209	Bi	17367259	1.50	17861880	97.23	70	120	

Method Blank Report

Date Acquired	2/11/16 4:04 PM	Sample Name	MB-73601
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	162_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.433	23	16.23		
9	Be	45	-0.028	5	101.27		
11	B	45	-41.571	707	8.06		
23	Na	45	-8.562	141345	0.51		
24	Mg	45	3.385	2190	2.84		
27	Al	45	5.630	1811	5.72		
39	K	45	13.921	73161	0.72		
44	Ca	45	31.473	1177	10.49		
47	Ti	45	0.115	30	22.23		
51	V	45	0.495	8396	1.67		
52	Cr	45	0.167	2728	3.67		
55	Mn	45	0.141	628	13.54		
56	Fe	45	5.700	38474	3.80		
59	Co	72	0.005	103	21.16		
60	Ni	72	0.327	1147	4.80		
63	Cu	72	-0.092	2840	3.54		
66	Zn	72	140.258	171458	1.07		FAIL
75	As	72	0.022	370	2.62		
78	Se	72	0.377	155	4.30		
88	Sr	115	0.040	481	1.74		
95	Mo	115	0.067	314	6.73		
107	Ag	115	0.010	207	15.55		
111	Cd	115	0.004	20	28.86		
118	Sn	115	3.581	17537	5.96		
121	Sb	115	0.013	410	4.07		
137	Ba	115	0.048	140	2.38		
205	Tl	209	0.004	229	16.75		
208	Pb	209	-0.019	3355	5.55		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1200038	0.76	1184753	101.29	70	120	
72	Ge	847797	0.53	840651	100.85	70	120	
115	In	8659257	1.26	8493915	101.95	70	120	
209	Bi	18584905	0.90	17861880	104.05	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 16:06	Sample Name	LCS-73601
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	163_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	198.957	7951	1.96	200	99.5	80	120	
9	Be	45	205.076	10383	0.27	200	102.5	80	120	
11	B	45	152.650	4448	4.19	200	76.3	80	120	
23	Na	45	5169.229	4733542	0.87	1000	516.9	80	120	Fail
24	Mg	45	5170.923	2248551	0.74	1000	517.1	80	120	Fail
27	Al	45	1030.797	173341	1.39	1000	103.1	80	120	
39	K	45	5219.641	2638206	0.88	1000	522.0	80	120	Fail
44	Ca	45	5077.538	130394	0.92	1000	507.8	80	120	Fail
47	Ti	45	205.816	35463	2.13	200	102.9	80	120	
51	V	45	207.833	1105478	0.70	200	103.9	80	120	
52	Cr	45	206.639	1291295	0.48	200	103.3	80	120	
55	Mn	45	209.896	768705	0.58	200	104.9	80	120	
56	Fe	45	1024.951	5434037	1.05	1000	102.5	80	120	
59	Co	72	210.094	2012236	0.91	200	105.0	80	120	
60	Ni	72	212.425	534718	0.47	200	106.2	80	120	
63	Cu	72	210.868	1458596	0.93	200	105.4	80	120	
66	Zn	72	208.913	256872	0.66	200	104.5	80	120	Fail
75	As	72	205.330	214911	0.49	200	102.7	80	120	
78	Se	72	205.933	13896	1.38	200	103.0	80	120	
88	Sr	115	196.843	1117242	0.24	200	98.4	80	120	
95	Mo	115	198.883	849821	0.23	200	99.4	80	120	
107	Ag	115	204.273	2540723	1.20	200	102.1	80	120	
111	Cd	115	200.431	399615	1.19	200	100.2	80	120	
118	Sn	115	202.186	933342	1.07	200	101.1	80	120	
121	Sb	115	204.862	1358158	1.04	200	102.4	80	120	
137	Ba	115	204.702	470306	0.48	200	102.4	80	120	
205	Tl	209	203.046	5838364	0.92	200	101.5	80	120	
208	Pb	209	204.737	7859358	0.78	200	102.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1200633	0.47	1184753	101.34	70	120	
72	Ge	853217	0.42	840651	101.49	70	120	
115	In	8508932	1.66	8493915	100.18	70	120	
209	Bi	18066533	1.90	17861880	101.15	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 16:08	Sample Name	LCSD-73601
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	164_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.017	7949	0.42	200	98.5	80	120	
9	Be	45	201.495	10299	0.40	200	100.7	80	120	
11	B	45	151.239	4463	3.50	200	75.6	80	120	
23	Na	45	5054.849	4676266	1.04	1000	505.5	80	120	Fail
24	Mg	45	5057.767	2220329	0.60	1000	505.8	80	120	Fail
27	Al	45	1010.669	171590	0.56	1000	101.1	80	120	
39	K	45	5103.861	2605787	0.47	1000	510.4	80	120	Fail
44	Ca	45	4950.905	128365	0.28	1000	495.1	80	120	Fail
47	Ti	45	199.489	34700	1.54	200	99.7	80	120	
51	V	45	204.509	1098288	0.26	200	102.3	80	120	
52	Cr	45	203.422	1283355	0.32	200	101.7	80	120	
55	Mn	45	206.584	763800	0.50	200	103.3	80	120	
56	Fe	45	1031.135	5518955	0.47	1000	103.1	80	120	
59	Co	72	208.081	1999098	0.17	200	104.0	80	120	
60	Ni	72	209.043	527837	0.93	200	104.5	80	120	
63	Cu	72	209.629	1454542	0.72	200	104.8	80	120	
66	Zn	72	206.758	255005	0.36	200	103.4	80	120	Fail
75	As	72	205.866	216136	1.14	200	102.9	80	120	
78	Se	72	202.659	13720	1.08	200	101.3	80	120	
88	Sr	115	193.877	1115680	0.28	200	96.9	80	120	
95	Mo	115	193.385	837971	0.87	200	96.7	80	120	
107	Ag	115	200.163	2524218	0.80	200	100.1	80	120	
111	Cd	115	199.052	402401	0.99	200	99.5	80	120	
118	Sn	115	200.095	936579	0.82	200	100.0	80	120	
121	Sb	115	201.413	1353941	0.84	200	100.7	80	120	
137	Ba	115	200.099	466096	0.16	200	100.0	80	120	
205	Tl	209	202.604	5780950	0.16	200	101.3	80	120	
208	Pb	209	204.483	7789756	0.13	200	102.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1212095	0.13	1184753	102.31	70	120	
72	Ge	855888	1.11	840651	101.81	70	120	
115	In	8630986	3.05	8493915	101.61	70	120	
209	Bi	17926238	0.86	17861880	100.36	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 16:14	Sample Name	1601247-16A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	167_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	10.521	480	5.26	56.3	93.5	110	90	Good
9	Be	45	0.435	29	17.16	2.3	93.8	110	90	Good
11	B	45	-30.174	969	8.32	26.8	-563.1	110	90	
23	Na	45	39.413	192398	0.45	272.5	72.3	110	90	
24	Mg	45	2048.048	931847	0.87	10135.8	101.0	110	90	Good
27	Al	45	11673.625	2043620	0.99	58711.3	99.4	110	90	Good
39	K	45	2956.786	1593080	0.62	14874.8	99.4	110	90	Good
44	Ca	45	7906.757	212143	1.26	39218.5	100.8	110	90	Good
47	Ti	45	32.572	5879	4.03	159.9	101.9	110	90	Good
51	V	45	14.951	88783	0.29	74.7	100.1	110	90	Good
52	Cr	45	10.119	67809	1.10	49.7	101.7	110	90	Good
55	Mn	45	88.108	337545	1.51	438.8	100.4	110	90	Good
56	Fe	45	11730.856	64954346	1.90	58048.6	101.0	110	90	Good
59	Co	72	3.768	36932	1.30	18.4	102.2	110	90	Good
60	Ni	72	6.652	17434	0.17	31.4	105.9	110	90	Good
63	Cu	72	5.771	44249	1.56	28.1	102.8	110	90	Good
66	Zn	72	68.473	86208	0.81	330.0	103.8	110	90	Good
75	As	72	3.168	3739	0.85	15.9	99.7	110	90	Good
78	Se	72	1.060	206	7.55	3.7	142.4	110	90	
88	Sr	115	43.077	254031	0.67	212.6	101.3	110	90	Good
95	Mo	115	0.269	1220	1.52	1.3	102.0	110	90	Good
107	Ag	115	0.040	591	17.33	0.1	156.8	110	90	
111	Cd	115	0.115	250	19.64	0.5	126.5	110	90	
118	Sn	115	0.958	5323	1.76	5.0	95.2	110	90	Good
121	Sb	115	0.506	3808	2.43	2.6	96.8	110	90	Good
137	Ba	115	79.023	188501	1.33	389.4	101.5	110	90	Good
205	Tl	209	0.100	3120	2.04	0.5	107.3	110	90	Good
208	Pb	209	25.641	1032805	0.78	131.8	97.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1255698	0.74	1184753	105.99	70	120	
72	Ge	871629	0.22	840651	103.69	70	120	
115	In	8832545	0.94	8493915	103.99	70	120	
209	Bi	18886625	0.41	17861880	105.74	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 16:34	Sample Name	1601247-16A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	177_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	233.032	9716	0.89	56.3	200	88.4	75	125	
9	Be	45	186.430	9856	0.71	2.3	200	92.1	75	125	
11	B	45	210.177	5801	2.47	26.8	200	91.7	75	125	
23	Na	45	5058.587	4839634	1.11	272.5	5000	95.7	75	125	
24	Mg	45	14948.994	6785340	3.59	10135.8	5000	96.3	75	125	
27	Al	45	62638.825	10943228	0.87	58711.3	5000	78.6	75	125	
39	K	45	19739.673	10224495	1.23	14874.8	5000	97.3	75	125	
44	Ca	45	43402.511	1160836	0.21	39218.5	5000	83.7	75	125	
47	Ti	45	348.849	62750	0.79	159.9	200	94.5	75	125	
51	V	45	264.224	1465717	1.21	74.7	200	94.8	75	125	
52	Cr	45	239.448	1561978	1.33	49.7	200	94.9	75	125	
55	Mn	45	622.048	2378415	0.52	438.8	200	91.6	75	125	
56	Fe	45	62298.188	344346262	1.06	58048.6	5000	85.0	75	125	
59	Co	72	212.390	2074387	0.35	18.4	200	97.0	75	125	
60	Ni	72	222.594	571343	0.27	31.4	200	95.6	75	125	
63	Cu	72	216.764	1528863	0.27	28.1	200	94.3	75	125	
66	Zn	72	517.676	648606	0.62	330.0	200	93.9	75	125	
75	As	72	205.485	219311	0.41	15.9	200	94.8	75	125	
78	Se	72	192.586	13261	0.85	3.7	200	94.4	75	125	
88	Sr	115	404.125	2333787	0.53	212.6	200	95.8	75	125	
95	Mo	115	182.961	795496	0.45	1.3	200	90.8	75	125	
107	Ag	115	192.925	2441344	0.75	0.1	200	96.4	75	125	
111	Cd	115	181.437	368059	0.66	0.5	200	90.5	75	125	
118	Sn	115	193.901	910702	0.54	5.0	200	94.4	75	125	
121	Sb	115	199.906	1348421	0.79	2.6	200	98.6	75	125	
137	Ba	115	577.982	1351152	0.74	389.4	200	94.3	75	125	
205	Tl	209	188.654	5353689	0.90	0.5	200	94.1	75	125	
208	Pb	209	327.180	12393508	0.22	131.8	200	97.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1253604	0.54	1184753	105.81	70	120	
72	Ge	870038	0.52	840651	103.50	70	120	
115	In	8656868	0.84	8493915	101.92	70	120	
209	Bi	17828045	0.43	17861880	99.81	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 16:36	Sample Name	1601247-16A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	178_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	249.014	10271	1.49	56.3	200	96.4	80	120	
9	Be	45	198.166	10367	2.29	2.3	200	97.9	80	120	
11	B	45	211.862	5773	4.17	26.8	200	92.5	80	120	
23	Na	45	5258.332	4972282	2.35	272.5	1000	498.6	80	120	Fail
24	Mg	45	15394.631	6914839	1.48	10135.8	1000	525.9	80	120	Fail
27	Al	45	65149.323	11263186	1.98	58711.3	1000	643.8	80	120	Fail
39	K	45	20273.331	10388923	0.43	14874.8	1000	539.9	80	120	Fail
44	Ca	45	43489.370	1150985	1.11	39218.5	1000	427.1	80	120	Fail
47	Ti	45	365.088	64977	1.31	159.9	200	102.6	80	120	
51	V	45	276.240	1516144	1.71	74.7	200	100.8	80	120	
52	Cr	45	248.385	1603283	1.67	49.7	200	99.3	80	120	
55	Mn	45	632.093	2391442	0.88	438.8	200	96.7	80	120	
56	Fe	45	58975.358	322553401	2.11	58048.6	1000	92.7	80	120	
59	Co	72	220.271	2117466	0.69	18.4	200	100.9	80	120	
60	Ni	72	235.429	594739	1.11	31.4	200	102.0	80	120	
63	Cu	72	230.012	1596539	0.92	28.1	200	101.0	80	120	
66	Zn	72	530.251	653905	1.15	330.0	200	100.1	80	120	
75	As	72	215.753	226625	0.70	15.9	200	99.9	80	120	
78	Se	72	202.428	13712	1.34	3.7	200	99.4	80	120	
88	Sr	115	420.179	2415893	0.68	212.6	200	103.8	80	120	
95	Mo	115	179.408	776672	0.75	1.3	200	89.0	80	120	
107	Ag	115	193.510	2438335	1.05	0.1	200	96.7	80	120	
111	Cd	115	191.877	387579	1.30	0.5	200	95.7	80	120	
118	Sn	115	194.744	910625	0.62	5.0	200	94.9	80	120	
121	Sb	115	66.460	446545	1.19	2.6	200	31.9	80	120	Fail
137	Ba	115	598.240	1392461	0.74	389.4	200	104.4	80	120	
205	Tl	209	199.229	5611537	0.59	0.5	200	99.4	80	120	
208	Pb	209	335.552	12617182	1.11	131.8	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1240440	0.47	1184753	104.70	70	120	
72	Ge	856330	0.46	840651	101.87	70	120	
115	In	8620543	1.76	8493915	101.49	70	120	
209	Bi	17703928	2.74	17861880	99.12	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 16:38	Sample Name	1601247-16A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	179_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	250.468	10211	0.78	56.3	200	97.1	80	120	
9	Be	45	193.518	10006	1.69	2.3	200	95.6	80	120	
11	B	45	223.228	5931	4.38	26.8	200	98.2	80	120	
23	Na	45	5219.076	4879203	1.41	272.5	1000	494.7	80	120	Fail
24	Mg	45	16454.009	7305128	0.87	10135.8	1000	631.8	80	120	Fail
27	Al	45	70915.295	12117908	0.91	58711.3	1000	1220.4	80	120	Fail
39	K	45	21761.929	11018079	1.57	14874.8	1000	688.7	80	120	Fail
44	Ca	45	46578.709	1218453	0.69	39218.5	1000	736.0	80	120	Fail
47	Ti	45	367.575	64669	1.31	159.9	200	103.9	80	120	
51	V	45	283.802	1539438	0.26	74.7	200	104.5	80	120	
52	Cr	45	253.854	1619579	0.86	49.7	200	102.1	80	120	
55	Mn	45	661.348	2473173	0.44	438.8	200	111.3	80	120	
56	Fe	45	65085.531	351849062	1.46	58048.6	1000	703.7	80	120	Fail
59	Co	72	223.357	2104423	0.68	18.4	200	102.5	80	120	
60	Ni	72	242.255	599791	0.49	31.4	200	105.4	80	120	
63	Cu	72	234.785	1597147	0.15	28.1	200	103.4	80	120	
66	Zn	72	560.522	677447	0.50	330.0	200	115.3	80	120	
75	As	72	215.550	221909	0.02	15.9	200	99.8	80	120	
78	Se	72	204.530	13578	1.18	3.7	200	100.4	80	120	
88	Sr	115	436.337	2448404	1.23	212.6	200	111.9	80	120	
95	Mo	115	180.182	761271	1.50	1.3	200	89.4	80	120	
107	Ag	115	195.377	2402210	1.09	0.1	200	97.6	80	120	
111	Cd	115	194.878	384103	1.20	0.5	200	97.2	80	120	
118	Sn	115	196.809	898178	0.66	5.0	200	95.9	80	120	
121	Sb	115	67.298	441234	0.64	2.6	200	32.3	80	120	Fail
137	Ba	115	669.223	1520099	0.76	389.4	200	139.9	80	120	Fail
205	Tl	209	201.983	5512263	0.37	0.5	200	100.8	80	120	
208	Pb	209	352.205	12833089	1.16	131.8	200	110.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1226107	0.43	1184753	103.49	70	120	
72	Ge	839288	0.56	840651	99.84	70	120	
115	In	8412082	1.51	8493915	99.04	70	120	
209	Bi	17154696	2.88	17861880	96.04	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 16:40	Sample Name	CCV9-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	180_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	198.301	7785	0.91	200	99.2	90	110	
9	Be	45	198.796	9888	1.43	200	99.4	90	110	
11	B	45	161.563	4538	2.68	200	80.8	90	110	Fail
23	Na	45	5067.313	4561224	0.59	5000	101.3	90	110	
24	Mg	45	5072.676	2166952	0.33	5000	101.5	90	110	
27	Al	45	5013.804	824936	0.45	5000	100.3	90	110	
39	K	45	5080.016	2524099	0.08	5000	101.6	90	110	
44	Ca	45	4981.109	125676	2.01	5000	99.6	90	110	
47	Ti	45	197.991	33510	2.23	200	99.0	90	110	
51	V	45	203.185	1061848	1.13	200	101.6	90	110	
52	Cr	45	202.478	1243037	1.07	200	101.2	90	110	
55	Mn	45	206.164	741731	1.68	200	103.1	90	110	
56	Fe	45	5140.179	26739099	1.03	5000	102.8	90	110	
59	Co	72	205.632	1937689	1.22	200	102.8	90	110	
60	Ni	72	206.659	511790	0.87	200	103.3	90	110	
63	Cu	72	208.614	1419721	1.17	200	104.3	90	110	
66	Zn	72	204.492	247367	0.59	200	102.2	90	110	
75	As	72	202.209	208226	0.57	200	101.1	90	110	
78	Se	72	201.125	13356	1.76	200	100.6	90	110	
88	Sr	115	188.617	1070633	1.05	200	94.3	90	110	
95	Mo	115	189.668	810553	0.76	200	94.8	90	110	
107	Ag	115	197.244	2453206	0.48	200	98.6	90	110	
111	Cd	115	193.791	386351	1.20	200	96.9	90	110	
118	Sn	115	189.246	873626	0.67	200	94.6	90	110	
121	Sb	115	196.132	1300116	0.59	200	98.1	90	110	
137	Ba	115	195.350	448842	0.42	200	97.7	90	110	
205	Tl	209	200.123	5550341	0.84	200	100.1	90	110	
208	Pb	209	201.643	7466089	0.05	200	100.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179477	0.42	1184753	99.55	70	120	
72	Ge	839393	0.37	840651	99.85	70	120	
115	In	8509600	1.86	8493915	100.18	70	120	
209	Bi	17426984	1.95	17861880	97.57	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 16:44	Sample Name	LCVL9-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	182LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.414	459	5.15	10	104.1	70	130	
9	Be	45	1.003	57	3.63	1	100.3	70	130	
11	B	45	-20.706	1120	9.59	20	-103.5	70	130	Fail
23	Na	45	68.980	212136	0.40	100	69.0	70	130	Fail
24	Mg	45	106.727	47547	0.85	100	106.7	70	130	
27	Al	45	105.372	18671	2.29	100	105.4	70	130	
39	K	45	112.235	122763	0.65	100	112.2	70	130	
44	Ca	45	114.259	3327	0.95	100	114.3	70	130	
47	Ti	45	5.481	963	4.50	5	109.6	70	130	
51	V	45	1.845	15686	1.20	1	184.5	70	130	Fail
52	Cr	45	5.190	34393	0.48	5	103.8	70	130	
55	Mn	45	5.101	18961	1.22	5	102.0	70	130	
56	Fe	45	104.937	569041	0.76	100	104.9	70	130	
59	Co	72	5.175	50690	0.81	5	103.5	70	130	
60	Ni	72	5.170	13623	2.86	5	103.4	70	130	
63	Cu	72	4.912	38190	0.13	5	98.2	70	130	
66	Zn	72	5.250	6885	2.16	5	105.0	70	130	
75	As	72	5.155	5860	0.95	5	103.1	70	130	
78	Se	72	5.277	494	1.30	5	105.5	70	130	
88	Sr	115	4.953	28884	0.65	5	99.1	70	130	
95	Mo	115	4.838	21082	1.39	5	96.8	70	130	
107	Ag	115	2.080	26424	1.18	2	104.0	70	130	
111	Cd	115	0.964	1969	5.23	1	96.4	70	130	
118	Sn	115	5.055	24470	2.00	5	101.1	70	130	
121	Sb	115	1.997	13806	1.56	2	99.8	70	130	
137	Ba	115	4.825	11319	4.10	5	96.5	70	130	
205	Tl	209	1.024	28727	1.18	1	102.4	70	130	
208	Pb	209	1.019	41890	1.35	1	101.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1211778	0.89	1184753	102.28	70	120	
72	Ge	871564	0.26	840651	103.68	70	120	
115	In	8667145	0.95	8493915	102.04	70	120	
209	Bi	17560794	1.64	17861880	98.31	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 16:46	Sample Name	CCB9-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	183_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.372	26	13.3	2	5	
9	Be	45	0.054	9	29.4	0.4	0.3	
11	B	45	-37.989	792	2.4	10	10	
23	Na	45	-39.360	116451	0.6	50	100	
24	Mg	45	0.392	908	11.9	50	100	
27	Al	45	8.852	2399	2.7	50	10	
39	K	45	4.566	70000	0.7	50	100	
44	Ca	45	3.373	467	9.1	50	100	
47	Ti	45	-0.002	10	88.2	4	3	
51	V	45	0.851	10497	3.8	4	3	
52	Cr	45	0.045	2005	2.4	2	2	
55	Mn	45	0.062	343	9.9	2	3	
56	Fe	45	2.603	22544	4.3	50	50	
59	Co	72	0.011	168	5.0	2	3	
60	Ni	72	-0.007	317	13.1	2	3	
63	Cu	72	-0.222	1983	11.6	2	2	
66	Zn	72	0.104	426	8.2	4	2	
75	As	72	0.054	411	4.2	2	2	
78	Se	72	0.121	141	4.6	1	2	
88	Sr	115	0.014	328	19.1	4	3	
95	Mo	115	0.015	92	36.2	2	2	
107	Ag	115	0.031	464	11.5	0.4	1	
111	Cd	115	0.011	33	78.1	0.4	0.3	
118	Sn	115	-0.005	697	7.4	4	3	
121	Sb	115	0.015	420	18.7	2	0.8	
137	Ba	115	0.019	71	11.8	2	3	
205	Tl	209	0.020	690	2.9	2	0.5	
208	Pb	209	-0.016	3348	5.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1225326	0.62	1184753	103.42	70	120	
72	Ge	863921	0.23	840651	102.77	70	120	
115	In	8644623	1.54	8493915	101.77	70	120	
209	Bi	17900248	2.47	17861880	100.21	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 17:08	Sample Name	CCV10-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	194_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	204.370	7649	1.60	200	102.2	90	110	
9	Be	45	205.155	9728	0.71	200	102.6	90	110	
11	B	45	158.130	4266	5.06	200	79.1	90	110	Fail
23	Na	45	5088.359	4366392	0.84	5000	101.8	90	110	
24	Mg	45	5111.563	2081818	0.26	5000	102.2	90	110	
27	Al	45	4987.792	782462	0.89	5000	99.8	90	110	
39	K	45	5082.250	2407551	0.75	5000	101.6	90	110	
44	Ca	45	4914.769	118223	0.22	5000	98.3	90	110	
47	Ti	45	197.080	31805	1.16	200	98.5	90	110	
51	V	45	203.330	1013116	0.65	200	101.7	90	110	
52	Cr	45	202.566	1185536	0.79	200	101.3	90	110	
55	Mn	45	205.194	703843	0.18	200	102.6	90	110	
56	Fe	45	5156.683	25572558	1.51	5000	103.1	90	110	
59	Co	72	204.276	1852736	0.54	200	102.1	90	110	
60	Ni	72	204.057	486422	1.23	200	102.0	90	110	
63	Cu	72	206.772	1354453	1.18	200	103.4	90	110	
66	Zn	72	203.849	237357	1.27	200	101.9	90	110	
75	As	72	202.376	200582	0.30	200	101.2	90	110	
78	Se	72	204.198	13049	1.32	200	102.1	90	110	
88	Sr	115	184.801	1033797	0.71	200	92.4	90	110	
95	Mo	115	187.911	791350	0.29	200	94.0	90	110	
107	Ag	115	195.371	2394527	0.67	200	97.7	90	110	
111	Cd	115	194.095	381341	0.52	200	97.0	90	110	
118	Sn	115	188.806	858918	0.41	200	94.4	90	110	
121	Sb	115	194.767	1272482	0.51	200	97.4	90	110	
137	Ba	115	196.676	445304	0.93	200	98.3	90	110	
205	Tl	209	200.659	5621471	0.39	200	100.3	90	110	
208	Pb	209	200.640	7504673	0.56	200	100.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1124582	1.06	1184753	94.92	70	120	
72	Ge	807943	0.79	840651	96.11	70	120	
115	In	8385029	1.05	8493915	98.72	70	120	
209	Bi	17608152	2.48	17861880	98.58	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 17:12	Sample Name	LCVL10-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	196LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.412	442	7.81	10	104.1	70	130	
9	Be	45	1.092	60	18.54	1	109.2	70	130	
11	B	45	-16.044	1168	9.42	20	-80.2	70	130	Fail
23	Na	45	64.617	200878	0.03	100	64.6	70	130	Fail
24	Mg	45	108.998	46830	0.57	100	109.0	70	130	
27	Al	45	106.902	18262	0.63	100	106.9	70	130	
39	K	45	108.965	116867	1.05	100	109.0	70	130	
44	Ca	45	114.064	3206	4.03	100	114.1	70	130	
47	Ti	45	5.150	873	4.13	5	103.0	70	130	
51	V	45	1.305	12350	1.72	1	130.5	70	130	Fail
52	Cr	45	5.154	32960	0.89	5	103.1	70	130	
55	Mn	45	5.197	18633	1.88	5	103.9	70	130	
56	Fe	45	105.527	551991	0.77	100	105.5	70	130	
59	Co	72	5.147	48344	0.30	5	102.9	70	130	
60	Ni	72	5.254	13270	2.43	5	105.1	70	130	
63	Cu	72	5.065	37653	0.36	5	101.3	70	130	
66	Zn	72	5.354	6726	1.33	5	107.1	70	130	
75	As	72	5.127	5591	2.16	5	102.5	70	130	
78	Se	72	5.500	488	6.38	5	110.0	70	130	
88	Sr	115	4.876	27353	1.12	5	97.5	70	130	
95	Mo	115	4.842	20295	1.84	5	96.8	70	130	
107	Ag	115	2.123	25949	1.53	2	106.2	70	130	
111	Cd	115	0.936	1840	1.45	1	93.6	70	130	
118	Sn	115	5.014	23354	2.12	5	100.3	70	130	
121	Sb	115	2.094	13909	0.61	2	104.7	70	130	
137	Ba	115	5.042	11377	1.18	5	100.8	70	130	
205	Tl	209	1.022	28718	0.63	1	102.2	70	130	
208	Pb	209	0.994	41022	1.72	1	99.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1169002	0.92	1184753	98.67	70	120	
72	Ge	835698	0.68	840651	99.41	70	120	
115	In	8336763	1.05	8493915	98.15	70	120	
209	Bi	17593368	1.65	17861880	98.50	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 17:15	Sample Name	CCB10-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	197_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.314	27	31.1	2	5	
9	Be	45	-0.005	6	73.5	0.4	0.3	
11	B	45	-37.216	770	12.4	10	10	
23	Na	45	-42.693	108189	1.1	50	100	
24	Mg	45	0.269	814	5.7	50	100	
27	Al	45	15.580	3384	1.2	50	10	FailAq
39	K	45	3.691	66339	1.8	50	100	
44	Ca	45	2.784	430	8.0	50	100	
47	Ti	45	-0.013	8	65.5	4	3	
51	V	45	0.331	7333	0.7	4	3	
52	Cr	45	0.044	1911	3.7	2	2	
55	Mn	45	0.070	356	6.7	2	3	
56	Fe	45	2.687	21934	4.0	50	50	
59	Co	72	0.009	138	17.2	2	3	
60	Ni	72	-0.008	303	12.5	2	3	
63	Cu	72	-0.230	1867	7.4	2	2	
66	Zn	72	0.569	972	13.4	4	2	
75	As	72	0.000	344	11.6	2	2	
78	Se	72	0.427	157	4.8	1	2	
88	Sr	115	0.001	251	21.3	4	3	
95	Mo	115	0.008	60	34.7	2	2	
107	Ag	115	0.018	301	20.7	0.4	1	
111	Cd	115	0.007	24	28.4	0.4	0.3	
118	Sn	115	-0.003	693	16.3	4	3	
121	Sb	115	0.007	359	8.3	2	0.8	
137	Ba	115	0.016	63	5.3	2	3	
205	Tl	209	0.012	451	21.8	2	0.5	
208	Pb	209	-0.037	2531	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1168601	0.14	1184753	98.64	70	120	
72	Ge	837193	0.69	840651	99.59	70	120	
115	In	8449234	2.29	8493915	99.47	70	120	
209	Bi	17647913	1.61	17861880	98.80	70	120	

Laredo Air Force Base – Shotgun Range

Data Usability Summary Report

LAREDO, TEXAS

Polynuclear Aromatic Hydrocarbons (PAHs) and Metals Analyses

SDG #1601232

Analyses Performed By:
DHL Analytical, Inc.
Round Rock, Texas

Report #25210R
Review Level: Tier II
Project: 04285081.0000.00043

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1601232 for samples collected in association with the Laredo AFB Shotgun Range Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis			
					VOC	SVOC	MET	MISC
SGR-DU056-A	1601232-01	Soil	1/25/2016			X	X	
SGR-DU056-B	1601232-02	Soil	1/25/2016			X	X	
SGR-DU056-C	1601232-03	Soil	1/25/2016			X	X	
SGR-DU074-A	1601232-04	Soil	1/25/2016			X	X	
SGR-DU074-B	1601232-05	Soil	1/25/2016			X	X	
SGR-DU074-C	1601232-06	Soil	1/25/2016			X	X	
SGR-DU058-A	1601232-07	Soil	1/25/2016			X	X	
SGR-DU058-B	1601232-08	Soil	1/25/2016			X	X	
SGR-DU058-C	1601232-09	Soil	1/25/2016			X	X	
SGR-DU224-A	1601232-10	Soil	1/25/2016			X	X	
SGR-DU224-B	1601232-11	Soil	1/25/2016			X	X	
SGR-DU224-C	1601232-12	Soil	1/25/2016			X	X	
SGR-DU076-A	1601232-13	Soil	1/25/2016			X	X	
SGR-DU076-B	1601232-14	Soil	1/25/2016			X	X	
SGR-DU076-C	1601232-15	Soil	1/25/2016			X	X	
SGR-DU105-A	1601232-16	Soil	1/25/2016			X	X	
SGR-DU105-B	1601232-17	Soil	1/25/2016			X	X	
SGR-DU105-C	1601232-18	Soil	1/25/2016			X	X	
SGR-DU017-A	1601232-19	Soil	1/25/2016			X	X	
SGR-DU017-B	1601232-20	Soil	1/25/2016			X	X	
SGR-DU017-C	1601232-21	Soil	1/25/2016			X	X	
SGR-DU016-A	1601232-22	Soil	1/25/2016			X	X	
SGR-DU016-B	1601232-23	Soil	1/25/2016			X	X	
SGR-DU016-C	1601232-24	Soil	1/25/2016			X	X	
SGR-DU039-A	1601232-25	Soil	1/25/2016			X	X	
SGR-DU039-B	1601232-26	Soil	1/25/2016			X	X	
SGR-DU039-C	1601232-27	Soil	1/25/2016			X	X	

Note:
1. Metals analyses includes lead.
2. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed for SVOCs on sample location SGR-DU074-C.
3. The MS/MSD analysis was performed for metals on sample locations SGR-DU076-C and SGR-DU105-B.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8270 SIM. Data were reviewed in accordance with Laredo Air Force Base Shotgun Range UFP-QAPP (Arcadis 2015), DOD QSM, versions 4.2 (October 2010) and 5.0 (July 2013), and EM 200-1-10, June 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound limit of detection (LOD).

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported LOD. However, the reported limit is approximate and may or may not represent the actual LOD.

  H Bias in sample result likely to be high.

  L Bias in sample result likely to be low.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the DL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires the PAH surrogate compounds exhibit recoveries within the DoD QSM established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the DoD QSM established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the DoD QSM established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SGR-DU074-C	Benzo(a)anthracene	AC	<LL but >10%
	Benzo(a)pyrene		
	Benzo(b)fluoranthene		
	Benzo(e)pyrene		
	Benzo(g,h,i)perylene		
	Benzo(k)fluoranthene		
	Chrysene		
	Indeno(1,2,3-cd)pyrene		

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	JH
< the lower control limit (LL) but > 10%	Non-detect	UJL
	Detect	JL
< 10%	Non-detect	R
	Detect	JL
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the DoD QSM established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of three times the LOQ is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

7. System Performance and Overall Assessment

The Project detection limits were not met. The samples were all diluted 10 fold due to the observed color of the sample extracts. Project Action Limits were still met with the elevated detection limits.

The laboratory is not certified for compound benzo(j)fluoranthene by DoD, and the compound is not on the NELAC list. The laboratory followed the same calibration criteria as the other PAHs for this compound.

The soil samples are air dried and sub-sampled per Incremental Sampling Methodology (ISM). Therefore, all results are reported as dry weight. Percent moisture was not measured.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

PAHs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

%R Percent recovery
RPD Relative percent difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6020A. Data were reviewed in accordance with Laredo Air Force Base Shotgun Range UFP-QAPP (Arcadis 2015), DOD QSM, versions 4.2 (October 2010) and 5.0 (July 2013), and EM 200-1-10, June 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte limit of detection (LOD).

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample LOD. However, the reported limit is approximate and may or may not represent the actual LOD.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  H Bias in sample result likely to be high.

  L Bias in sample result likely to be low.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6020A	Water	180 days from collection to analysis	Cool to < 6°C
	Soil	180 days from collection to analysis	Cool to < 6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the DL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the DoD QSM established acceptance limits. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample locations SGR-DU076-C and SGR-DU105-B exhibited recoveries within the control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the LOQ. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of one times the LOQ is applied for water matrices and two times the LOQ for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of three times the LOQ is applied for soil matrices.

A field duplicate was not collected for sample location associated with this SDG.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery within DoD QSM established control limits.

The LCS/LCSD analysis exhibited recoveries within the control limits.

6. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the LOQ in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

The serial dilution performed on sample locations SGR-DU076-C and SGR-DU105-B exhibited %D within the control limit.

7. System Performance and Overall Assessment

The soil samples are air dried and sub-sampled per Incremental Sampling Methodology (ISM). Therefore, all results are reported as dry weight. Percent moisture was not measured.

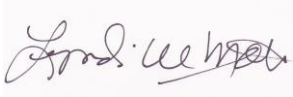
Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METALS

METALS; SW-846 6020	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Mass Spectrometry (ICP/MS)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment Blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
ICP Serial Dilution %D		X		X	
Moisture Content	X				X

%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE: 

DATE: February 22, 2016

PEER REVIEW BY: Dennis Capria

DATE: March 10, 2016

DATA QUALIFIER SUMMARY

REPORT NUMBER 25210R
ANALYTICAL DATA VALIDATION SUMMARY

Sample Delivery Group No.	Sample ID	Compound	Qualifier	Reason
PAHs				
1601232	SGR-DU056-A	None	--	--
	SGR-DU056-B	None	--	--
	SGR-DU056-C	None	--	--
	SGR-DU074-A	None	--	--
	SGR-DU074-B	None	--	--
	SGR-DU074-C	Benzo(a)anthracene	JL	MSD %R
		Benzo(a)pyrene	JL	MSD %R
		Benzo(b)fluoranthene	JL	MSD %R
		Benzo(e)pyrene	JL	MSD %R
		Benzo(g,h,i)perylene	JL	MSD %R
		Benzo(k)fluoranthene	JL	MSD %R
		Chrysene	JL	MSD %R
		Indeno(1,2,3-cd)pyrene	JL	MSD %R
	SGR-DU058-A	None	--	--
	SGR-DU058-B	None	--	--
	SGR-DU058-C	None	--	--
	SGR-DU224-A	None	--	--
	SGR-DU224-B	None	--	--
	SGR-DU224-C	None	--	--
	SGR-DU076-A	None	--	--
	SGR-DU076-B	None	--	--
	SGR-DU076-C	None	--	--
	SGR-DU105-A	None	--	--
	SGR-DU105-B	None	--	--
	SGR-DU105-C	None	--	--
	SGR-DU017-A	None	--	--
	SGR-DU017-B	None	--	--
	SGR-DU017-C	None	--	--
	SGR-DU016-A	None	--	--
	SGR-DU016-B	None	--	--
	SGR-DU016-C	None	--	--
	SGR-DU039-A	None	--	--
	SGR-DU039-B	None	--	--
	SGR-DU039-C	None	--	--
Metals				
1601232	SGR-DU056-A	None	--	--
	SGR-DU056-B	None	--	--
	SGR-DU056-C	None	--	--
	SGR-DU074-A	None	--	--
	SGR-DU074-B	None	--	--
	SGR-DU074-C	None	--	--
	SGR-DU058-A	None	--	--
	SGR-DU058-B	None	--	--
	SGR-DU058-C	None	--	--
	SGR-DU224-A	None	--	--
	SGR-DU224-B	None	--	--
	SGR-DU224-C	None	--	--
	SGR-DU076-A	None	--	--
	SGR-DU076-B	None	--	--
	SGR-DU076-C	None	--	--
	SGR-DU105-A	None	--	--
	SGR-DU105-B	None	--	--
	SGR-DU105-C	None	--	--
	SGR-DU017-A	None	--	--
	SGR-DU017-B	None	--	--
	SGR-DU017-C	None	--	--
	SGR-DU016-A	None	--	--
	SGR-DU016-B	None	--	--
	SGR-DU016-C	None	--	--
	SGR-DU039-A	None	--	--
	SGR-DU039-B	None	--	--
	SGR-DU039-C	None	--	--

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

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

№ 70011

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-785-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: January ~~23~~ 25, 2016 PAGE 1 OF 2
PO #: 0428508.0000 DHL WORK ORDER #: 1601232
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ___ ☐ | 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 ☐ | Lead | FIELD NOTES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ___ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU056-A	01	1/25/16	0930	Soil	Bag	1				X						X															X		
SGR-DU056-B	02	1/25/16	0945	Soil	Bag	1				X						X															X		
SGR-DU056-C	03	1/25/16	1005	Soil	Bag	1				X						X															X		
SGR-DU074-A	04	1/25/16	0930	Soil	Bag	1				X						X															X		
SGR-DU074-B	05	1/25/16	0950	Soil	Bag	1				X						X															X		
SGR-DU074-C	06	1/25/16	1010	Soil	Bag	1				X						X															X		
SGR-DU058-A	07	1/25/16	1115	Soil	Bag	1				X						X															X		
SGR-DU058-B	08	1/25/16	1130	Soil	Bag	1				X						X															X		
SGR-DU058-C	09	1/25/16	1145	Soil	Bag	1				X						X															X		
SGR-DU024-A	10	1/25/16	1115	Soil	Bag	1				X						X															X		
SGR-DU024-B	11	1/25/16	1130	Soil	Bag	1				X						X															X		
SGR-DU024-C	12	1/25/16	1145	Soil	Bag	1				X						X															X		
SGR-DU076-A	13	1/25/16	1425	Soil	Bag	1				X						X															X		
SGR-DU076-B	14	1/25/16	1440	Soil	Bag	1				X						X															X		
SGR-DU076-C	15	1/25/16	1505	Soil	Bag	1				X						X															X		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	1/25/16 1700	[signature]
[signature]	1/26/16 1000	[signature]

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.3, 4, 2.9 °C THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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

№ 70012

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: January 25, 2016 PAGE 2 OF 2
PO #: 04285508.0000 DHL WORK ORDER #: 1601232
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

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 ☐	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 ☐	Lead	FIELD NOTES
SGR-DU105-A	16	1/25/16	1425	Soil	Bag	1				X						X														X		
SGR-DU105-B	17	1/25/16	1440	Soil	Bag	1				X						X														X		
SGR-DU105-C	18	1/25/16	1455	Soil	Bag	1				X						X														X		
SGR-DU017-A	19	1/25/16	1515	Soil	Bag	1				X						X														X		
SGR-DU017-B	20	1/25/16	1535	Soil	Bag	1				X						X														X		
SGR-DU017-C	21	1/25/16	1605	Soil	Bag	1				X						X														X		
SGR-DU016-A	22	1/25/16	1615	Soil	Bag	1				X						X														X		
SGR-DU016-B	23	1/25/16	1630	Soil	Bag	1				X						X														X		
SGR-DU016-C	24	1/25/16	1650	Soil	Bag	1				X						X														X		
SGR-DU039-A	25	1/25/16	1605	Soil	Bag	1				X						X														X		
SGR-DU039-B	26	1/25/16	1615	Soil	Bag	1				X						X														X		
SGR-DU039-C	27	1/25/16	1630	Soil	Bag	1				X						X														X		

RELINQUISHED BY: (Signature) DATE/TIME 1/25/16 1700 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 1/26/16 1000 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: 1.0, 3.4, 2.9, 0.2 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: **1/26/2016**

Work Order Number **1601232** Received by **JB**

Checklist completed by: Signature 1/26/2016 Date Reviewed by Initials 1/26/2016 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C, 3.4, 2.5, 0.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	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 _____

Page 1 of 1

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-01
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:21 PM
IS: Bismuth	97.1	0	30-120	0		%REC	5	02/11/16 01:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0771	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/09/16 12:44 PM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/09/16 12:44 PM
Anthracene	0.265	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[a]anthracene	2.90	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[a]pyrene	3.83	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[b]fluoranthene	3.73	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[e]pyrene	2.99	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[g,h,i]perylene	3.02	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[j]fluoranthene	1.93	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[k]fluoranthene	1.83	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Chrysene	3.73	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Dibenz[a,h]anthracene	0.666	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Fluoranthene	5.13	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/09/16 12:44 PM
Indeno[1,2,3-cd]pyrene	2.47	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Phenanthrene	1.57	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Pyrene	4.63	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Phenanthrene-d10	107	0	50-200	0		%REC	10	02/09/16 12:44 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	02/09/16 12:44 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-01
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.4	0	58-133	0		%REC	10	02/09/16 12:44 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-02
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.6	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 01:23 PM
IS: Bismuth	99.3	0	30-120	0		%REC	5	02/11/16 01:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0907	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	02/09/16 01:25 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/09/16 01:25 PM
Anthracene	0.342	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[a]anthracene	3.73	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[a]pyrene	5.01	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[b]fluoranthene	4.94	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[e]pyrene	3.90	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[g,h,i]perylene	3.92	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[j]fluoranthene	2.51	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[k]fluoranthene	2.32	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Chrysene	4.81	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Dibenz[a,h]anthracene	0.867	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Fluoranthene	6.75	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/09/16 01:25 PM
Indeno[1,2,3-cd]pyrene	3.22	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Phenanthrene	1.97	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Pyrene	6.12	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/09/16 01:25 PM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/09/16 01:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-02
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.2	0	58-133	0		%REC	10	02/09/16 01:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-03
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:05 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	68.3	0.0926	0.278	0.139		mg/Kg-dry	5	02/11/16 01:25 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0818	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	02/09/16 02:05 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	02/09/16 02:05 PM
Anthracene	0.294	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[a]anthracene	2.68	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[a]pyrene	3.53	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[b]fluoranthene	3.32	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[e]pyrene	2.66	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[g,h,i]perylene	2.73	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[j]fluoranthene	1.76	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[k]fluoranthene	1.60	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Chrysene	3.43	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Dibenz[a,h]anthracene	0.597	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Fluoranthene	4.89	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	02/09/16 02:05 PM
Indeno[1,2,3-cd]pyrene	2.20	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Phenanthrene	1.55	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Pyrene	4.38	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/09/16 02:05 PM
Surr: 2-Fluorobiphenyl	80.2	0	46-115	0		%REC	10	02/09/16 02:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-03
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:05 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/09/16 02:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-04
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	64.7	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:27 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0930	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	02/09/16 02:46 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/09/16 02:46 PM
Anthracene	0.361	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[a]anthracene	2.65	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[a]pyrene	3.35	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[b]fluoranthene	3.05	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[e]pyrene	2.42	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[g,h,i]perylene	2.43	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[j]fluoranthene	1.64	0.0494	0.0988	0.0741	N	mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[k]fluoranthene	1.49	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Chrysene	3.26	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Dibenz[a,h]anthracene	0.552	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Fluoranthene	5.06	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Fluorene	0.0606	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	02/09/16 02:46 PM
Indeno[1,2,3-cd]pyrene	1.99	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Phenanthrene	1.73	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Pyrene	4.46	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/09/16 02:46 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	02/09/16 02:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-04
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	02/09/16 02:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-05
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:50 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	56.6	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 01:29 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0774	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/09/16 03:26 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/09/16 03:26 PM
Anthracene	0.259	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[a]anthracene	2.17	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[a]pyrene	2.92	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[b]fluoranthene	2.74	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[e]pyrene	2.20	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[g,h,i]perylene	2.24	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[j]fluoranthene	1.42	0.0492	0.0983	0.0737	N	mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[k]fluoranthene	1.33	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Chrysene	2.77	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Dibenz[a,h]anthracene	0.499	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Fluoranthene	4.20	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/09/16 03:26 PM
Indeno[1,2,3-cd]pyrene	1.84	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Phenanthrene	1.32	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Pyrene	3.79	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Chrysene-d12	124	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Perylene-d12	137	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Phenanthrene-d10	107	0	50-200	0		%REC	10	02/09/16 03:26 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	02/09/16 03:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-05
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:50 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	02/09/16 03:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-06
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:10 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	23.6		0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 01:49 PM
IS: Bismuth	100		0	30-120	0		%REC	5	02/11/16 01:49 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0713		0.0488	0.0977	0.0732	J	mg/Kg-dry	10	02/09/16 04:06 PM
Acenaphthylene	0.0732		0.0488	0.0977	0.0732	U	mg/Kg-dry	10	02/09/16 04:06 PM
Anthracene	0.274		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[a]anthracene	2.94	JL	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[a]pyrene	3.87		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[b]fluoranthene	3.78		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[e]pyrene	3.04		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[g,h,i]perylene	3.07		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[j]fluoranthene	1.95		0.0488	0.0977	0.0732	N	mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[k]fluoranthene	1.80	JL	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Chrysene	3.77	JL	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Dibenz[a,h]anthracene	0.678		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Fluoranthene	4.91		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Fluorene	0.0732		0.0488	0.0977	0.0732	U	mg/Kg-dry	10	02/09/16 04:06 PM
Indeno[1,2,3-cd]pyrene	2.50	JL	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Phenanthrene	1.56		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Pyrene	4.44		0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
IS: Acenaphthene-d10	107		0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Naphthalene-d8	124		0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Perylene-d12	128		0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Phenanthrene-d10	104		0	50-200	0		%REC	10	02/09/16 04:06 PM
Surr: 2-Fluorobiphenyl	80.2		0	46-115	0		%REC	10	02/09/16 04:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-06
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:10 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	02/09/16 04:06 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-07
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.8	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 01:51 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 01:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Acenaphthylene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[a]anthracene	0.112	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[a]pyrene	0.150	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[b]fluoranthene	0.149	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[e]pyrene	0.122	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[g,h,i]perylene	0.128	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[j]fluoranthene	0.0791	0.0473	0.0946	0.0710	JN	mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[k]fluoranthene	0.0750	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	02/09/16 04:46 PM
Chrysene	0.156	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Fluoranthene	0.228	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Fluorene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Indeno[1,2,3-cd]pyrene	0.100	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Phenanthrene	0.0817	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	02/09/16 04:46 PM
Pyrene	0.203	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Naphthalene-d8	125	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Phenanthrene-d10	108	0	50-200	0		%REC	10	02/09/16 04:46 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	02/09/16 04:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-07
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	02/09/16 04:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-08
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.9	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 01:53 PM
IS: Bismuth	99.4	0	30-120	0		%REC	5	02/11/16 01:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Acenaphthylene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Anthracene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[a]anthracene	0.116	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[a]pyrene	0.156	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[b]fluoranthene	0.157	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[e]pyrene	0.126	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[g,h,i]perylene	0.129	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[j]fluoranthene	0.0824	0.0474	0.0949	0.0712	JN	mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[k]fluoranthene	0.0766	0.0474	0.0949	0.0712	J	mg/Kg-dry	10	02/09/16 05:27 PM
Chrysene	0.159	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Dibenz[a,h]anthracene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Fluoranthene	0.234	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Fluorene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Indeno[1,2,3-cd]pyrene	0.104	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Phenanthrene	0.0847	0.0474	0.0949	0.0712	J	mg/Kg-dry	10	02/09/16 05:27 PM
Pyrene	0.207	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Perylene-d12	132	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/09/16 05:27 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	02/09/16 05:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-08
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.8	0	58-133	0		%REC	10	02/09/16 05:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-09
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.7	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 01:55 PM
IS: Bismuth	97.6	0	30-120	0		%REC	5	02/11/16 01:55 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Acenaphthylene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Anthracene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[a]anthracene	0.179	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[a]pyrene	0.251	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[b]fluoranthene	0.249	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[e]pyrene	0.200	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[g,h,i]perylene	0.209	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[j]fluoranthene	0.130	0.0583	0.117	0.0875	N	mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[k]fluoranthene	0.118	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Chrysene	0.245	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Dibenz[a,h]anthracene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Fluoranthene	0.335	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Fluorene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.167	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Phenanthrene	0.111	0.0583	0.117	0.0875	J	mg/Kg-dry	10	02/09/16 06:07 PM
Pyrene	0.305	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Perylene-d12	135	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	02/09/16 06:07 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	02/09/16 06:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-09
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.6	0	58-133	0		%REC	10	02/09/16 06:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-10
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.75	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 01:57 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	02/11/16 01:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Acenaphthylene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[a]anthracene	0.0510	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[a]pyrene	0.0660	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[b]fluoranthene	0.0703	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[e]pyrene	0.0574	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[g,h,i]perylene	0.0526	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[j]fluoranthene	0.0694	0.0463	0.0925	0.0694	NU	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[k]fluoranthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Chrysene	0.0742	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Dibenz[a,h]anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Fluoranthene	0.108	0.0463	0.0925	0.0694		mg/Kg-dry	10	02/11/16 10:46 AM
Fluorene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Indeno[1,2,3-cd]pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Phenanthrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Pyrene	0.100	0.0463	0.0925	0.0694		mg/Kg-dry	10	02/11/16 10:46 AM
IS: Acenaphthene-d10	95.5	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Phenanthrene-d10	91.8	0	50-200	0		%REC	10	02/11/16 10:46 AM
Surr: 2-Fluorobiphenyl	84.8	0	46-115	0		%REC	10	02/11/16 10:46 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-10
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.4	0	58-133	0		%REC	10	02/11/16 10:46 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-11
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.3	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 01:59 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	02/11/16 01:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[a]pyrene	0.0637	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[b]fluoranthene	0.0688	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[e]pyrene	0.0570	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[g,h,i]perylene	0.0523	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Chrysene	0.0692	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Fluoranthene	0.0940	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Pyrene	0.0864	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
IS: Acenaphthene-d10	95.6	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Perylene-d12	125	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Phenanthrene-d10	94.4	0	50-200	0		%REC	10	02/11/16 11:27 AM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	02/11/16 11:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-11
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.1	0	58-133	0		%REC	10	02/11/16 11:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-12
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.4	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:01 PM
IS: Bismuth	97.5	0	30-120	0		%REC	5	02/11/16 02:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Acenaphthylene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[a]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[a]pyrene	0.0623	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[b]fluoranthene	0.0653	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[e]pyrene	0.0548	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[g,h,i]perylene	0.0521	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[j]fluoranthene	0.0701	0.0467	0.0935	0.0701	NU	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[k]fluoranthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Chrysene	0.0694	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Dibenz[a,h]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Fluoranthene	0.0962	0.0467	0.0935	0.0701		mg/Kg-dry	10	02/11/16 12:07 PM
Fluorene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Indeno[1,2,3-cd]pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Phenanthrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Pyrene	0.0880	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
IS: Acenaphthene-d10	97.7	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Phenanthrene-d10	95.0	0	50-200	0		%REC	10	02/11/16 12:07 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	02/11/16 12:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-12
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.6	0	58-133	0		%REC	10	02/11/16 12:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-13
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.9	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 02:03 PM
IS: Bismuth	97.5	0	30-120	0		%REC	5	02/11/16 02:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[a]anthracene	0.184	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[a]pyrene	0.247	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[b]fluoranthene	0.243	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[e]pyrene	0.205	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[g,h,i]perylene	0.196	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[j]fluoranthene	0.132	0.0478	0.0955	0.0716	N	mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[k]fluoranthene	0.122	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Chrysene	0.257	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Fluoranthene	0.355	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Indeno[1,2,3-cd]pyrene	0.160	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Phenanthrene	0.120	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Pyrene	0.329	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
IS: Acenaphthene-d10	96.0	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	02/11/16 12:47 PM
Surr: 2-Fluorobiphenyl	77.5	0	46-115	0		%REC	10	02/11/16 12:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-13
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.6	0	58-133	0		%REC	10	02/11/16 12:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-14
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.9	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 02:05 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:05 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[a]anthracene	0.208	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[a]pyrene	0.278	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[b]fluoranthene	0.274	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[e]pyrene	0.227	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[g,h,i]perylene	0.224	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[j]fluoranthene	0.144	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[k]fluoranthene	0.133	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Chrysene	0.287	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Fluoranthene	0.407	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Indeno[1,2,3-cd]pyrene	0.181	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Phenanthrene	0.134	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Pyrene	0.372	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
IS: Acenaphthene-d10	94.1	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Perylene-d12	126	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Phenanthrene-d10	94.5	0	50-200	0		%REC	10	02/11/16 01:27 PM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 01:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-14
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.7	0	58-133	0		%REC	10	02/11/16 01:27 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-15
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.9	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 01:09 PM
IS: Bismuth	98.7	0	30-120	0		%REC	5	02/11/16 01:09 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[a]anthracene	0.222	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[a]pyrene	0.306	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[b]fluoranthene	0.304	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[e]pyrene	0.247	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[g,h,i]perylene	0.249	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[j]fluoranthene	0.161	0.0499	0.0998	0.0749	N	mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[k]fluoranthene	0.143	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Chrysene	0.309	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Dibenz[a,h]anthracene	0.0528	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	02/11/16 02:07 PM
Fluoranthene	0.432	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Indeno[1,2,3-cd]pyrene	0.201	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Phenanthrene	0.139	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Pyrene	0.401	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
IS: Acenaphthene-d10	96.2	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Perylene-d12	128	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Phenanthrene-d10	95.0	0	50-200	0		%REC	10	02/11/16 02:07 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	02/11/16 02:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-15
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.2	0	58-133	0		%REC	10	02/11/16 02:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-16
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.2	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 02:07 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 02:07 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Acenaphthylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[a]anthracene	0.105	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[a]pyrene	0.139	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[b]fluoranthene	0.137	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[e]pyrene	0.114	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[g,h,i]perylene	0.109	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[j]fluoranthene	0.0723	0.0468	0.0935	0.0702	JN	mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[k]fluoranthene	0.0669	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Chrysene	0.146	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Dibenz[a,h]anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Fluoranthene	0.207	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Fluorene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Indeno[1,2,3-cd]pyrene	0.0892	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Phenanthrene	0.0713	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Pyrene	0.188	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Phenanthrene-d10	96.1	0	50-200	0		%REC	10	02/11/16 02:47 PM
Surr: 2-Fluorobiphenyl	75.8	0	46-115	0		%REC	10	02/11/16 02:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-16
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	02/11/16 02:47 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-17
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.1	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 02:28 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/11/16 02:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[a]anthracene	0.105	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[a]pyrene	0.143	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[b]fluoranthene	0.140	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[e]pyrene	0.114	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[g,h,i]perylene	0.112	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[j]fluoranthene	0.0751	0.0490	0.0979	0.0735	JN	mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[k]fluoranthene	0.0706	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Chrysene	0.143	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Fluoranthene	0.200	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Indeno[1,2,3-cd]pyrene	0.0932	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Phenanthrene	0.0698	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Pyrene	0.183	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	02/10/16 11:59 AM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/10/16 11:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-17
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.5	0	58-133	0		%REC	10	02/10/16 11:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-18
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:55 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.2	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 02:33 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/11/16 02:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Acenaphthylene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[a]anthracene	0.0898	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[a]pyrene	0.121	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[b]fluoranthene	0.123	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[e]pyrene	0.0990	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[g,h,i]perylene	0.0968	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[j]fluoranthene	0.0647	0.0477	0.0954	0.0716	JN	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[k]fluoranthene	0.0589	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Chrysene	0.126	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Dibenz[a,h]anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Fluoranthene	0.178	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Fluorene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Indeno[1,2,3-cd]pyrene	0.0797	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Phenanthrene	0.0615	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Pyrene	0.161	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
IS: Acenaphthene-d10	108	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/10/16 12:39 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	02/10/16 12:39 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-18
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:55 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	02/10/16 12:39 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-19
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.9	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 02:35 PM
IS: Bismuth	99.3	0	30-120	0		%REC	5	02/11/16 02:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[a]anthracene	0.395	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[a]pyrene	0.551	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[b]fluoranthene	0.548	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[e]pyrene	0.466	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[g,h,i]perylene	0.456	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[j]fluoranthene	0.291	0.0486	0.0973	0.0730	N	mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[k]fluoranthene	0.260	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Chrysene	0.548	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Dibenz[a,h]anthracene	0.0974	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Fluoranthene	0.761	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Indeno[1,2,3-cd]pyrene	0.368	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Phenanthrene	0.235	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Pyrene	0.698	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	02/10/16 01:19 PM
Surr: 2-Fluorobiphenyl	81.2	0	46-115	0		%REC	10	02/10/16 01:19 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-19
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	02/10/16 01:19 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-20
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:35 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.1	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 02:37 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 02:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[a]anthracene	0.464	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[a]pyrene	0.625	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[b]fluoranthene	0.624	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[e]pyrene	0.513	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[g,h,i]perylene	0.518	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[j]fluoranthene	0.328	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[k]fluoranthene	0.292	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Chrysene	0.646	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Dibenz[a,h]anthracene	0.110	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Fluoranthene	0.904	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Indeno[1,2,3-cd]pyrene	0.412	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Phenanthrene	0.279	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Pyrene	0.833	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Phenanthrene-d10	96.3	0	50-200	0		%REC	10	02/10/16 01:59 PM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	02/10/16 01:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-20
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:35 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	90.3	0	58-133	0		%REC	10	02/10/16 01:59 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-21
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.0	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 02:39 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	02/11/16 02:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[a]anthracene	0.414	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[a]pyrene	0.568	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[b]fluoranthene	0.565	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[e]pyrene	0.476	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[g,h,i]perylene	0.469	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[j]fluoranthene	0.296	0.0494	0.0988	0.0741	N	mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[k]fluoranthene	0.277	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Chrysene	0.576	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Dibenz[a,h]anthracene	0.0991	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Fluoranthene	0.776	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Indeno[1,2,3-cd]pyrene	0.376	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Phenanthrene	0.243	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Pyrene	0.710	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 02:40 PM
Surr: 2-Fluorobiphenyl	81.1	0	46-115	0		%REC	10	02/10/16 02:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-21
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/10/16 02:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-22
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.2	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:41 PM
IS: Bismuth	98.4	0	30-120	0		%REC	5	02/11/16 02:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Acenaphthylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[a]anthracene	0.243	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[a]pyrene	0.330	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[b]fluoranthene	0.336	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[e]pyrene	0.274	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[g,h,i]perylene	0.276	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[j]fluoranthene	0.173	0.0468	0.0935	0.0702	N	mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[k]fluoranthene	0.157	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Chrysene	0.335	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Dibenz[a,h]anthracene	0.0581	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/10/16 03:20 PM
Fluoranthene	0.461	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Fluorene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Indeno[1,2,3-cd]pyrene	0.217	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Phenanthrene	0.150	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Pyrene	0.421	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 03:20 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	02/10/16 03:20 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-22
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.1	0	58-133	0		%REC	10	02/10/16 03:20 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-23
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.0	0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 02:43 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[a]anthracene	0.252	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[a]pyrene	0.344	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[b]fluoranthene	0.346	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[e]pyrene	0.292	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[g,h,i]perylene	0.286	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[j]fluoranthene	0.182	0.0488	0.0976	0.0732	N	mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[k]fluoranthene	0.167	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Chrysene	0.354	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Dibenz[a,h]anthracene	0.0594	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/10/16 04:01 PM
Fluoranthene	0.479	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Indeno[1,2,3-cd]pyrene	0.229	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Phenanthrene	0.162	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Pyrene	0.439	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 04:01 PM
Surr: 2-Fluorobiphenyl	79.8	0	46-115	0		%REC	10	02/10/16 04:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-23
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.1	0	58-133	0		%REC	10	02/10/16 04:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-24
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:50 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:45 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[a]anthracene	0.161	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[a]pyrene	0.211	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[b]fluoranthene	0.203	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[e]pyrene	0.171	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[g,h,i]perylene	0.176	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[j]fluoranthene	0.108	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[k]fluoranthene	0.0983	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Chrysene	0.216	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Fluoranthene	0.297	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Indeno[1,2,3-cd]pyrene	0.139	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Phenanthrene	0.0953	0.0486	0.0972	0.0729	J	mg/Kg-dry	10	02/10/16 04:40 PM
Pyrene	0.264	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Perylene-d12	125	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/10/16 04:40 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	02/10/16 04:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-24
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:50 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	02/10/16 04:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-25
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.0862	0.259	0.129		mg/Kg-dry	5	02/11/16 02:47 PM
IS: Bismuth	99.9	0	30-120	0		%REC	5	02/11/16 02:47 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[a]anthracene	0.293	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[a]pyrene	0.415	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[b]fluoranthene	0.423	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[e]pyrene	0.349	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[g,h,i]perylene	0.357	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[j]fluoranthene	0.221	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[k]fluoranthene	0.200	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Chrysene	0.413	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Dibenz[a,h]anthracene	0.0735	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/10/16 05:21 PM
Fluoranthene	0.554	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Indeno[1,2,3-cd]pyrene	0.279	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Phenanthrene	0.176	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Pyrene	0.513	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Perylene-d12	135	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	02/10/16 05:21 PM
Surr: 2-Fluorobiphenyl	79.0	0	46-115	0		%REC	10	02/10/16 05:21 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-25
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.5	0	58-133	0		%REC	10	02/10/16 05:21 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-26
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 02:49 PM
IS: Bismuth	99.8	0	30-120	0		%REC	5	02/11/16 02:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[a]anthracene	0.149	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[a]pyrene	0.211	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[b]fluoranthene	0.210	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[e]pyrene	0.173	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[g,h,i]perylene	0.174	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[j]fluoranthene	0.111	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[k]fluoranthene	0.101	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Chrysene	0.209	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Dibenz[a,h]anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Fluoranthene	0.293	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Indeno[1,2,3-cd]pyrene	0.140	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Phenanthrene	0.0964	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/10/16 06:01 PM
Pyrene	0.269	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Perylene-d12	132	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 06:01 PM
Surr: 2-Fluorobiphenyl	78.3	0	46-115	0		%REC	10	02/10/16 06:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-26
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.2	0	58-133	0		%REC	10	02/10/16 06:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-27
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.7	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 03:27 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[a]anthracene	0.156	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[a]pyrene	0.195	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[b]fluoranthene	0.191	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[e]pyrene	0.159	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[g,h,i]perylene	0.156	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[j]fluoranthene	0.103	0.0478	0.0955	0.0716	N	mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[k]fluoranthene	0.0927	0.0478	0.0955	0.0716	J	mg/Kg-dry	10	02/10/16 06:41 PM
Chrysene	0.204	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Fluoranthene	0.288	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Indeno[1,2,3-cd]pyrene	0.127	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Phenanthrene	0.0926	0.0478	0.0955	0.0716	J	mg/Kg-dry	10	02/10/16 06:41 PM
Pyrene	0.262	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/10/16 06:41 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	02/10/16 06:41 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-27
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.0	0	58-133	0		%REC	10	02/10/16 06:41 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

February 16, 2016

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

Order No.: 1601232

RE: Laredo Shotgun Range

Dear Alex Walter:

DHL Analytical, Inc. received 27 sample(s) on 1/26/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-15-15 & DoD-ELAP #L15-426

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

№ 70011

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-785-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: January ~~23~~ 25, 2016 PAGE 1 OF 2
PO #: 0428508.0000 DHL WORK ORDER #: 1601232
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ___ ☐ | 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 ☐ | Lead | FIELD NOTES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ___ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU056-A	01	1/25/16	0930	Soil	Bag	1				X						X															X		
SGR-DU056-B	02	1/25/16	0945	Soil	Bag	1				X						X															X		
SGR-DU056-C	03	1/25/16	1005	Soil	Bag	1				X						X															X		
SGR-DU074-A	04	1/25/16	0930	Soil	Bag	1				X						X															X		
SGR-DU074-B	05	1/25/16	0950	Soil	Bag	1				X						X															X		
SGR-DU074-C	06	1/25/16	1010	Soil	Bag	1				X						X															X		
SGR-DU058-A	07	1/25/16	1115	Soil	Bag	1				X						X															X		
SGR-DU058-B	08	1/25/16	1130	Soil	Bag	1				X						X															X		
SGR-DU058-C	09	1/25/16	1145	Soil	Bag	1				X						X															X		
SGR-DU024-A	10	1/25/16	1115	Soil	Bag	1				X						X															X		
SGR-DU024-B	11	1/25/16	1130	Soil	Bag	1				X						X															X		
SGR-DU024-C	12	1/25/16	1145	Soil	Bag	1				X						X															X		
SGR-DU076-A	13	1/25/16	1425	Soil	Bag	1				X						X															X		
SGR-DU076-B	14	1/25/16	1440	Soil	Bag	1				X						X															X		
SGR-DU076-C	15	1/25/16	1505	Soil	Bag	1				X						X															X		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	1/25/16 1700	[signature]
[signature]	1/26/16 1000	[signature]

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.3, 4, 2.9 °C THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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E-Mail: login@dhlanalytical.com

№ 70012

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: January 25, 2016 PAGE 2 OF 2
PO #: 04285508.0000 DHL WORK ORDER #: 1601232
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

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 ☐	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 ☐	Lead	FIELD NOTES
SGR-DU105-A	16	1/25/16	1425	Soil	Bag	1				X						X														X		
SGR-DU105-B	17	1/25/16	1440	Soil	Bag	1				X						X														X		
SGR-DU105-C	18	1/25/16	1455	Soil	Bag	1				X						X														X		
SGR-DU017-A	19	1/25/16	1515	Soil	Bag	1				X						X														X		
SGR-DU017-B	20	1/25/16	1535	Soil	Bag	1				X						X														X		
SGR-DU017-C	21	1/25/16	1605	Soil	Bag	1				X						X														X		
SGR-DU016-A	22	1/25/16	1615	Soil	Bag	1				X						X														X		
SGR-DU016-B	23	1/25/16	1630	Soil	Bag	1				X						X														X		
SGR-DU016-C	24	1/25/16	1650	Soil	Bag	1				X						X														X		
SGR-DU039-A	25	1/25/16	1605	Soil	Bag	1				X						X														X		
SGR-DU039-B	26	1/25/16	1615	Soil	Bag	1				X						X														X		
SGR-DU039-C	27	1/25/16	1630	Soil	Bag	1				X						X														X		

RELINQUISHED BY: (Signature) DATE/TIME 1/25/16 1700 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 1/26/16 1000 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: 1.0, 3.4, 2.9, 0.2 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

ORIGIN ID:LRDA (915) 533-9025
ARCADIS
401 E MAIN DR STE 400
EL PASO, TX 799011358
UNITED STATES US

512 1 C
FZ 10:30
5075
01.26

TO SAMPLE MGR
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(612) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

8 of 10
MPS# 0681 7822 3790 5075
Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

REC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

BILL

TO **SAMPLE MGR**
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

5 of 10

MPS# 0681 7822 3790 5042

Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US **AUS**

CUSTODY SEAL
DATE 1/25/10
SIGNATURE

Quality Environmental Containers

ORIGIN ID:LRDA (915) 53
ARCADIS
401 E MAIN DR STE 400
EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 25JAN16
WGT: 76.00 LB

RT 512 1 10:30 C 5031 01.26

TO SAMPLE MGR
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

4 of 10
MPS# 0681 7822 3790 5031
Mstr# 8093 9459 5093 0200

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS
401 E MAIN DR STE 400
EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 25JAN16
ACTWGT: 62.90 LB
CAD: /POS1621
DIMS: 21x15x13 IN
BILL SENDER

TO SAMPLE MGR
DHL ANALYST
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

1 of 10

TRK# 0200 8093 9459 5093

MASTER

44 BSMA

TUE - 26 JAN 10:30A
PRIORITY OVERNIGHT

78664
TX-US AUS

CUSTODY SEAL
DATE 1/25/16
SIGNATURE

REC
Quality Envir...
800-255-3950

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **1/26/2016**

Work Order Number **1601232** Received by **JB**

Checklist completed by: Signature 1/26/2016 Date Reviewed by Initials 1/26/2016 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C, 3.4, 2.5, 0.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	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 _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo Shotgun Range	**Date:** 2/16/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1601232
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	X				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	X				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	X				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo Shotgun Range	**Date:** 2/16/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1601232

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager		02/16/16
Scott Schroeder – Technical Director	Signature	Date

CLIENT: Arcadis
Project: Laredo Shotgun Range
Lab Order: 1601232

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with Dodd QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 1/26/2016. A total of 27 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For PAH Analysis, the recoveries of up to eight compounds for the Matrix Spike and Matrix Spike Duplicate (1601232-06 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These compounds were within method control limits in the associated LCS. No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the samples were diluted due to observed color of extract; dilution meets project specifications.

For all of the soil samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. This workorder included surface soil samples which are sieved to 250µ particle size as per project specs. Samples SGR-DU056-B, SGR-DU074-C, SGR-DU058-A, SGR-DU058-B, SGR-DU105-A, SGR-DU105-B and SGR-DU105-C were dried for an extended time, due to the moisture content. There was insufficient sample volume for these samples to perform the sub-sampling procedure as stated in the SOP. The entire sieved sample mass was used for the analysis.

A summary of project communication follows:

CASE NARRATIVE

The bottlekit was requested from Garett Ferguson via telephone to Jennifer Barker/John DuPont on 1/11/2016. The 'ship to' address provided by G. Ferguson via email on 1/11/2016. DHL Bottle Order #6705 was sent on 1/20/2016 via Lonestar Overnight Ground to arrive by 1/21/2016. Additionally, DHL Bottle Order #6716 was sent on 2/28/2016 via Lonestar Overnight Ground to arrive by 2/29/2016.

This sample delivery group arrives at DHL Analytical and the Sample Summary were sent via email from Log-in to client on 1/26/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 2/1-2/2016 - from J. DuPont to L. Mott of Arcadis regarding request to dilute based on color of extract, suppression of one Int. Std. The client accepted the corrective action for the quality exceedances.
email communications 2/4/2016 - from J. DuPont to L. Mott of Arcadis regarding exceedance in an ICV. The corrective action was accepted by the client.
email communications 2/5/2016 - from J. DuPont to L. Mott of Arcadis regarding exceedance in an ICV. The corrective action was accepted by the client.
email communications 2/16/2016 - from J. DuPont to L. Mott of Arcadis regarding an ending CCV was not performed.

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Project: Laredo Shotgun Range
Lab Order: 1601232

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1601232-01	SGR-DU056-A		01/25/16 09:30 AM	1/26/2016
1601232-02	SGR-DU056-B		01/25/16 09:45 AM	1/26/2016
1601232-03	SGR-DU056-C		01/25/16 10:05 AM	1/26/2016
1601232-04	SGR-DU074-A		01/25/16 09:30 AM	1/26/2016
1601232-05	SGR-DU074-B		01/25/16 09:50 AM	1/26/2016
1601232-06	SGR-DU074-C		01/25/16 10:10 AM	1/26/2016
1601232-07	SGR-DU058-A		01/25/16 11:15 AM	1/26/2016
1601232-08	SGR-DU058-B		01/25/16 11:30 AM	1/26/2016
1601232-09	SGR-DU058-C		01/25/16 11:45 AM	1/26/2016
1601232-10	SGR-DU224-A		01/25/16 11:15 AM	1/26/2016
1601232-11	SGR-DU224-B		01/25/16 11:30 AM	1/26/2016
1601232-12	SGR-DU224-C		01/25/16 11:45 AM	1/26/2016
1601232-13	SGR-DU076-A		01/25/16 02:25 PM	1/26/2016
1601232-14	SGR-DU076-B		01/25/16 02:40 PM	1/26/2016
1601232-15	SGR-DU076-C		01/25/16 03:05 PM	1/26/2016
1601232-16	SGR-DU105-A		01/25/16 02:25 PM	1/26/2016
1601232-17	SGR-DU105-B		01/25/16 02:40 PM	1/26/2016
1601232-18	SGR-DU105-C		01/25/16 02:55 PM	1/26/2016
1601232-19	SGR-DU017-A		01/25/16 03:15 PM	1/26/2016
1601232-20	SGR-DU017-B		01/25/16 03:35 PM	1/26/2016
1601232-21	SGR-DU017-C		01/25/16 04:05 PM	1/26/2016
1601232-22	SGR-DU016-A		01/25/16 04:15 PM	1/26/2016
1601232-23	SGR-DU016-B		01/25/16 04:30 PM	1/26/2016
1601232-24	SGR-DU016-C		01/25/16 04:50 PM	1/26/2016
1601232-25	SGR-DU039-A		01/25/16 04:05 PM	1/26/2016
1601232-26	SGR-DU039-B		01/25/16 04:15 PM	1/26/2016
1601232-27	SGR-DU039-C		01/25/16 04:30 PM	1/26/2016

DHL Analytical, Inc.

16-Feb-16

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601232-01A	SGR-DU056-A	01/25/16 09:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU056-A	01/25/16 09:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-02A	SGR-DU056-B	01/25/16 09:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU056-B	01/25/16 09:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-03A	SGR-DU056-C	01/25/16 10:05 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU056-C	01/25/16 10:05 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-04A	SGR-DU074-A	01/25/16 09:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU074-A	01/25/16 09:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-05A	SGR-DU074-B	01/25/16 09:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU074-B	01/25/16 09:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-06A	SGR-DU074-C	01/25/16 10:10 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU074-C	01/25/16 10:10 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-07A	SGR-DU058-A	01/25/16 11:15 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU058-A	01/25/16 11:15 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-08A	SGR-DU058-B	01/25/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU058-B	01/25/16 11:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-09A	SGR-DU058-C	01/25/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU058-C	01/25/16 11:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-10A	SGR-DU224-A	01/25/16 11:15 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-A	01/25/16 11:15 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-A	01/25/16 11:15 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-11A	SGR-DU224-B	01/25/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-B	01/25/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-B	01/25/16 11:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-12A	SGR-DU224-C	01/25/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-C	01/25/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU224-C	01/25/16 11:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-13A	SGR-DU076-A	01/25/16 02:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601232-13A	SGR-DU076-A	01/25/16 02:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU076-A	01/25/16 02:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-14A	SGR-DU076-B	01/25/16 02:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU076-B	01/25/16 02:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU076-B	01/25/16 02:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-15A	SGR-DU076-C	01/25/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU076-C	01/25/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU076-C	01/25/16 03:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-16A	SGR-DU105-A	01/25/16 02:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU105-A	01/25/16 02:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/05/16 01:45 PM	73550
	SGR-DU105-A	01/25/16 02:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/09/16 08:27 AM	73587
1601232-17A	SGR-DU105-B	01/25/16 02:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU105-B	01/25/16 02:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-18A	SGR-DU105-C	01/25/16 02:55 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU105-C	01/25/16 02:55 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-19A	SGR-DU017-A	01/25/16 03:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU017-A	01/25/16 03:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-20A	SGR-DU017-B	01/25/16 03:35 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU017-B	01/25/16 03:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-21A	SGR-DU017-C	01/25/16 04:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU017-C	01/25/16 04:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-22A	SGR-DU016-A	01/25/16 04:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU016-A	01/25/16 04:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-23A	SGR-DU016-B	01/25/16 04:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU016-B	01/25/16 04:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-24A	SGR-DU016-C	01/25/16 04:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU016-C	01/25/16 04:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-25A	SGR-DU039-A	01/25/16 04:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601232-25A	SGR-DU039-A	01/25/16 04:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-26A	SGR-DU039-B	01/25/16 04:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU039-B	01/25/16 04:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601232-27A	SGR-DU039-C	01/25/16 04:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU039-C	01/25/16 04:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601232-01A	SGR-DU056-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 12:44 PM	GCMS6_160209A
	SGR-DU056-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:21 PM	ICP-MS4_160211F
1601232-02A	SGR-DU056-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 01:25 PM	GCMS6_160209A
	SGR-DU056-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:23 PM	ICP-MS4_160211F
1601232-03A	SGR-DU056-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 02:05 PM	GCMS6_160209A
	SGR-DU056-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:25 PM	ICP-MS4_160211F
1601232-04A	SGR-DU074-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 02:46 PM	GCMS6_160209A
	SGR-DU074-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:27 PM	ICP-MS4_160211F
1601232-05A	SGR-DU074-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 03:26 PM	GCMS6_160209A
	SGR-DU074-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:29 PM	ICP-MS4_160211F
1601232-06A	SGR-DU074-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 04:06 PM	GCMS6_160209A
	SGR-DU074-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:49 PM	ICP-MS4_160211F
1601232-07A	SGR-DU058-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 04:46 PM	GCMS6_160209A
	SGR-DU058-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:51 PM	ICP-MS4_160211F
1601232-08A	SGR-DU058-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 05:27 PM	GCMS6_160209A
	SGR-DU058-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:53 PM	ICP-MS4_160211F
1601232-09A	SGR-DU058-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 06:07 PM	GCMS6_160209A
	SGR-DU058-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:55 PM	ICP-MS4_160211F
1601232-10A	SGR-DU224-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 08:44 PM	GCMS6_160209A
	SGR-DU224-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 10:46 AM	GCMS6_160209A
	SGR-DU224-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:57 PM	ICP-MS4_160211F
1601232-11A	SGR-DU224-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 09:23 PM	GCMS6_160209A
	SGR-DU224-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 11:27 AM	GCMS6_160209A
	SGR-DU224-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:59 PM	ICP-MS4_160211F
1601232-12A	SGR-DU224-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 10:03 PM	GCMS6_160209A
	SGR-DU224-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 12:07 PM	GCMS6_160209A
	SGR-DU224-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 02:01 PM	ICP-MS4_160211F
1601232-13A	SGR-DU076-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 10:43 PM	GCMS6_160209A

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601232-13A	SGR-DU076-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 12:47 PM	GCMS6_160209A
	SGR-DU076-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 02:03 PM	ICP-MS4_160211F
1601232-14A	SGR-DU076-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/09/16 11:22 PM	GCMS6_160209A
	SGR-DU076-B	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 01:27 PM	GCMS6_160209A
	SGR-DU076-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 02:05 PM	ICP-MS4_160211F
1601232-15A	SGR-DU076-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/10/16 12:02 AM	GCMS6_160209A
	SGR-DU076-C	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 02:07 PM	GCMS6_160209A
	SGR-DU076-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 01:09 PM	ICP-MS4_160211F
1601232-16A	SGR-DU105-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/10/16 12:41 AM	GCMS6_160209A
	SGR-DU105-A	Soil	SW8270D-LL	PAHs: GC/MS	73550	10	02/11/16 02:47 PM	GCMS6_160209A
	SGR-DU105-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73587	5	02/11/16 02:07 PM	ICP-MS4_160211F
1601232-17A	SGR-DU105-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 11:59 AM	GCMS6_160210A
	SGR-DU105-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:28 PM	ICP-MS4_160211F
1601232-18A	SGR-DU105-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 12:39 PM	GCMS6_160210A
	SGR-DU105-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:33 PM	ICP-MS4_160211F
1601232-19A	SGR-DU017-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 01:19 PM	GCMS6_160210A
	SGR-DU017-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:35 PM	ICP-MS4_160211F
1601232-20A	SGR-DU017-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 01:59 PM	GCMS6_160210A
	SGR-DU017-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:37 PM	ICP-MS4_160211F
1601232-21A	SGR-DU017-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 02:40 PM	GCMS6_160210A
	SGR-DU017-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:39 PM	ICP-MS4_160211F
1601232-22A	SGR-DU016-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 03:20 PM	GCMS6_160210A
	SGR-DU016-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:41 PM	ICP-MS4_160211F
1601232-23A	SGR-DU016-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 04:01 PM	GCMS6_160210A
	SGR-DU016-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:43 PM	ICP-MS4_160211F
1601232-24A	SGR-DU016-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 04:40 PM	GCMS6_160210A
	SGR-DU016-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:45 PM	ICP-MS4_160211F
1601232-25A	SGR-DU039-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 05:21 PM	GCMS6_160210A

Lab Order: 1601232
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601232-25A	SGR-DU039-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:47 PM	ICP-MS4_160211F
1601232-26A	SGR-DU039-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 06:01 PM	GCMS6_160210A
	SGR-DU039-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 02:49 PM	ICP-MS4_160211F
1601232-27A	SGR-DU039-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 06:41 PM	GCMS6_160210A
	SGR-DU039-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:27 PM	ICP-MS4_160211F

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-01
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:21 PM
IS: Bismuth	97.1	0	30-120	0		%REC	5	02/11/16 01:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0771	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/09/16 12:44 PM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/09/16 12:44 PM
Anthracene	0.265	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[a]anthracene	2.90	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[a]pyrene	3.83	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[b]fluoranthene	3.73	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[e]pyrene	2.99	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[g,h,i]perylene	3.02	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[j]fluoranthene	1.93	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/09/16 12:44 PM
Benzo[k]fluoranthene	1.83	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Chrysene	3.73	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Dibenz[a,h]anthracene	0.666	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Fluoranthene	5.13	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/09/16 12:44 PM
Indeno[1,2,3-cd]pyrene	2.47	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Phenanthrene	1.57	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
Pyrene	4.63	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/09/16 12:44 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/09/16 12:44 PM
IS: Phenanthrene-d10	107	0	50-200	0		%REC	10	02/09/16 12:44 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	02/09/16 12:44 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-01
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.4	0	58-133	0		%REC	10	02/09/16 12:44 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-02
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.6	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 01:23 PM
IS: Bismuth	99.3	0	30-120	0		%REC	5	02/11/16 01:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0907	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	02/09/16 01:25 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/09/16 01:25 PM
Anthracene	0.342	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[a]anthracene	3.73	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[a]pyrene	5.01	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[b]fluoranthene	4.94	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[e]pyrene	3.90	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[g,h,i]perylene	3.92	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[j]fluoranthene	2.51	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	02/09/16 01:25 PM
Benzo[k]fluoranthene	2.32	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Chrysene	4.81	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Dibenz[a,h]anthracene	0.867	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Fluoranthene	6.75	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/09/16 01:25 PM
Indeno[1,2,3-cd]pyrene	3.22	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Phenanthrene	1.97	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
Pyrene	6.12	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/09/16 01:25 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/09/16 01:25 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/09/16 01:25 PM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/09/16 01:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-02
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.2	0	58-133	0		%REC	10	02/09/16 01:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-03
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:05 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	68.3	0.0926	0.278	0.139		mg/Kg-dry	5	02/11/16 01:25 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0818	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	02/09/16 02:05 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	02/09/16 02:05 PM
Anthracene	0.294	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[a]anthracene	2.68	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[a]pyrene	3.53	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[b]fluoranthene	3.32	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[e]pyrene	2.66	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[g,h,i]perylene	2.73	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[j]fluoranthene	1.76	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	02/09/16 02:05 PM
Benzo[k]fluoranthene	1.60	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Chrysene	3.43	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Dibenz[a,h]anthracene	0.597	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Fluoranthene	4.89	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	02/09/16 02:05 PM
Indeno[1,2,3-cd]pyrene	2.20	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Phenanthrene	1.55	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
Pyrene	4.38	0.0499	0.0997	0.0748		mg/Kg-dry	10	02/09/16 02:05 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/09/16 02:05 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/09/16 02:05 PM
Surr: 2-Fluorobiphenyl	80.2	0	46-115	0		%REC	10	02/09/16 02:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU056-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-03
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:05 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/09/16 02:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-04
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	64.7	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 01:27 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0930	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	02/09/16 02:46 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/09/16 02:46 PM
Anthracene	0.361	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[a]anthracene	2.65	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[a]pyrene	3.35	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[b]fluoranthene	3.05	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[e]pyrene	2.42	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[g,h,i]perylene	2.43	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[j]fluoranthene	1.64	0.0494	0.0988	0.0741	N	mg/Kg-dry	10	02/09/16 02:46 PM
Benzo[k]fluoranthene	1.49	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Chrysene	3.26	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Dibenz[a,h]anthracene	0.552	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Fluoranthene	5.06	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Fluorene	0.0606	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	02/09/16 02:46 PM
Indeno[1,2,3-cd]pyrene	1.99	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Phenanthrene	1.73	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
Pyrene	4.46	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/09/16 02:46 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/09/16 02:46 PM
IS: Phenanthrene-d10	110	0	50-200	0		%REC	10	02/09/16 02:46 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	02/09/16 02:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-04
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	02/09/16 02:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-05
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:50 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	56.6	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 01:29 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 01:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0774	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	02/09/16 03:26 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/09/16 03:26 PM
Anthracene	0.259	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[a]anthracene	2.17	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[a]pyrene	2.92	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[b]fluoranthene	2.74	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[e]pyrene	2.20	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[g,h,i]perylene	2.24	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[j]fluoranthene	1.42	0.0492	0.0983	0.0737	N	mg/Kg-dry	10	02/09/16 03:26 PM
Benzo[k]fluoranthene	1.33	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Chrysene	2.77	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Dibenz[a,h]anthracene	0.499	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Fluoranthene	4.20	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	02/09/16 03:26 PM
Indeno[1,2,3-cd]pyrene	1.84	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Phenanthrene	1.32	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
Pyrene	3.79	0.0492	0.0983	0.0737		mg/Kg-dry	10	02/09/16 03:26 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Chrysene-d12	124	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Perylene-d12	137	0	50-200	0		%REC	10	02/09/16 03:26 PM
IS: Phenanthrene-d10	107	0	50-200	0		%REC	10	02/09/16 03:26 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	02/09/16 03:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-05
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 09:50 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	02/09/16 03:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-06
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:10 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	23.6	0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 01:49 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 01:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0713	0.0488	0.0977	0.0732	J	mg/Kg-dry	10	02/09/16 04:06 PM
Acenaphthylene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	02/09/16 04:06 PM
Anthracene	0.274	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[a]anthracene	2.94	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[a]pyrene	3.87	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[b]fluoranthene	3.78	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[e]pyrene	3.04	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[g,h,i]perylene	3.07	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[j]fluoranthene	1.95	0.0488	0.0977	0.0732	N	mg/Kg-dry	10	02/09/16 04:06 PM
Benzo[k]fluoranthene	1.80	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Chrysene	3.77	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Dibenz[a,h]anthracene	0.678	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Fluoranthene	4.91	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Fluorene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	02/09/16 04:06 PM
Indeno[1,2,3-cd]pyrene	2.50	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Phenanthrene	1.56	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
Pyrene	4.44	0.0488	0.0977	0.0732		mg/Kg-dry	10	02/09/16 04:06 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Naphthalene-d8	124	0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Perylene-d12	128	0	50-200	0		%REC	10	02/09/16 04:06 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/09/16 04:06 PM
Surr: 2-Fluorobiphenyl	80.2	0	46-115	0		%REC	10	02/09/16 04:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU074-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-06
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 10:10 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	02/09/16 04:06 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-07
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.8	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 01:51 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 01:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Acenaphthylene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[a]anthracene	0.112	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[a]pyrene	0.150	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[b]fluoranthene	0.149	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[e]pyrene	0.122	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[g,h,i]perylene	0.128	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[j]fluoranthene	0.0791	0.0473	0.0946	0.0710	JN	mg/Kg-dry	10	02/09/16 04:46 PM
Benzo[k]fluoranthene	0.0750	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	02/09/16 04:46 PM
Chrysene	0.156	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Fluoranthene	0.228	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Fluorene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	02/09/16 04:46 PM
Indeno[1,2,3-cd]pyrene	0.100	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
Phenanthrene	0.0817	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	02/09/16 04:46 PM
Pyrene	0.203	0.0473	0.0946	0.0710		mg/Kg-dry	10	02/09/16 04:46 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Naphthalene-d8	125	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/09/16 04:46 PM
IS: Phenanthrene-d10	108	0	50-200	0		%REC	10	02/09/16 04:46 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	02/09/16 04:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-07
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	02/09/16 04:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-08
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.9	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 01:53 PM
IS: Bismuth	99.4	0	30-120	0		%REC	5	02/11/16 01:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Acenaphthylene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Anthracene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[a]anthracene	0.116	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[a]pyrene	0.156	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[b]fluoranthene	0.157	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[e]pyrene	0.126	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[g,h,i]perylene	0.129	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[j]fluoranthene	0.0824	0.0474	0.0949	0.0712	JN	mg/Kg-dry	10	02/09/16 05:27 PM
Benzo[k]fluoranthene	0.0766	0.0474	0.0949	0.0712	J	mg/Kg-dry	10	02/09/16 05:27 PM
Chrysene	0.159	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Dibenz[a,h]anthracene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Fluoranthene	0.234	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Fluorene	0.0712	0.0474	0.0949	0.0712	U	mg/Kg-dry	10	02/09/16 05:27 PM
Indeno[1,2,3-cd]pyrene	0.104	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
Phenanthrene	0.0847	0.0474	0.0949	0.0712	J	mg/Kg-dry	10	02/09/16 05:27 PM
Pyrene	0.207	0.0474	0.0949	0.0712		mg/Kg-dry	10	02/09/16 05:27 PM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Perylene-d12	132	0	50-200	0		%REC	10	02/09/16 05:27 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/09/16 05:27 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	02/09/16 05:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-08
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.8	0	58-133	0		%REC	10	02/09/16 05:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-09
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.7	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 01:55 PM
IS: Bismuth	97.6	0	30-120	0		%REC	5	02/11/16 01:55 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Acenaphthylene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Anthracene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[a]anthracene	0.179	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[a]pyrene	0.251	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[b]fluoranthene	0.249	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[e]pyrene	0.200	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[g,h,i]perylene	0.209	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[j]fluoranthene	0.130	0.0583	0.117	0.0875	N	mg/Kg-dry	10	02/09/16 06:07 PM
Benzo[k]fluoranthene	0.118	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Chrysene	0.245	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Dibenz[a,h]anthracene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Fluoranthene	0.335	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Fluorene	0.0875	0.0583	0.117	0.0875	U	mg/Kg-dry	10	02/09/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.167	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
Phenanthrene	0.111	0.0583	0.117	0.0875	J	mg/Kg-dry	10	02/09/16 06:07 PM
Pyrene	0.305	0.0583	0.117	0.0875		mg/Kg-dry	10	02/09/16 06:07 PM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Perylene-d12	135	0	50-200	0		%REC	10	02/09/16 06:07 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	02/09/16 06:07 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	02/09/16 06:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-09
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.6	0	58-133	0		%REC	10	02/09/16 06:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-10
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.75	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 01:57 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	02/11/16 01:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Acenaphthylene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[a]anthracene	0.0510	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[a]pyrene	0.0660	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[b]fluoranthene	0.0703	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[e]pyrene	0.0574	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[g,h,i]perylene	0.0526	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[j]fluoranthene	0.0694	0.0463	0.0925	0.0694	NU	mg/Kg-dry	10	02/11/16 10:46 AM
Benzo[k]fluoranthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Chrysene	0.0742	0.0463	0.0925	0.0694	J	mg/Kg-dry	10	02/11/16 10:46 AM
Dibenz[a,h]anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Fluoranthene	0.108	0.0463	0.0925	0.0694		mg/Kg-dry	10	02/11/16 10:46 AM
Fluorene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Indeno[1,2,3-cd]pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Phenanthrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	02/11/16 10:46 AM
Pyrene	0.100	0.0463	0.0925	0.0694		mg/Kg-dry	10	02/11/16 10:46 AM
IS: Acenaphthene-d10	95.5	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/11/16 10:46 AM
IS: Phenanthrene-d10	91.8	0	50-200	0		%REC	10	02/11/16 10:46 AM
Surr: 2-Fluorobiphenyl	84.8	0	46-115	0		%REC	10	02/11/16 10:46 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-10
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:15 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.4	0	58-133	0		%REC	10	02/11/16 10:46 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-11
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.3	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 01:59 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	02/11/16 01:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[a]pyrene	0.0637	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[b]fluoranthene	0.0688	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[e]pyrene	0.0570	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[g,h,i]perylene	0.0523	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	02/11/16 11:27 AM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Chrysene	0.0692	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Fluoranthene	0.0940	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/11/16 11:27 AM
Pyrene	0.0864	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/11/16 11:27 AM
IS: Acenaphthene-d10	95.6	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Perylene-d12	125	0	50-200	0		%REC	10	02/11/16 11:27 AM
IS: Phenanthrene-d10	94.4	0	50-200	0		%REC	10	02/11/16 11:27 AM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	02/11/16 11:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-11
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:30 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.1	0	58-133	0		%REC	10	02/11/16 11:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-12
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.4	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:01 PM
IS: Bismuth	97.5	0	30-120	0		%REC	5	02/11/16 02:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Acenaphthylene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[a]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[a]pyrene	0.0623	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[b]fluoranthene	0.0653	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[e]pyrene	0.0548	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[g,h,i]perylene	0.0521	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[j]fluoranthene	0.0701	0.0467	0.0935	0.0701	NU	mg/Kg-dry	10	02/11/16 12:07 PM
Benzo[k]fluoranthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Chrysene	0.0694	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
Dibenz[a,h]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Fluoranthene	0.0962	0.0467	0.0935	0.0701		mg/Kg-dry	10	02/11/16 12:07 PM
Fluorene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Indeno[1,2,3-cd]pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Phenanthrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	02/11/16 12:07 PM
Pyrene	0.0880	0.0467	0.0935	0.0701	J	mg/Kg-dry	10	02/11/16 12:07 PM
IS: Acenaphthene-d10	97.7	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/11/16 12:07 PM
IS: Phenanthrene-d10	95.0	0	50-200	0		%REC	10	02/11/16 12:07 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	02/11/16 12:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU224-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-12
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 11:45 AM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.6	0	58-133	0		%REC	10	02/11/16 12:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-13
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	17.9	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 02:03 PM
IS: Bismuth	97.5	0	30-120	0		%REC	5	02/11/16 02:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[a]anthracene	0.184	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[a]pyrene	0.247	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[b]fluoranthene	0.243	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[e]pyrene	0.205	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[g,h,i]perylene	0.196	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[j]fluoranthene	0.132	0.0478	0.0955	0.0716	N	mg/Kg-dry	10	02/11/16 12:47 PM
Benzo[k]fluoranthene	0.122	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Chrysene	0.257	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Fluoranthene	0.355	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/11/16 12:47 PM
Indeno[1,2,3-cd]pyrene	0.160	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Phenanthrene	0.120	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
Pyrene	0.329	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/11/16 12:47 PM
IS: Acenaphthene-d10	96.0	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Perylene-d12	127	0	50-200	0		%REC	10	02/11/16 12:47 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	02/11/16 12:47 PM
Surr: 2-Fluorobiphenyl	77.5	0	46-115	0		%REC	10	02/11/16 12:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-13
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.6	0	58-133	0		%REC	10	02/11/16 12:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-14
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.9	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 02:05 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:05 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[a]anthracene	0.208	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[a]pyrene	0.278	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[b]fluoranthene	0.274	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[e]pyrene	0.227	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[g,h,i]perylene	0.224	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[j]fluoranthene	0.144	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/11/16 01:27 PM
Benzo[k]fluoranthene	0.133	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Chrysene	0.287	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Fluoranthene	0.407	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/11/16 01:27 PM
Indeno[1,2,3-cd]pyrene	0.181	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Phenanthrene	0.134	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
Pyrene	0.372	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/11/16 01:27 PM
IS: Acenaphthene-d10	94.1	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Perylene-d12	126	0	50-200	0		%REC	10	02/11/16 01:27 PM
IS: Phenanthrene-d10	94.5	0	50-200	0		%REC	10	02/11/16 01:27 PM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 01:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-14
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.7	0	58-133	0		%REC	10	02/11/16 01:27 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-15
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.9	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 01:09 PM
IS: Bismuth	98.7	0	30-120	0		%REC	5	02/11/16 01:09 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[a]anthracene	0.222	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[a]pyrene	0.306	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[b]fluoranthene	0.304	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[e]pyrene	0.247	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[g,h,i]perylene	0.249	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[j]fluoranthene	0.161	0.0499	0.0998	0.0749	N	mg/Kg-dry	10	02/11/16 02:07 PM
Benzo[k]fluoranthene	0.143	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Chrysene	0.309	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Dibenz[a,h]anthracene	0.0528	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	02/11/16 02:07 PM
Fluoranthene	0.432	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	02/11/16 02:07 PM
Indeno[1,2,3-cd]pyrene	0.201	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Phenanthrene	0.139	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
Pyrene	0.401	0.0499	0.0998	0.0749		mg/Kg-dry	10	02/11/16 02:07 PM
IS: Acenaphthene-d10	96.2	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Perylene-d12	128	0	50-200	0		%REC	10	02/11/16 02:07 PM
IS: Phenanthrene-d10	95.0	0	50-200	0		%REC	10	02/11/16 02:07 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	02/11/16 02:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU076-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-15
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.2	0	58-133	0		%REC	10	02/11/16 02:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-16
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.2	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 02:07 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 02:07 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Acenaphthylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[a]anthracene	0.105	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[a]pyrene	0.139	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[b]fluoranthene	0.137	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[e]pyrene	0.114	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[g,h,i]perylene	0.109	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[j]fluoranthene	0.0723	0.0468	0.0935	0.0702	JN	mg/Kg-dry	10	02/11/16 02:47 PM
Benzo[k]fluoranthene	0.0669	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Chrysene	0.146	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Dibenz[a,h]anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Fluoranthene	0.207	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
Fluorene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/11/16 02:47 PM
Indeno[1,2,3-cd]pyrene	0.0892	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Phenanthrene	0.0713	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/11/16 02:47 PM
Pyrene	0.188	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/11/16 02:47 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/11/16 02:47 PM
IS: Phenanthrene-d10	96.1	0	50-200	0		%REC	10	02/11/16 02:47 PM
Surr: 2-Fluorobiphenyl	75.8	0	46-115	0		%REC	10	02/11/16 02:47 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-16
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:25 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	02/11/16 02:47 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-17
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.1	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 02:28 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/11/16 02:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[a]anthracene	0.105	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[a]pyrene	0.143	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[b]fluoranthene	0.140	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[e]pyrene	0.114	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[g,h,i]perylene	0.112	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[j]fluoranthene	0.0751	0.0490	0.0979	0.0735	JN	mg/Kg-dry	10	02/10/16 11:59 AM
Benzo[k]fluoranthene	0.0706	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Chrysene	0.143	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Fluoranthene	0.200	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:59 AM
Indeno[1,2,3-cd]pyrene	0.0932	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Phenanthrene	0.0698	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:59 AM
Pyrene	0.183	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:59 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 11:59 AM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	02/10/16 11:59 AM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/10/16 11:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-17
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:40 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.5	0	58-133	0		%REC	10	02/10/16 11:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-18
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:55 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	18.2	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 02:33 PM
IS: Bismuth	103	0	30-120	0		%REC	5	02/11/16 02:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Acenaphthylene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[a]anthracene	0.0898	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[a]pyrene	0.121	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[b]fluoranthene	0.123	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[e]pyrene	0.0990	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[g,h,i]perylene	0.0968	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[j]fluoranthene	0.0647	0.0477	0.0954	0.0716	JN	mg/Kg-dry	10	02/10/16 12:39 PM
Benzo[k]fluoranthene	0.0589	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Chrysene	0.126	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Dibenz[a,h]anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Fluoranthene	0.178	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
Fluorene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	02/10/16 12:39 PM
Indeno[1,2,3-cd]pyrene	0.0797	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Phenanthrene	0.0615	0.0477	0.0954	0.0716	J	mg/Kg-dry	10	02/10/16 12:39 PM
Pyrene	0.161	0.0477	0.0954	0.0716		mg/Kg-dry	10	02/10/16 12:39 PM
IS: Acenaphthene-d10	108	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Perylene-d12	136	0	50-200	0		%REC	10	02/10/16 12:39 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/10/16 12:39 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	02/10/16 12:39 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-18
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 02:55 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	02/10/16 12:39 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-19
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.9	0.0971	0.291	0.146		mg/Kg-dry	5	02/11/16 02:35 PM
IS: Bismuth	99.3	0	30-120	0		%REC	5	02/11/16 02:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[a]anthracene	0.395	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[a]pyrene	0.551	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[b]fluoranthene	0.548	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[e]pyrene	0.466	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[g,h,i]perylene	0.456	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[j]fluoranthene	0.291	0.0486	0.0973	0.0730	N	mg/Kg-dry	10	02/10/16 01:19 PM
Benzo[k]fluoranthene	0.260	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Chrysene	0.548	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Dibenz[a,h]anthracene	0.0974	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Fluoranthene	0.761	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	02/10/16 01:19 PM
Indeno[1,2,3-cd]pyrene	0.368	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Phenanthrene	0.235	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
Pyrene	0.698	0.0486	0.0973	0.0730		mg/Kg-dry	10	02/10/16 01:19 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/10/16 01:19 PM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	02/10/16 01:19 PM
Surr: 2-Fluorobiphenyl	81.2	0	46-115	0		%REC	10	02/10/16 01:19 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-19
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	02/10/16 01:19 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-20
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:35 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.1	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 02:37 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 02:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[a]anthracene	0.464	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[a]pyrene	0.625	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[b]fluoranthene	0.624	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[e]pyrene	0.513	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[g,h,i]perylene	0.518	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[j]fluoranthene	0.328	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/10/16 01:59 PM
Benzo[k]fluoranthene	0.292	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Chrysene	0.646	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Dibenz[a,h]anthracene	0.110	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Fluoranthene	0.904	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 01:59 PM
Indeno[1,2,3-cd]pyrene	0.412	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Phenanthrene	0.279	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
Pyrene	0.833	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 01:59 PM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 01:59 PM
IS: Phenanthrene-d10	96.3	0	50-200	0		%REC	10	02/10/16 01:59 PM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	02/10/16 01:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-20
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 03:35 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	90.3	0	58-133	0		%REC	10	02/10/16 01:59 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-21
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.0	0.0943	0.283	0.142		mg/Kg-dry	5	02/11/16 02:39 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	02/11/16 02:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[a]anthracene	0.414	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[a]pyrene	0.568	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[b]fluoranthene	0.565	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[e]pyrene	0.476	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[g,h,i]perylene	0.469	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[j]fluoranthene	0.296	0.0494	0.0988	0.0741	N	mg/Kg-dry	10	02/10/16 02:40 PM
Benzo[k]fluoranthene	0.277	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Chrysene	0.576	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Dibenz[a,h]anthracene	0.0991	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Fluoranthene	0.776	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	02/10/16 02:40 PM
Indeno[1,2,3-cd]pyrene	0.376	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Phenanthrene	0.243	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
Pyrene	0.710	0.0494	0.0988	0.0741		mg/Kg-dry	10	02/10/16 02:40 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 02:40 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 02:40 PM
Surr: 2-Fluorobiphenyl	81.1	0	46-115	0		%REC	10	02/10/16 02:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU017-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-21
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/10/16 02:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-22
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.2	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:41 PM
IS: Bismuth	98.4	0	30-120	0		%REC	5	02/11/16 02:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Acenaphthylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[a]anthracene	0.243	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[a]pyrene	0.330	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[b]fluoranthene	0.336	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[e]pyrene	0.274	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[g,h,i]perylene	0.276	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[j]fluoranthene	0.173	0.0468	0.0935	0.0702	N	mg/Kg-dry	10	02/10/16 03:20 PM
Benzo[k]fluoranthene	0.157	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Chrysene	0.335	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Dibenz[a,h]anthracene	0.0581	0.0468	0.0935	0.0702	J	mg/Kg-dry	10	02/10/16 03:20 PM
Fluoranthene	0.461	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Fluorene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	02/10/16 03:20 PM
Indeno[1,2,3-cd]pyrene	0.217	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Phenanthrene	0.150	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
Pyrene	0.421	0.0468	0.0935	0.0702		mg/Kg-dry	10	02/10/16 03:20 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 03:20 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 03:20 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	02/10/16 03:20 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-22
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.1	0	58-133	0		%REC	10	02/10/16 03:20 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-23
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.0	0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 02:43 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[a]anthracene	0.252	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[a]pyrene	0.344	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[b]fluoranthene	0.346	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[e]pyrene	0.292	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[g,h,i]perylene	0.286	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[j]fluoranthene	0.182	0.0488	0.0976	0.0732	N	mg/Kg-dry	10	02/10/16 04:01 PM
Benzo[k]fluoranthene	0.167	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Chrysene	0.354	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Dibenz[a,h]anthracene	0.0594	0.0488	0.0976	0.0732	J	mg/Kg-dry	10	02/10/16 04:01 PM
Fluoranthene	0.479	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	02/10/16 04:01 PM
Indeno[1,2,3-cd]pyrene	0.229	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Phenanthrene	0.162	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
Pyrene	0.439	0.0488	0.0976	0.0732		mg/Kg-dry	10	02/10/16 04:01 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	02/10/16 04:01 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 04:01 PM
Surr: 2-Fluorobiphenyl	79.8	0	46-115	0		%REC	10	02/10/16 04:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-23
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.1	0	58-133	0		%REC	10	02/10/16 04:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-24
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:50 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 02:45 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 02:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[a]anthracene	0.161	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[a]pyrene	0.211	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[b]fluoranthene	0.203	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[e]pyrene	0.171	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[g,h,i]perylene	0.176	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[j]fluoranthene	0.108	0.0486	0.0972	0.0729	N	mg/Kg-dry	10	02/10/16 04:40 PM
Benzo[k]fluoranthene	0.0983	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Chrysene	0.216	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Fluoranthene	0.297	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	02/10/16 04:40 PM
Indeno[1,2,3-cd]pyrene	0.139	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
Phenanthrene	0.0953	0.0486	0.0972	0.0729	J	mg/Kg-dry	10	02/10/16 04:40 PM
Pyrene	0.264	0.0486	0.0972	0.0729		mg/Kg-dry	10	02/10/16 04:40 PM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Perylene-d12	125	0	50-200	0		%REC	10	02/10/16 04:40 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	02/10/16 04:40 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	02/10/16 04:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU016-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-24
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:50 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	02/10/16 04:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-25
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.0862	0.259	0.129		mg/Kg-dry	5	02/11/16 02:47 PM
IS: Bismuth	99.9	0	30-120	0		%REC	5	02/11/16 02:47 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[a]anthracene	0.293	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[a]pyrene	0.415	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[b]fluoranthene	0.423	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[e]pyrene	0.349	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[g,h,i]perylene	0.357	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[j]fluoranthene	0.221	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	02/10/16 05:21 PM
Benzo[k]fluoranthene	0.200	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Chrysene	0.413	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Dibenz[a,h]anthracene	0.0735	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	02/10/16 05:21 PM
Fluoranthene	0.554	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	02/10/16 05:21 PM
Indeno[1,2,3-cd]pyrene	0.279	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Phenanthrene	0.176	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
Pyrene	0.513	0.0495	0.0990	0.0743		mg/Kg-dry	10	02/10/16 05:21 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Chrysene-d12	123	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Perylene-d12	135	0	50-200	0		%REC	10	02/10/16 05:21 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	02/10/16 05:21 PM
Surr: 2-Fluorobiphenyl	79.0	0	46-115	0		%REC	10	02/10/16 05:21 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-25
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:05 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.5	0	58-133	0		%REC	10	02/10/16 05:21 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: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-26
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	12.6	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 02:49 PM
IS: Bismuth	99.8	0	30-120	0		%REC	5	02/11/16 02:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[a]anthracene	0.149	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[a]pyrene	0.211	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[b]fluoranthene	0.210	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[e]pyrene	0.173	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[g,h,i]perylene	0.174	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[j]fluoranthene	0.111	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/10/16 06:01 PM
Benzo[k]fluoranthene	0.101	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Chrysene	0.209	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Dibenz[a,h]anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Fluoranthene	0.293	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/10/16 06:01 PM
Indeno[1,2,3-cd]pyrene	0.140	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
Phenanthrene	0.0964	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/10/16 06:01 PM
Pyrene	0.269	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/10/16 06:01 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Perylene-d12	132	0	50-200	0		%REC	10	02/10/16 06:01 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 06:01 PM
Surr: 2-Fluorobiphenyl	78.3	0	46-115	0		%REC	10	02/10/16 06:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-26
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:15 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.2	0	58-133	0		%REC	10	02/10/16 06:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-27
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.7	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 03:27 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[a]anthracene	0.156	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[a]pyrene	0.195	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[b]fluoranthene	0.191	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[e]pyrene	0.159	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[g,h,i]perylene	0.156	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[j]fluoranthene	0.103	0.0478	0.0955	0.0716	N	mg/Kg-dry	10	02/10/16 06:41 PM
Benzo[k]fluoranthene	0.0927	0.0478	0.0955	0.0716	J	mg/Kg-dry	10	02/10/16 06:41 PM
Chrysene	0.204	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Fluoranthene	0.288	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	02/10/16 06:41 PM
Indeno[1,2,3-cd]pyrene	0.127	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
Phenanthrene	0.0926	0.0478	0.0955	0.0716	J	mg/Kg-dry	10	02/10/16 06:41 PM
Pyrene	0.262	0.0478	0.0955	0.0716		mg/Kg-dry	10	02/10/16 06:41 PM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 06:41 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	02/10/16 06:41 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	02/10/16 06:41 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU039-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601232-27
Project No:	04285081.0000.00043	**Collection Date:**	01/25/16 04:30 PM
Lab Order:	1601232	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.0	0	58-133	0		%REC	10	02/10/16 06:41 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160122B**

Sample ID	**DCS1-73242**	Batch ID:	**73242**	TestNo:	**SW6020A**	Units:	**mg/Kg**
SampType:	**DCS**	Run ID:	**ICP-MS4_160122B**	Analysis Date:	**1/22/2016 10:52:00 AM**	Prep Date:	**1/21/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.243	0.300	0.2500	0	97.0	80	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

The QC data in batch 73587 applies to the following samples: 1601232-01A, 1601232-02A, 1601232-03A, 1601232-04A, 1601232-05A, 1601232-06A, 1601232-07A, 1601232-08A, 1601232-09A, 1601232-10A, 1601232-11A, 1601232-12A, 1601232-13A, 1601232-14A, 1601232-15A, 1601232-16A

Sample ID **MB-73587** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:01:00 PM** Prep Date: **2/9/2016**

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		104	30	120			

Sample ID **LCS-73587** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:03:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.0	0.300	50.00	0	102	84	118			
IS: Bismuth	50.0		200.0		101	30	120			

Sample ID **LCSD-73587** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:05:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.9	0.300	50.00	0	102	84	118	0.018	20	
IS: Bismuth	50.0		200.0		100	30	120	0	0	

Sample ID **1601232-15A SD** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:11:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	18.9	1.47	0	18.89				0.101	10	
IS: Bismuth	245		196.1		103	30	120	0	0	

Sample ID **1601232-15A PDS** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:31:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	68.8	0.294	49.02	18.89	102	80	120			
IS: Bismuth	49.0		980.4		98.7	30	120			

Sample ID **1601232-15A MS** Batch ID: **73587** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:33:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	67.0	0.286	47.62	18.89	101	84	118			
IS: Bismuth	47.6		190.5		98.3	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**1601232-15A MSD**	Batch ID:	**73587**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 1:35:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	68.9	0.291	48.54	18.89	103	84	118	2.73	20	
IS: Bismuth	48.5		194.2		96.8	30	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

The QC data in batch 73600 applies to the following samples: 1601232-17A, 1601232-18A, 1601232-19A, 1601232-20A, 1601232-21A, 1601232-22A, 1601232-23A, 1601232-24A, 1601232-25A, 1601232-26A, 1601232-27A

Sample ID **MB-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:20:00 PM** Prep Date: **2/10/2016**

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		103	30	120			

Sample ID **LCS-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:22:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.2	0.300	50.00	0	100	84	118			
IS: Bismuth	50.0		200.0		99.0	30	120			

Sample ID **LCSD-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:24:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.8	0.300	50.00	0	99.6	84	118	0.768	20	
IS: Bismuth	50.0		200.0		101	30	120	0	0	

Sample ID **1601232-17A SD** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:30:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	17.9	1.40	0	18.09				1.25	10	
IS: Bismuth	234		186.9		106	30	120	0	0	

Sample ID **1601232-17A PDS** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:51:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.1	0.280	46.73	18.09	96.3	80	120			
IS: Bismuth	46.7		934.6		101	30	120			

Sample ID **1601232-17A MS** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:53:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.5	0.280	46.73	18.09	97.2	84	118			
IS: Bismuth	46.7		186.9		100	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**1601232-17A MSD**	Batch ID:	**73600**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:55:00 PM**	Prep Date:	**2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	60.5	0.252	42.02	18.09	101	84	118	4.82	20	
IS: Bismuth	42.0		168.1		98.1	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID **ICV-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 10:41:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0997	0.00100	0.100	0	99.7	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID **LCVL-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 10:46:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000999	0.00100	0.00100	0	99.9	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **CCV4-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 12:42:00 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		101	70	200			

Sample ID **LCVL4-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 12:46:00 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	70	130			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **CCV5-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:37:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.4	70	200			

Sample ID **LCVL5-160211** Batch ID: **R84127** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 1:42:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		99.5	70	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**CCV6-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:09:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**LCVL6-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:15:00 PM**	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	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV7-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:56:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		100	70	200			

Sample ID	**LCVL7-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 3:06:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000961	0.00100	0.00100	0	96.1	70	130			
IS: Bismuth	0.200		0.200		99.2	70	200			

Sample ID	**CCV8-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 3:47:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.4	70	200			

Sample ID	**LCVL8-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 4:00:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000923	0.00100	0.00100	0	92.3	70	130			
IS: Bismuth	0.200		0.200		98.7	70	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160127A**

Sample ID	**DCS-73349**	Batch ID:	**73349**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**DCS**	Run ID:	**GCMS6_160127A**	Analysis Date:	**1/27/2016 4:31:00 PM**	Prep Date:	**1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00938	0.0100	0.01000	0	93.8	20	200	0	0	
Acenaphthylene	0.00855	0.0100	0.01000	0	85.5	20	200	0	0	
Anthracene	0.00875	0.0100	0.01000	0	87.5	20	200	0	0	
Benzo[a]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Benzo[a]pyrene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[b]fluoranthene	0.00903	0.0100	0.01000	0	90.3	20	200	0	0	
Benzo[e]pyrene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[g,h,i]perylene	0.00940	0.0100	0.01000	0	94.0	20	200	0	0	
Benzo[j]fluoranthene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	N
Benzo[k]fluoranthene	0.00922	0.0100	0.01000	0	92.2	20	200	0	0	
Chrysene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Dibenz[a,h]anthracene	0.00955	0.0100	0.01000	0	95.5	20	200	0	0	
Fluoranthene	0.0104	0.0100	0.01000	0	104	20	200	0	0	
Fluorene	0.00898	0.0100	0.01000	0	89.8	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00925	0.0100	0.01000	0	92.5	20	200	0	0	
Phenanthrene	0.00921	0.0100	0.01000	0	92.1	20	200	0	0	
Pyrene	0.0104	0.0100	0.01000	0	104	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

The QC data in batch 73550 applies to the following samples: 1601232-01A, 1601232-02A, 1601232-03A, 1601232-04A, 1601232-05A, 1601232-06A, 1601232-07A, 1601232-08A, 1601232-09A, 1601232-10A, 1601232-11A, 1601232-12A, 1601232-13A, 1601232-14A, 1601232-15A, 1601232-16A

Sample ID **MB-73550** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 8:42:00 AM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		92.4	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		86.9	50	200			
Surr: 2-Fluorobiphenyl	0.897		1.000		89.7	46	115			
Surr: 4-Terphenyl-d14	1.14		1.000		114	58	133			

Sample ID **LCS-73550** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 9:22:00 AM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.819	0.0100	1.000	0	81.9	44	111			
Acenaphthylene	0.845	0.0100	1.000	0	84.5	39	116			
Anthracene	0.832	0.0100	1.000	0	83.2	50	114			
Benzo[a]anthracene	0.906	0.0100	1.000	0	90.6	54	122			
Benzo[a]pyrene	0.846	0.0100	1.000	0	84.6	50	125			
Benzo[b]fluoranthene	0.902	0.0100	1.000	0	90.2	53	128			
Benzo[e]pyrene	0.877	0.0100	1.000	0	87.7	43	140			
Benzo[g,h,i]perylene	0.848	0.0100	1.000	0	84.8	49	127			
Benzo[j]fluoranthene	0.889	0.0100	1.000	0	88.9	45	125			N
Benzo[k]fluoranthene	0.902	0.0100	1.000	0	90.2	56	123			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID	**LCS-73550**	Batch ID:	**73550**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**LCS**	Run ID:	**GCMS6_160209A**	Analysis Date:	**2/9/2016 9:22:00 AM**	Prep Date:	**2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.918	0.0100	1.000	0	91.8	57	118			
Dibenz[a,h]anthracene	0.882	0.0100	1.000	0	88.2	50	129			
Fluoranthene	1.04	0.0100	1.000	0	104	55	119			
Fluorene	0.833	0.0100	1.000	0	83.3	47	114			
Indeno[1,2,3-cd]pyrene	0.868	0.0100	1.000	0	86.8	49	130			
Phenanthrene	0.849	0.0100	1.000	0	84.9	49	113			
Pyrene	1.05	0.0100	1.000	0	105	55	117			
IS: Acenaphthene-d10	4.00		4.000		101	50	200			
IS: Chrysene-d12	4.00		4.000		126	50	200			
IS: Naphthalene-d8	4.00		4.000		115	50	200			
IS: Perylene-d12	4.00		4.000		133	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	0.781		1.000		78.1	46	115			
Surr: 4-Terphenyl-d14	0.985		1.000		98.5	58	133			

Sample ID	**SBLK-160211**	Batch ID:	**73550**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160209A**	Analysis Date:	**2/11/2016 10:06:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **1601232-06AMS** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 3:28:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.857	0.0968	0.9681	0.07129	81.2	44	111			
Acenaphthylene	0.780	0.0968	0.9681	0	80.6	39	116			
Anthracene	1.07	0.0968	0.9681	0.2738	82.2	50	114			
Benzo[a]anthracene	3.64	0.0968	0.9681	2.944	71.9	54	122			
Benzo[a]pyrene	4.56	0.0968	0.9681	3.870	71.3	50	125			
Benzo[b]fluoranthene	4.39	0.0968	0.9681	3.781	63.4	53	128			
Benzo[e]pyrene	3.70	0.0968	0.9681	3.041	68.1	43	140			
Benzo[g,h,i]perylene	3.64	0.0968	0.9681	3.070	59.2	49	127			
Benzo[j]fluoranthene	2.64	0.0968	0.9681	1.949	70.9	45	125			N
Benzo[k]fluoranthene	2.46	0.0968	0.9681	1.802	67.9	56	123			
Chrysene	4.49	0.0968	0.9681	3.767	74.8	57	118			
Dibenz[a,h]anthracene	1.42	0.0968	0.9681	0.6776	76.6	50	129			
Fluoranthene	6.13	0.0968	0.9681	4.908	126	55	119			S
Fluorene	0.772	0.0968	0.9681	0	79.8	47	114			
Indeno[1,2,3-cd]pyrene	3.13	0.0968	0.9681	2.502	65.3	49	130			
Phenanthrene	2.40	0.0968	0.9681	1.563	87.0	49	113			
Pyrene	5.69	0.0968	0.9681	4.436	129	55	117			S
IS: Acenaphthene-d10	38.7		3.872		97.2	50	200			
IS: Chrysene-d12	38.7		3.872		112	50	200			
IS: Naphthalene-d8	38.7		3.872		115	50	200			
IS: Perylene-d12	38.7		3.872		127	50	200			
IS: Phenanthrene-d10	38.7		3.872		93.7	50	200			
Surr: 2-Fluorobiphenyl	0.738		0.9681		76.2	46	115			
Surr: 4-Terphenyl-d14	0.820		0.9681		84.7	58	133			

Sample ID **1601232-06AMSD** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 4:07:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.798	0.0950	0.9497	0.07129	76.6	44	111	7.13	20	
Acenaphthylene	0.736	0.0950	0.9497	0	77.5	39	116	5.85	20	
Anthracene	0.976	0.0950	0.9497	0.2738	73.9	50	114	9.20	20	
Benzo[a]anthracene	3.19	0.0950	0.9497	2.944	25.7	54	122	13.2	20	S
Benzo[a]pyrene	4.11	0.0950	0.9497	3.870	25.5	50	125	10.3	20	S
Benzo[b]fluoranthene	3.94	0.0950	0.9497	3.781	16.5	53	128	11.0	20	S
Benzo[e]pyrene	3.38	0.0950	0.9497	3.041	36.0	43	140	8.96	20	S
Benzo[g,h,i]perylene	3.36	0.0950	0.9497	3.070	30.6	49	127	8.06	20	S
Benzo[j]fluoranthene	2.39	0.0950	0.9497	1.949	46.5	45	125	9.73	20	N
Benzo[k]fluoranthene	2.21	0.0950	0.9497	1.802	43.4	56	123	10.5	20	S
Chrysene	3.96	0.0950	0.9497	3.767	20.3	57	118	12.6	20	S
Dibenz[a,h]anthracene	1.33	0.0950	0.9497	0.6776	68.6	50	129	6.52	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **1601232-06AMSD** Batch ID: **73550** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 4:07:00 PM** Prep Date: **2/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	5.45	0.0950	0.9497	4.908	56.6	55	119	11.9	20	
Fluorene	0.725	0.0950	0.9497	0	76.3	47	114	6.32	20	
Indeno[1,2,3-cd]pyrene	2.88	0.0950	0.9497	2.502	39.5	49	130	8.55	20	S
Phenanthrene	2.12	0.0950	0.9497	1.563	59.2	49	113	12.4	20	
Pyrene	5.00	0.0950	0.9497	4.436	59.6	55	117	12.8	20	
IS: Acenaphthene-d10	38.0		3.799		103	50	200	0	0	
IS: Chrysene-d12	38.0		3.799		117	50	200	0	0	
IS: Naphthalene-d8	38.0		3.799		118	50	200	0	0	
IS: Perylene-d12	38.0		3.799		131	50	200	0	0	
IS: Phenanthrene-d10	38.0		3.799		97.3	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.700		0.9497		73.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.778		0.9497		81.9	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **ICV-160209** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 8:02:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.14	0.0100	2.000	0	107	80	120			
Acenaphthylene	2.15	0.0100	2.000	0	107	80	120			
Anthracene	2.10	0.0100	2.000	0	105	80	120			
Benzo[a]anthracene	2.26	0.0100	2.000	0	113	80	120			
Benzo[a]pyrene	2.20	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.24	0.0100	2.000	0	112	80	120			
Benzo[e]pyrene	2.19	0.0100	2.000	0	110	80	120			
Benzo[g,h,i]perylene	2.04	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	2.25	0.0100	2.000	0	113	80	120			N
Benzo[k]fluoranthene	2.21	0.0100	2.000	0	111	80	120			
Chrysene	2.26	0.0100	2.000	0	113	80	120			
Dibenz[a,h]anthracene	2.19	0.0100	2.000	0	110	80	120			
Fluoranthene	2.34	0.0100	2.000	0	117	80	120			
Fluorene	2.09	0.0100	2.000	0	105	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	108	80	120			
Phenanthrene	2.17	0.0100	2.000	0	108	80	120			
Pyrene	2.37	0.0100	2.000	0	118	80	120			
IS: Acenaphthene-d10	4.00		4.000		120	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		131	50	200			
IS: Perylene-d12	4.00		4.000		134	50	200			
IS: Phenanthrene-d10	4.00		4.000		110	50	200			
Surr: 2-Fluorobiphenyl	2.08		2.000		104	65	120			
Surr: 4-Terphenyl-d14	2.31		2.000		116	65	120			

Sample ID **ICV2-160209** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 7:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.11	0.0100	2.000	0	105	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	105	80	120			
Anthracene	2.09	0.0100	2.000	0	105	80	120			
Benzo[a]anthracene	2.23	0.0100	2.000	0	112	80	120			
Benzo[a]pyrene	2.20	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.17	0.0100	2.000	0	108	80	120			
Benzo[e]pyrene	2.17	0.0100	2.000	0	108	80	120			
Benzo[g,h,i]perylene	2.02	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.23	0.0100	2.000	0	112	80	120			N
Benzo[k]fluoranthene	2.23	0.0100	2.000	0	112	80	120			
Chrysene	2.26	0.0100	2.000	0	113	80	120			
Dibenz[a,h]anthracene	2.17	0.0100	2.000	0	109	80	120			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **ICV2-160209** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/9/2016 7:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.32	0.0100	2.000	0	116	80	120			
Fluorene	2.04	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	107	80	120			
Phenanthrene	2.13	0.0100	2.000	0	107	80	120			
Pyrene	2.31	0.0100	2.000	0	116	80	120			
IS: Acenaphthene-d10	4.00		4.000		132	50	200			
IS: Chrysene-d12	4.00		4.000		131	50	200			
IS: Naphthalene-d8	4.00		4.000		145	50	200			
IS: Perylene-d12	4.00		4.000		142	50	200			
IS: Phenanthrene-d10	4.00		4.000		115	50	200			
Surr: 2-Fluorobiphenyl	2.14		2.000		107	65	120			
Surr: 4-Terphenyl-d14	2.27		2.000		113	65	120			

Sample ID **ICV-160211** Batch ID: **R84103** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160209A** Analysis Date: **2/11/2016 9:26:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.0	80	120			
Acenaphthylene	2.00	0.0100	2.000	0	100	80	120			
Anthracene	1.86	0.0100	2.000	0	93.0	80	120			
Benzo[a]anthracene	2.07	0.0100	2.000	0	103	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.04	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	1.88	0.0100	2.000	0	94.2	80	120			
Benzo[j]fluoranthene	2.06	0.0100	2.000	0	103	80	120			N
Benzo[k]fluoranthene	2.08	0.0100	2.000	0	104	80	120			
Chrysene	2.09	0.0100	2.000	0	105	80	120			
Dibenz[a,h]anthracene	2.01	0.0100	2.000	0	100	80	120			
Fluoranthene	2.17	0.0100	2.000	0	109	80	120			
Fluorene	1.80	0.0100	2.000	0	90.0	80	120			
Indeno[1,2,3-cd]pyrene	1.98	0.0100	2.000	0	99.1	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.3	80	120			
Pyrene	2.15	0.0100	2.000	0	108	80	120			
IS: Acenaphthene-d10	4.00		4.000		111	50	200			
IS: Chrysene-d12	4.00		4.000		112	50	200			
IS: Naphthalene-d8	4.00		4.000		140	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.13		2.000		106	65	120			
Surr: 4-Terphenyl-d14	2.09		2.000		105	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160209A**

Sample ID **ICV2-160126**	Batch ID: **R84103**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160209A**	Analysis Date: **2/11/2016 5:24:00 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	50	150			
Acenaphthylene	1.97	0.0100	2.000	0	98.4	50	150			
Anthracene	1.81	0.0100	2.000	0	90.7	50	150			
Benzo[a]anthracene	2.11	0.0100	2.000	0	105	50	150			
Benzo[a]pyrene	2.03	0.0100	2.000	0	102	50	150			
Benzo[b]fluoranthene	2.01	0.0100	2.000	0	100	50	150			
Benzo[e]pyrene	2.01	0.0100	2.000	0	101	50	150			
Benzo[g,h,i]perylene	1.86	0.0100	2.000	0	93.2	50	150			
Benzo[j]fluoranthene	2.04	0.0100	2.000	0	102	50	150			N
Benzo[k]fluoranthene	2.04	0.0100	2.000	0	102	50	150			
Chrysene	2.11	0.0100	2.000	0	106	50	150			
Dibenz[a,h]anthracene	1.99	0.0100	2.000	0	99.7	50	150			
Fluoranthene	2.03	0.0100	2.000	0	101	50	150			
Fluorene	1.85	0.0100	2.000	0	92.4	50	150			
Indeno[1,2,3-cd]pyrene	1.97	0.0100	2.000	0	98.5	50	150			
Phenanthrene	1.91	0.0100	2.000	0	95.6	50	150			
Pyrene	2.00	0.0100	2.000	0	100	50	150			
IS: Acenaphthene-d10	4.00		4.000		108	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		139	50	200			
IS: Perylene-d12	4.00		4.000		118	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	50	150			
Surr: 4-Terphenyl-d14	1.96		2.000		98.0	50	150			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

The QC data in batch 73554 applies to the following samples: 1601232-17A, 1601232-18A, 1601232-19A, 1601232-20A, 1601232-21A, 1601232-22A, 1601232-23A, 1601232-24A, 1601232-25A, 1601232-26A, 1601232-27A

Sample ID **MB-73554** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 10:38:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		100	50	200			
IS: Chrysene-d12	4.00		4.000		115	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		123	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.4	50	200			
Surr: 2-Fluorobiphenyl	0.822		1.000		82.2	46	115			
Surr: 4-Terphenyl-d14	0.986		1.000		98.6	58	133			

Sample ID **LCS-73554** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 11:18:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.840	0.0100	1.000	0	84.0	44	111			
Acenaphthylene	0.873	0.0100	1.000	0	87.3	39	116			
Anthracene	0.842	0.0100	1.000	0	84.2	50	114			
Benzo[a]anthracene	0.896	0.0100	1.000	0	89.6	54	122			
Benzo[a]pyrene	0.811	0.0100	1.000	0	81.1	50	125			
Benzo[b]fluoranthene	0.893	0.0100	1.000	0	89.3	53	128			
Benzo[e]pyrene	0.875	0.0100	1.000	0	87.5	43	140			
Benzo[g,h,i]perylene	0.818	0.0100	1.000	0	81.8	49	127			
Benzo[j]fluoranthene	0.893	0.0100	1.000	0	89.3	45	125			N
Benzo[k]fluoranthene	0.954	0.0100	1.000	0	95.4	56	123			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **LCS-73554**	Batch ID: **73554**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 11:18:00 AM**	Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.909	0.0100	1.000	0	90.9	57	118			
Dibenz[a,h]anthracene	0.863	0.0100	1.000	0	86.3	50	129			
Fluoranthene	1.13	0.0100	1.000	0	113	55	119			
Fluorene	0.830	0.0100	1.000	0	83.0	47	114			
Indeno[1,2,3-cd]pyrene	0.844	0.0100	1.000	0	84.4	49	130			
Phenanthrene	0.879	0.0100	1.000	0	87.9	49	113			
Pyrene	1.14	0.0100	1.000	0	114	55	117			
IS: Acenaphthene-d10	4.00		4.000		95.6	50	200			
IS: Chrysene-d12	4.00		4.000		129	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		139	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.3	50	200			
Surr: 2-Fluorobiphenyl	0.884		1.000		88.4	46	115			
Surr: 4-Terphenyl-d14	1.07		1.000		107	58	133			

Sample ID **SB-160210**	Batch ID: **73554**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 10:38:00 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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **1601247-04AMS** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 4:01:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.807	0.0992	0.9921	0	81.4	44	111			
Acenaphthylene	0.776	0.0992	0.9921	0	78.2	39	116			
Anthracene	0.841	0.0992	0.9921	0.06572	78.2	50	114			
Benzo[a]anthracene	1.60	0.0992	0.9921	0.7439	86.4	54	122			
Benzo[a]pyrene	1.81	0.0992	0.9921	0.9686	85.3	50	125			
Benzo[b]fluoranthene	1.77	0.0992	0.9921	0.9612	81.1	53	128			
Benzo[e]pyrene	1.60	0.0992	0.9921	0.7923	81.7	43	140			
Benzo[g,h,i]perylene	1.65	0.0992	0.9921	0.7974	85.7	49	127			
Benzo[j]fluoranthene	1.28	0.0992	0.9921	0.4958	79.5	45	125			N
Benzo[k]fluoranthene	1.23	0.0992	0.9921	0.4500	78.6	56	123			
Chrysene	1.84	0.0992	0.9921	0.9679	88.0	57	118			
Dibenz[a,h]anthracene	0.969	0.0992	0.9921	0.1704	80.5	50	129			
Fluoranthene	2.27	0.0992	0.9921	1.324	95.8	55	119			
Fluorene	0.745	0.0992	0.9921	0	75.1	47	114			
Indeno[1,2,3-cd]pyrene	1.47	0.0992	0.9921	0.6445	83.5	49	130			
Phenanthrene	1.19	0.0992	0.9921	0.3864	81.3	49	113			
Pyrene	2.17	0.0992	0.9921	1.208	96.8	55	117			
IS: Acenaphthene-d10	39.7		3.968		105	50	200			
IS: Chrysene-d12	39.7		3.968		107	50	200			
IS: Naphthalene-d8	39.7		3.968		119	50	200			
IS: Perylene-d12	39.7		3.968		124	50	200			
IS: Phenanthrene-d10	39.7		3.968		97.7	50	200			
Surr: 2-Fluorobiphenyl	0.739		0.9921		74.5	46	115			
Surr: 4-Terphenyl-d14	0.795		0.9921		80.1	58	133			

Sample ID **1601247-04AMSD** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 4:41:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.815	0.0988	0.9881	0	82.5	44	111	0.995	20	
Acenaphthylene	0.788	0.0988	0.9881	0	79.8	39	116	1.53	20	
Anthracene	0.863	0.0988	0.9881	0.06572	80.6	50	114	2.50	20	
Benzo[a]anthracene	1.62	0.0988	0.9881	0.7439	88.6	54	122	1.17	20	
Benzo[a]pyrene	1.84	0.0988	0.9881	0.9686	87.7	50	125	1.11	20	
Benzo[b]fluoranthene	1.81	0.0988	0.9881	0.9612	85.5	53	128	2.26	20	
Benzo[e]pyrene	1.62	0.0988	0.9881	0.7923	83.8	43	140	1.07	20	
Benzo[g,h,i]perylene	1.66	0.0988	0.9881	0.7974	87.5	49	127	0.854	20	
Benzo[j]fluoranthene	1.33	0.0988	0.9881	0.4958	84.1	45	125	3.27	20	N
Benzo[k]fluoranthene	1.24	0.0988	0.9881	0.4500	80.2	56	123	1.05	20	
Chrysene	1.83	0.0988	0.9881	0.9679	87.7	57	118	0.374	20	
Dibenz[a,h]anthracene	1.00	0.0988	0.9881	0.1704	84.0	50	129	3.22	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **1601247-04AMSD**	Batch ID: **73554**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160210A**	Analysis Date: **2/11/2016 4:41:00 AM**	Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.32	0.0988	0.9881	1.324	101	55	119	2.01	20	
Fluorene	0.754	0.0988	0.9881	0	76.3	47	114	1.10	20	
Indeno[1,2,3-cd]pyrene	1.51	0.0988	0.9881	0.6445	87.1	49	130	2.19	20	
Phenanthrene	1.23	0.0988	0.9881	0.3864	84.9	49	113	2.65	20	
Pyrene	2.21	0.0988	0.9881	1.208	102	55	117	2.04	20	
IS: Acenaphthene-d10	39.5		3.953		105	50	200	0	0	
IS: Chrysene-d12	39.5		3.953		109	50	200	0	0	
IS: Naphthalene-d8	39.5		3.953		117	50	200	0	0	
IS: Perylene-d12	39.5		3.953		125	50	200	0	0	
IS: Phenanthrene-d10	39.5		3.953		98.9	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.743		0.9881		75.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.808		0.9881		81.7	58	133	0	0	

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **ICV-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 9:28:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.12	0.0100	2.000	0	106	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	105	80	120			
Anthracene	2.07	0.0100	2.000	0	103	80	120			
Benzo[a]anthracene	2.23	0.0100	2.000	0	111	80	120			
Benzo[a]pyrene	2.21	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.15	0.0100	2.000	0	108	80	120			
Benzo[e]pyrene	2.15	0.0100	2.000	0	107	80	120			
Benzo[g,h,i]perylene	2.00	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.22	0.0100	2.000	0	111	80	120			N
Benzo[k]fluoranthene	2.34	0.0100	2.000	0	117	80	120			
Chrysene	2.25	0.0100	2.000	0	112	80	120			
Dibenz[a,h]anthracene	2.16	0.0100	2.000	0	108	80	120			
Fluoranthene	2.36	0.0100	2.000	0	118	80	120			
Fluorene	2.00	0.0100	2.000	0	100	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0100	2.000	0	106	80	120			
Phenanthrene	2.12	0.0100	2.000	0	106	80	120			
Pyrene	2.36	0.0100	2.000	0	118	80	120			
IS: Acenaphthene-d10	4.00		4.000		126	50	200			
IS: Chrysene-d12	4.00		4.000		130	50	200			
IS: Naphthalene-d8	4.00		4.000		144	50	200			
IS: Perylene-d12	4.00		4.000		143	50	200			
IS: Phenanthrene-d10	4.00		4.000		113	50	200			
Surr: 2-Fluorobiphenyl	2.19		2.000		110	65	120			
Surr: 4-Terphenyl-d14	2.33		2.000		117	65	120			

Sample ID **ICV2-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 9:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	96.8	80	120			
Acenaphthylene	1.94	0.0100	2.000	0	97.0	80	120			
Anthracene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[a]anthracene	2.07	0.0100	2.000	0	104	80	120			
Benzo[a]pyrene	2.07	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.05	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	1.88	0.0100	2.000	0	94.1	80	120			
Benzo[j]fluoranthene	2.08	0.0100	2.000	0	104	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.08	0.0100	2.000	0	104	80	120			
Dibenz[a,h]anthracene	2.04	0.0100	2.000	0	102	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: 1601232
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **ICV2-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 9:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.17	0.0100	2.000	0	109	80	120			
Fluorene	1.78	0.0100	2.000	0	89.2	80	120			
Indeno[1,2,3-cd]pyrene	2.00	0.0100	2.000	0	100	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.5	80	120			
Pyrene	2.16	0.0100	2.000	0	108	80	120			
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		138	50	200			
IS: Perylene-d12	4.00		4.000		129	50	200			
IS: Phenanthrene-d10	4.00		4.000		104	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	2.10		2.000		105	65	120			

Sample ID **CCV1-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 5:20:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.941	0.0100	1.000	0	94.1	50	150			
Acenaphthylene	0.984	0.0100	1.000	0	98.4	50	150			
Anthracene	0.914	0.0100	1.000	0	91.4	50	150			
Benzo[a]anthracene	0.978	0.0100	1.000	0	97.8	50	150			
Benzo[a]pyrene	0.974	0.0100	1.000	0	97.4	50	150			
Benzo[b]fluoranthene	0.981	0.0100	1.000	0	98.1	50	150			
Benzo[e]pyrene	0.971	0.0100	1.000	0	97.1	50	150			
Benzo[g,h,i]perylene	0.901	0.0100	1.000	0	90.1	50	150			
Benzo[j]fluoranthene	0.973	0.0100	1.000	0	97.3	50	150			N
Benzo[k]fluoranthene	0.933	0.0100	1.000	0	93.3	50	150			
Chrysene	0.990	0.0100	1.000	0	99.0	50	150			
Dibenz[a,h]anthracene	0.951	0.0100	1.000	0	95.1	50	150			
Fluoranthene	1.09	0.0100	1.000	0	109	50	150			
Fluorene	0.899	0.0100	1.000	0	89.9	50	150			
Indeno[1,2,3-cd]pyrene	0.929	0.0100	1.000	0	92.9	50	150			
Phenanthrene	0.937	0.0100	1.000	0	93.7	50	150			
Pyrene	1.10	0.0100	1.000	0	110	50	150			
IS: Acenaphthene-d10	4.00		4.000		111	50	200			
IS: Chrysene-d12	4.00		4.000		120	50	200			
IS: Naphthalene-d8	4.00		4.000		138	50	200			
IS: Perylene-d12	4.00		4.000		133	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.02		1.000		102	50	150			
Surr: 4-Terphenyl-d14	1.05		1.000		105	50	150			

Qualifiers:

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

DHL Analytical, Inc.

Date: *16-Feb-16*

CLIENT: Arcadis
Work Order: 1601232
Project: Laredo Shotgun Range

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

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

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS6
For

DHL Work Order
1601232

GCMS6_160209A
For

DHL Work Order
1601232

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_160209A
Batch Number(s): See Run Log.	SOP: ORGANICS-PAH-01
Matrix: See Run Log.	

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	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			
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		X
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: REVIEWED/APPROVED 2/12/2016

By Sherri Herschmann at 9:30:33 AM, 2/16/2016

Second-Level Review: Date: 02/16/2016

DHL Analytical, Inc.

Run ID: GCMS6_160209A **Run No.:** 84103

Analytical Run Date: 2/9/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160209	1	PAH_LL_SDOD1	TUNE	R84103	2/9/2016 7:25:00 AM		
ICV-160209	1	PAH_LL_SDOD1	ICV	R84103	2/9/2016 8:02:00 AM		
MB-73550	1	PAH_LL_SDOD1	MBLK	73550	2/9/2016 8:42:00 AM		
LCS-73550	1	PAH_LL_SDOD1	LCS	73550	2/9/2016 9:22:00 AM		
1601231-24A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:03:00 AM		All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.
1601231-25A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:43:00 AM		
1601231-26A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 11:24:00 AM		
1601231-27A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 12:04:00 PM		
1601232-01A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 12:44:00 PM		
1601232-02A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 1:25:00 PM		
1601232-03A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 2:05:00 PM		
1601232-04A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 2:46:00 PM		
1601232-05A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 3:26:00 PM		
1601232-06A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 4:06:00 PM		
1601232-07A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 4:46:00 PM		
1601232-08A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 5:27:00 PM		
1601232-09A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 6:07:00 PM		
DFTPP2-160209	1	PAH_LL_SDOD1	TUNE	R84103	2/9/2016 6:47:00 PM		DNR.
ICV2-160209	1	PAH_LL_SDOD1	ICV	R84103	2/9/2016 7:23:00 PM		~~DNR.~~ **Report as ending CCV**
SB-160209	1	PAH_LL_SDOD1	SBLK	73550	2/9/2016 8:03:00 PM		DNR. Hits present in SB - likely solvent rinse went dry. See rerun for the rest of the analytical run.
1601232-10A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 8:44:00 PM		DNR.
1601232-11A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 9:23:00 PM		DNR.
1601232-12A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:03:00 PM		DNR.
1601232-13A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 10:43:00 PM		DNR.
1601232-14A	10	PAH_LL_SDOD1	SAMP	73550	2/9/2016 11:22:00 PM		DNR.
1601232-15A	10	PAH_LL_SDOD1	SAMP	73550	2/10/2016 12:02:00 AM		DNR.
1601232-16A	10	PAH_LL_SDOD1	SAMP	73550	2/10/2016 12:41:00 AM		DNR.

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

REVIEWED/APPROVED

By Sherri Herschmann at 9:31:12 AM, 2/16/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160209A** **Run No.:** 84103

1601232-06AMS	10	PAH_LL_SDOD1	MS	73550	2/10/2016 1:21:00 AM		DNR.
1601232-06AMSD	10	PAH_LL_SDOD1	MSD	73550	2/10/2016 2:01:00 AM		DNR.
CCV1-160209	1	PAH_LL_SDOD1	CCV	R84103	2/10/2016 2:41:00 AM		DNR.
DFTPP-160211	1	PAH_LL_SDOD1	TUNE	R84103	2/11/2016 8:49:00 AM		
ICV-160211	1	PAH_LL_SDOD1	ICV	R84103	2/11/2016 9:26:00 AM		
SBLK-160211	1	PAH_LL_SDOD1	SBLK	73550	2/11/2016 10:06:00 AM		
1601232-10A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 10:46:00 AM		
1601232-11A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 11:27:00 AM		
1601232-12A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 12:07:00 PM		
1601232-13A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 12:47:00 PM		
1601232-14A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 1:27:00 PM		
1601232-15A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 2:07:00 PM		
1601232-16A	10	PAH_LL_SDOD1	SAMP	73550	2/11/2016 2:47:00 PM		
1601232-06AMS	10	PAH_LL_SDOD1	MS	73550	2/11/2016 3:28:00 PM		Fluoranthene and pyrene high.
1601232-06AMSD	10	PAH_LL_SDOD1	MSD	73550	2/11/2016 4:07:00 PM		Benz(a)anthracene, benzo(a)pyrene, benzo(b and k)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, chrysene, and indeno (1,2,3-cd)pyrene low. RPD ok.
DFTPP2-160211	1	PAH_LL_SDOD1	TUNE	R84103	2/11/2016 4:47:00 PM		
ICV2-160126	1	PAH_LL_SDOD1	CCV	R84103	2/11/2016 5:24:00 PM		Second ICV of 2-11 imported as CCV for ending of this analytical run.

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160209.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160209\
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	16020901	DFTPPPAH	DFTPP-160209
2	Sample	2	16020902	PP160126	ICV-160209
3	Sample	3	16020903	PP160126	MB-73550
4	Sample	4	16020904	PP160126	LCS-73550
5	Sample	5	16020905	PP160126	1601231-24A
6	Sample	6	16020906	PP160126	1601231-25A
7	Sample	7	16020907	PP160126	1601231-26A
8	Sample	8	16020908	PP160126	1601231-27A
9	Sample	9	16020909	PP160126	1601232-01A
10	Sample	10	16020910	PP160126	1601232-02A
11	Sample	11	16020911	PP160126	1601232-03A
12	Sample	12	16020912	PP160126	1601232-04A
13	Sample	13	16020913	PP160126	1601232-05A
14	Sample	14	16020914	PP160126	1601232-06A
15	Sample	15	16020915	PP160126	1601232-07A
16	Sample	16	16020916	PP160126	1601232-08A
17	Sample	17	16020917	PP160126	1601232-09A
18	Sample	18	16020918	DFTPPLVI	DFTPP2-160209
19	Sample	19	16020919	PP160126	ICV2-160209
20	Sample	20	16020920	PP160126	SB-160209
21	Sample	21	16020921	PP160126	1601232-10A
22	Sample	22	16020922	PP160126	1601232-11A
23	Sample	23	16020923	PP160126	1601232-12A
24	Sample	24	16020924	PP160126	1601232-13A
25	Sample	25	16020925	PP160126	1601232-14A
26	Sample	26	16020926	PP160126	1601232-15A
27	Sample	27	16020927	PP160126	1601232-16A
28	Sample	28	16020928	PP160126	1601232-06AMS
29	Sample	29	16020929	PP160126	1601232-06AMSD
30	Sample	30	16020930	PP160126	CCV1-160209

Sequence Name: C:\HPCHEM\1\SEQUENCE\160211.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160211\
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	16021101	DFTPPPAH	DFTPP-160211
2	Sample	2	16021102	PP160126	ICV-160211
3	Sample	3	16021103	PP160126	SBLK-160211
4	Sample	4	16021104	PP160126	1601232-10A
5	Sample	5	16021105	PP160126	1601232-11A
6	Sample	6	16021106	PP160126	1601232-12A
7	Sample	7	16021107	PP160126	1601232-13A
8	Sample	8	16021108	PP160126	1601232-14A
9	Sample	9	16021109	PP160126	1601232-15A
10	Sample	10	16021110	PP160126	1601232-16A
11	Sample	11	16021111	PP160126	1601232-06AMS
12	Sample	12	16021112	PP160126	1601232-06AMSD
13	Sample	13	16021113	DFTPPPAH	DFTPP2-160211
14	Sample	14	16021114	PP160126	ICV2-160126
15	Sample	15	16021115	PP160126	LCS-73519
16	Sample	16	16021116	PP160126	LCS-73598
17	Sample	17	16021117	PP160126	MB-73519
18	Sample	18	16021118	PP160126	MB-73598
19	Sample	19	16021119	PP160126	1601152-26A
20	Sample	20	16021120	PP160126	1601247-10A
21	Sample	21	16021121	PP160126	1601247-11A
22	Sample	22	16021122	PP160126	1601247-12A
23	Sample	23	16021123	PP160126	1601247-14A
24	Sample	24	16021124	PP160126	1601247-15A
25	Sample	25	16021125	PP160126	1601247-16A
26	Sample	26	16021126	PP160126	1601247-17A
27	Sample	27	16021127	PP160126	1601247-18A
28	Sample	28	16021128	PP160126	1601247-19A
29	Sample	29	16021129	PP160126	1601247-20A
30	Sample	30	16021130	DFTPPPAH	DFTPP3-160211
31	Sample	31	16021131	PP160126	ICV3-160211
32	Sample	32	16021132	PP160126	SBLK
33	Sample	33	16021133	PP160126	SBLK2-160211
34	Sample	34	16021134	PP160126	1601247-21A
35	Sample	35	16021135	PP160126	1601247-22A
36	Sample	36	16021136	PP160126	1601285-01A
37	Sample	37	16021137	PP160126	1601285-02A
38	Sample	38	16021138	PP160126	1601285-03A
39	Sample	39	16021139	PP160126	1601285-04A
40	Sample	40	16021140	PP160126	1601285-05A
41	Sample	41	16021141	PP160126	1601285-06A
42	Sample	42	16021142	PP160126	1601285-07A
43	Sample	43	16021143	PP160126	1601285-08A

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-01A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601231-02A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
	Sieved sample will be in 2-oz glass jar					
1601231-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-06A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-07A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-08A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15 /					
1601231-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-16A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-17A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-18A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-19A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/28/15					
1601231-20A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					
1601231-21A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					
1601231-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/26/2016 3:00:00 PM**
Digestion: **Start: 1/26/2016 5:00:00 PM / Stop: 1/28/2016 3:00:00 PM**
Prep End Date: **1/28/2016 5:00:00 PM**

Prep Batch **73357** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601231-27A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 1/28/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-01A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample. Needed two days to dry. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601232-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	Sieved sample will be in 2-oz glass jar					
1601232-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-06A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-07A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-08A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
	/					
1601232-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-16A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-17A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-18A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-21A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample Processed 1/30/15					
1601232-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-27A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: **2/5/2016 5:00:00 PM**

Prep Batch **73550** 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 #
1601231-24A	Soil		10.01	10	0.999	1 of 1
1601231-25A	Soil		10.64	10	0.940	1 of 1
1601231-26A	Soil		10.32	10	0.969	1 of 1
1601231-27A	Soil		10.91	10	0.917	1 of 1
1601232-01A	Soil		10.37	10	0.964	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		10.05	10	0.995	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		10.03	10	0.997	1 of 1
1601232-04A	Soil		10.12	10	0.988	1 of 1
1601232-05A	Soil		10.17	10	0.983	1 of 1
1601232-06A	Soil		10.24	10	0.977	1 of 1
1601232-06AMS	Soil		10.33	10	0.968	of
1601232-06AMSD	Soil		10.53	10	0.950	of
1601232-07A	Soil		10.57	10	0.946	1 of 1
1601232-08A	Soil		10.54	10	0.949	1 of 1
1601232-09A	Soil		8.57	10	1.167	1 of 1
Not enough sample produced						
1601232-10A	Soil		10.81	10	0.925	1 of 1
1601232-11A	Soil		10.1	10	0.990	1 of 1
1601232-12A	Soil		10.7	10	0.935	1 of 1
1601232-13A	Soil		10.47	10	0.955	1 of 1
1601232-14A	Soil		10.29	10	0.972	1 of 1
/						
1601232-15A	Soil		10.02	10	0.998	1 of 1
1601232-16A	Soil		10.69	10	0.935	1 of 1
LCS-73550	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

REVIEWED/APPROVED

By Sherri Herschmann at 9:39:58 AM, 2/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: **2/5/2016 5:00:00 PM**

Prep Batch **73550** 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 #
MB-73550	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/5/2016 1:45:15 PM**
Digestion:
Prep End Date: 2/5/16 5:00 PM

Prep Batch **73550** 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 #			
1601231-24A	Soil		10.01	10	1.000	1	of	1	
1601231-25A	Soil		10.64	10	1.000	1	of	1	
1601231-26A	Soil		10.32	10	1.000	1	of	1	
1601231-27A	Soil		10.91	10	1.000	1	of	1	
1601232-01A	Soil		10.37	10	1.000	1	of	1	
The preparation for PAH & metals must wait til sieve completed.									
1601232-02A	Soil		10.05	10	1.000	1	of	1	
Sieved sample will be in 2-oz glass jar									
1601232-03A	Soil		10.03	10	1.000	1	of	1	
1601232-04A	Soil		10.12	10	1.000	1	of	1	
1601232-05A	Soil		10.17	10	1.000	1	of	1	
1601232-06A	Soil		10.24	10	1.000	1	of	1	
1601232-06AMS	Soil		10.33	10	1.000		of		
1601232-06AMSD	Soil		10.53	10	1.000		of		
1601232-07A	Soil		10.57	10	1.000	1	of	1	
1601232-08A	Soil		10.54	10	1.000	1	of	1	
1601232-09A	Soil		8.57	10	1.000	1	of	1	Not enough sample produced.
1601232-10A	Soil		10.81	10	1.000	1	of	1	
1601232-11A	Soil		10.10	10	1.000	1	of	1	
1601232-12A	Soil		10.70	10	1.000	1	of	1	
1601232-13A	Soil		10.47	10	1.000	1	of	1	
1601232-14A	Soil		10.29	10	1.000	1	of	1	
1601232-15A	Soil		10.02	10	1.000	1	of	1	
1601232-16A	Soil		10.69	10	1.000	1	of	1	
LCS-73550	Soil		10.	10	1.000		of		
MB-73550	Soil		10	10	1.000		of		

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

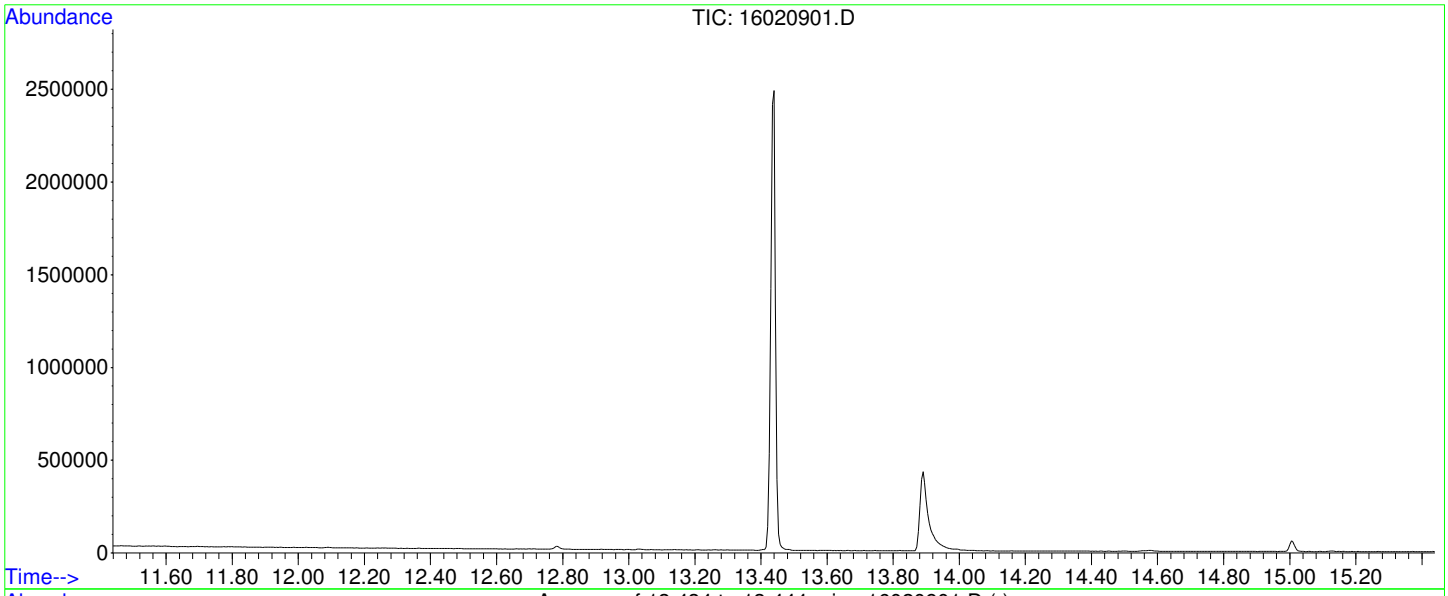
2/5/16

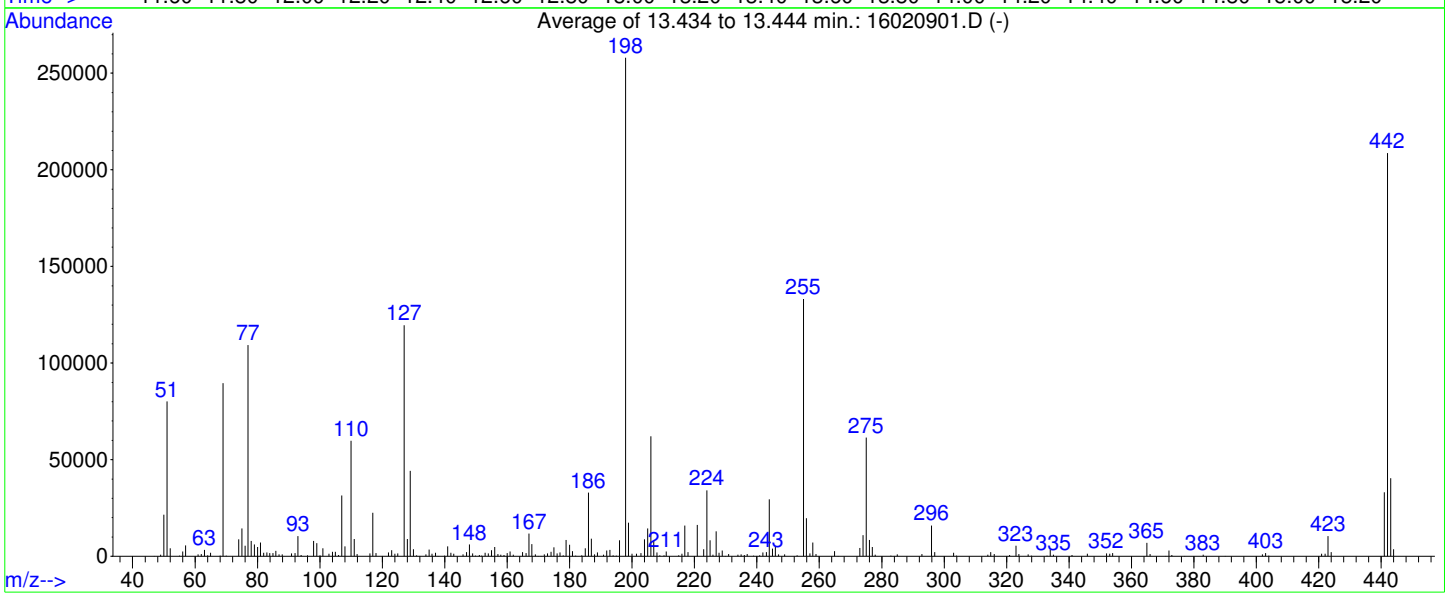
2/5/16

REVIEWED/APPROVED

By Sherri Herschmann at 9:40:25 AM, 2/16/2016

Data File : C:\HPCHEM\1\DATA\160209\16020901.D Vial: 1
Acq On : 9 Feb 2016 7:25 am Operator:
Sample : DFTPP-160209 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

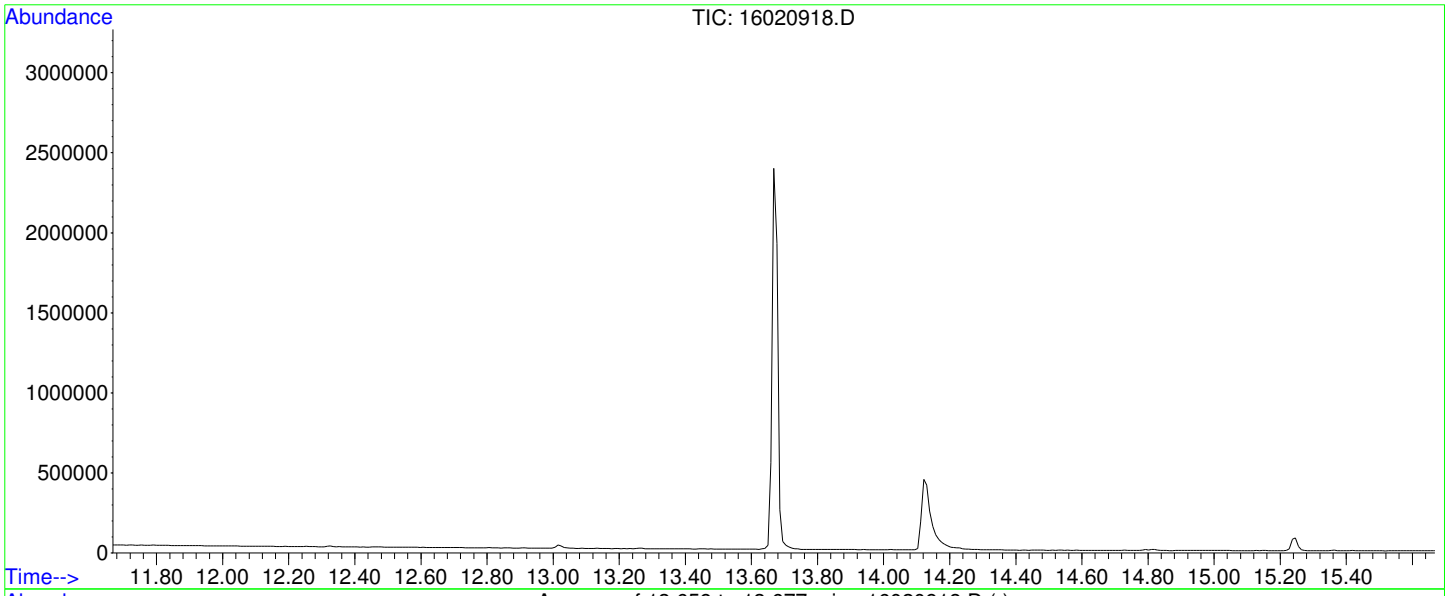


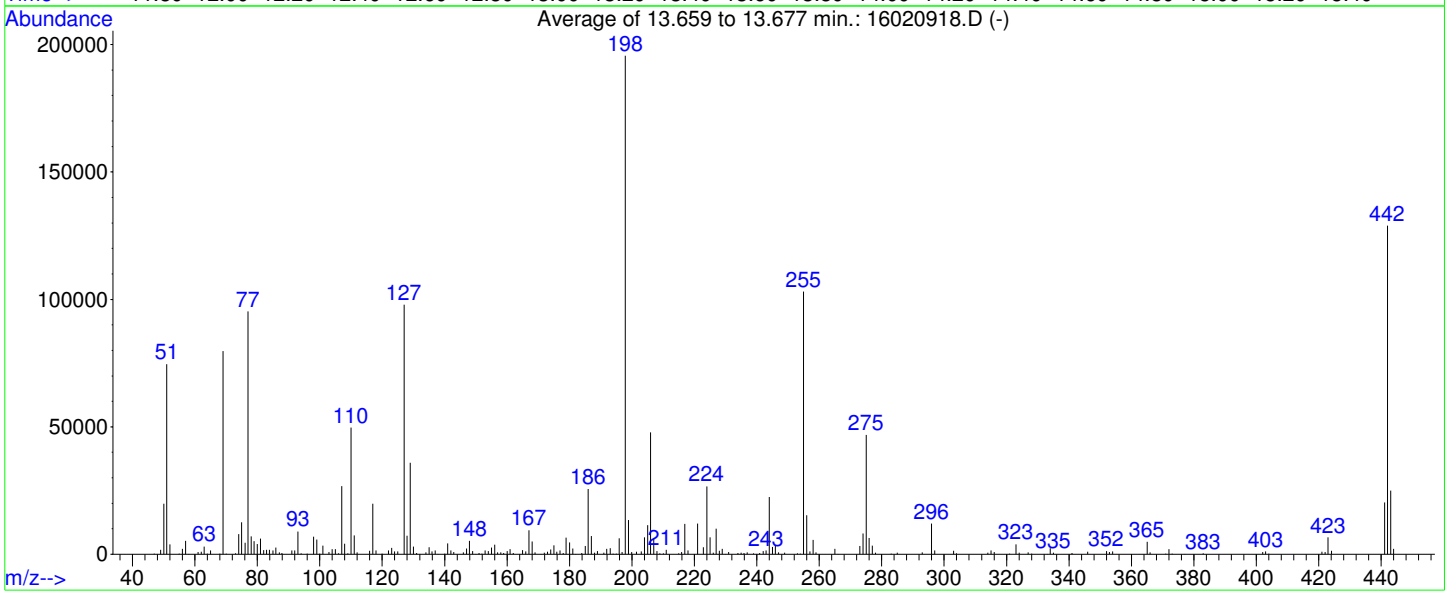


AutoFind: Scans 1562, 1563, 1564; Background Corrected with Scan 1555

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.1	80124	PASS
68	69	0.00	2	0.3	290	PASS
69	198	0.00	100	34.7	89600	PASS
70	69	0.00	2	0.4	380	PASS
127	198	10	80	46.4	119661	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	258048	PASS
199	198	5	9	6.7	17390	PASS
275	198	10	60	23.8	61429	PASS
365	198	1	200	2.7	7014	PASS
441	442	0.01	24	15.9	33197	PASS
442	198	50	400	80.9	208661	PASS
443	442	15	24	19.4	40392	PASS

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 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

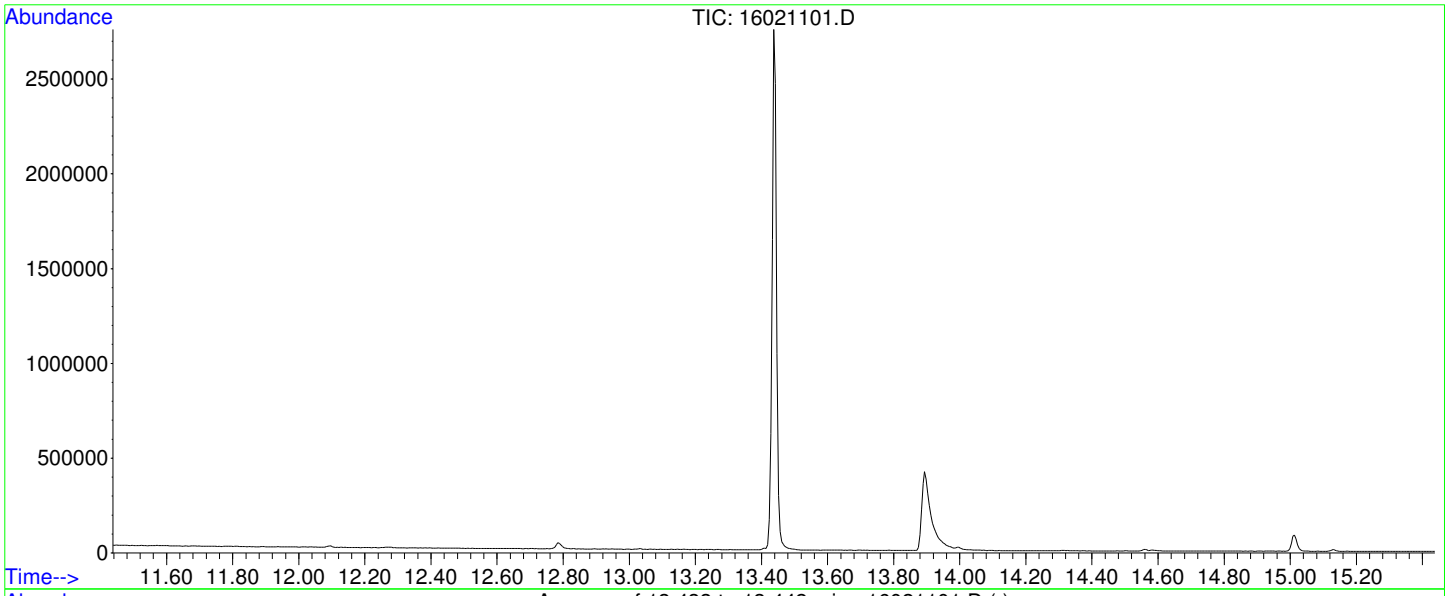


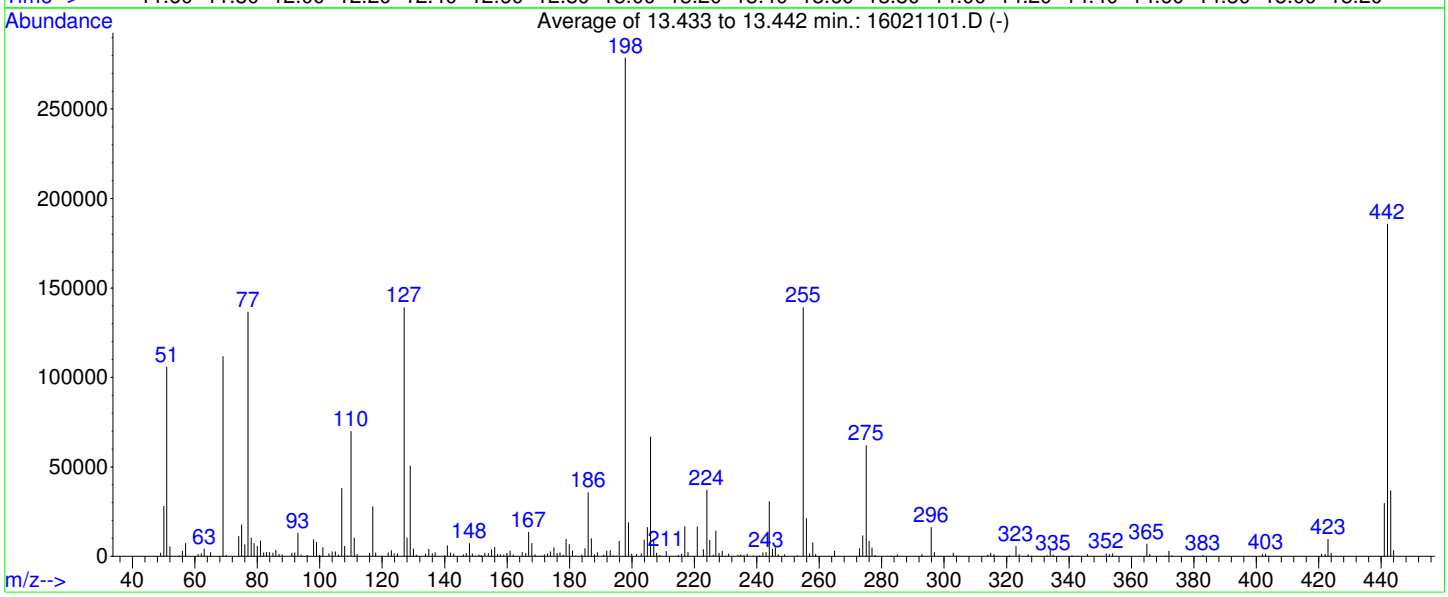


AutoFind: Scans 835, 836, 837; Background Corrected with Scan 831

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.1	74557	PASS
68	69	0.00	2	0.3	269	PASS
69	198	0.00	100	40.8	79733	PASS
70	69	0.00	2	0.3	257	PASS
127	198	10	80	50.0	97915	PASS
197	198	0.00	2	0.5	940	PASS
198	198	100	100	100.0	195640	PASS
199	198	5	9	6.8	13392	PASS
275	198	10	60	23.9	46815	PASS
365	198	1	200	2.5	4965	PASS
441	442	0.01	24	15.8	20330	PASS
442	198	50	400	65.9	128929	PASS
443	442	15	24	19.4	25005	PASS

Data File : C:\HPCHEM\1\DATA\160211\16021101.D Vial: 1
Acq On : 11 Feb 2016 8:49 am Operator:
Sample : DFTPP-160211 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

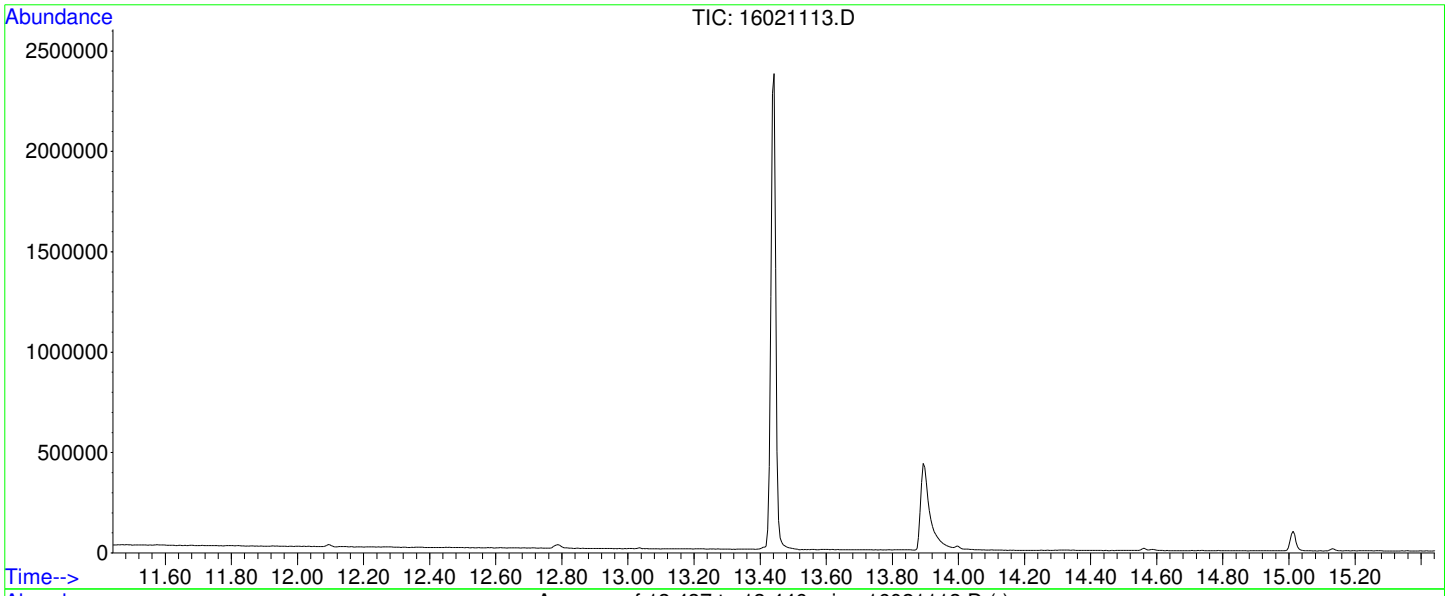


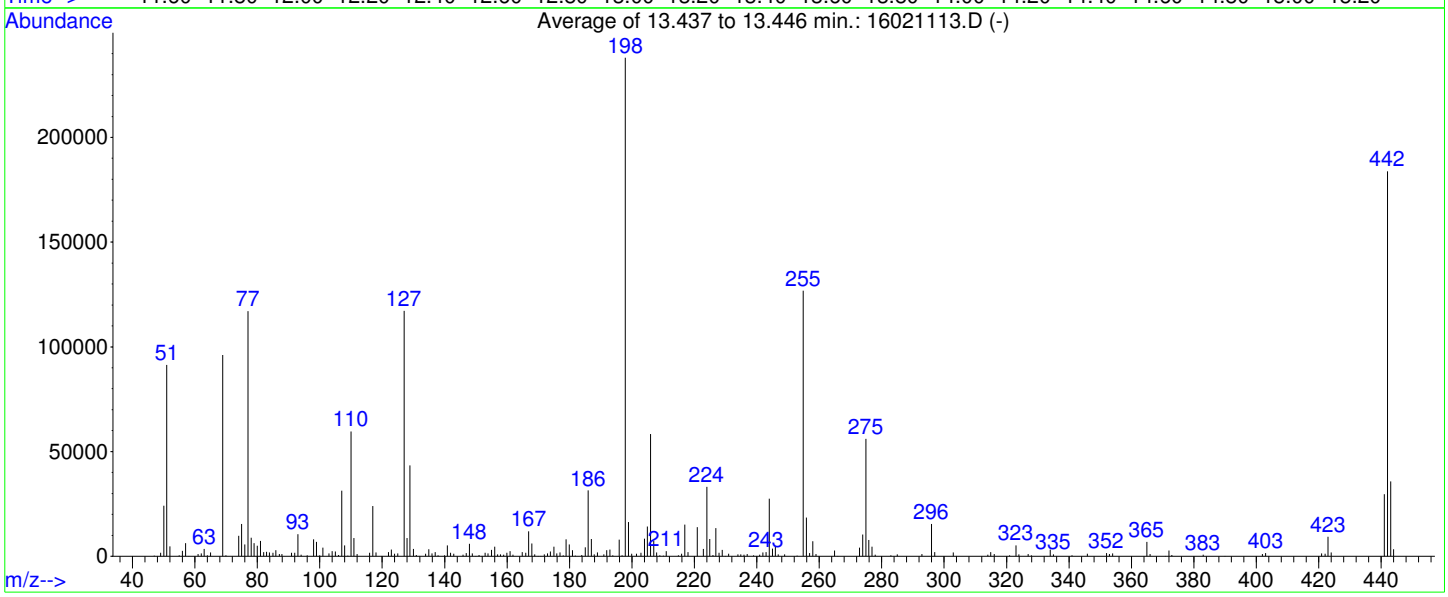


AutoFind: Scans 1562, 1563, 1564; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.0	105940	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.1	111797	PASS
70	69	0.00	2	0.6	663	PASS
127	198	10	80	50.0	139243	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	278720	PASS
199	198	5	9	6.8	19023	PASS
275	198	10	60	22.3	62128	PASS
365	198	1	200	2.5	6938	PASS
441	442	0.01	24	16.0	29705	PASS
442	198	50	400	66.7	185805	PASS
443	442	15	24	19.8	36845	PASS

Data File : C:\HPCHEM\1\DATA\160211\16021113.D Vial: 13
Acq On : 11 Feb 2016 4:47 pm Operator:
Sample : DFTPP2-160211 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 1563, 1564, 1565; Background Corrected with Scan 1556

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.4	91446	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.4	96075	PASS
70	69	0.00	2	0.4	401	PASS
127	198	10	80	49.2	117184	PASS
197	198	0.00	2	0.2	499	PASS
198	198	100	100	100.0	238059	PASS
199	198	5	9	6.8	16301	PASS
275	198	10	60	23.6	56088	PASS
365	198	1	200	2.9	6892	PASS
441	442	0.01	24	16.1	29616	PASS
442	198	50	400	77.2	183851	PASS
443	442	15	24	19.5	35819	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	2748475	4000.00 ug/kg	131
5) Acenaphthene-d10	13.14	164	2181461	4000.00 ug/kg	120
11) Phenanthrene-d10	15.22	188	3597106	4000.00 ug/kg	110
17) Chrysene-d12	20.79	240	3610236	4000.00 ug/kg	125
20) Perylene-d12	25.86	264	3101277	4000.00 ug/kg	134

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	1316444	2082.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 52.07%		
16) 4-Terphenyl-d14	17.64	244	1390941	2314.61 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.87%		

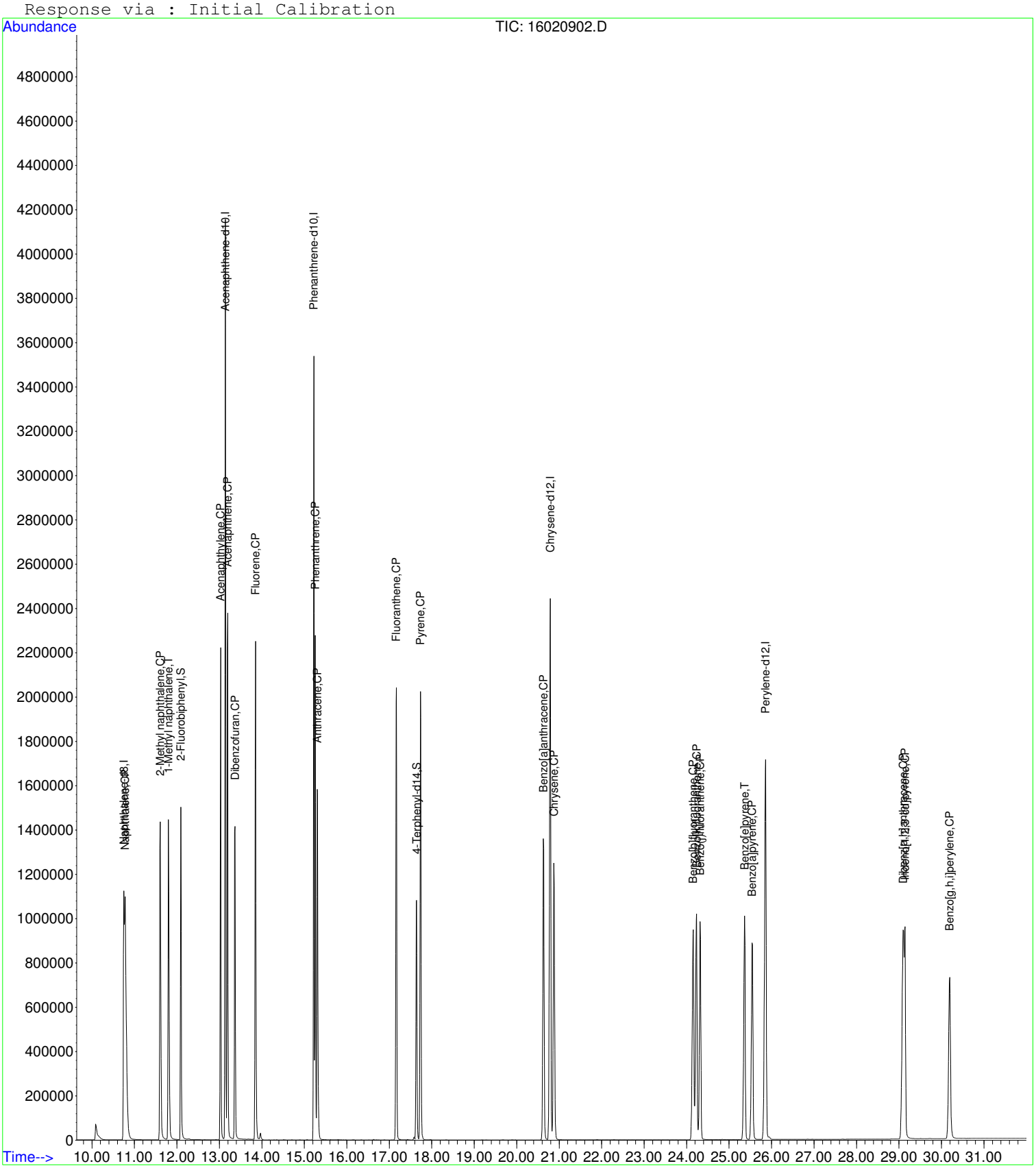
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1498633	2179.40 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1132967	2092.55 ug/kg	97
4) 1-Methyl naphthalene	11.80	142	1042998	2041.26 ug/kg	96
6) Dibenzofuran	13.37	168	1548226	2183.87 ug/kg	100
8) Acenaphthylene	13.03	152	1949040	2148.84 ug/kg	99
9) Acenaphthene	13.19	154	1174874	2137.79 ug/kg	99
10) Fluorene	13.85	166	1357291	2093.41 ug/kg	99
12) Phenanthrene	15.26	178	1849983	2165.74 ug/kg	99
13) Anthracene	15.30	178	1757225	2102.56 ug/kg	99
14) Fluoranthene	17.17	202	1982464	2340.44 ug/kg	99
15) Pyrene	17.73	202	2042729	2367.64 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1880101	2258.55 ug/kg	99
19) Chrysene	20.87	228	1794271	2263.80 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	1848841	2236.02 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	1626408	2214.35 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1555555	2254.59 ug/kg	97
24) Benzo[e]pyrene	25.36	252	1692153	2191.98 ug/kg	98
25) Benzo[a]pyrene	25.54	252	1653865	2201.05 ug/kg	98
26) Dibenz[a,h]anthracene	29.09	278	1522443	2190.25 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	1822380	2152.01 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	1446116	2035.27 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

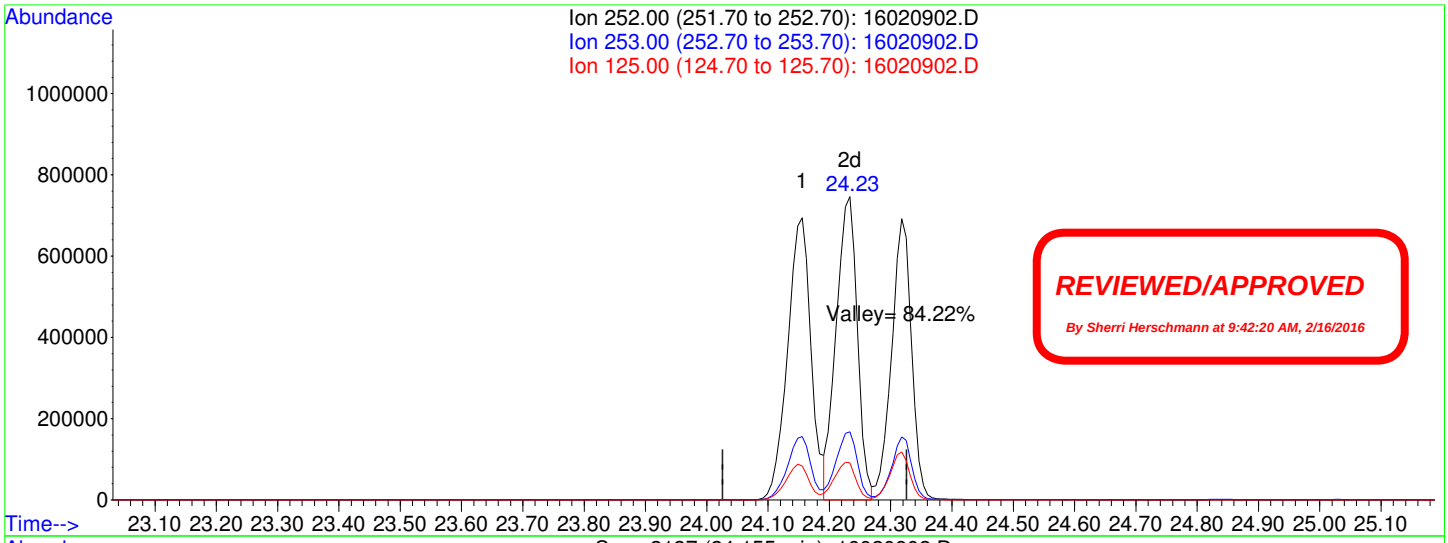
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

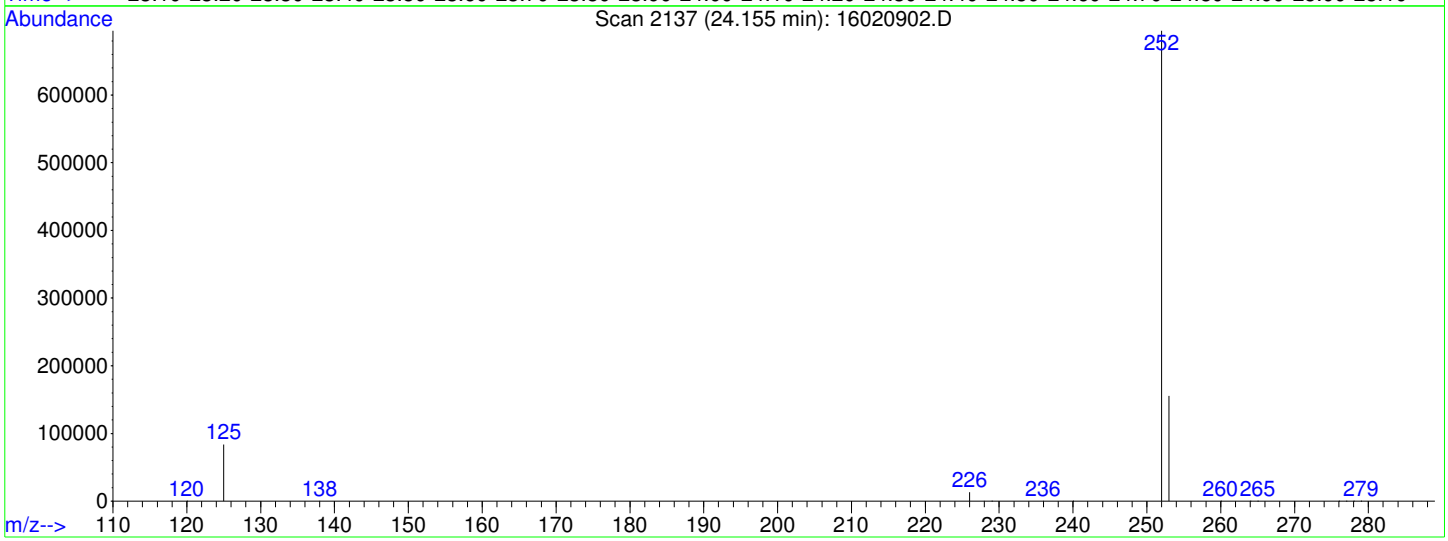
Data File : C:\HPCHEM\1\DATA\160209\16020902.D Vial: 2
Acq On : 9 Feb 2016 8:02 am Operator:
Sample : ICV-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 8:34 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration



REVIEWED/APPROVED

By Sherri Herschmann at 9:42:20 AM, 2/16/2016



TIC: 16020902.D

(21) Benzo[b]fluoranthene (CP)

24.16min 2236.02ug/kg

response 1848841

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.30
125.00	10.50	12.04
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020903.D Vial: 3
Acq On : 9 Feb 2016 8:42 am Operator:
Sample : MB-73550 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2249420	4000.00 ug/kg	107
5) Acenaphthene-d10	13.15	164	1682452	4000.00 ug/kg	92
11) Phenanthrene-d10	15.22	188	2840412	4000.00 ug/kg	87
17) Chrysene-d12	20.79	240	3414452	4000.00 ug/kg	118
20) Perylene-d12	25.86	264	2860781	4000.00 ug/kg	124

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	437348	897.24 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.43%#		
16) 4-Terphenyl-d14	17.64	244	541481	1141.10 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 28.53%#		

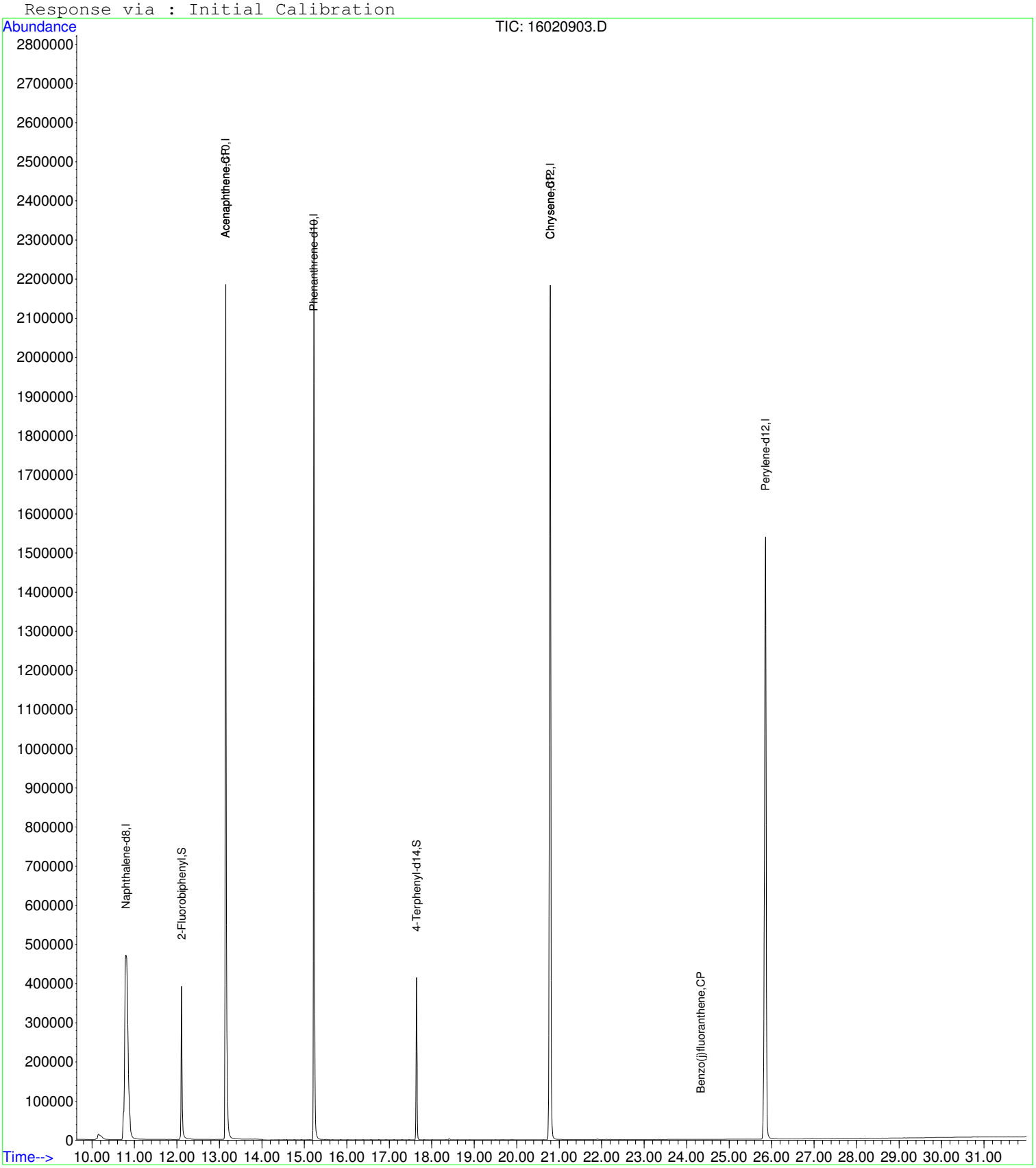
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5936	14.00 ug/kg#	10
19) Chrysene	20.79	228	7836	10.45 ug/kg	74
23) Benzo(j)fluoranthene	24.33	252	111	0.17 ug/kg	65

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020903.D Vial: 3
Acq On : 9 Feb 2016 8:42 am Operator:
Sample : MB-73550 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020904.D Vial: 4
Acq On : 9 Feb 2016 9:22 am Operator:
Sample : LCS-73550 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2416296	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1846653	4000.00 ug/kg	101
11) Phenanthrene-d10	15.22	188	3302917	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3625594	4000.00 ug/kg	126
20) Perylene-d12	25.86	264	3079495	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	417857	781.03 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.53%#		
16) 4-Terphenyl-d14	17.64	244	543313	984.64 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.62%#		

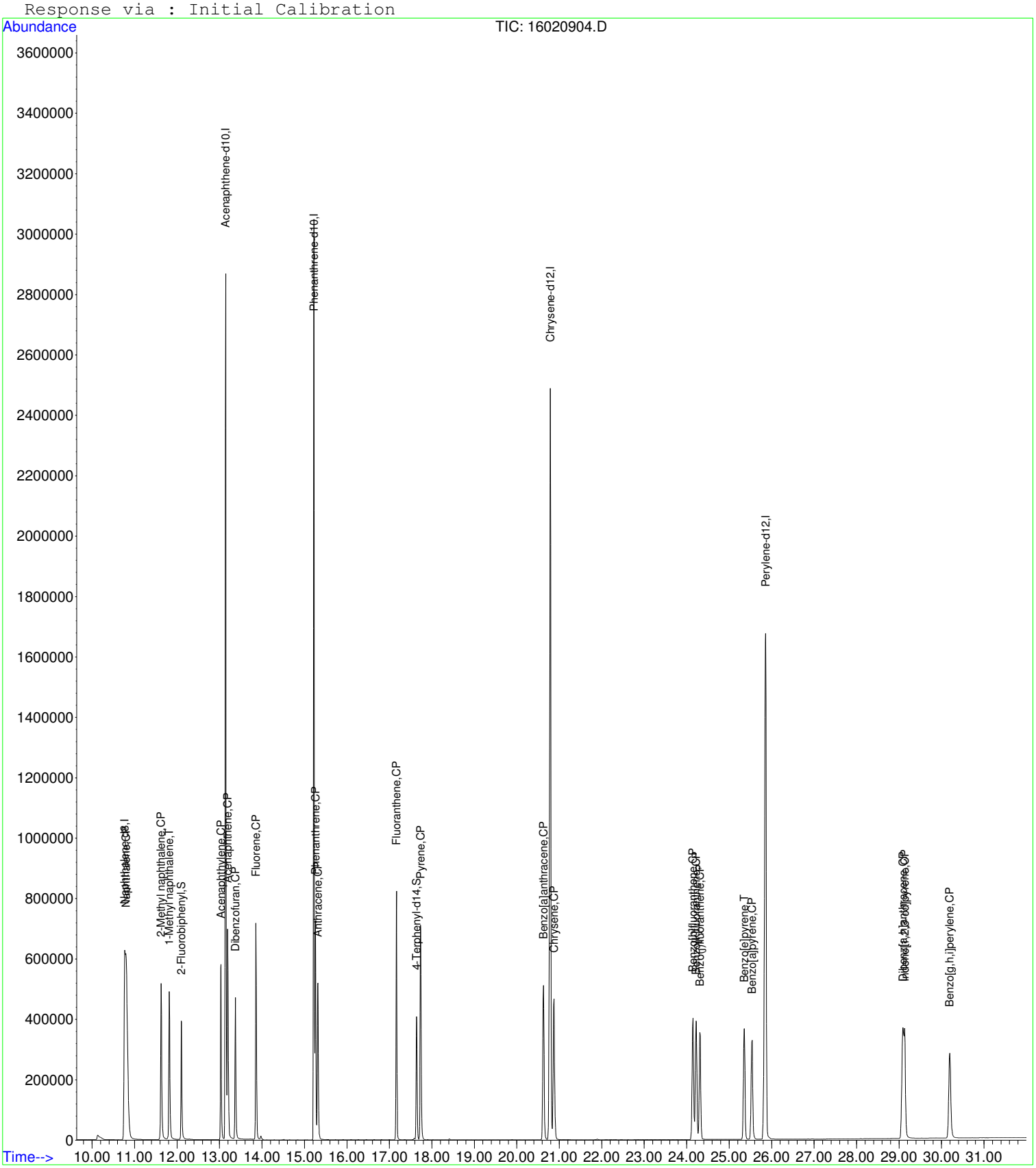
Target Compounds					Qvalue
2) Naphthalene	10.80	128	522443	864.21 ug/kg	100
3) 2-Methyl naphthalene	11.62	142	394700	829.22 ug/kg	99
4) 1-Methyl naphthalene	11.82	142	361845	805.53 ug/kg	95
6) Dibenzofuran	13.37	168	516640	860.88 ug/kg	100
8) Acenaphthylene	13.04	152	649178	845.49 ug/kg	99
9) Acenaphthene	13.19	154	380803	818.53 ug/kg	97
10) Fluorene	13.86	166	456940	832.54 ug/kg	97
12) Phenanthrene	15.26	178	666021	849.14 ug/kg	99
13) Anthracene	15.32	178	638867	832.50 ug/kg	99
14) Fluoranthene	17.17	202	810795	1042.46 ug/kg	99
15) Pyrene	17.73	202	832032	1050.27 ug/kg	98
18) Benzo[a]anthracene	20.63	228	757749	906.42 ug/kg	100
19) Chrysene	20.87	228	730635	917.92 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	740554	901.97 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	657615	901.68 ug/kg	100
23) Benzo(j)fluoranthene	24.31	252	609376	889.47 ug/kg	97
24) Benzo[e]pyrene	25.36	252	672325	877.08 ug/kg	98
25) Benzo[a]pyrene	25.54	252	631389	846.23 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	609029	882.37 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	729943	868.07 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	598566	848.38 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020904.D Vial: 4
Acq On : 9 Feb 2016 9:22 am Operator:
Sample : LCS-73550 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020909.D Vial: 9
Acq On : 9 Feb 2016 12:44 pm Operator:
Sample : 1601232-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2545071	4000.00 ug/kg	121
5) Acenaphthene-d10	13.15	164	2091901	4000.00 ug/kg	115
11) Phenanthrene-d10	15.22	188	3499308	4000.00 ug/kg	107
17) Chrysene-d12	20.79	240	3390099	4000.00 ug/kg	117
20) Perylene-d12	25.86	264	3072423	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	47635	78.60 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#		
16) 4-Terphenyl-d14	17.65	244	49316	84.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.11%#		

Target Compounds					Qvalue
2) Naphthalene	10.84	128	3927	6.17 ug/kg	92
9) Acenaphthene	13.20	154	4214	8.00 ug/kg	98
12) Phenanthrene	15.26	178	135325	162.85 ug/kg	99
13) Anthracene	15.33	178	22334	27.47 ug/kg	98
14) Fluoranthene	17.17	202	438270	531.87 ug/kg	98
15) Pyrene	17.74	202	402744	479.85 ug/kg	99
18) Benzo[a]anthracene	20.63	228	235418	301.17 ug/kg	100
19) Chrysene	20.87	228	287935	386.87 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	316447	386.31 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	137941	189.57 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	137131	200.62 ug/kg	88
24) Benzo[e]pyrene	25.36	252	237302	310.28 ug/kg	97
25) Benzo[a]pyrene	25.54	252	295876	397.47 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	47588	69.11 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	215087	256.38 ug/kg	96
28) Benzo[g,h,i]perylene	30.20	276	220185	312.80 ug/kg	99

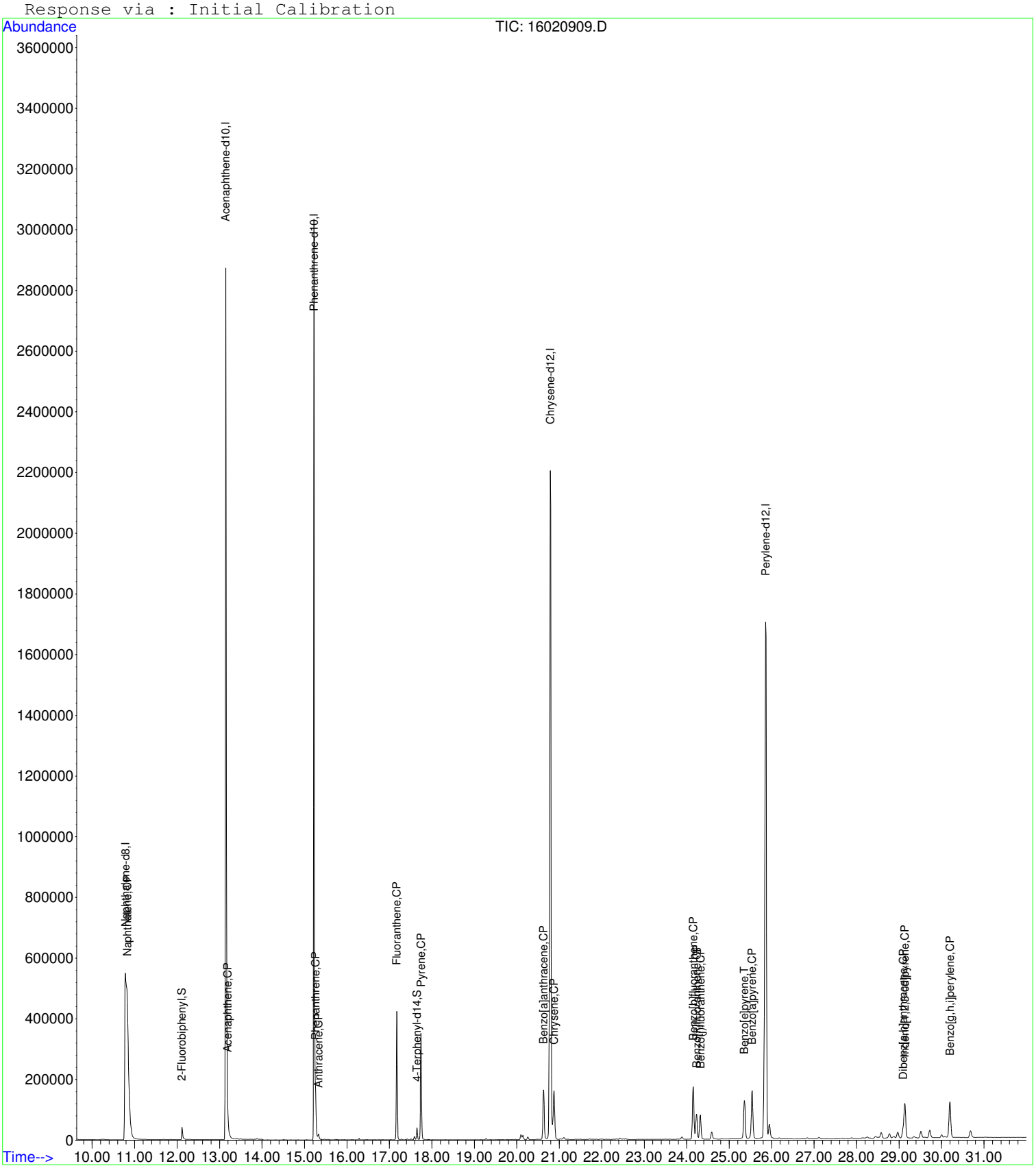
CONFIRMED
By Sherri Herschmann at 9:43:15 AM, 2/16/2016

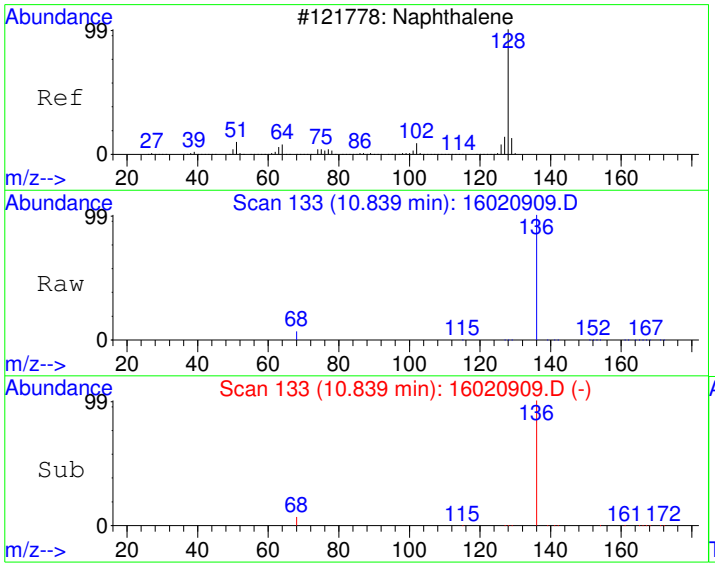
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020909.D Vial: 9
Acq On : 9 Feb 2016 12:44 pm Operator:
Sample : 1601232-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

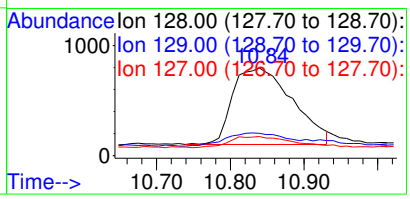


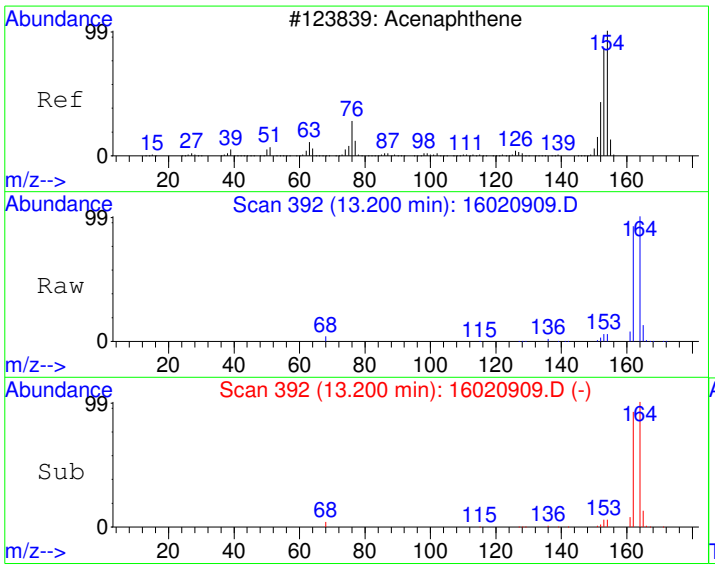


#2
Naphthalene
Concen: 6.17 ug/kg
RT: 10.84 min Scan# 133
Delta R.T. 0.06 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:128 Resp: 3927

Ion	Ratio	Lower	Upper
128	100		
129	16.6	0.0	41.2
127	13.7	0.0	42.4

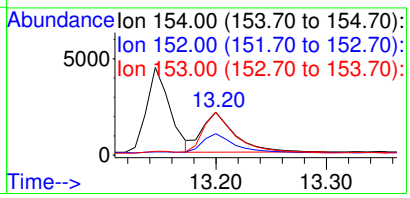


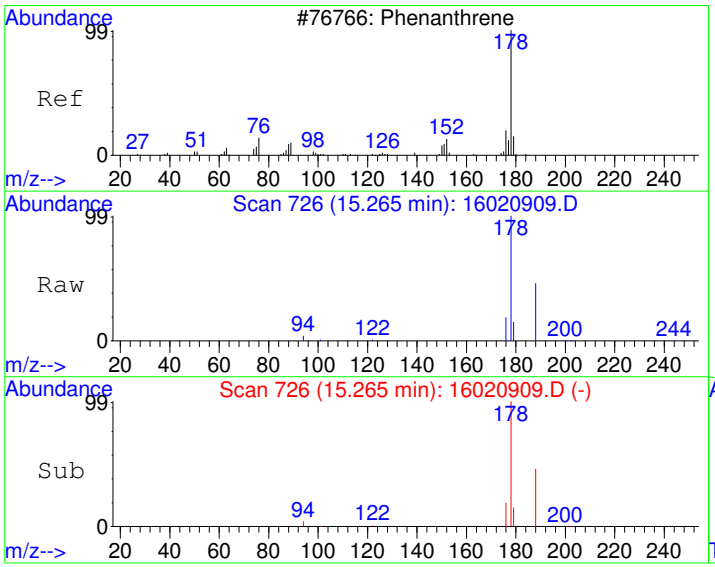


#9
Acenaphthene
Concen: 8.00 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:154 Resp: 4214

Ion	Ratio	Lower	Upper
154	100		
152	48.1	18.7	78.7
153	102.5	74.4	134.4

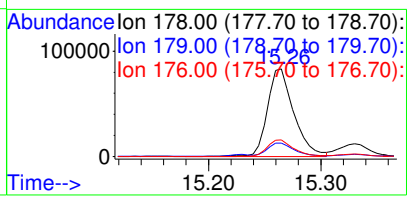


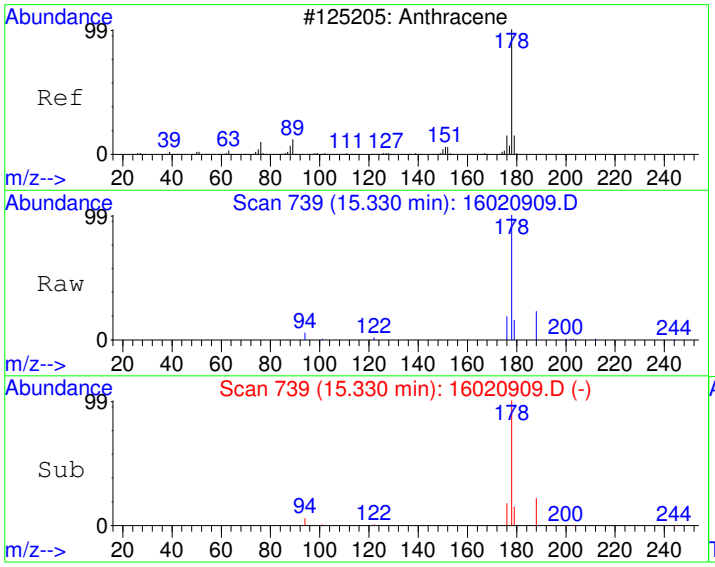


#12
Phenanthrene
Concen: 162.85 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:178 Resp: 135325

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.1
176	18.7	0.0	49.0

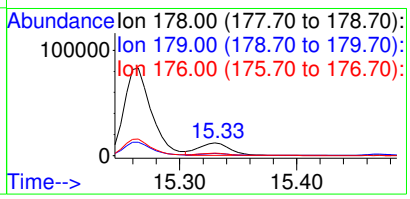


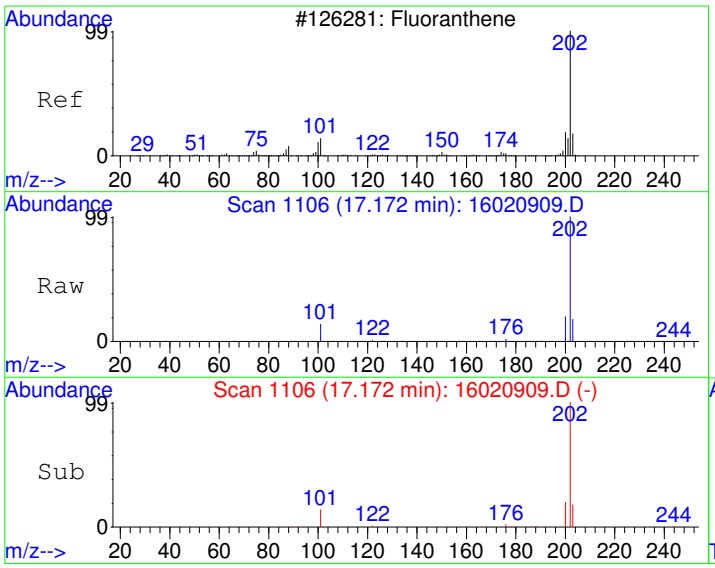


#13
Anthracene
Concen: 27.47 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:178 Resp: 22334

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	46.0
176	18.2	0.0	48.6

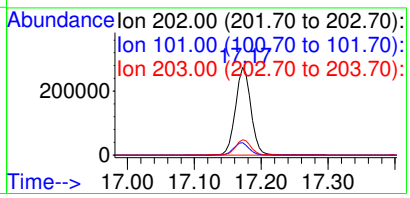


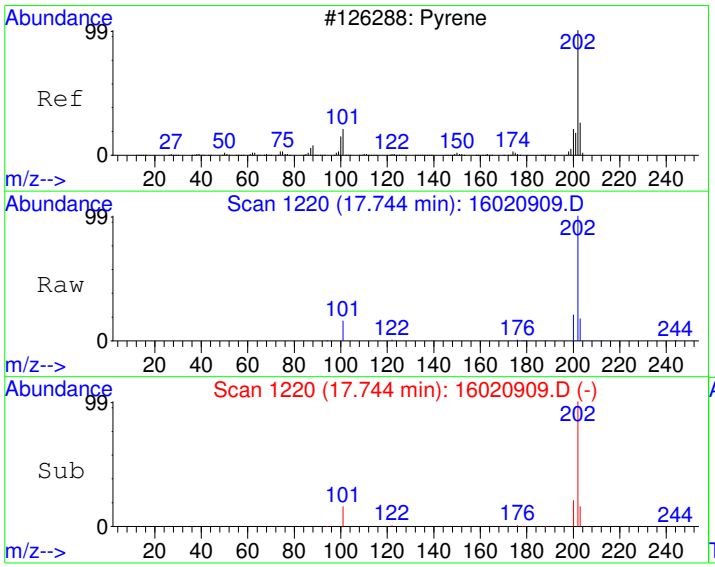


#14
Fluoranthene
Concen: 531.87 ug/kg
RT: 17.17 min Scan# 1106
Delta R.T. -0.00 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:202 Resp: 438270

Ion	Ratio	Lower	Upper
202	100		
101	14.1	0.0	42.5
203	17.6	0.0	48.0

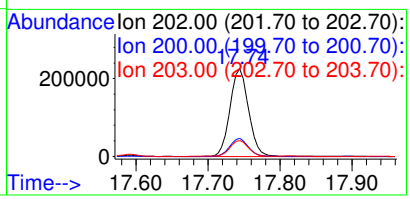


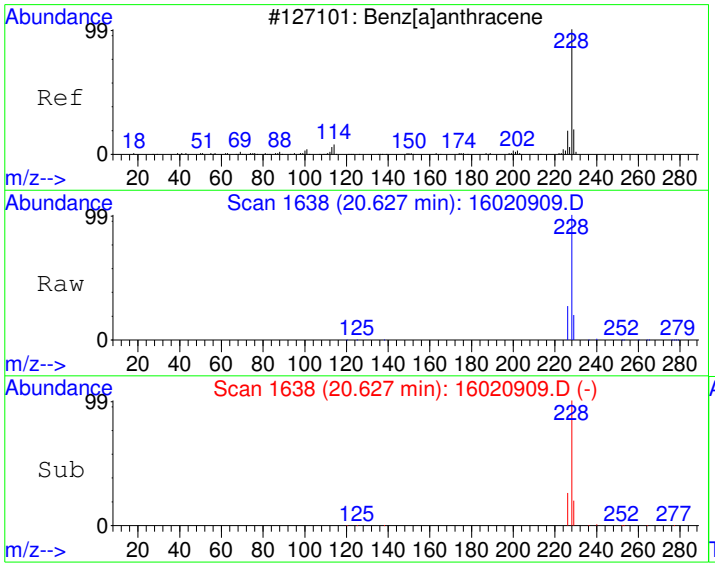


#15
Pyrene
Concen: 479.85 ug/kg
RT: 17.74 min Scan# 1220
Delta R.T. -0.00 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:202 Resp: 402744

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.0
203	18.2	0.0	48.0

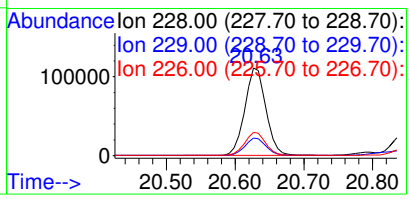


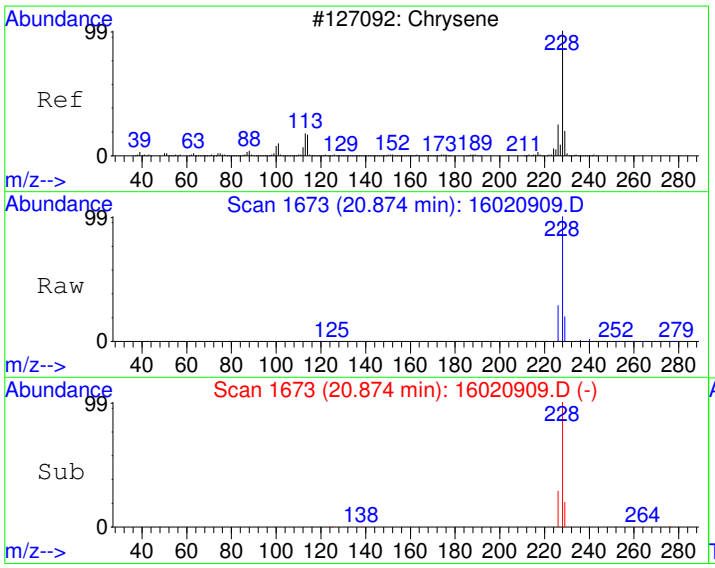


#18
Benzo[a]anthracene
Concen: 301.17 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:228 Resp: 235418

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.0
226	26.5	0.0	56.4

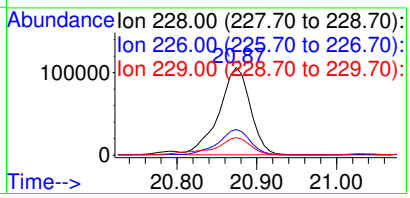


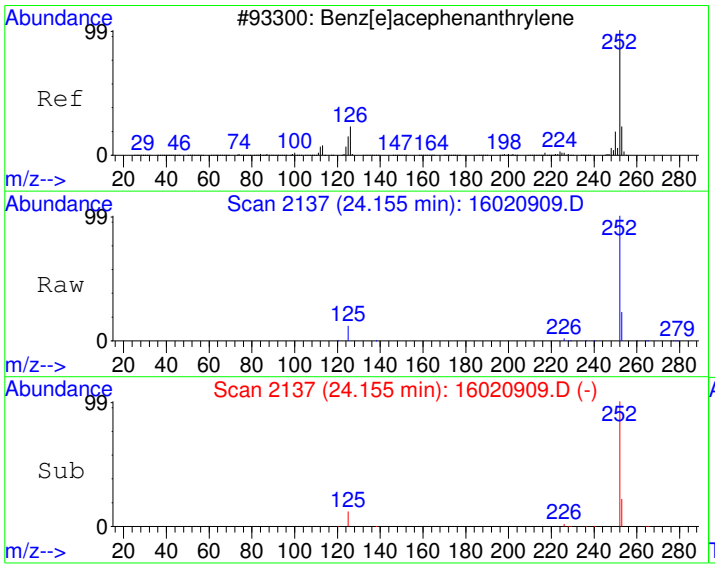


#19
Chrysene
Concen: 386.87 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:228 Resp: 287935

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.5
229	20.0	0.0	50.1

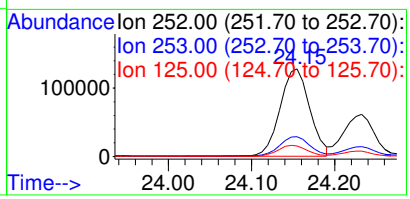


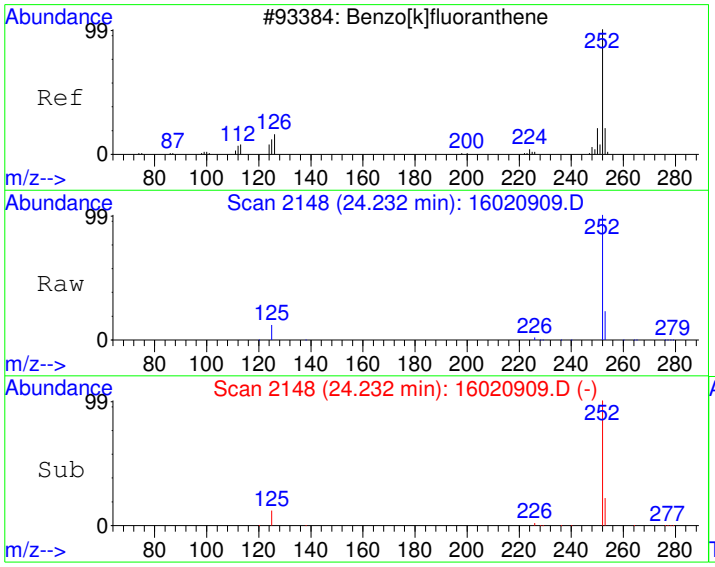


#21
Benzo[b]fluoranthene
Concen: 386.31 ug/kg
RT: 24.15 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:252 Resp: 316447

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	11.8	0.0	40.5

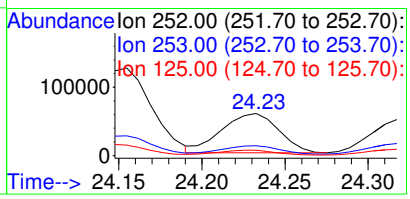


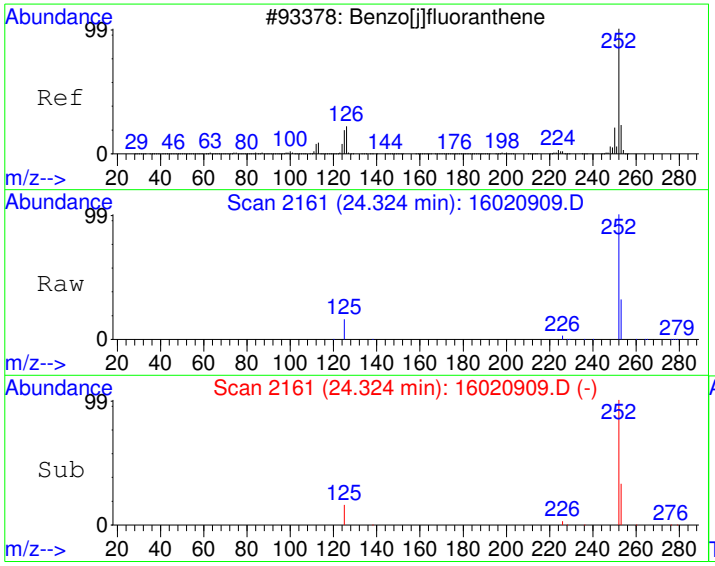


#22
Benzo[k]fluoranthene
Concen: 189.57 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:252 Resp: 137941

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.2	42.2
125	11.9	0.0	31.8

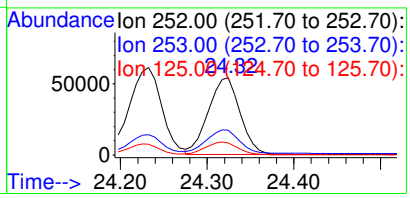


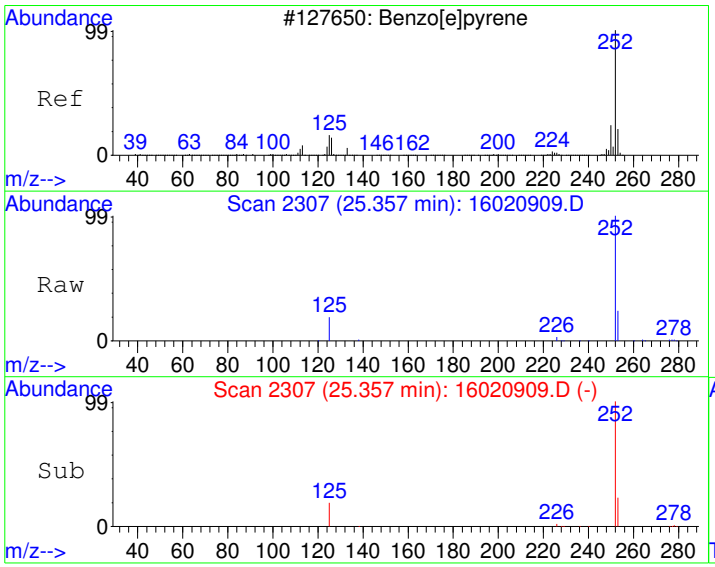


#23
Benzo(j)fluoranthene
Concen: 200.62 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:252 Resp: 137131

Ion	Ratio	Lower	Upper
252	100		
253	30.4	2.3	42.3
125	15.5	0.0	34.0

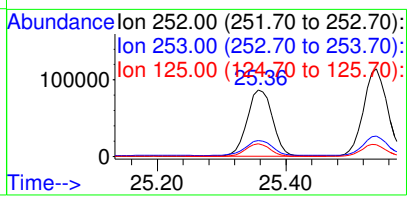


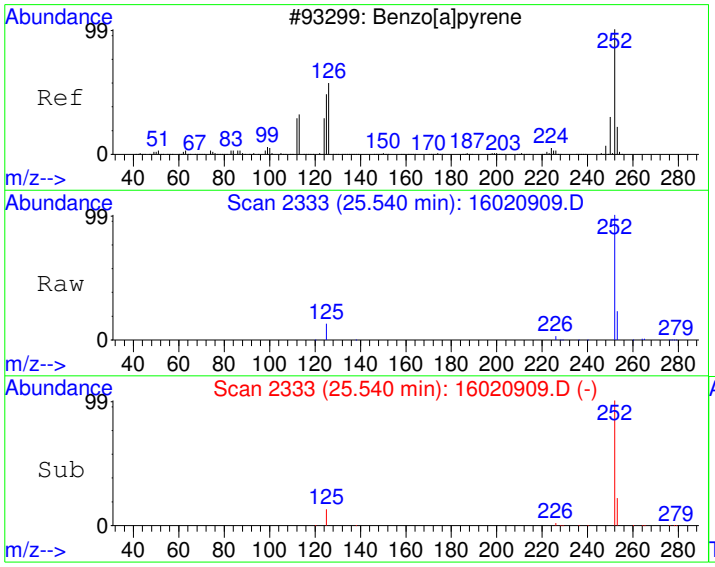


#24
Benzo[e]pyrene
Concen: 310.28 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:252 Resp: 237302

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.2	42.2
125	18.9	0.0	36.0

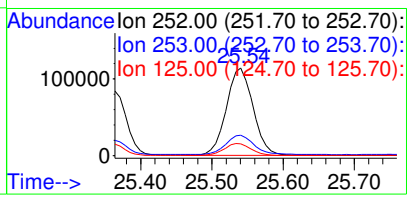


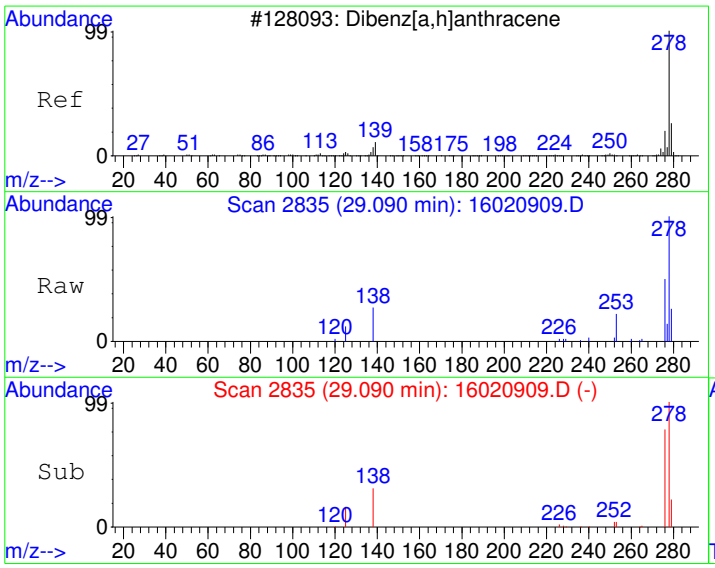


#25
Benzo[a]pyrene
Concen: 397.47 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:252 Resp: 295876

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.0	42.0
125	13.3	0.0	32.3

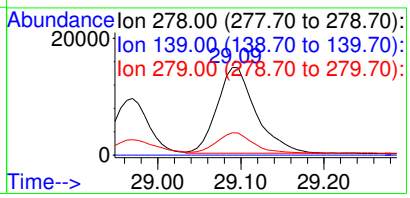


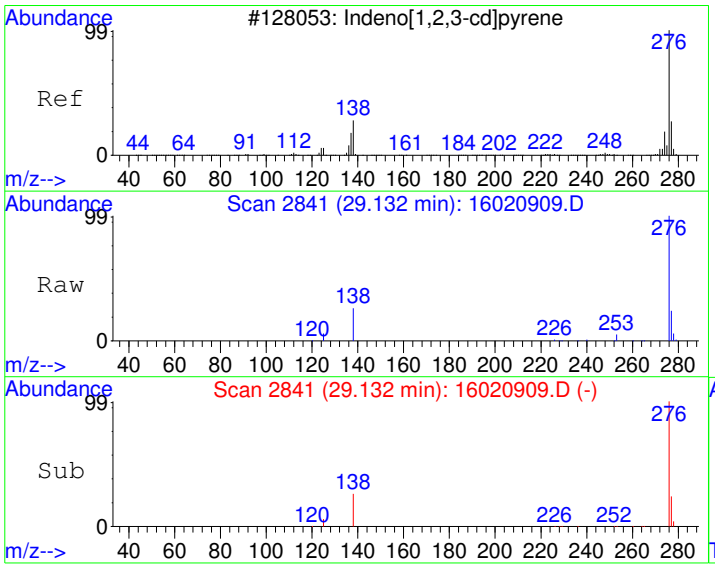


#26
Dibenz[a,h]anthracene
Concen: 69.11 ug/kg
RT: 29.09 min Scan# 2835
Delta R.T. -0.03 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:278 Resp: 47588

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.9	3.8	43.8

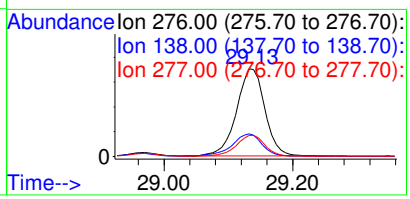


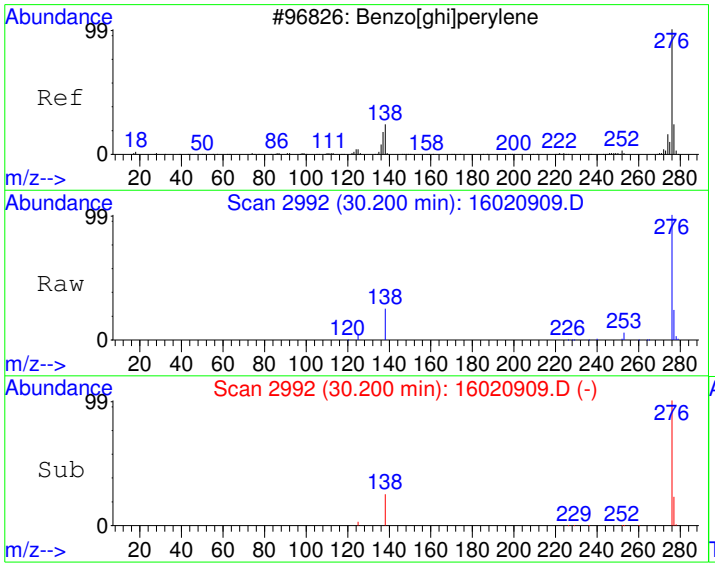


#27
Indeno[1,2,3-cd]pyrene
Concen: 256.38 ug/kg
RT: 29.13 min Scan# 2841
Delta R.T. -0.03 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:276 Resp: 215087

Ion	Ratio	Lower	Upper
276	100		
138	25.8	2.1	42.1
277	23.9	4.2	44.2

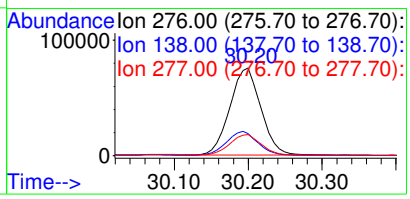




#28
Benzo[g,h,i]perylene
Concen: 312.80 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020909.D
Acq: 9 Feb 2016 12:44 pm

Tgt Ion:276 Resp: 220185

Ion	Ratio	Lower	Upper
276	100		
138	24.9	3.9	43.9
277	23.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020910.D Vial: 10
Acq On : 9 Feb 2016 1:25 pm Operator:
Sample : 1601232-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2436765	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	2076699	4000.00 ug/kg	114
11) Phenanthrene-d10	15.23	188	3406285	4000.00 ug/kg	104
17) Chrysene-d12	20.80	240	3420561	4000.00 ug/kg	118
20) Perylene-d12	25.87	264	3064913	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46932	78.00 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#	
16) 4-Terphenyl-d14	17.65	244	50208	88.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.21%#	

Target Compounds					Qvalue
2) Naphthalene	10.84	128	4205	6.90 ug/kg	96
9) Acenaphthene	13.20	154	4774	9.12 ug/kg	98
12) Phenanthrene	15.26	178	160471	198.38 ug/kg	99
13) Anthracene	15.33	178	27222	34.40 ug/kg	99
14) Fluoranthene	17.17	202	544416	678.73 ug/kg	98
15) Pyrene	17.74	202	502459	615.00 ug/kg	99
18) Benzo[a]anthracene	20.63	228	295974	375.27 ug/kg	99
19) Chrysene	20.88	228	362680	482.96 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	405510	496.25 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	169299	233.24 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	172096	252.39 ug/kg	85
24) Benzo[e]pyrene	25.36	252	298725	391.55 ug/kg	98
25) Benzo[a]pyrene	25.54	252	374215	503.93 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	59887	87.18 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.14	276	270772	323.54 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	276964	394.43 ug/kg	99

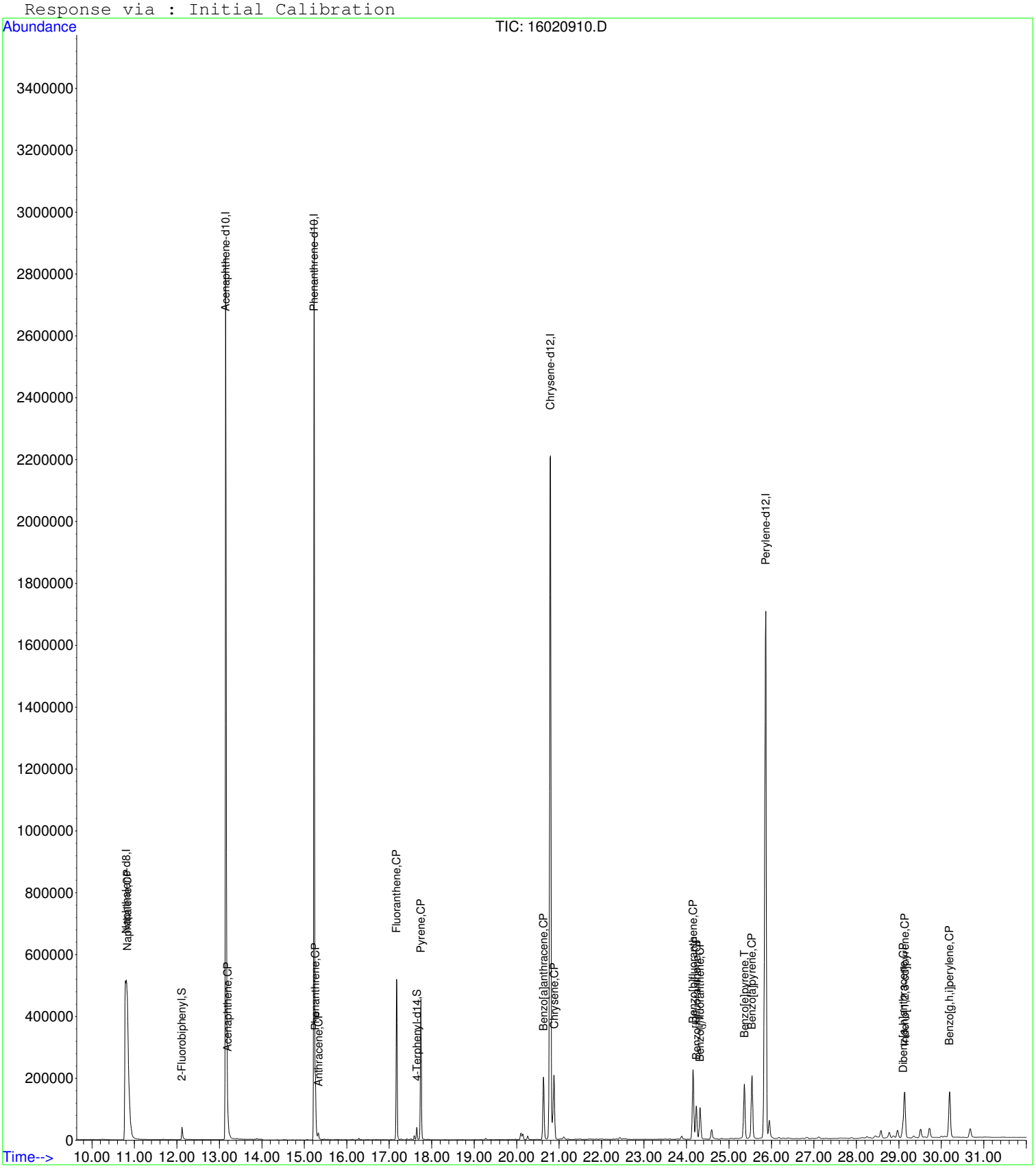
CONFIRMED
By Sherri Herschmann at 9:44:36 AM, 2/16/2016

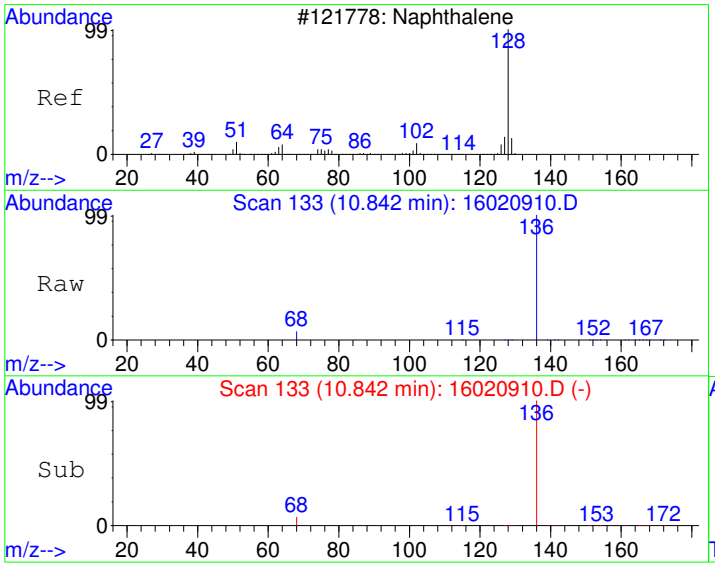
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020910.D Vial: 10
Acq On : 9 Feb 2016 1:25 pm Operator:
Sample : 1601232-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

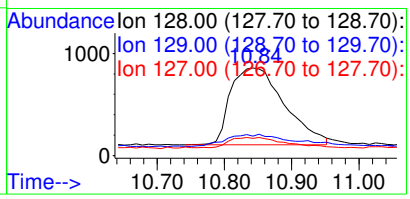


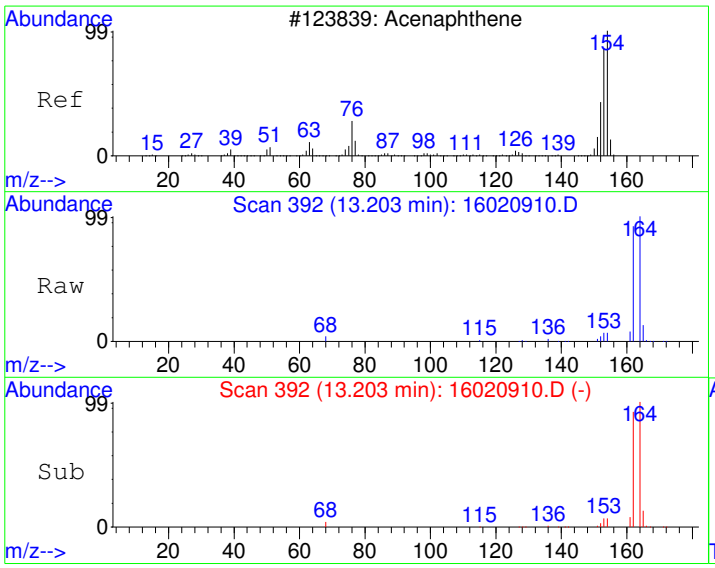


#2
Naphthalene
Concen: 6.90 ug/kg
RT: 10.84 min Scan# 133
Delta R.T. 0.06 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:128 Resp: 4205

Ion	Ratio	Lower	Upper
128	100		
129	13.6	0.0	41.2
127	11.3	0.0	42.4

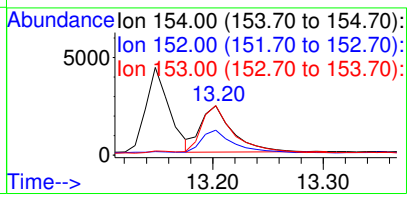


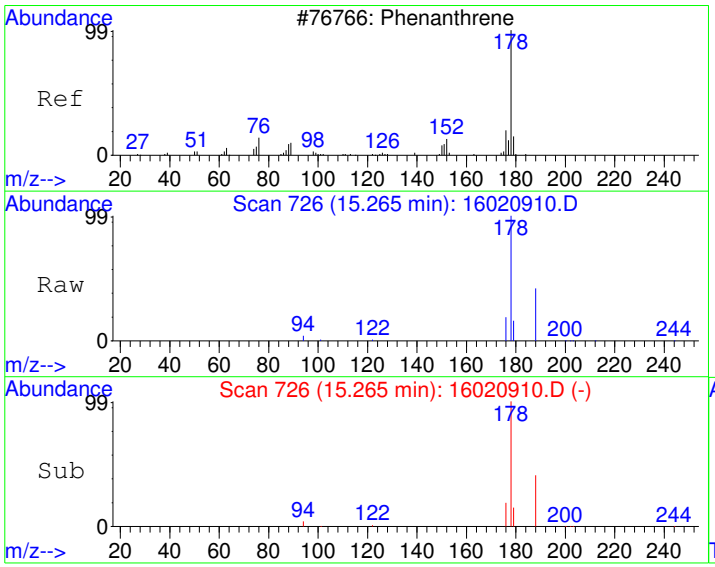


#9
Acenaphthene
Concen: 9.12 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:154 Resp: 4774

Ion	Ratio	Lower	Upper
154	100		
152	49.2	18.7	78.7
153	102.1	74.4	134.4

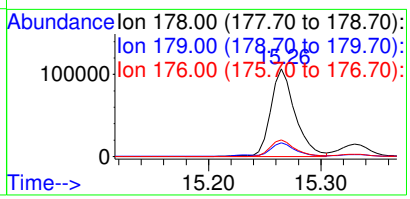


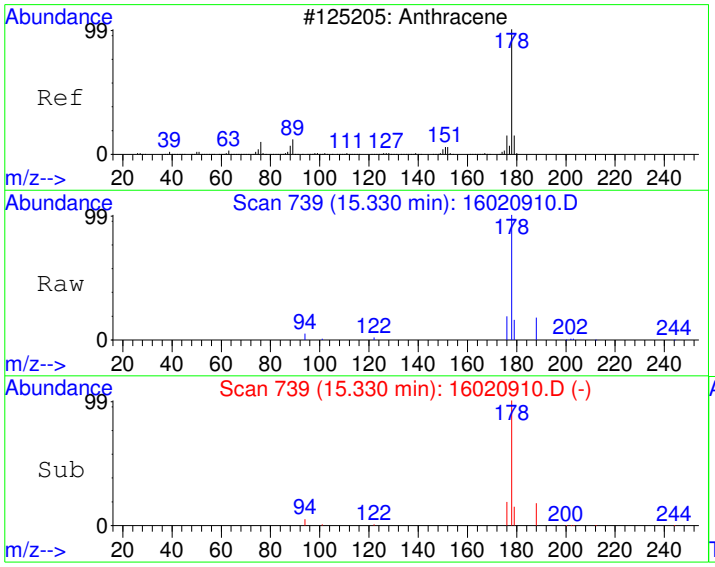


#12
Phenanthrene
Concen: 198.38 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:178 Resp: 160471

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.1
176	18.7	0.0	49.0

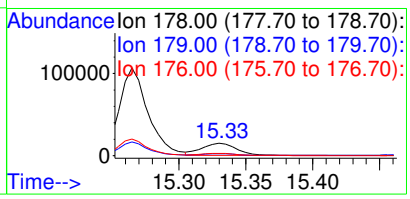


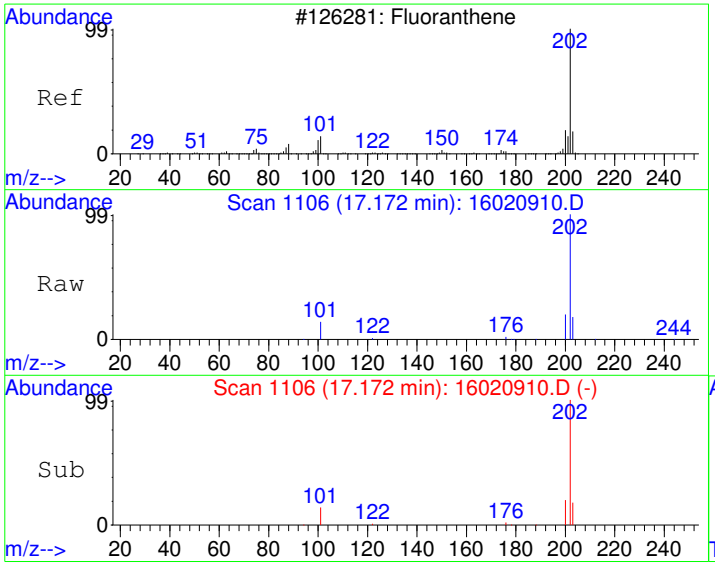


#13
Anthracene
Concen: 34.40 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.02 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:178 Resp: 27222

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.0
176	18.7	0.0	48.6

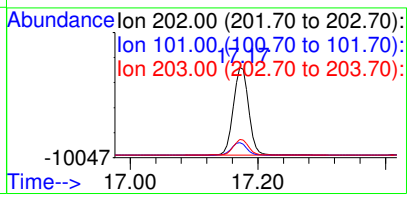


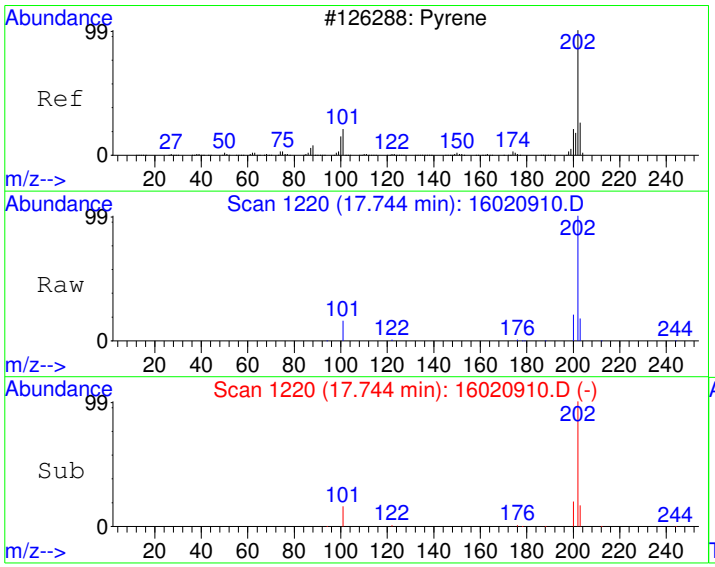


#14
Fluoranthene
Concen: 678.73 ug/kg
RT: 17.17 min Scan# 1106
Delta R.T. -0.00 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:202 Resp: 544416

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	42.5
203	17.9	0.0	48.0

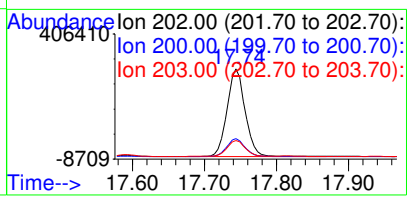


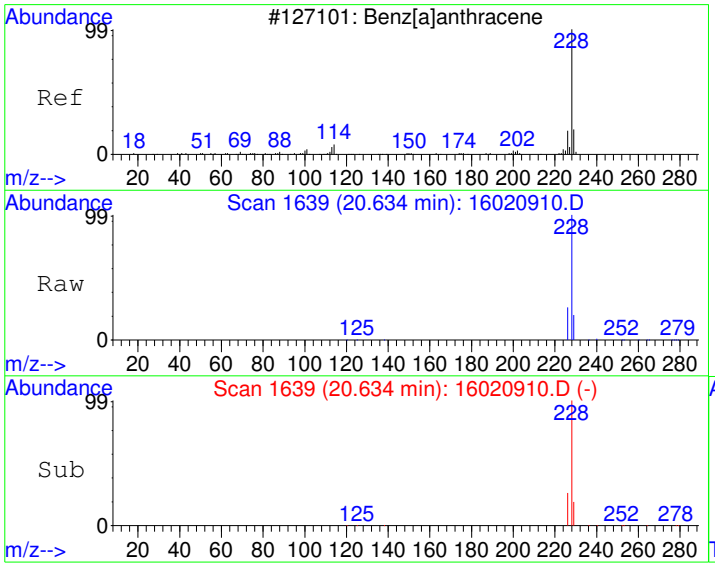


#15
Pyrene
Concen: 615.00 ug/kg
RT: 17.74 min Scan# 1220
Delta R.T. -0.00 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:202 Resp: 502459

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.3	0.0	48.0

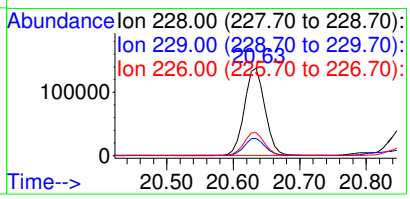


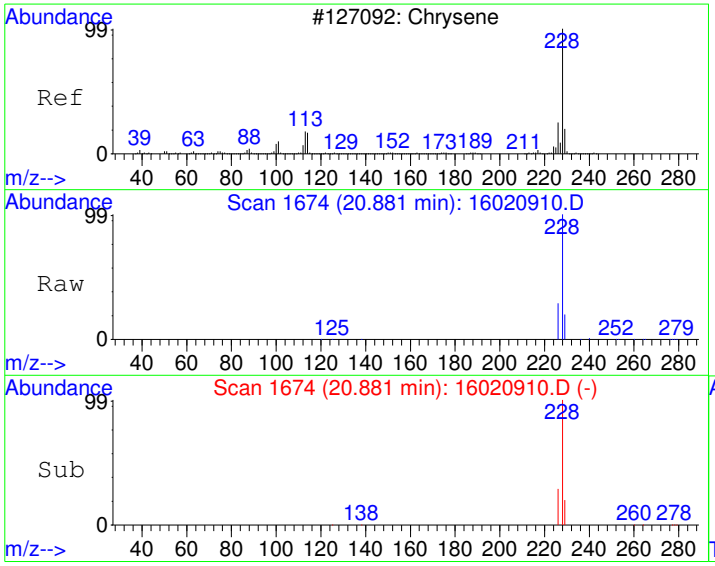


#18
Benzo[a]anthracene
Concen: 375.27 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:228 Resp: 295974

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.2	0.0	56.4

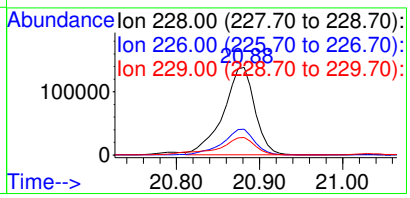


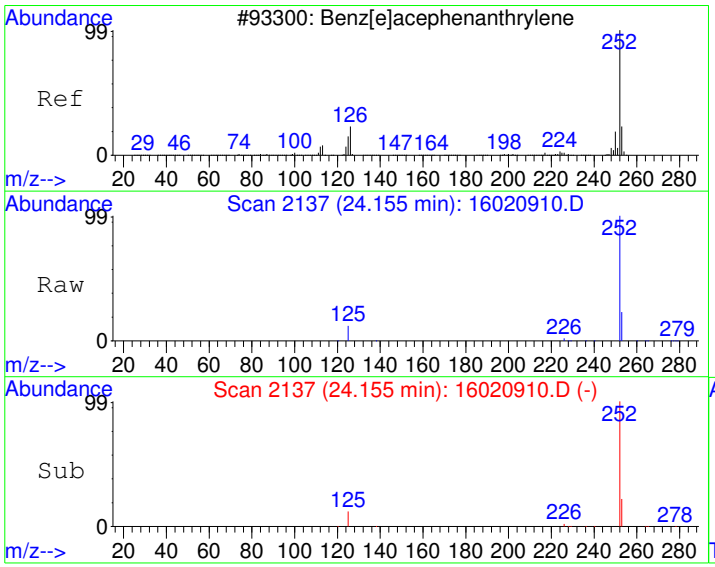


#19
Chrysene
Concen: 482.96 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:228 Resp: 362680

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.8	0.0	50.1

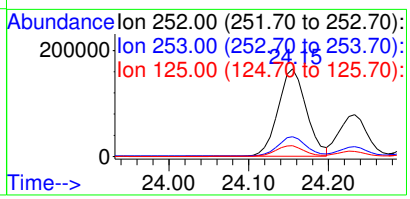


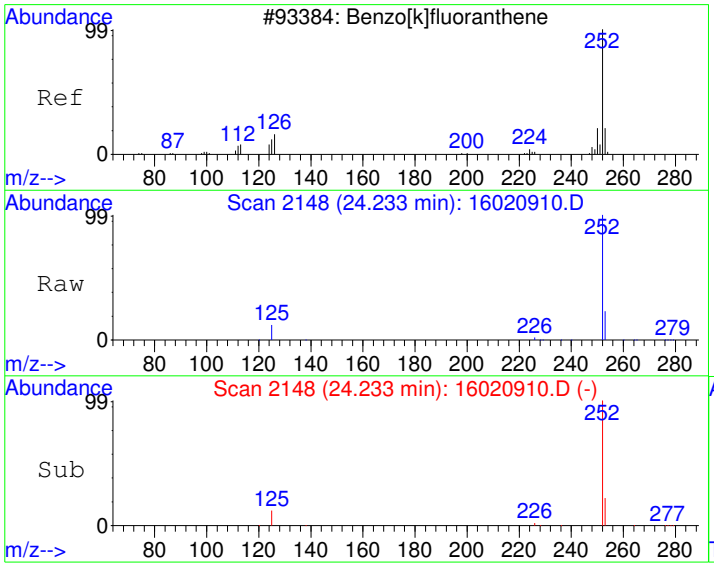


#21
Benzo[b]fluoranthene
Concen: 496.25 ug/kg
RT: 24.15 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:252 Resp: 405510

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	12.3	0.0	40.5

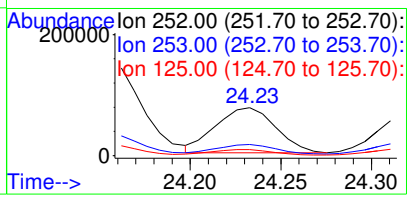


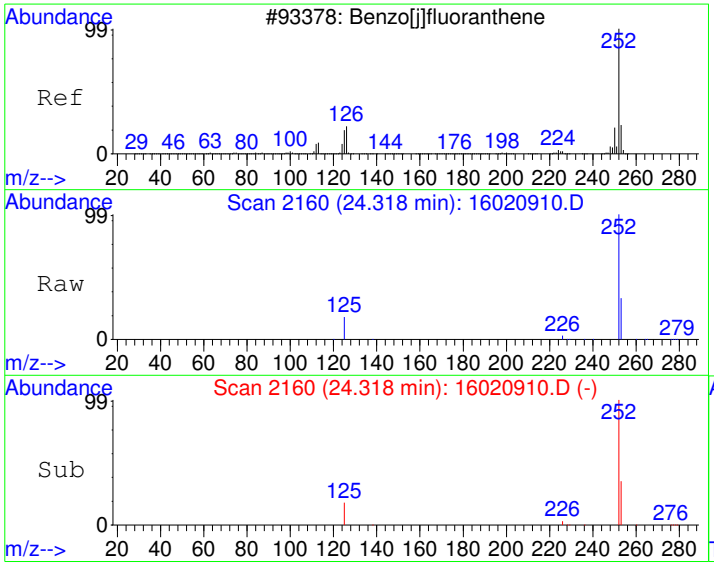


#22
Benzo[k]fluoranthene
Concen: 233.24 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:252 Resp: 169299

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	11.9	0.0	31.8

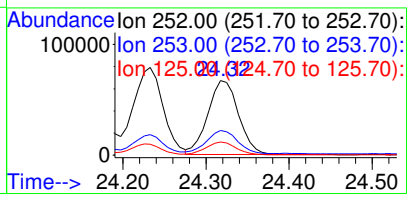


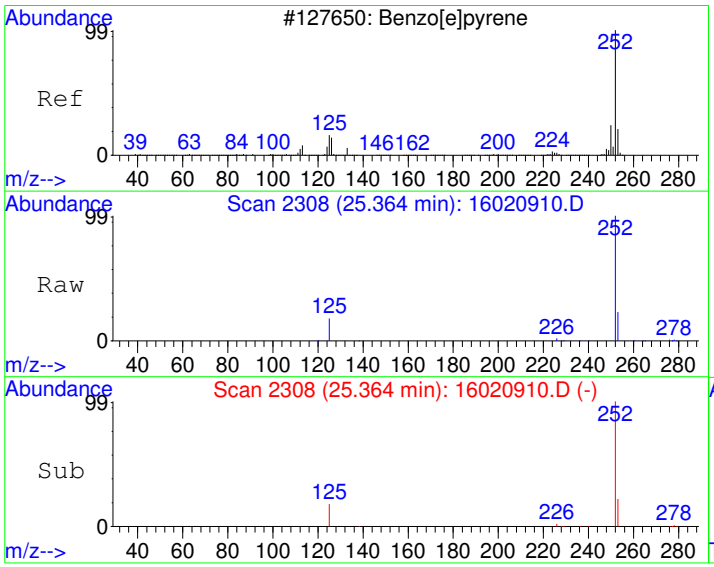


#23
Benzo(j)fluoranthene
Concen: 252.39 ug/kg
RT: 24.32 min Scan# 2160
Delta R.T. -0.03 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:252 Resp: 172096

Ion	Ratio	Lower	Upper
252	100		
253	31.7	2.3	42.3
125	17.4	0.0	34.0

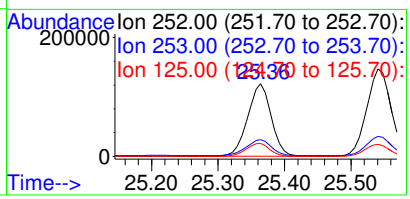


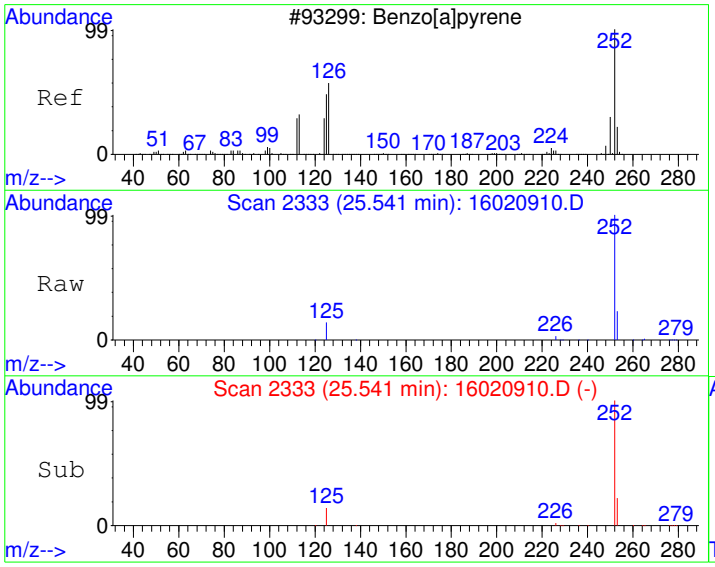


#24
Benzo[e]pyrene
Concen: 391.55 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:252 Resp: 298725

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	17.9	0.0	36.0

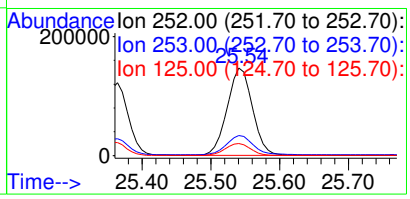


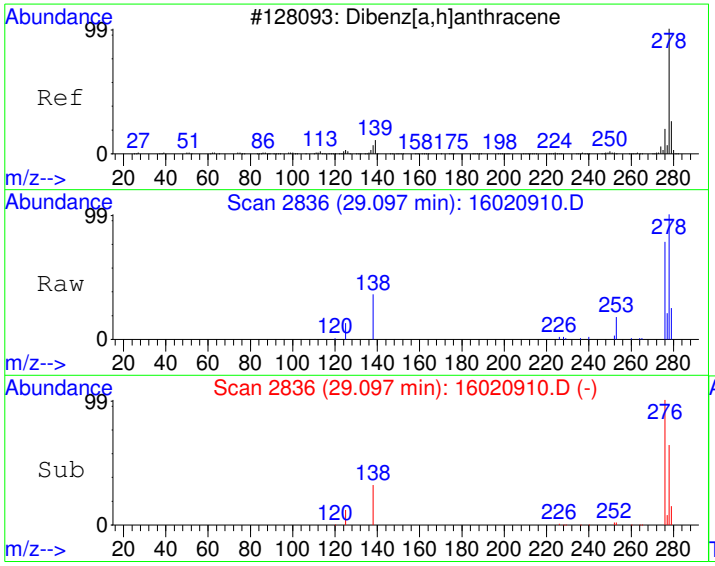


#25
Benzo[a]pyrene
Concen: 503.93 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:252 Resp: 374215

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.8	0.0	32.3

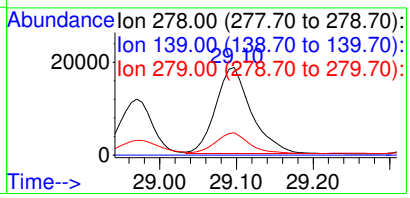


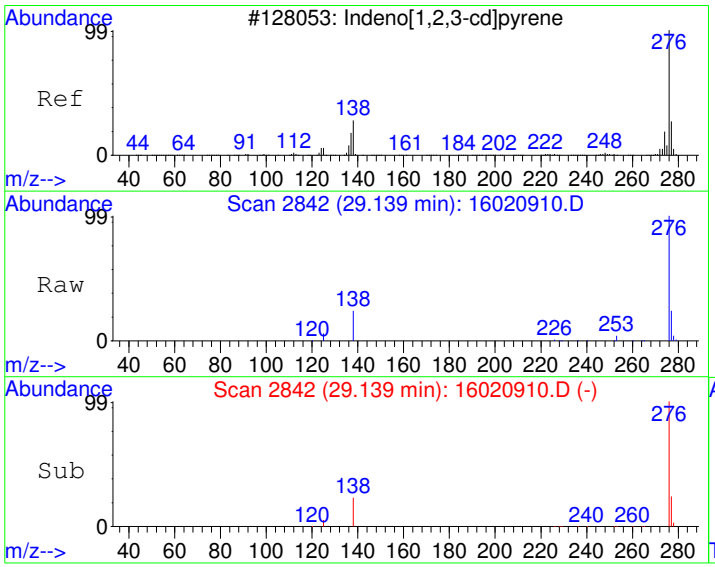


#26
Dibenz[a,h]anthracene
Concen: 87.18 ug/kg
RT: 29.10 min Scan# 2836
Delta R.T. -0.02 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:278 Resp: 59887

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.0	3.8	43.8

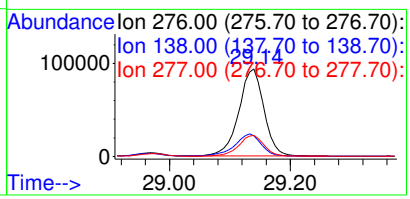


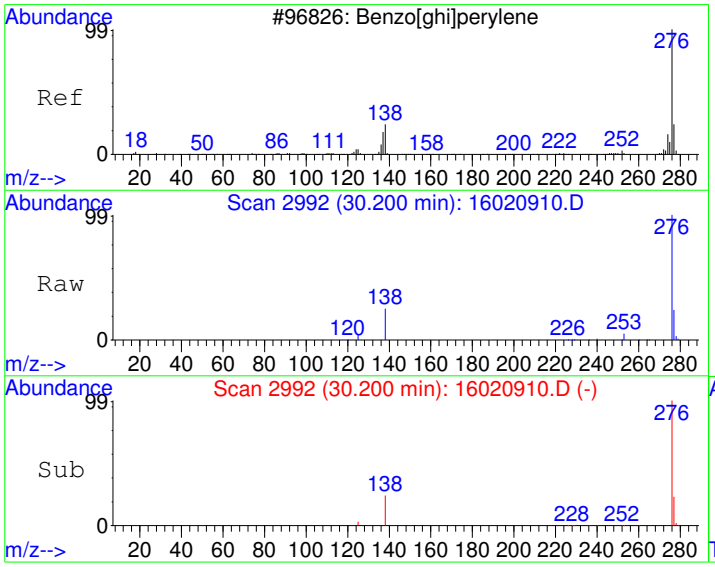


#27
Indeno[1,2,3-cd]pyrene
Concen: 323.54 ug/kg
RT: 29.14 min Scan# 2842
Delta R.T. -0.02 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:276 Resp: 270772

Ion	Ratio	Lower	Upper
276	100		
138	23.6	2.1	42.1
277	24.0	4.2	44.2

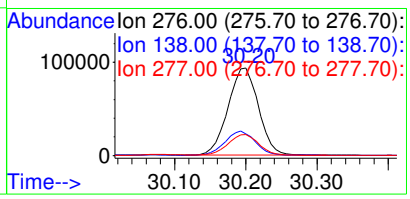




#28
Benzo[g,h,i]perylene
Concen: 394.43 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020910.D
Acq: 9 Feb 2016 1:25 pm

Tgt Ion:276 Resp: 276964

Ion	Ratio	Lower	Upper
276	100		
138	24.5	3.9	43.9
277	23.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020911.D Vial: 11
Acq On : 9 Feb 2016 2:05 pm Operator:
Sample : 1601232-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2558265	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	1953164	4000.00 ug/kg	107
11) Phenanthrene-d10	15.23	188	3299474	4000.00 ug/kg	101
17) Chrysene-d12	20.80	240	3239955	4000.00 ug/kg	112
20) Perylene-d12	25.87	264	2927510	4000.00 ug/kg	127

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	45365	80.17 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.65	244	46429	84.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#	

Target Compounds					Qvalue
2) Naphthalene	10.81	128	3444	5.38 ug/kg	96
9) Acenaphthene	13.20	154	4036	8.20 ug/kg	99
12) Phenanthrene	15.26	178	121816	155.47 ug/kg	99
13) Anthracene	15.33	178	22601	29.48 ug/kg	99
14) Fluoranthene	17.18	202	381090	490.49 ug/kg	99
15) Pyrene	17.74	202	348019	439.76 ug/kg	99
18) Benzo[a]anthracene	20.63	228	201128	269.23 ug/kg	100
19) Chrysene	20.88	228	245050	344.51 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	259890	332.97 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	111603	160.97 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	114661	176.05 ug/kg	87
24) Benzo[e]pyrene	25.36	252	194310	266.65 ug/kg	99
25) Benzo[a]pyrene	25.55	252	251064	353.96 ug/kg	100
26) Dibenz[a,h]anthracene	29.10	278	39292	59.88 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.14	276	176398	220.67 ug/kg	97
28) Benzo[g,h,i]perylene	30.20	276	183712	273.90 ug/kg	97

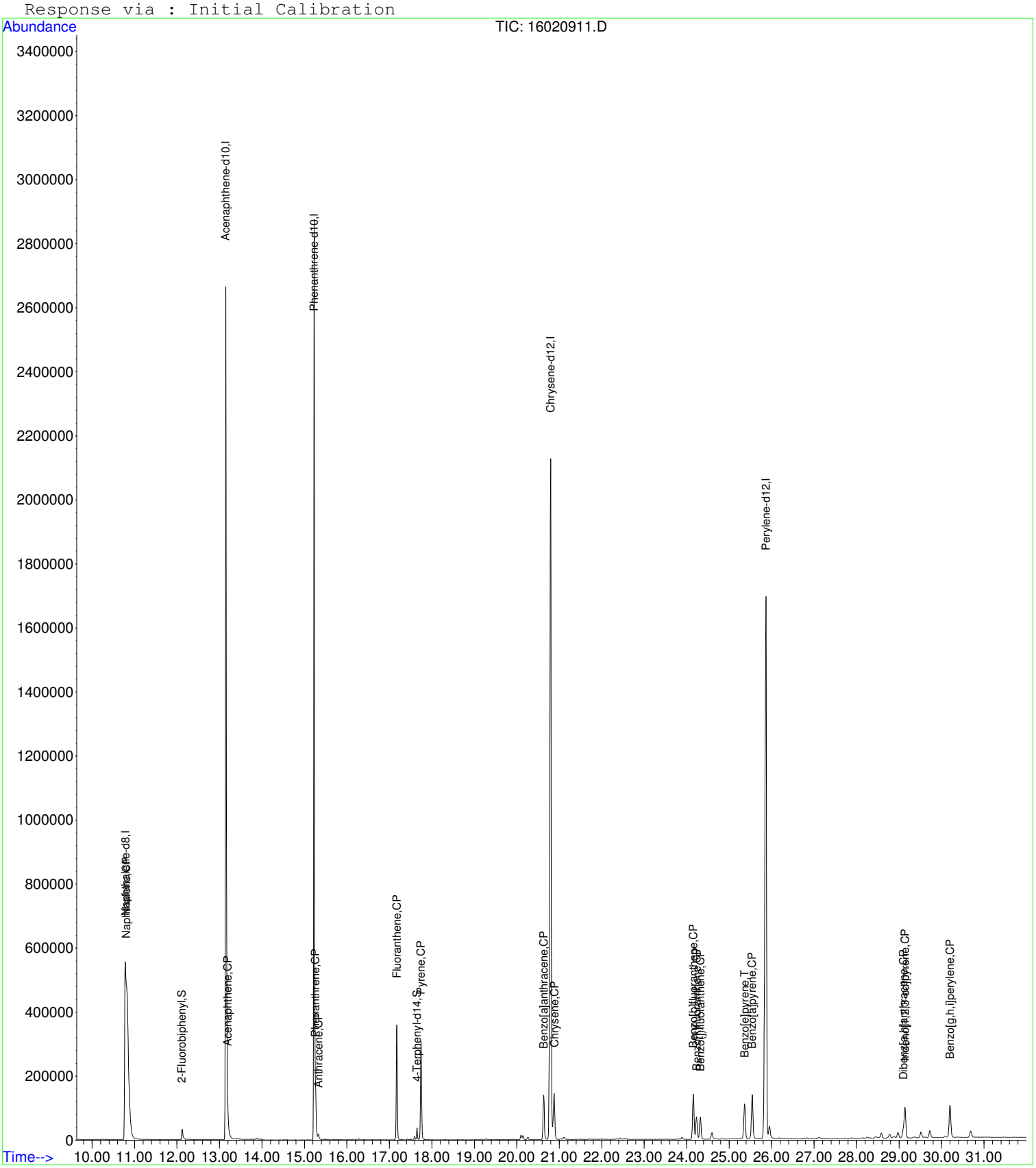
CONFIRMED
By Sherri Herschmann at 9:45:36 AM, 2/16/2016

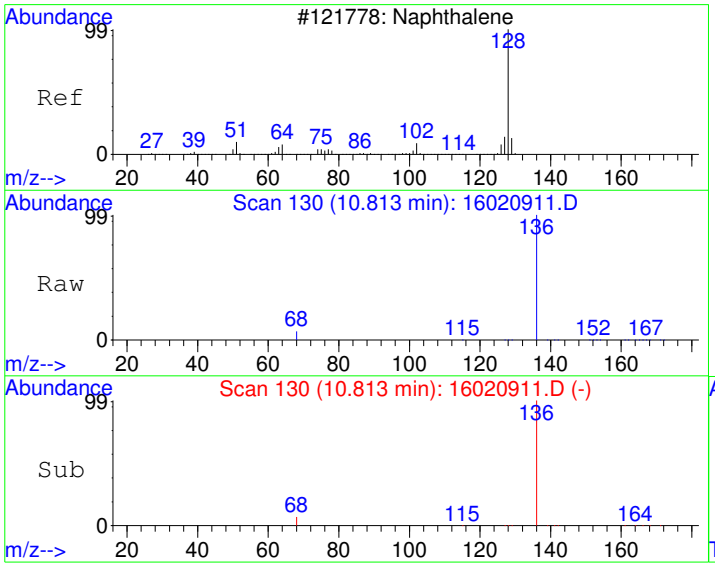
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020911.D Vial: 11
Acq On : 9 Feb 2016 2:05 pm Operator:
Sample : 1601232-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:39 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

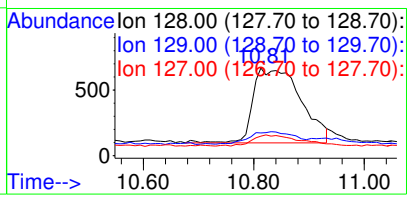


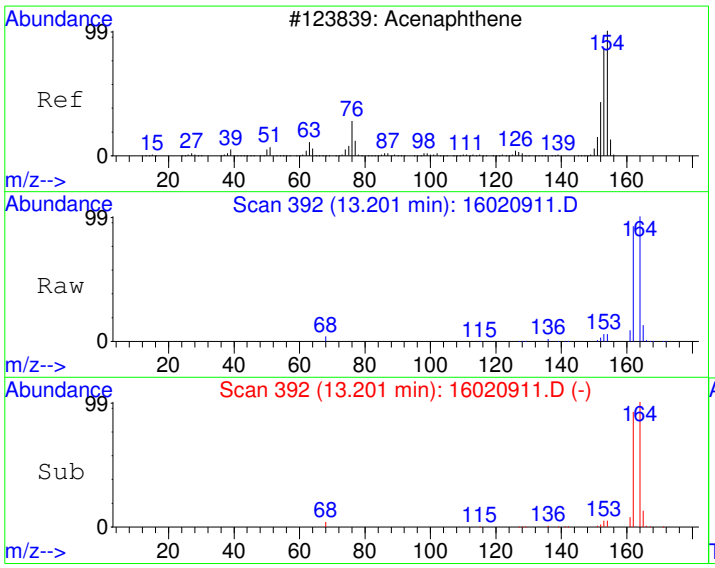


#2
Naphthalene
Concen: 5.38 ug/kg
RT: 10.81 min Scan# 130
Delta R.T. 0.03 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:128 Resp: 3444

Ion	Ratio	Lower	Upper
128	100		
129	13.5	0.0	41.2
127	13.1	0.0	42.4

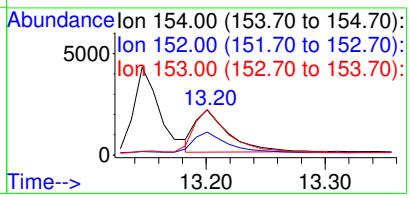


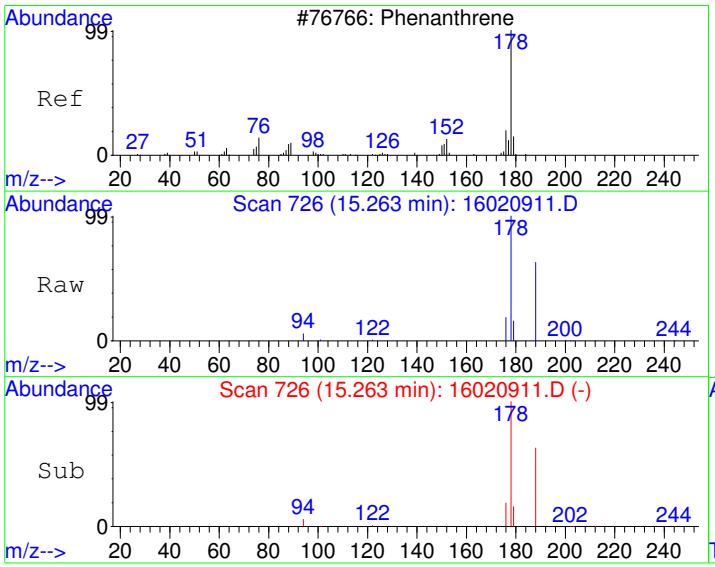


#9
Acenaphthene
Concen: 8.20 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:154 Resp: 4036

Ion	Ratio	Lower	Upper
154	100		
152	49.6	18.7	78.7
153	104.3	74.4	134.4

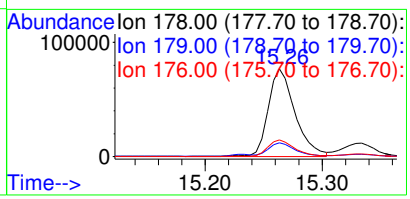


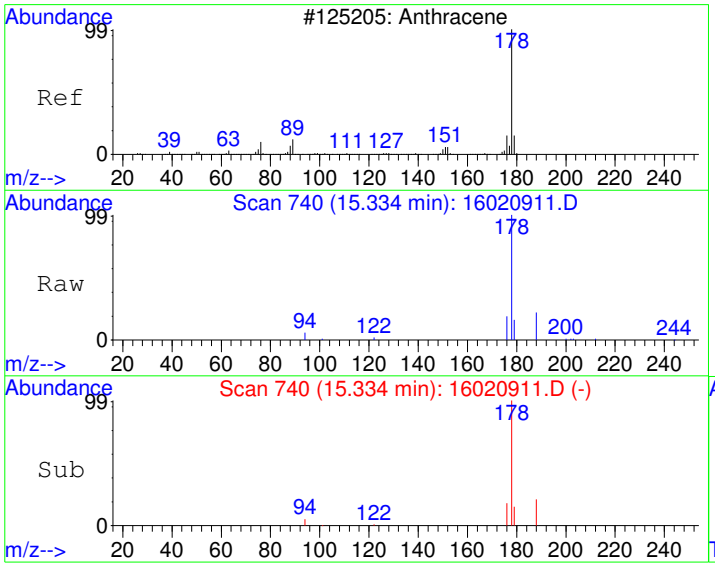


#12
Phenanthrene
Concen: 155.47 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:178 Resp: 121816

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	46.1
176	19.0	0.0	49.0

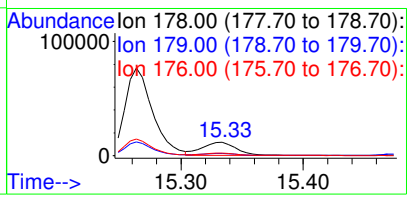


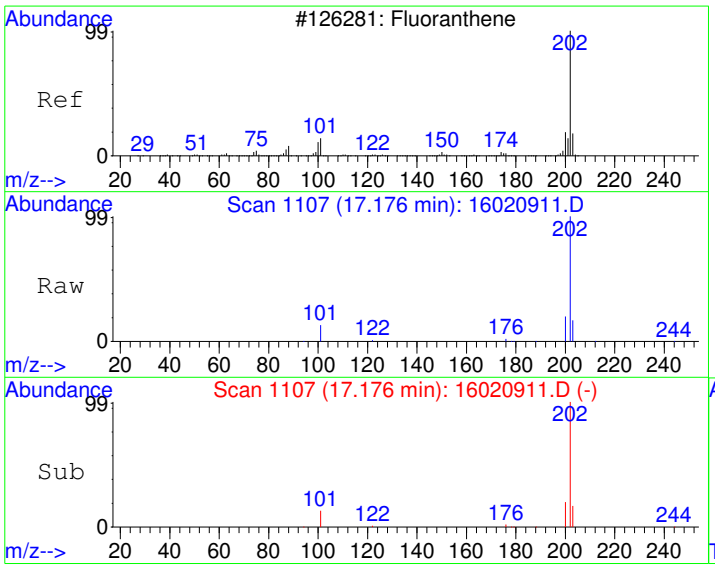


#13
Anthracene
Concen: 29.48 ug/kg
RT: 15.33 min Scan# 740
Delta R.T. 0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:178 Resp: 22601

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	46.0
176	18.3	0.0	48.6

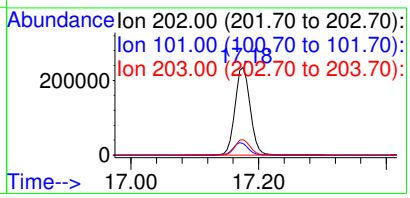


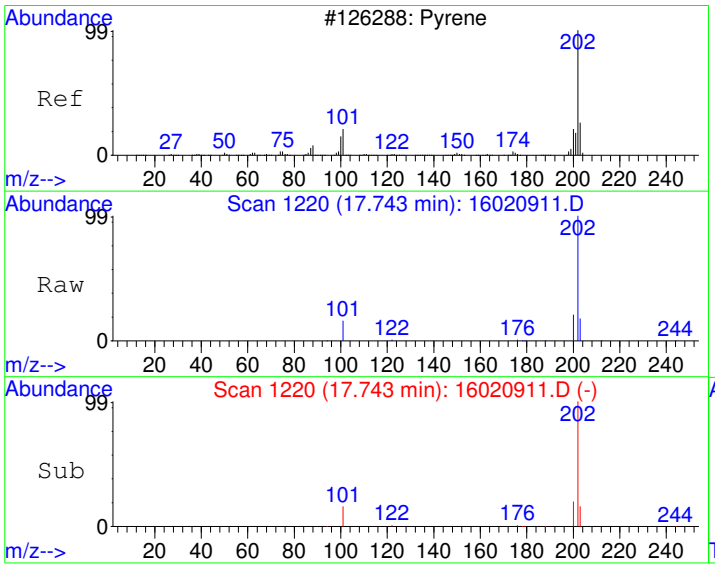


#14
Fluoranthene
Concen: 490.49 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. -0.00 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:202 Resp: 381090

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	42.5
203	17.4	0.0	48.0

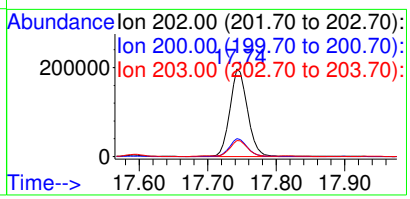


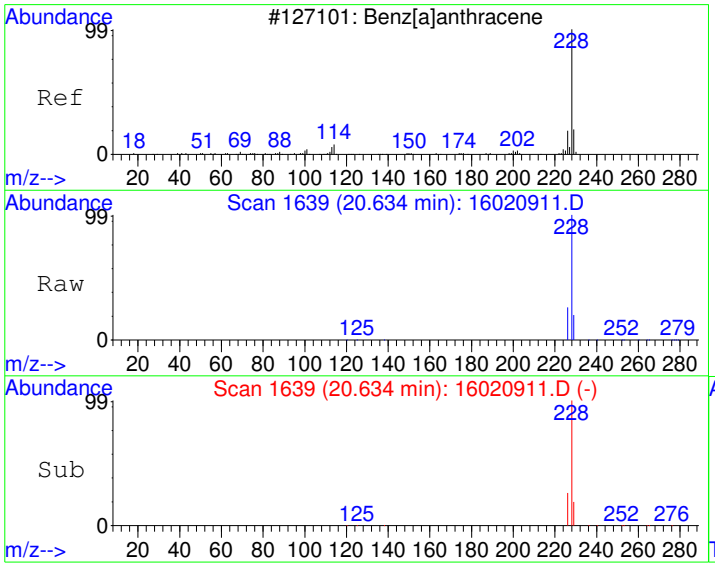


#15
Pyrene
Concen: 439.76 ug/kg
RT: 17.74 min Scan# 1220
Delta R.T. -0.01 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:202 Resp: 348019

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.0
203	18.1	0.0	48.0

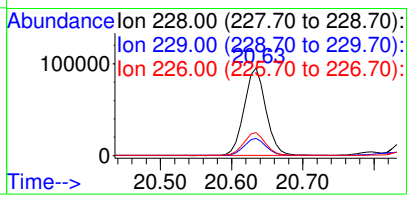


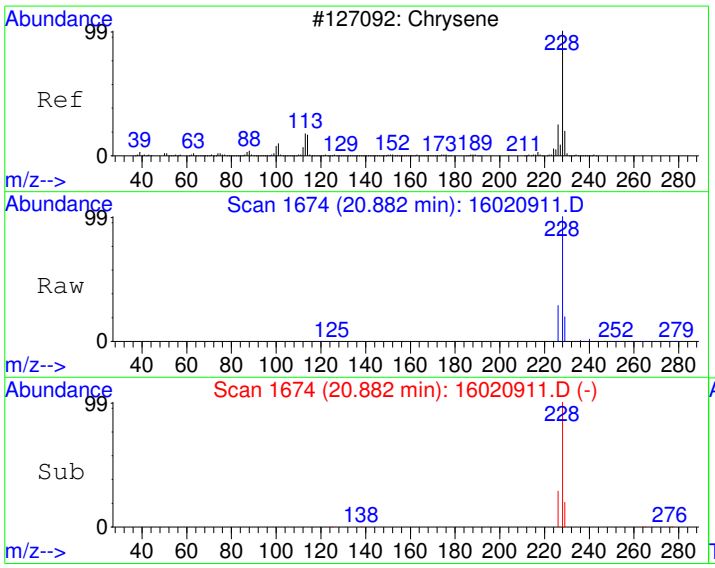


#18
Benzo[a]anthracene
Concen: 269.23 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:228 Resp: 201128

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.3	0.0	56.4

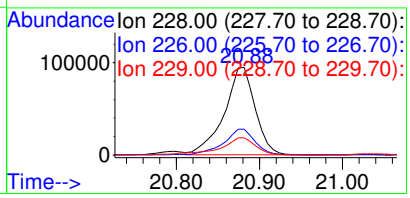


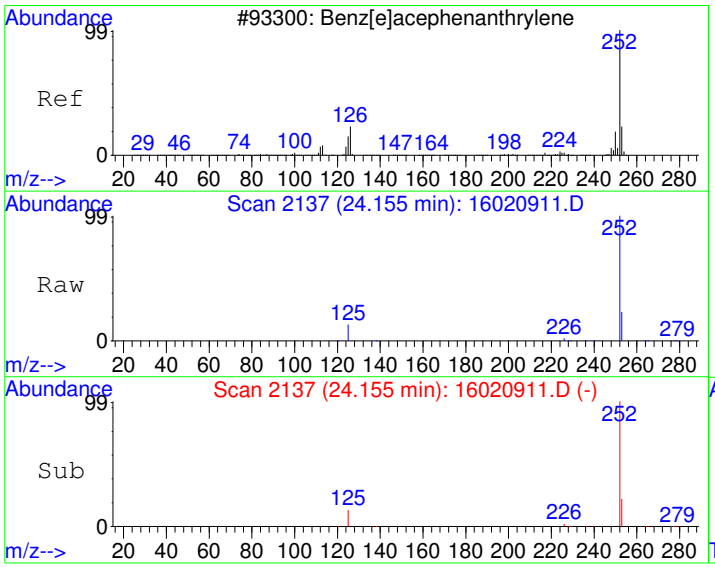


#19
Chrysene
Concen: 344.51 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:228 Resp: 245050

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.7	0.0	50.1

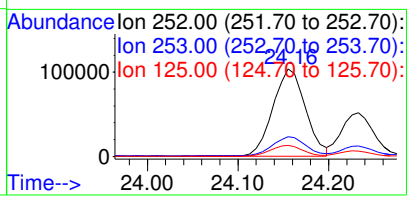


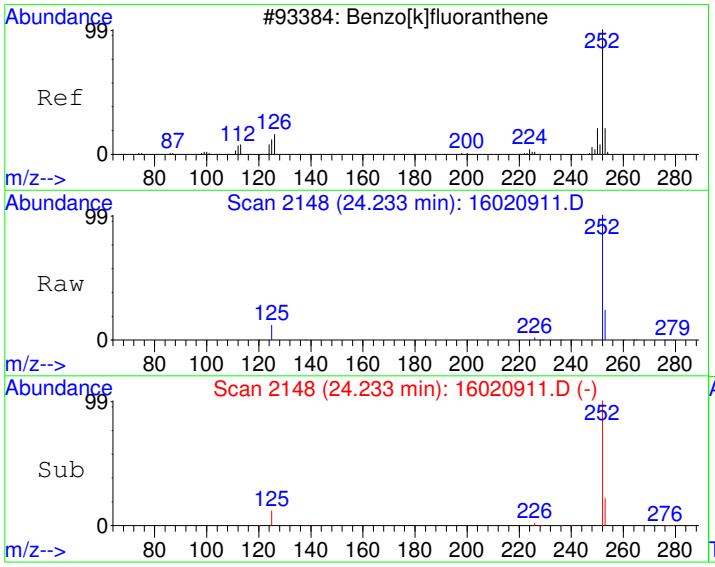


#21
Benzo[b]fluoranthene
Concen: 332.97 ug/kg
RT: 24.16 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:252 Resp: 259890

Ion	Ratio	Lower	Upper
252	100		
253	21.8	0.0	52.0
125	12.6	0.0	40.5

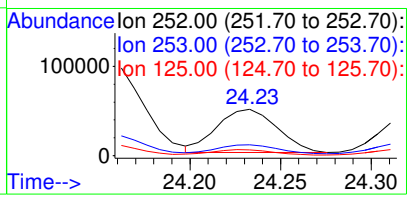


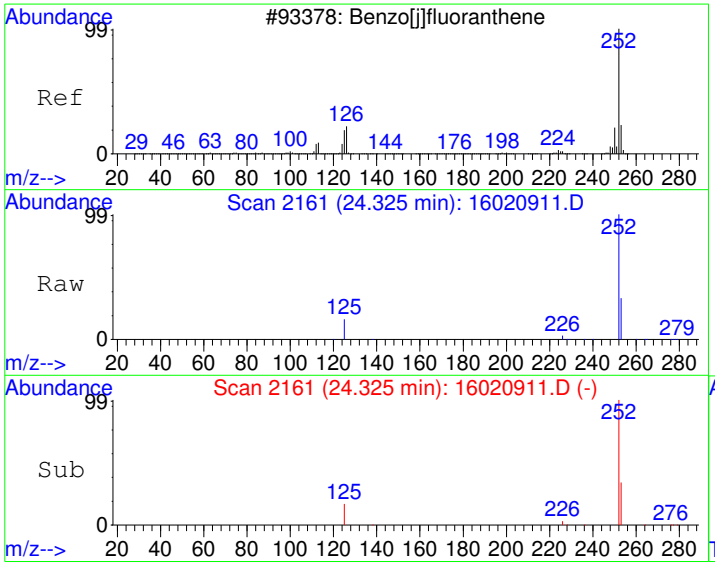


#22
Benzo[k]fluoranthene
Concen: 160.97 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:252 Resp: 111603

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.2	42.2
125	11.7	0.0	31.8

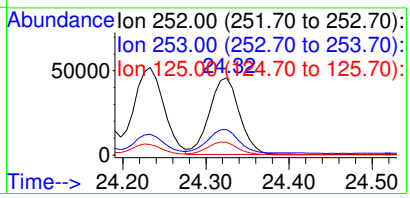


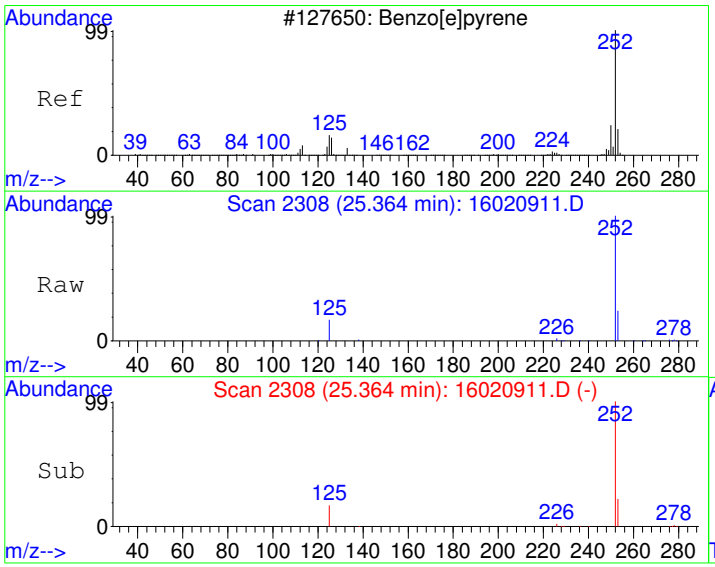


#23
Benzo(j)fluoranthene
Concen: 176.05 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:252 Resp: 114661

Ion	Ratio	Lower	Upper
252	100		
253	31.2	2.3	42.3
125	16.2	0.0	34.0

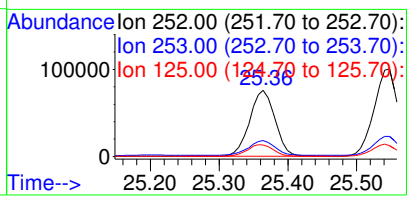


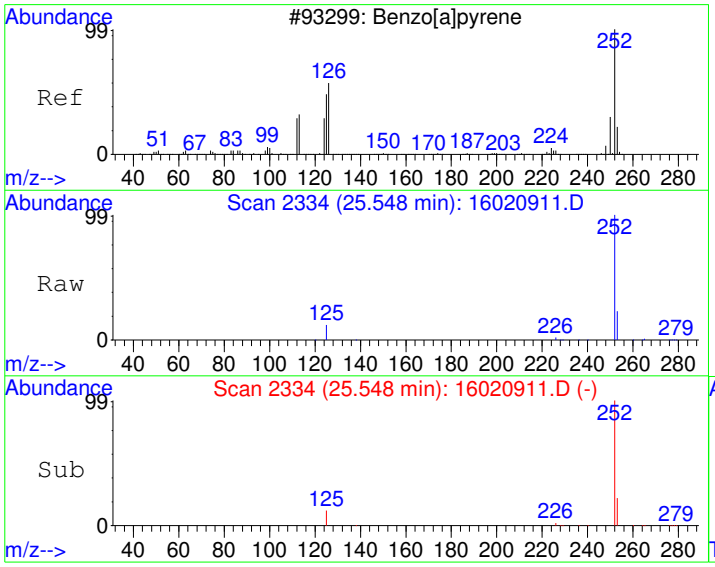


#24
Benzo[e]pyrene
Concen: 266.65 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:252 Resp: 194310

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	17.2	0.0	36.0

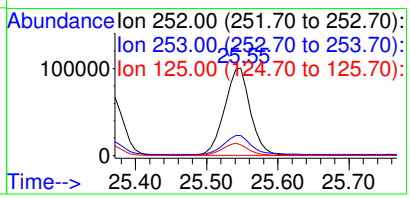


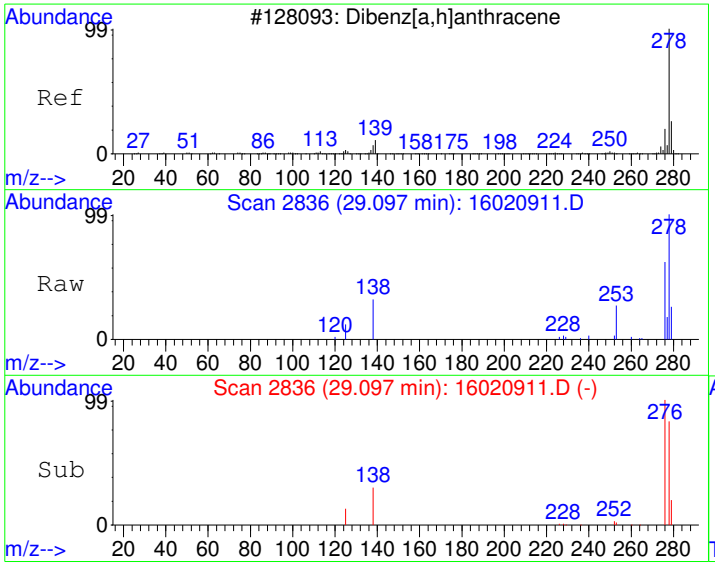


#25
Benzo[a]pyrene
Concen: 353.96 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:252 Resp: 251064

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.0	42.0
125	12.3	0.0	32.3

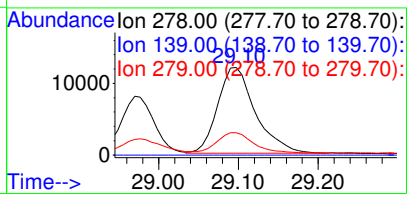


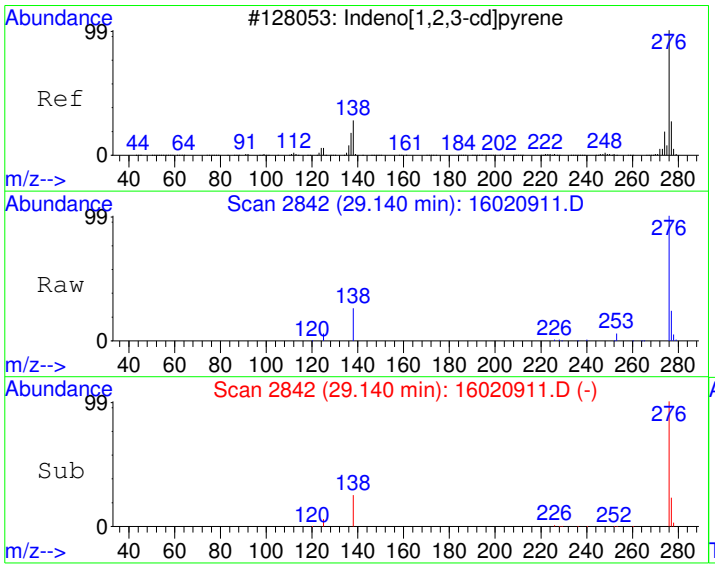


#26
Dibenz[a,h]anthracene
Concen: 59.88 ug/kg
RT: 29.10 min Scan# 2836
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:278 Resp: 39292

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.8	3.8	43.8

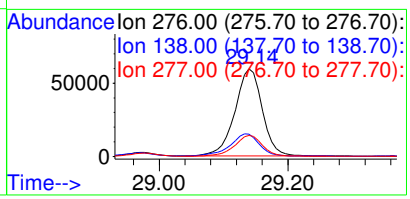


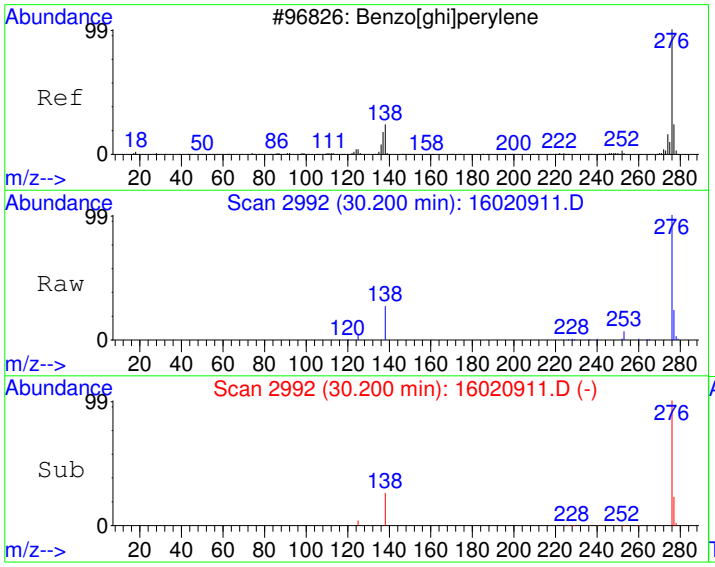


#27
Indeno[1,2,3-cd]pyrene
Concen: 220.67 ug/kg
RT: 29.14 min Scan# 2842
Delta R.T. -0.02 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:276 Resp: 176398

Ion	Ratio	Lower	Upper
276	100		
138	25.3	2.1	42.1
277	24.0	4.2	44.2

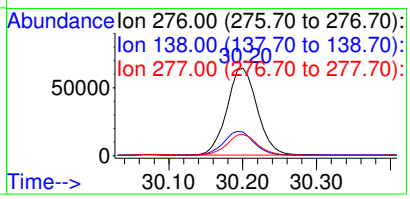




#28
Benzo[g,h,i]perylene
Concen: 273.90 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020911.D
Acq: 9 Feb 2016 2:05 pm

Tgt Ion:276 Resp: 183712

Ion	Ratio	Lower	Upper
276	100		
138	26.4	3.9	43.9
277	23.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020912.D Vial: 12
Acq On : 9 Feb 2016 2:46 pm Operator:
Sample : 1601232-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2643047	4000.00 ug/kg	126
5) Acenaphthene-d10	13.15	164	2119514	4000.00 ug/kg	116
11) Phenanthrene-d10	15.23	188	3580848	4000.00 ug/kg	110
17) Chrysene-d12	20.80	240	3495152	4000.00 ug/kg	121
20) Perylene-d12	25.87	264	3153667	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46610	75.90 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#	
16) 4-Terphenyl-d14	17.65	244	48583	81.21 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#	

Target Compounds					Qvalue
2) Naphthalene	10.82	128	4071	6.16 ug/kg	96
9) Acenaphthene	13.20	154	5025	9.41 ug/kg	94
10) Fluorene	13.88	166	3864	6.13 ug/kg	94
12) Phenanthrene	15.26	178	149082	175.32 ug/kg	99
13) Anthracene	15.33	178	30401	36.54 ug/kg	99
14) Fluoranthene	17.18	202	431509	511.74 ug/kg	99
15) Pyrene	17.74	202	387871	451.61 ug/kg	99
18) Benzo[a]anthracene	20.63	228	216262	268.35 ug/kg	100
19) Chrysene	20.88	228	252890	329.57 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	259864	309.06 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	112428	150.53 ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	116230	165.66 ug/kg	87
24) Benzo[e]pyrene	25.36	252	192476	245.19 ug/kg	99
25) Benzo[a]pyrene	25.54	252	258665	338.53 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	39494	55.87 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	173598	201.59 ug/kg	97
28) Benzo[g,h,i]perylene	30.20	276	177536	245.71 ug/kg	96

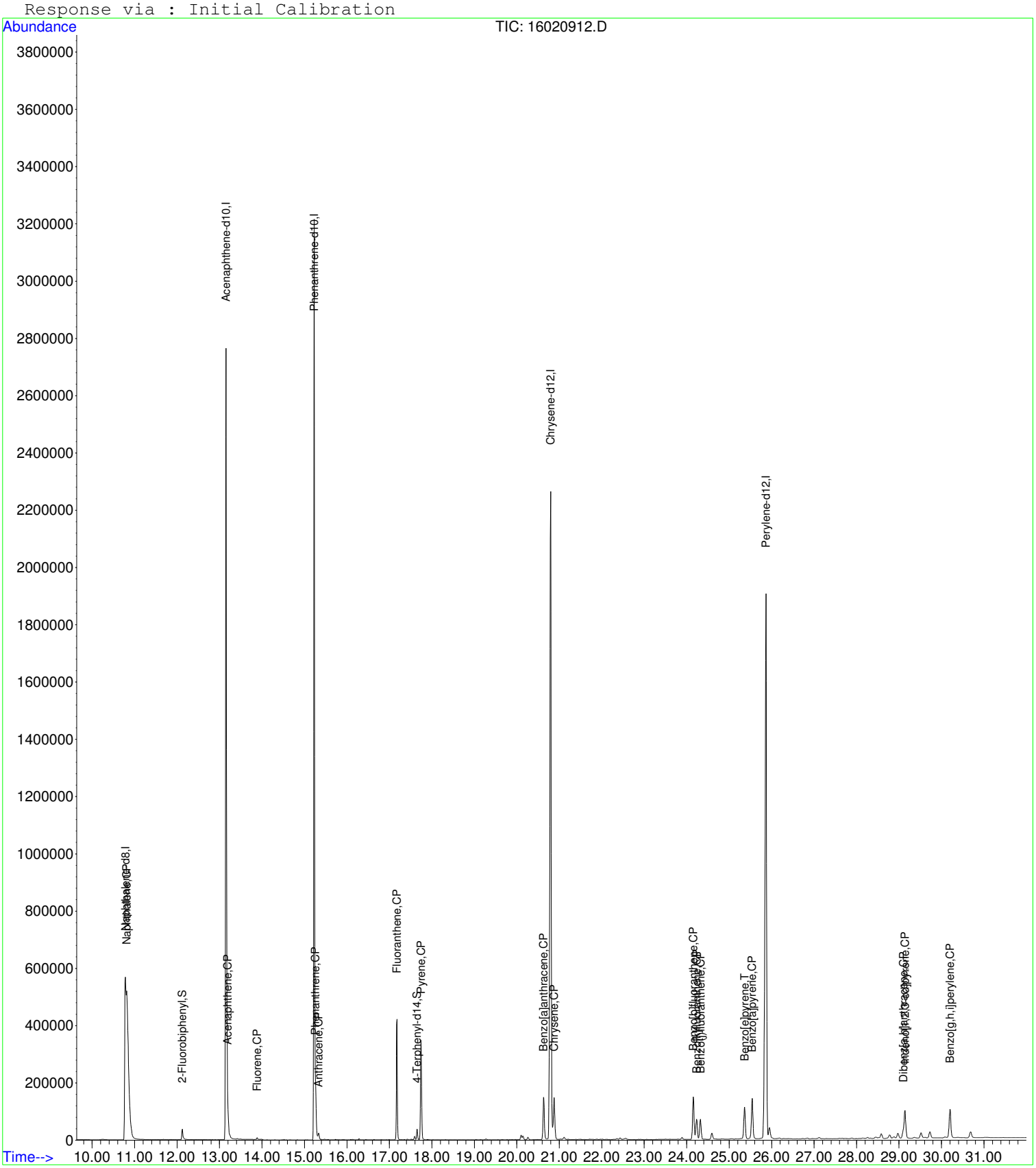
CONFIRMED
By Sherri Herschmann at 9:46:11 AM, 2/16/2016

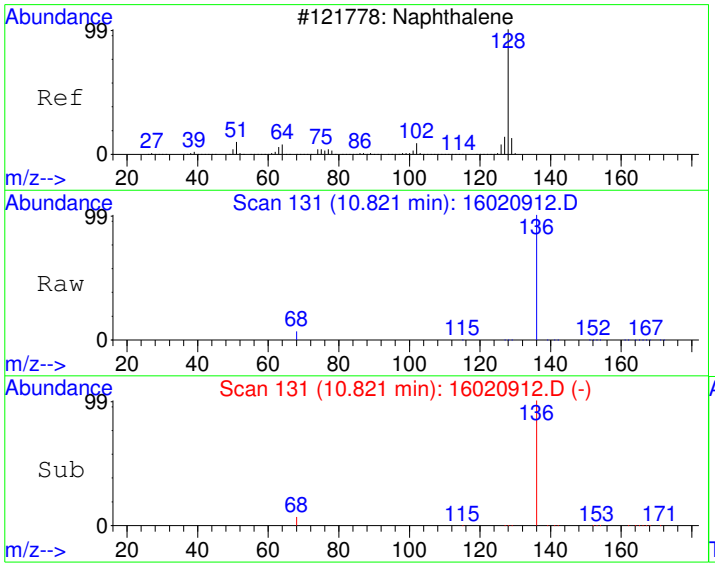
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020912.D Vial: 12
Acq On : 9 Feb 2016 2:46 pm Operator:
Sample : 1601232-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

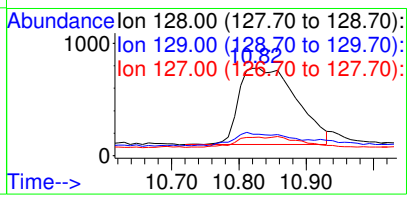


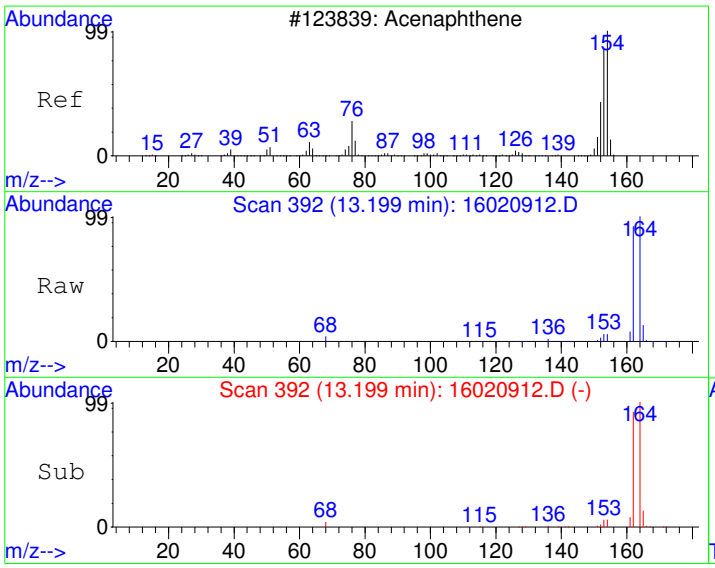


#2
Naphthalene
Concen: 6.16 ug/kg
RT: 10.82 min Scan# 131
Delta R.T. 0.04 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:128 Resp: 4071

Ion	Ratio	Lower	Upper
128	100		
129	14.4	0.0	41.2
127	12.6	0.0	42.4

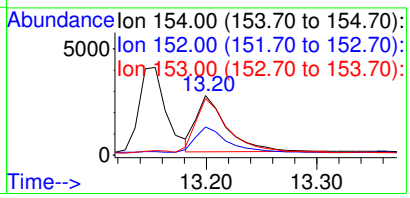


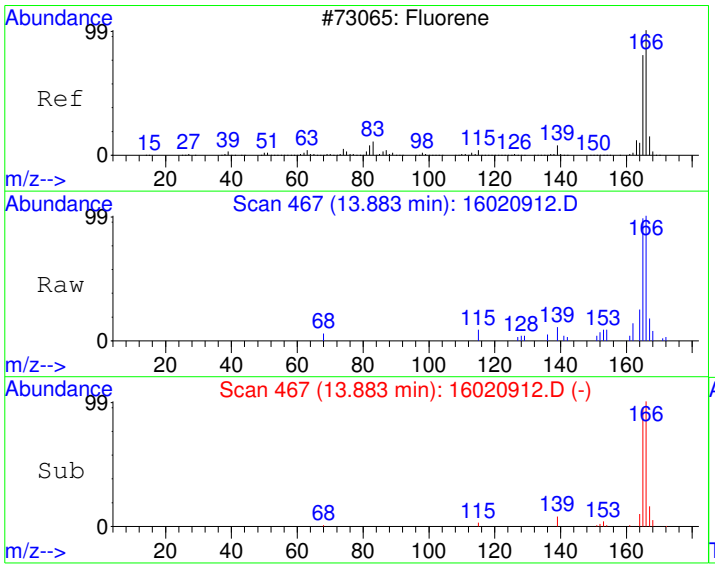


#9
Acenaphthene
Concen: 9.41 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:154 Resp: 5025

Ion	Ratio	Lower	Upper
154	100		
152	46.4	18.7	78.7
153	97.1	74.4	134.4

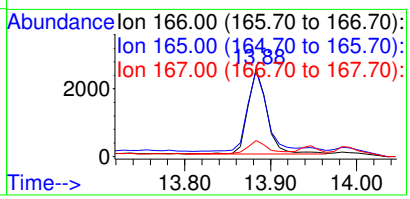


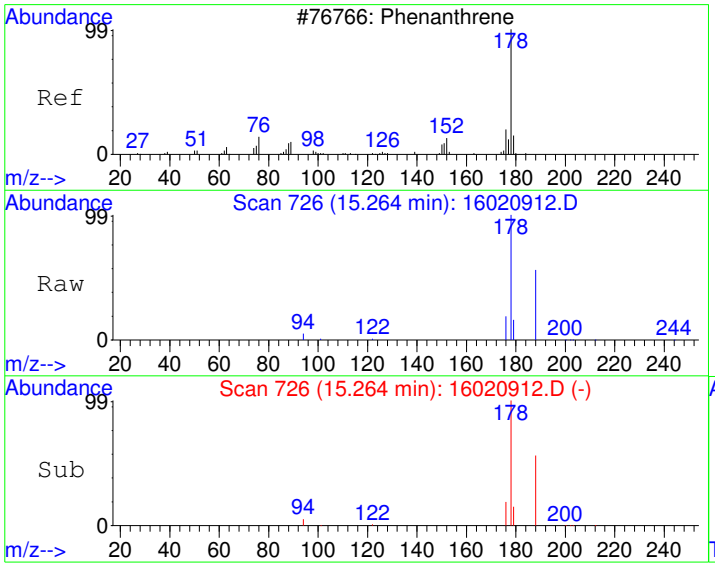


#10
Fluorene
Concen: 6.13 ug/kg
RT: 13.88 min Scan# 467
Delta R.T. 0.03 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:166 Resp: 3864

Ion	Ratio	Lower	Upper
166	100		
165	94.9	59.4	119.4
167	15.5	0.0	44.0

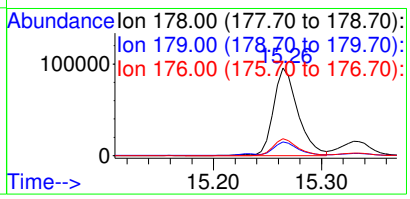


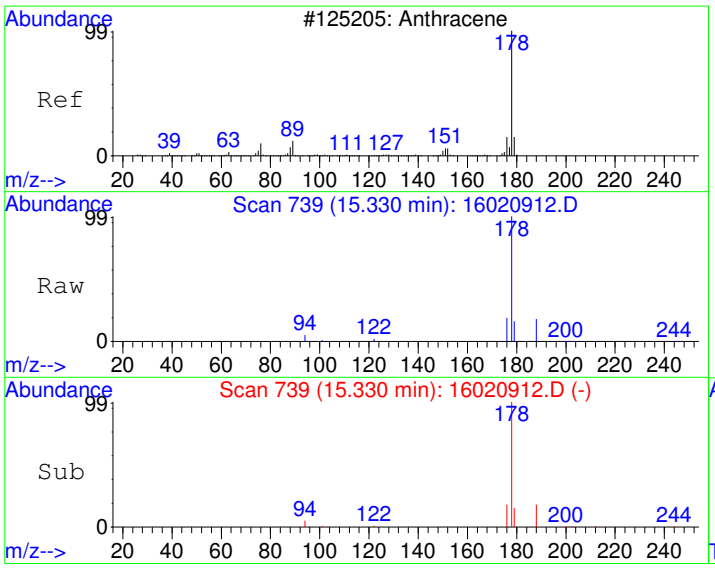


#12
Phenanthrene
Concen: 175.32 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:178 Resp: 149082

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	46.1
176	19.1	0.0	49.0

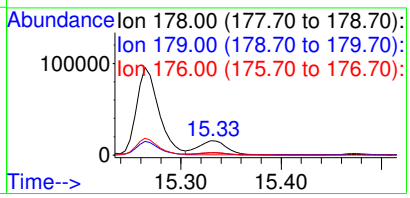


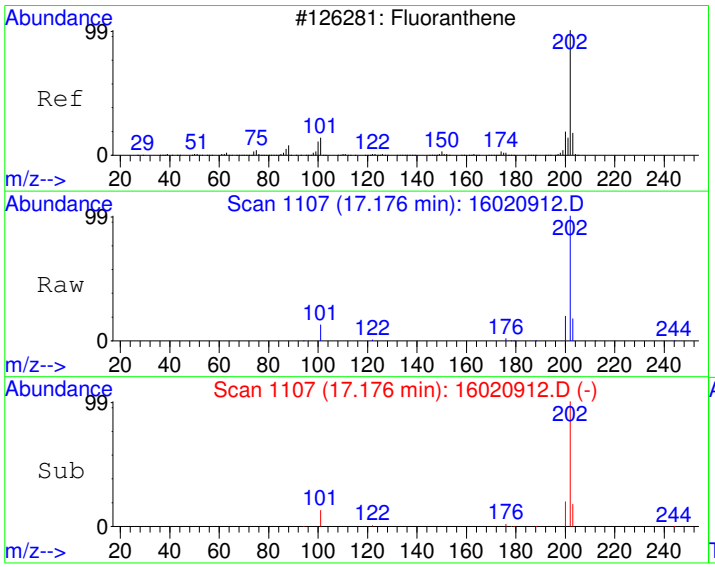


#13
Anthracene
Concen: 36.54 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:178 Resp: 30401

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	46.0
176	18.3	0.0	48.6

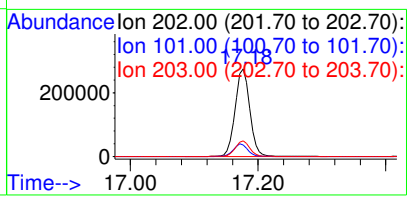


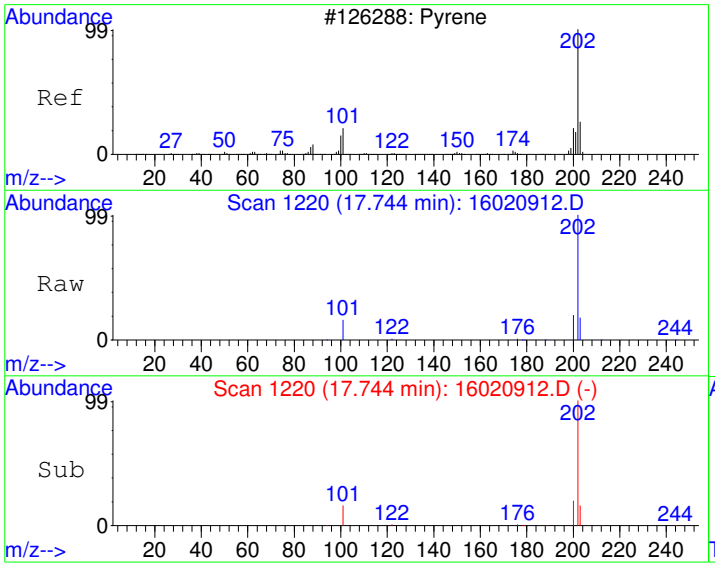


#14
Fluoranthene
Concen: 511.74 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. 0.00 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:202 Resp: 431509

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	42.5
203	17.8	0.0	48.0

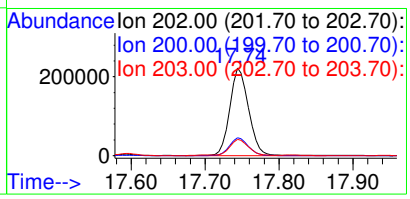


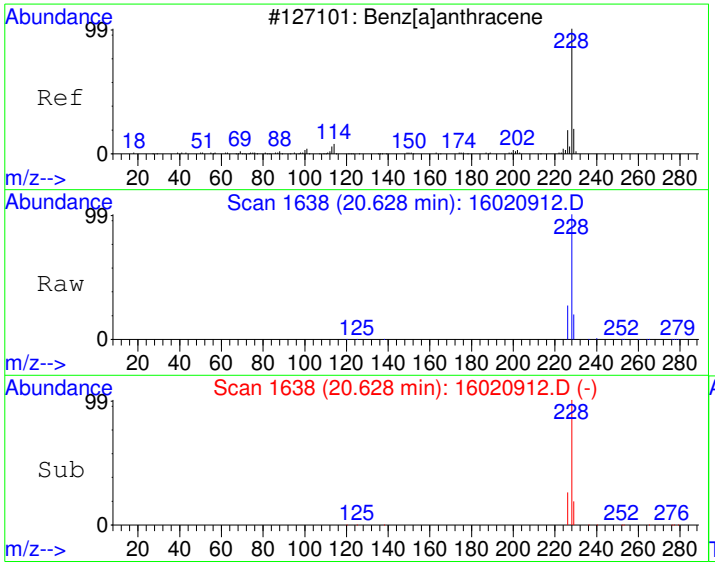


#15
Pyrene
Concen: 451.61 ug/kg
RT: 17.74 min Scan# 1220
Delta R.T. -0.00 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:202 Resp: 387871

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	18.3	0.0	48.0

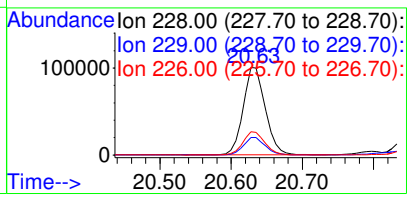


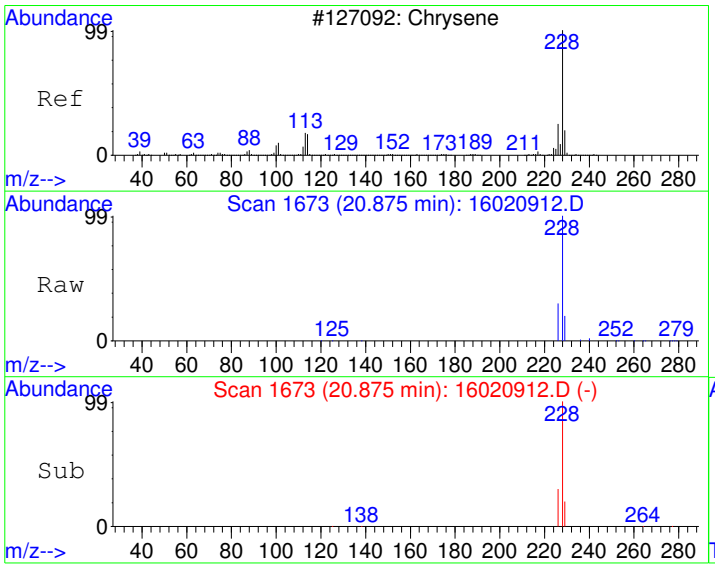


#18
Benzo[a]anthracene
Concen: 268.35 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:228 Resp: 216262

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.5	0.0	56.4

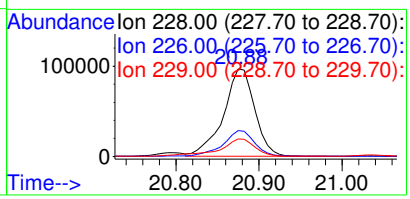


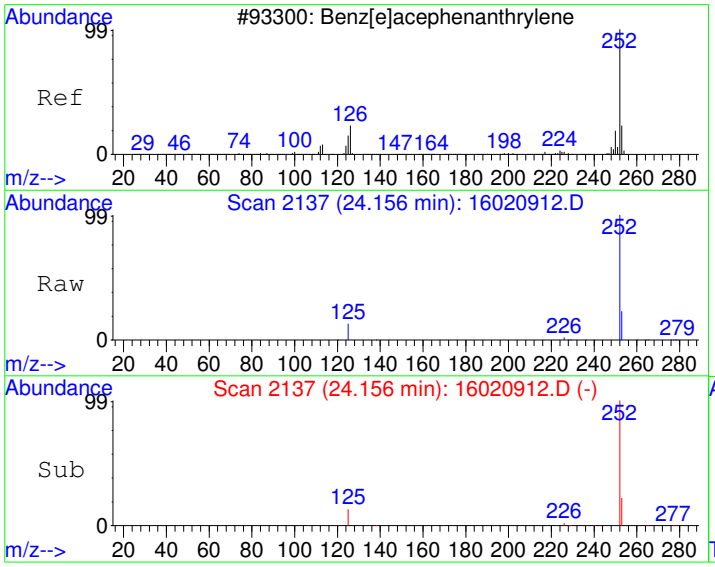


#19
Chrysene
Concen: 329.57 ug/kg
RT: 20.88 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:228 Resp: 252890

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.5
229	19.8	0.0	50.1

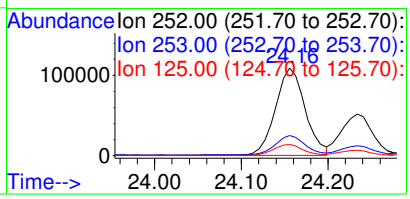


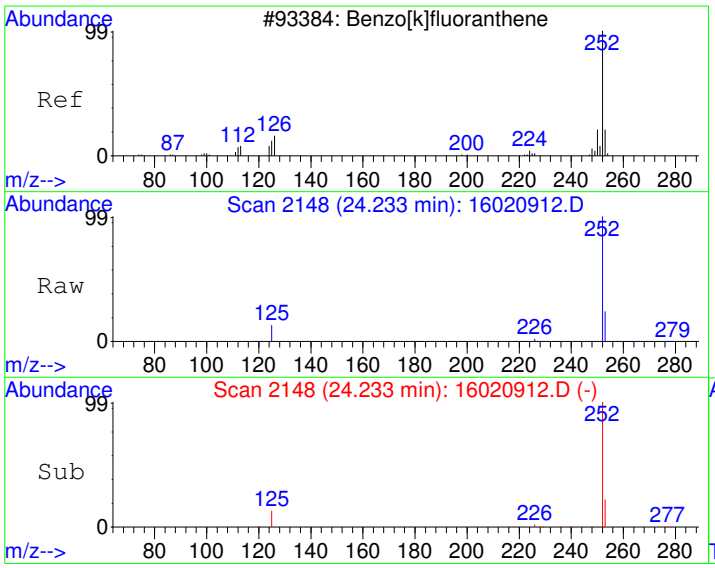


#21
Benzo[b]fluoranthene
Concen: 309.06 ug/kg
RT: 24.16 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:252 Resp: 259864

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	12.5	0.0	40.5

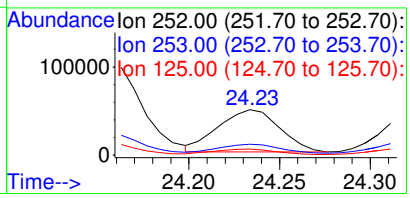


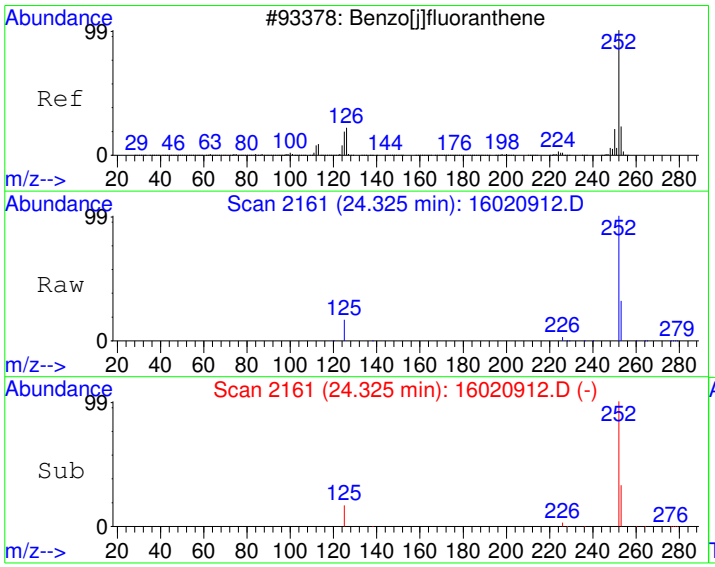


#22
Benzo[k]fluoranthene
Concen: 150.53 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:252 Resp: 112428

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.2	42.2
125	12.6	0.0	31.8

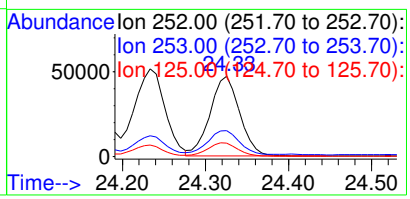


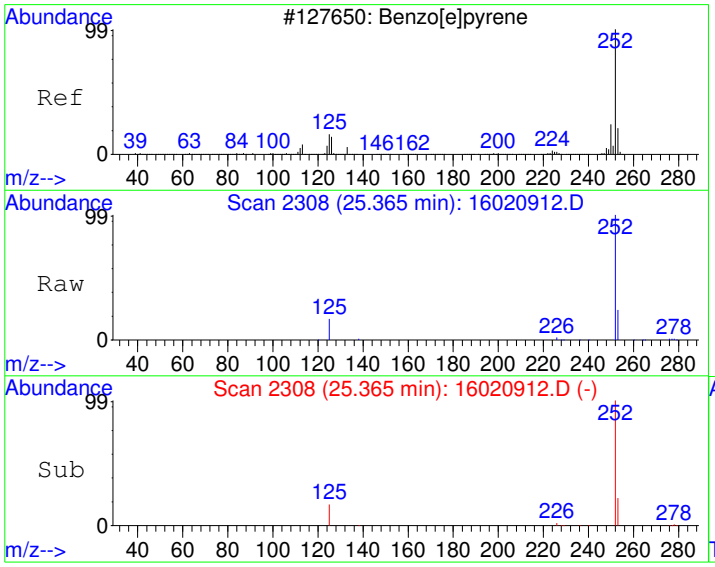


#23
Benzo(j)fluoranthene
Concen: 165.66 ug/kg
RT: 24.33 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:252 Resp: 116230

Ion	Ratio	Lower	Upper
252	100		
253	30.5	2.3	42.3
125	16.3	0.0	34.0

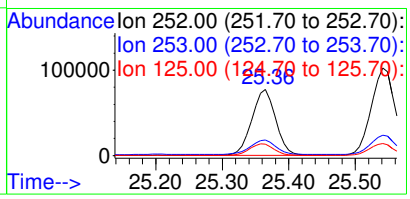


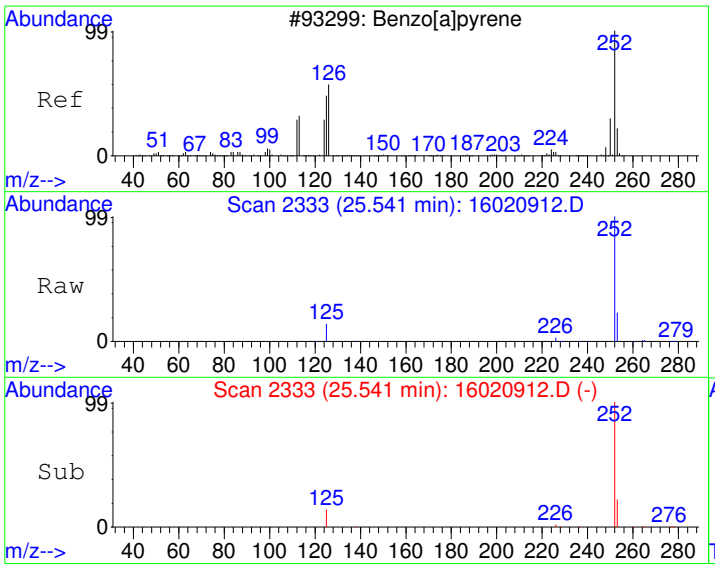


#24
Benzo[e]pyrene
Concen: 245.19 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:252 Resp: 192476

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	17.1	0.0	36.0

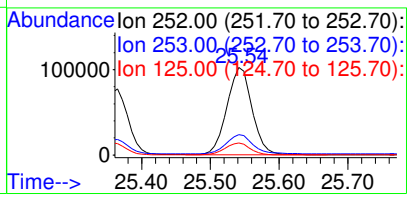


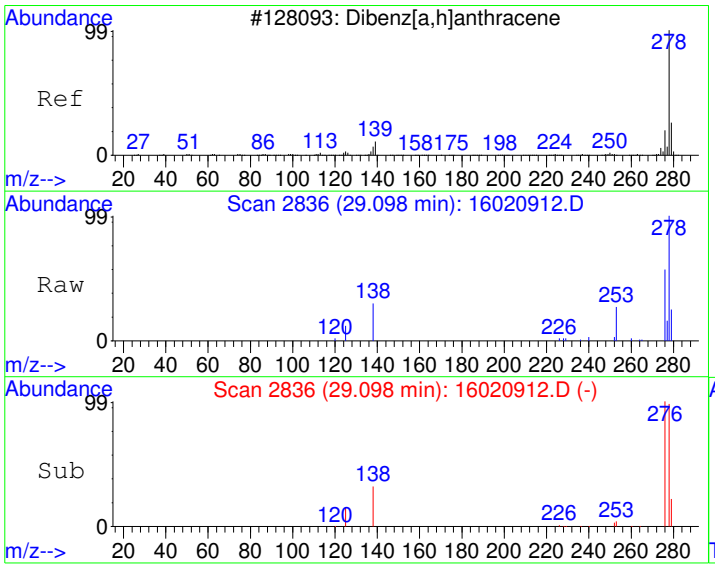


#25
Benzo[a]pyrene
Concen: 338.53 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:252 Resp: 258665

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	13.7	0.0	32.3

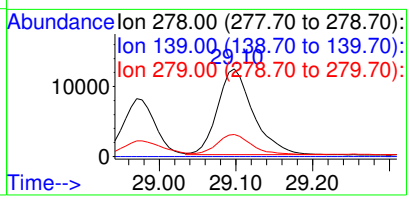


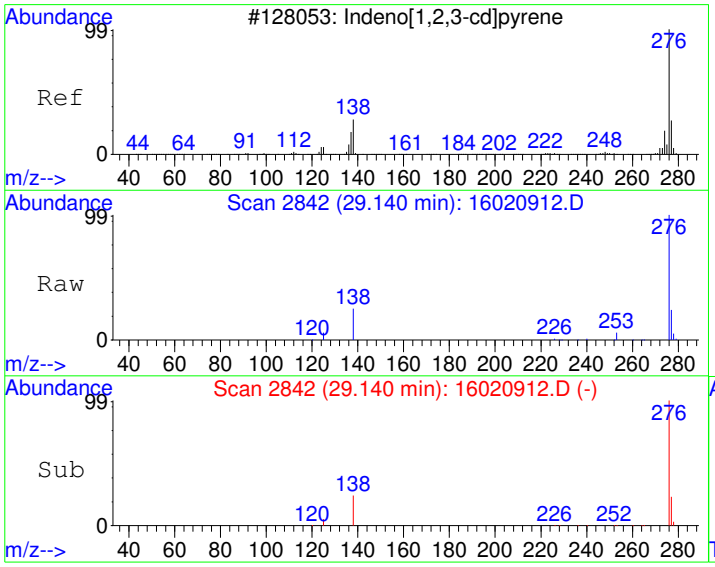


#26
Dibenz[a,h]anthracene
Concen: 55.87 ug/kg
RT: 29.10 min Scan# 2836
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:278 Resp: 39494

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.4	3.8	43.8

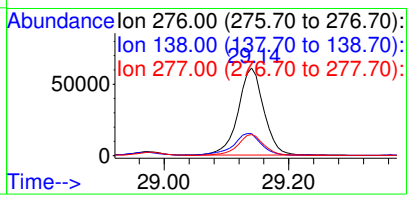


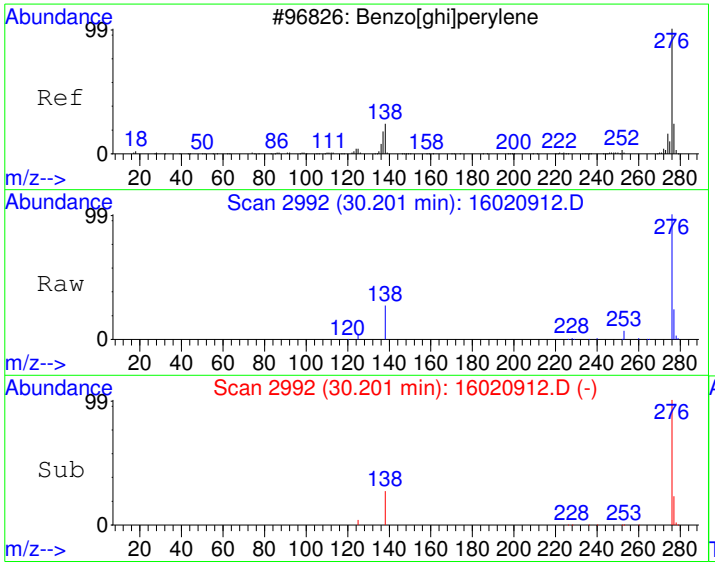


#27
Indeno[1,2,3-cd]pyrene
Concen: 201.59 ug/kg
RT: 29.14 min Scan# 2842
Delta R.T. -0.02 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:276 Resp: 173598

Ion	Ratio	Lower	Upper
276	100		
138	24.8	2.1	42.1
277	23.8	4.2	44.2

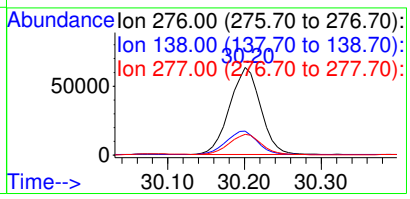




#28
Benzo[g,h,i]perylene
Concen: 245.71 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020912.D
Acq: 9 Feb 2016 2:46 pm

Tgt Ion:276 Resp: 177536

Ion	Ratio	Lower	Upper
276	100		
138	27.0	3.9	43.9
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020913.D Vial: 13
Acq On : 9 Feb 2016 3:26 pm Operator:
Sample : 1601232-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2526666	4000.00 ug/kg	120
5) Acenaphthene-d10	13.15	164	2097199	4000.00 ug/kg	115
11) Phenanthrene-d10	15.23	188	3498268	4000.00 ug/kg	107
17) Chrysene-d12	20.80	240	3581691	4000.00 ug/kg	124
20) Perylene-d12	25.87	264	3170806	4000.00 ug/kg	137

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45548	74.96 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#	
16) 4-Terphenyl-d14	17.65	244	48890	83.65 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#	

Target Compounds					Qvalue
9) Acenaphthene	13.20	154	4156	7.87 ug/kg	99
12) Phenanthrene	15.26	178	111379	134.07 ug/kg	99
13) Anthracene	15.33	178	21377	26.30 ug/kg	98
14) Fluoranthene	17.18	202	351637	426.86 ug/kg	98
15) Pyrene	17.75	202	323214	385.21 ug/kg	99
18) Benzo[a]anthracene	20.63	228	182297	220.74 ug/kg	99
19) Chrysene	20.88	228	221496	281.68 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	235469	278.54 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	101630	135.34 ug/kg	96
23) Benzo(j)fluoranthene	24.32	252	102116	144.76 ug/kg	86
24) Benzo[e]pyrene	25.36	252	176956	224.20 ug/kg	98
25) Benzo[a]pyrene	25.54	252	228146	296.97 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	36055	50.73 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.14	276	162279	187.43 ug/kg	97
28) Benzo[g,h,i]perylene	30.20	276	165666	228.05 ug/kg	96

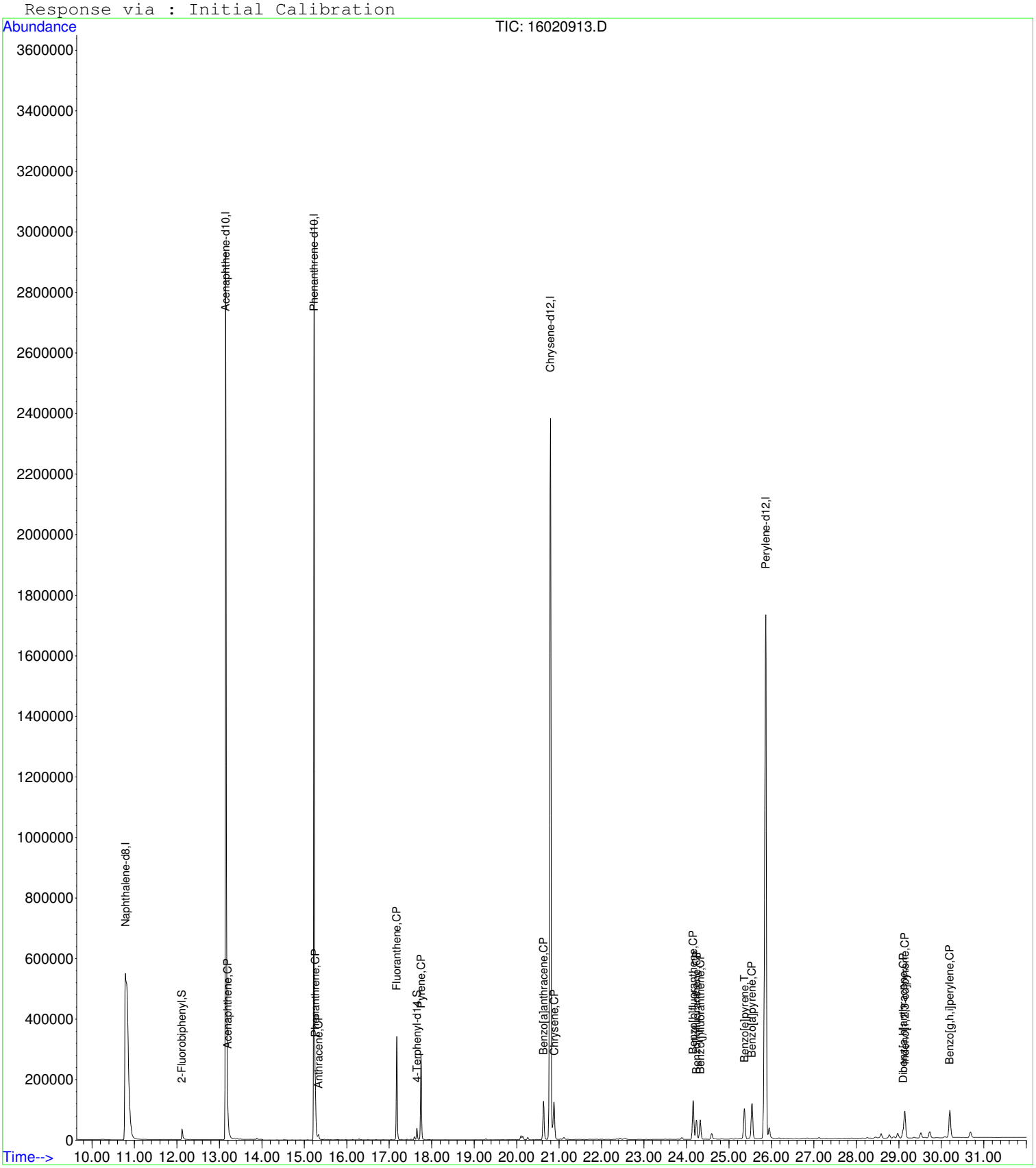
CONFIRMED
By Sherri Herschmann at 9:46:41 AM, 2/16/2016

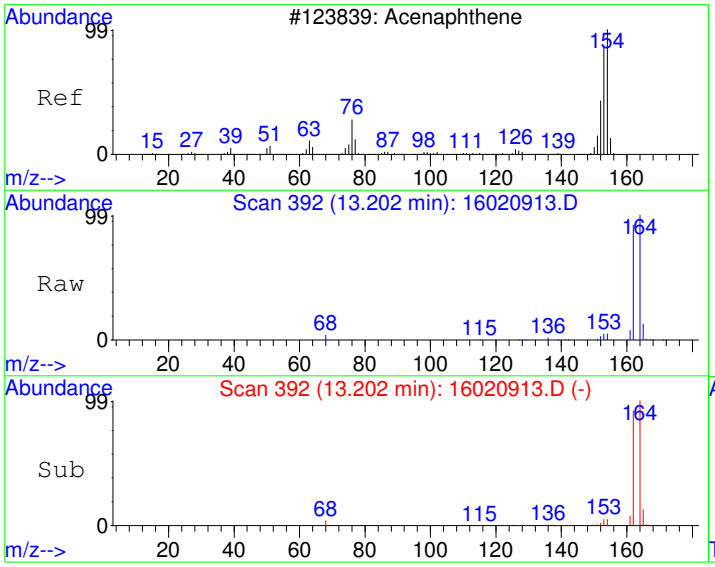
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020913.D Vial: 13
Acq On : 9 Feb 2016 3:26 pm Operator:
Sample : 1601232-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

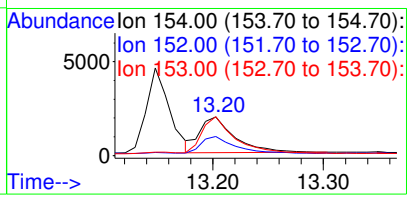


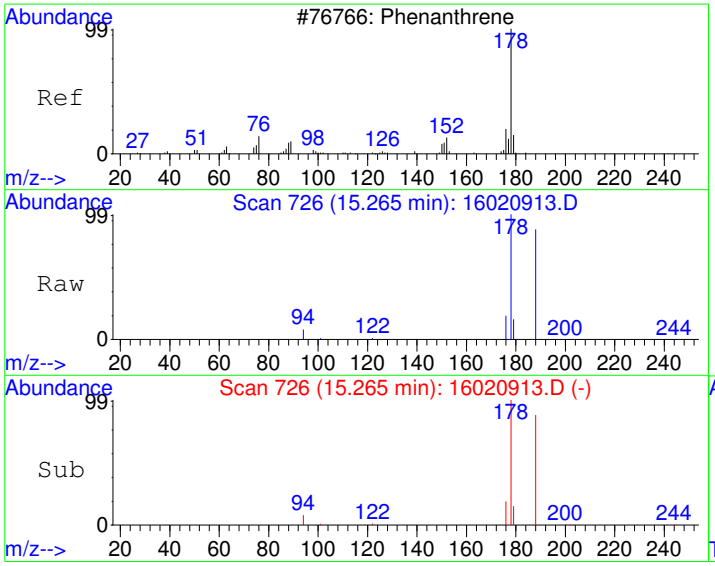


#9
Acenaphthene
Concen: 7.87 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:154 Resp: 4156

Ion	Ratio	Lower	Upper
154	100		
152	47.2	18.7	78.7
153	103.5	74.4	134.4

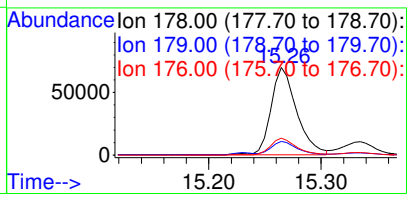


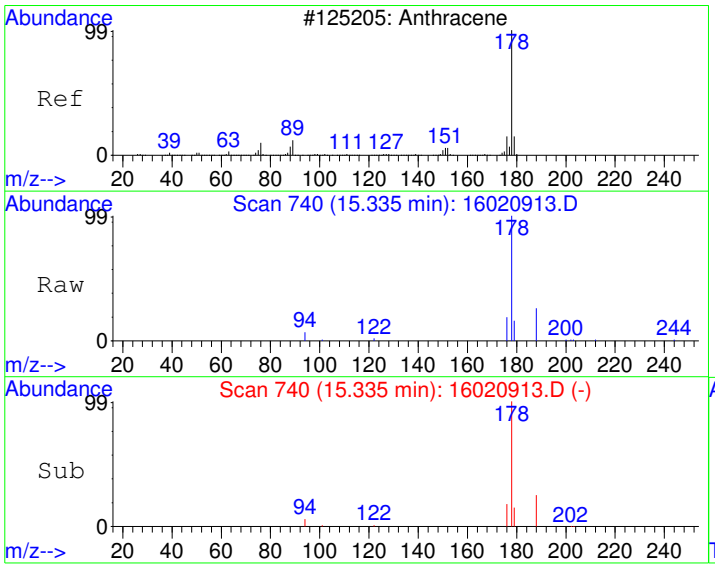


#12
Phenanthrene
Concen: 134.07 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:178 Resp: 111379

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.1
176	19.2	0.0	49.0

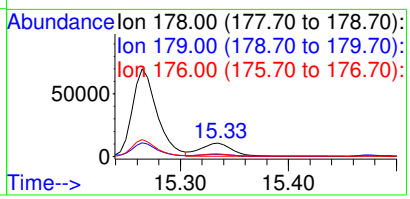


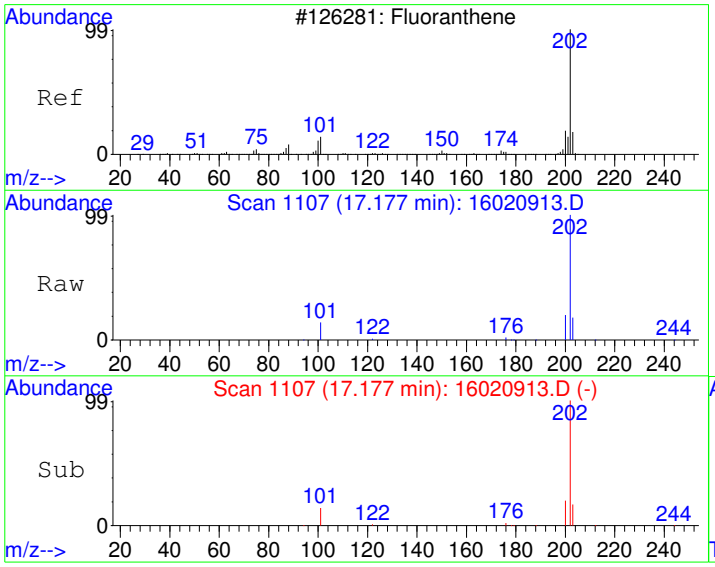


#13
Anthracene
Concen: 26.30 ug/kg
RT: 15.33 min Scan# 740
Delta R.T. 0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:178 Resp: 21377

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	46.0
176	18.3	0.0	48.6

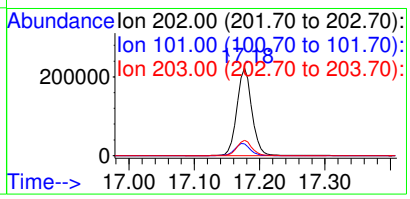


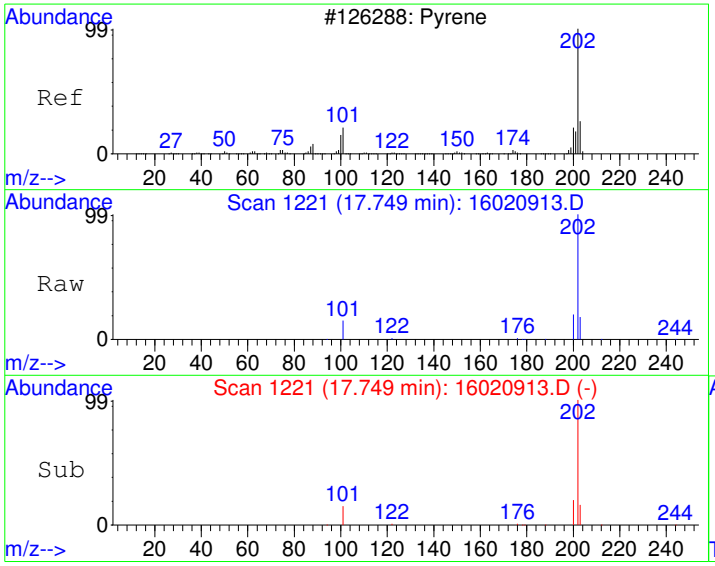


#14
Fluoranthene
Concen: 426.86 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. 0.00 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:202 Resp: 351637

Ion	Ratio	Lower	Upper
202	100		
101	13.6	0.0	42.5
203	17.5	0.0	48.0

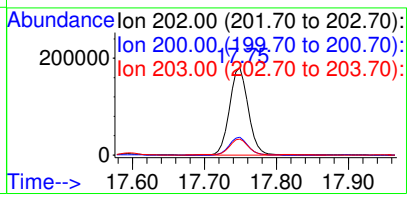


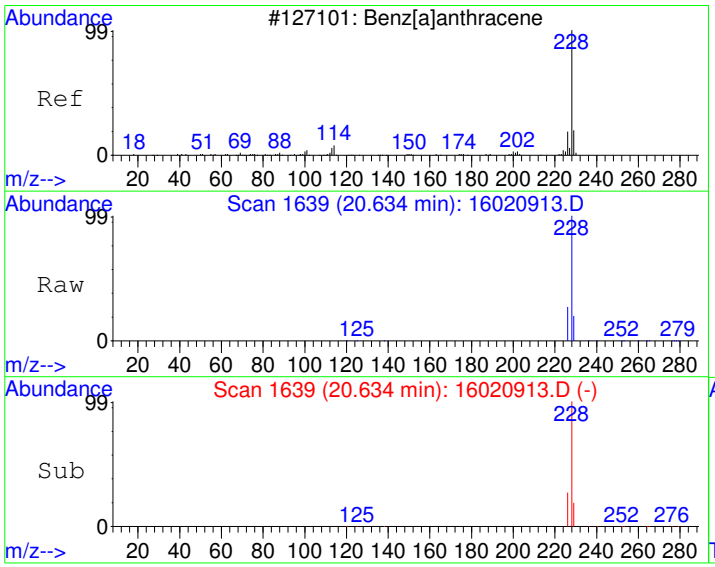


#15
Pyrene
Concen: 385.21 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. 0.00 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:202 Resp: 323214

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	18.3	0.0	48.0

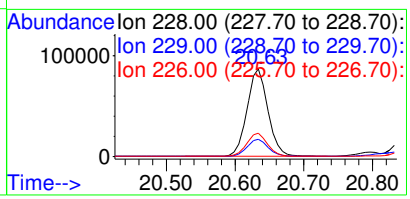


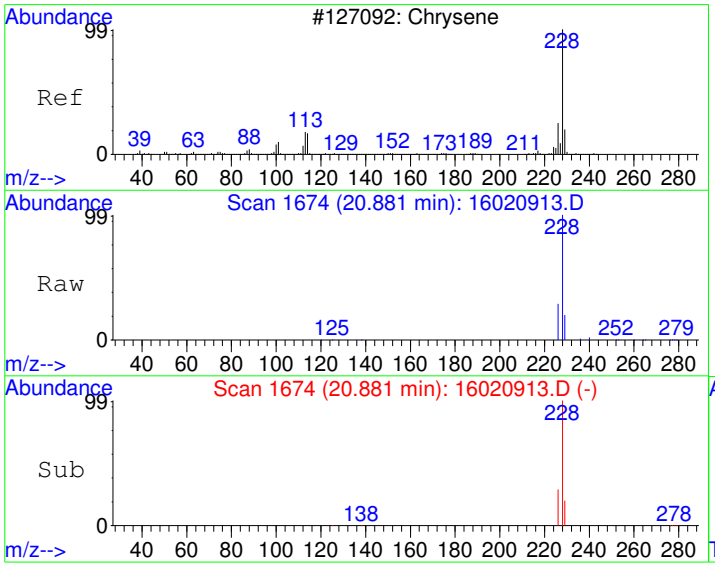


#18
Benzo[a]anthracene
Concen: 220.74 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:228 Resp: 182297

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.0
226	26.6	0.0	56.4

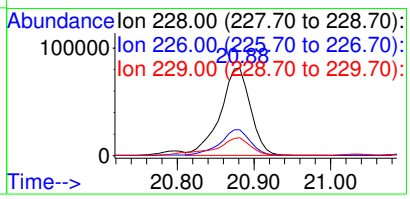


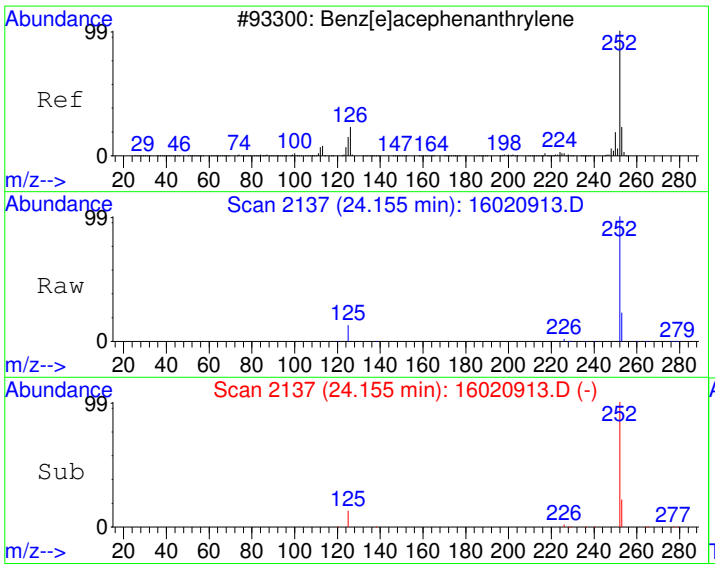


#19
Chrysene
Concen: 281.68 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:228 Resp: 221496

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	20.1	0.0	50.1

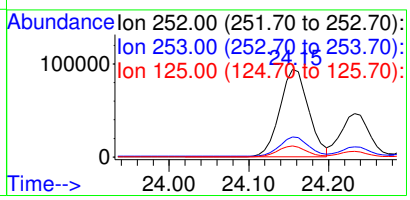


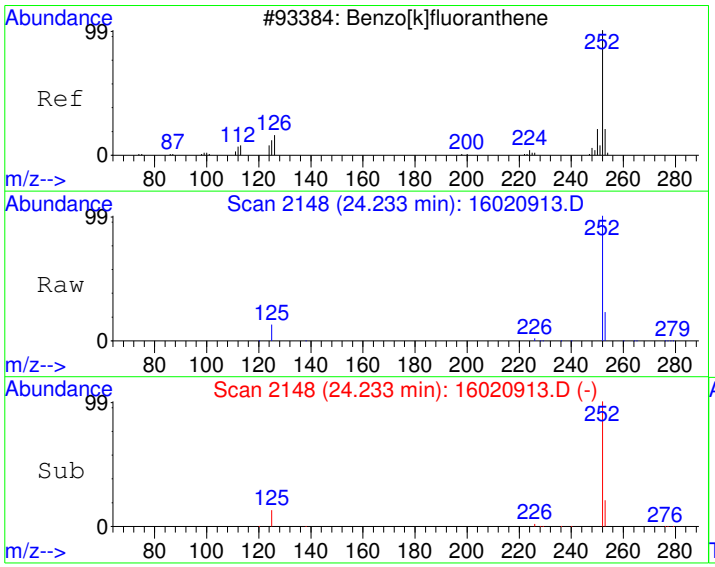


#21
Benzo[b]fluoranthene
Concen: 278.54 ug/kg
RT: 24.15 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:252 Resp: 235469

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	12.7	0.0	40.5

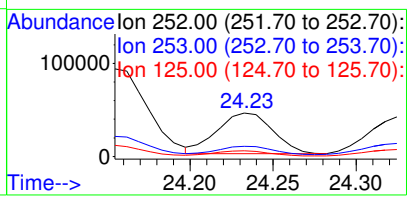


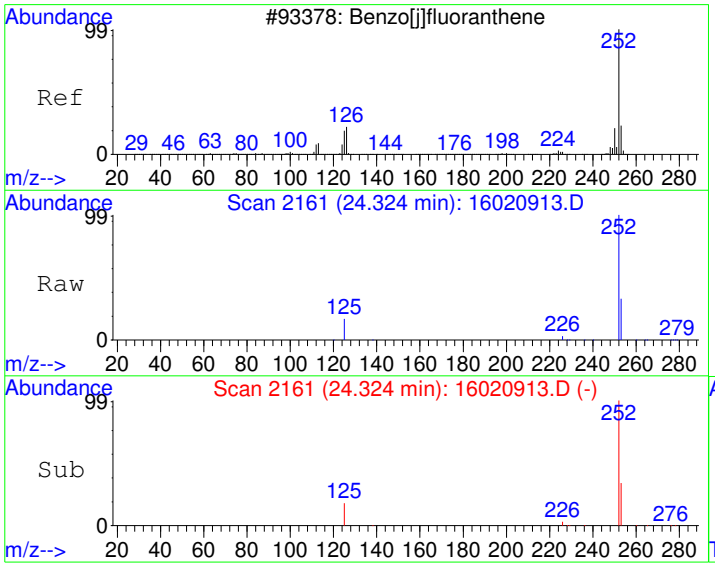


#22
Benzo[k]fluoranthene
Concen: 135.34 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:252 Resp: 101630

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.2	42.2
125	12.2	0.0	31.8

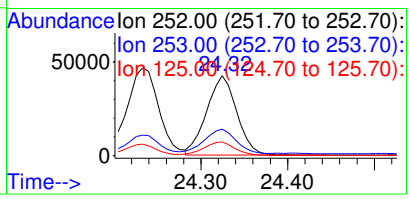


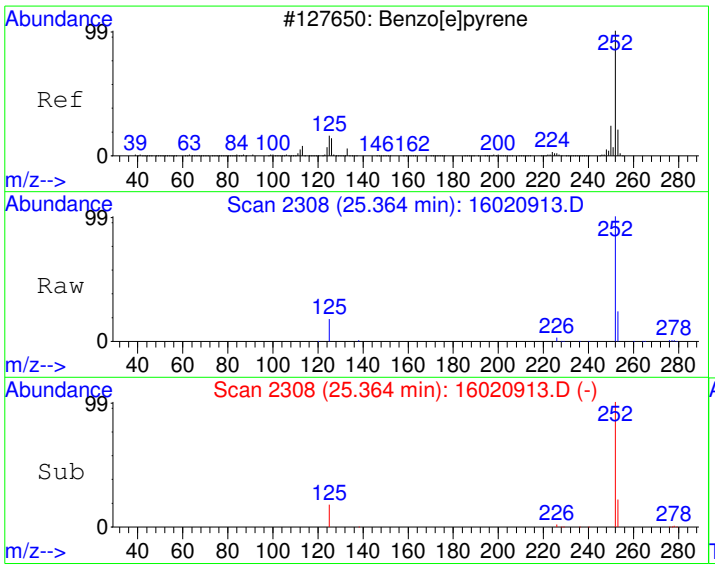


#23
Benzo(j)fluoranthene
Concen: 144.76 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:252 Resp: 102116

Ion	Ratio	Lower	Upper
252	100		
253	31.0	2.3	42.3
125	16.9	0.0	34.0

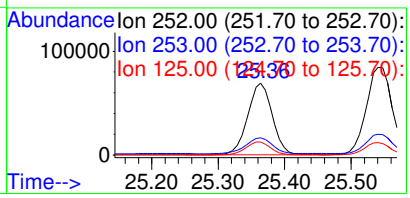


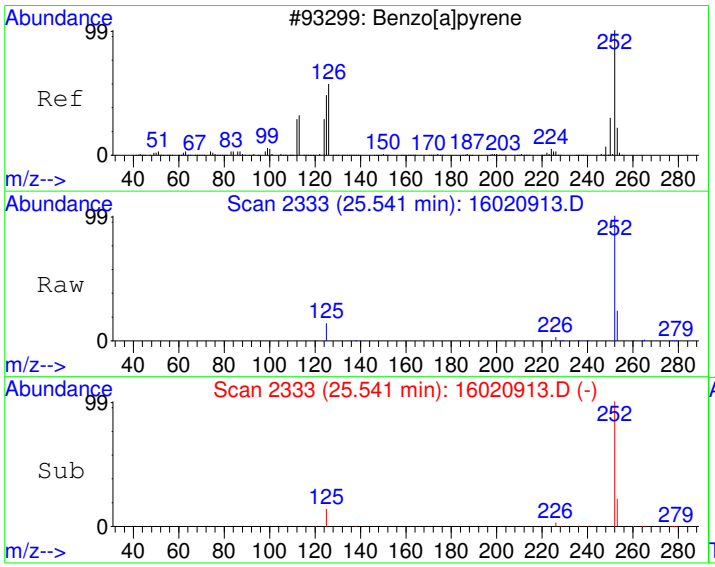


#24
Benzo[e]pyrene
Concen: 224.20 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:252 Resp: 176956

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	18.1	0.0	36.0

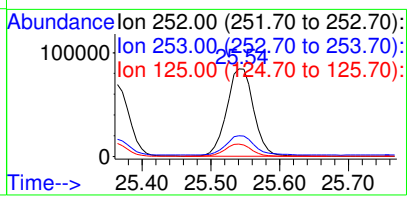


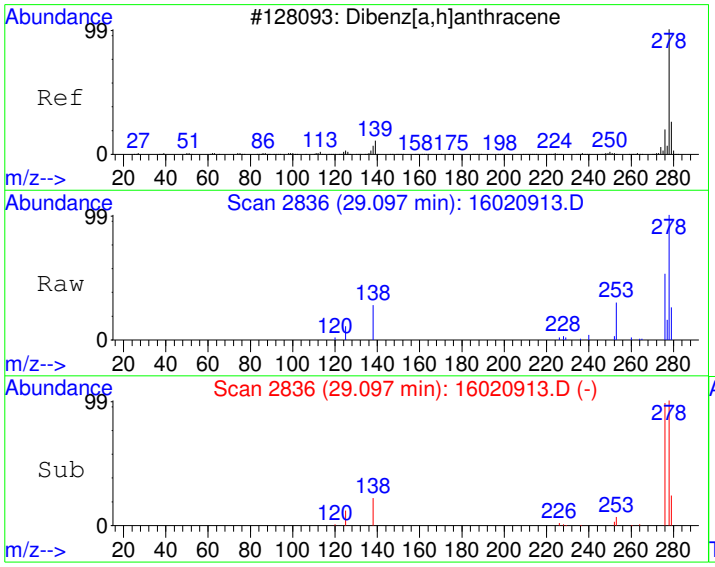


#25
Benzo[a]pyrene
Concen: 296.97 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:252 Resp: 228146

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	14.1	0.0	32.3

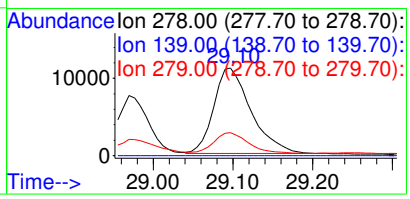


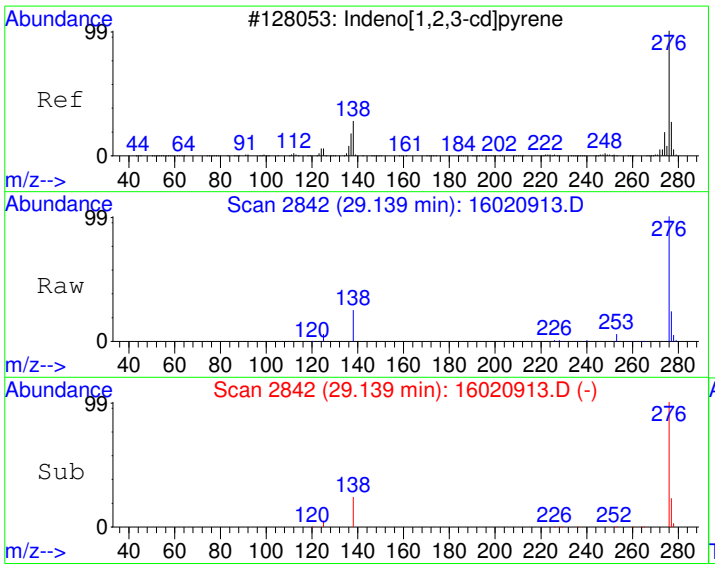


#26
Dibenz[a,h]anthracene
Concen: 50.73 ug/kg
RT: 29.10 min Scan# 2836
Delta R.T. -0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:278 Resp: 36055

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.8	3.8	43.8

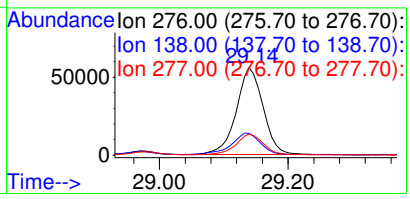


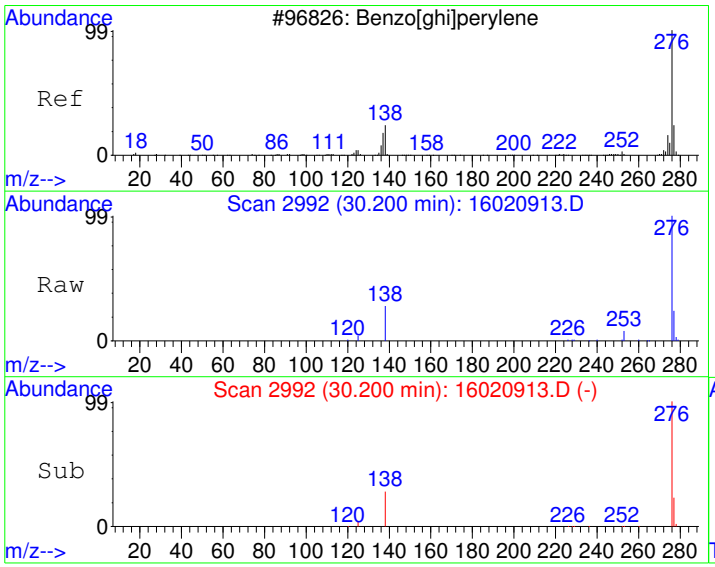


#27
Indeno[1,2,3-cd]pyrene
Concen: 187.43 ug/kg
RT: 29.14 min Scan# 2842
Delta R.T. -0.02 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:276 Resp: 162279

Ion	Ratio	Lower	Upper
276	100		
138	24.3	2.1	42.1
277	23.9	4.2	44.2

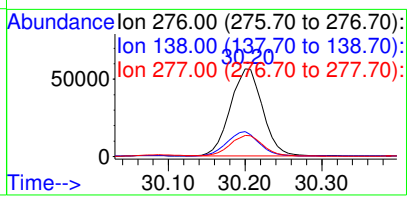




#28
Benzo[g,h,i]perylene
Concen: 228.05 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020913.D
Acq: 9 Feb 2016 3:26 pm

Tgt Ion:276 Resp: 165666

Ion	Ratio	Lower	Upper
276	100		
138	27.9	3.9	43.9
277	24.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020914.D Vial: 14
Acq On : 9 Feb 2016 4:06 pm Operator:
Sample : 1601232-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2606077	4000.00 ug/kg	124
5) Acenaphthene-d10	13.15	164	1951563	4000.00 ug/kg	107
11) Phenanthrene-d10	15.23	188	3399436	4000.00 ug/kg	104
17) Chrysene-d12	20.80	240	3324854	4000.00 ug/kg	115
20) Perylene-d12	25.87	264	2954595	4000.00 ug/kg	128

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	45361	80.23 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#	
16) 4-Terphenyl-d14	17.65	244	46984	82.73 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	

Target Compounds					Qvalue
2) Naphthalene	10.81	128	3551	5.45 ug/kg	89
9) Acenaphthene	13.20	154	3591	7.30 ug/kg	100
12) Phenanthrene	15.26	178	129170	160.01 ug/kg	99
13) Anthracene	15.33	178	22147	28.04 ug/kg	99
14) Fluoranthene	17.18	202	402309	502.57 ug/kg	99
15) Pyrene	17.74	202	370367	454.24 ug/kg	99
18) Benzo[a]anthracene	20.63	228	231133	301.49 ug/kg	99
19) Chrysene	20.87	228	281571	385.75 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	304954	387.13 ug/kg	97
22) Benzo[k]fluoranthene	24.23	252	129126	184.53 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	131200	199.60 ug/kg	87
24) Benzo[e]pyrene	25.36	252	229012	311.39 ug/kg	98
25) Benzo[a]pyrene	25.54	252	283686	396.29 ug/kg	98
26) Dibenz[a,h]anthracene	29.09	278	45952	69.39 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.14	276	206682	256.18 ug/kg	98
28) Benzo[g,h,i]perylene	30.20	276	212819	314.39 ug/kg	98

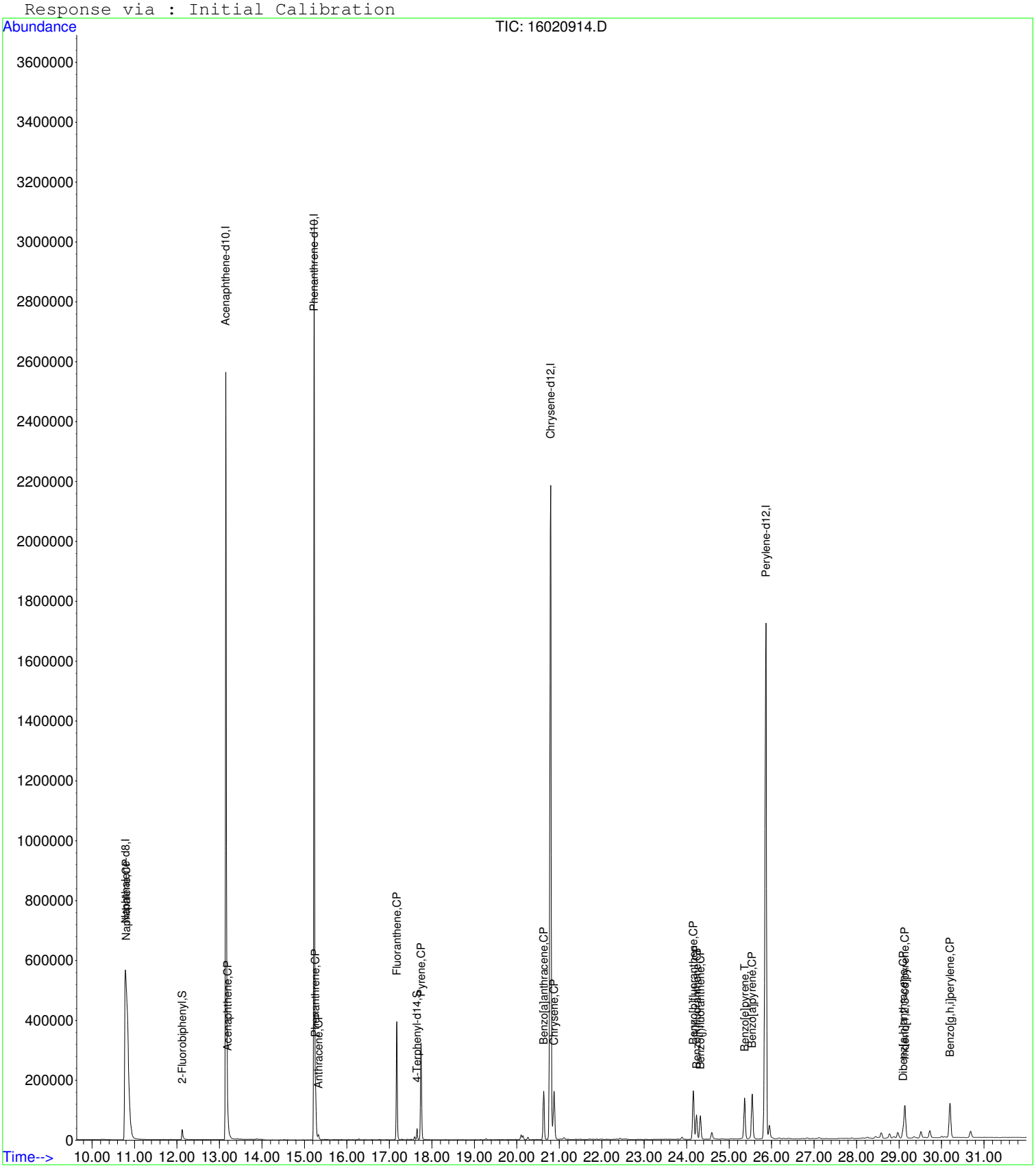
CONFIRMED
By Sherri Herschmann at 9:47:28 AM, 2/16/2016

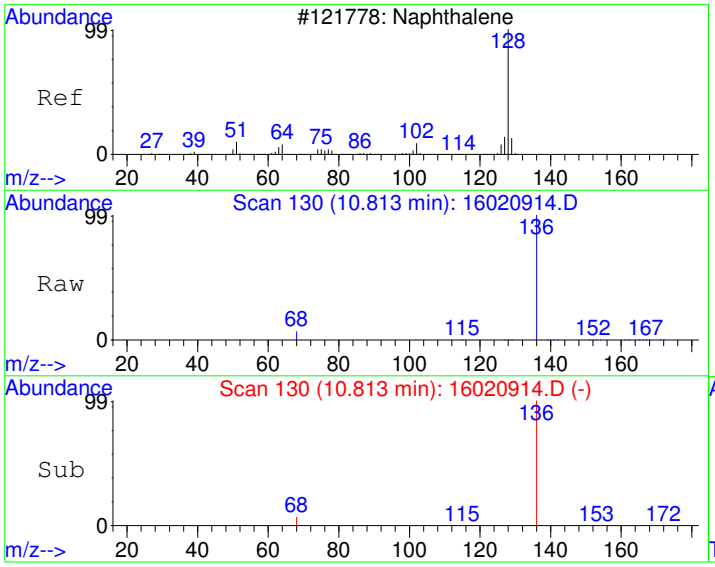
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020914.D Vial: 14
Acq On : 9 Feb 2016 4:06 pm Operator:
Sample : 1601232-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:40 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

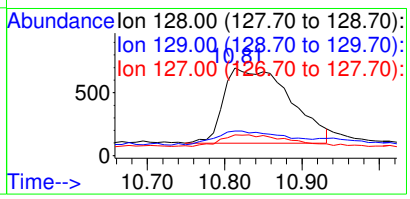


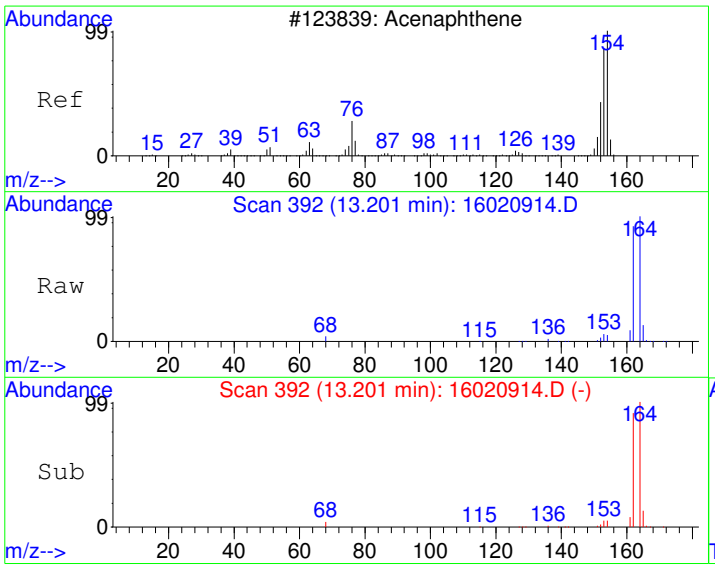


#2
Naphthalene
Concen: 5.45 ug/kg
RT: 10.81 min Scan# 130
Delta R.T. 0.03 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:128 Resp: 3551

Ion	Ratio	Lower	Upper
128	100		
129	18.3	0.0	41.2
127	14.4	0.0	42.4

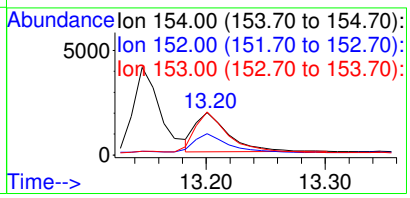


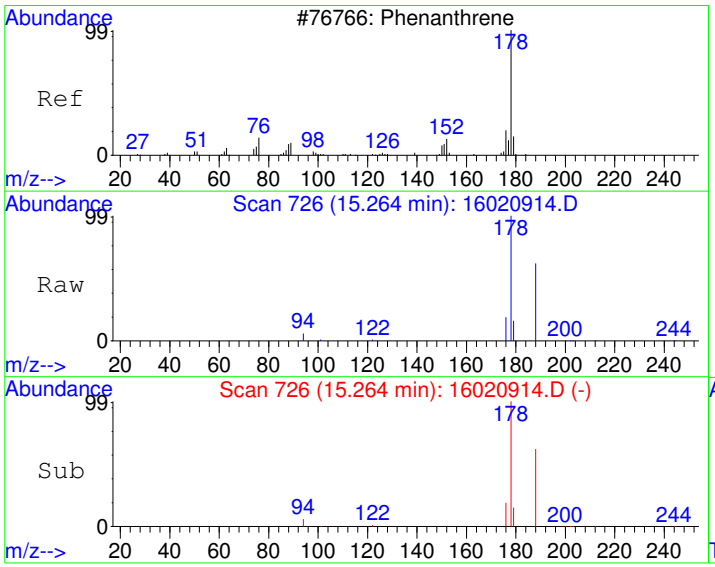


#9
Acenaphthene
Concen: 7.30 ug/kg
RT: 13.20 min Scan# 392
Delta R.T. 0.01 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:154 Resp: 3591

Ion	Ratio	Lower	Upper
154	100		
152	49.0	18.7	78.7
153	104.8	74.4	134.4

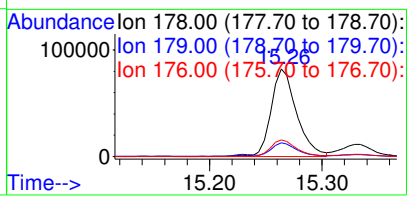


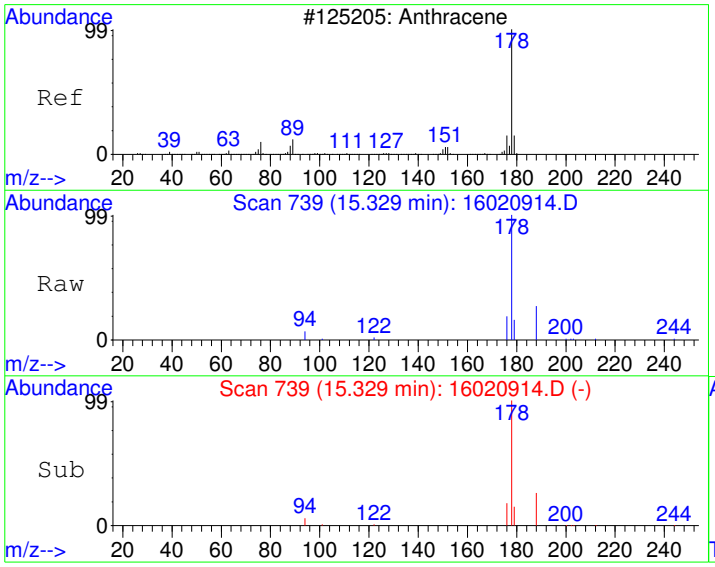


#12
Phenanthrene
Concen: 160.01 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:178 Resp: 129170

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	46.1
176	19.0	0.0	49.0

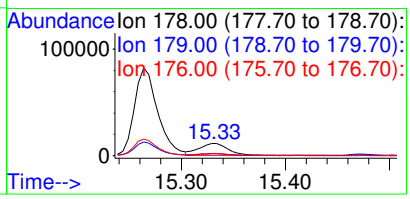


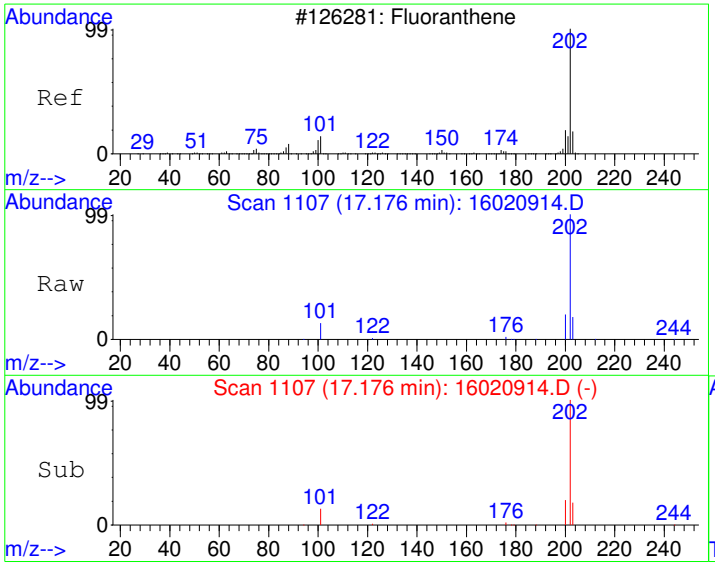


#13
Anthracene
Concen: 28.04 ug/kg
RT: 15.33 min Scan# 739
Delta R.T. 0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:178 Resp: 22147

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	46.0
176	18.5	0.0	48.6

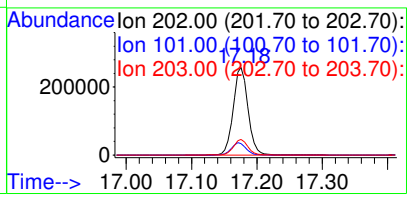


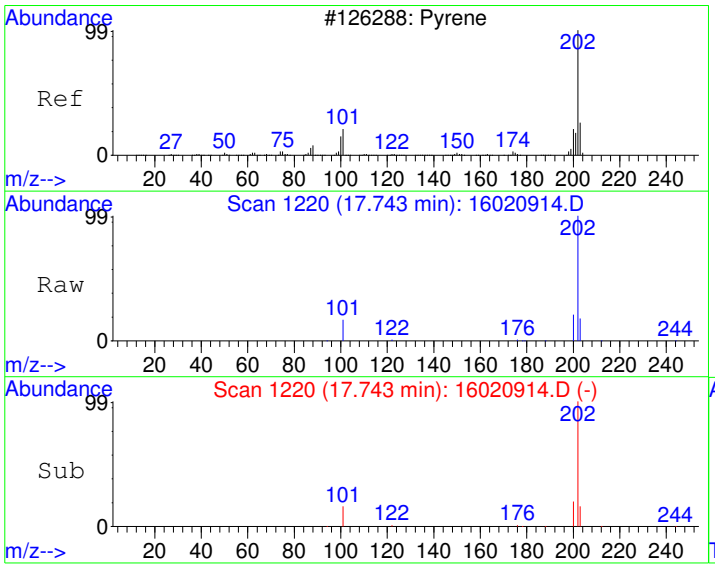


#14
Fluoranthene
Concen: 502.57 ug/kg
RT: 17.18 min Scan# 1107
Delta R.T. 0.00 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:202 Resp: 402309

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	42.5
203	17.7	0.0	48.0

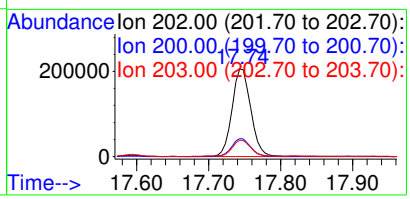


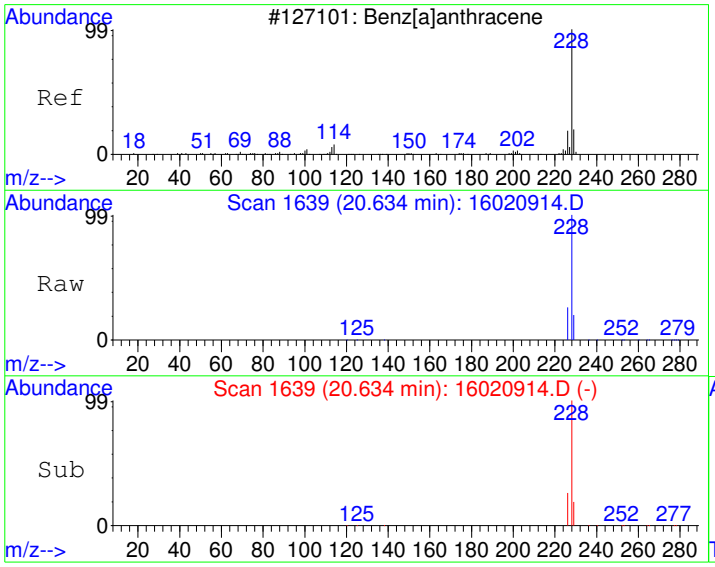


#15
Pyrene
Concen: 454.24 ug/kg
RT: 17.74 min Scan# 1220
Delta R.T. -0.00 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:202 Resp: 370367

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.4	0.0	48.0

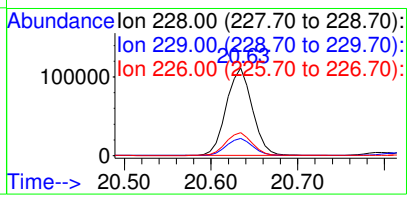


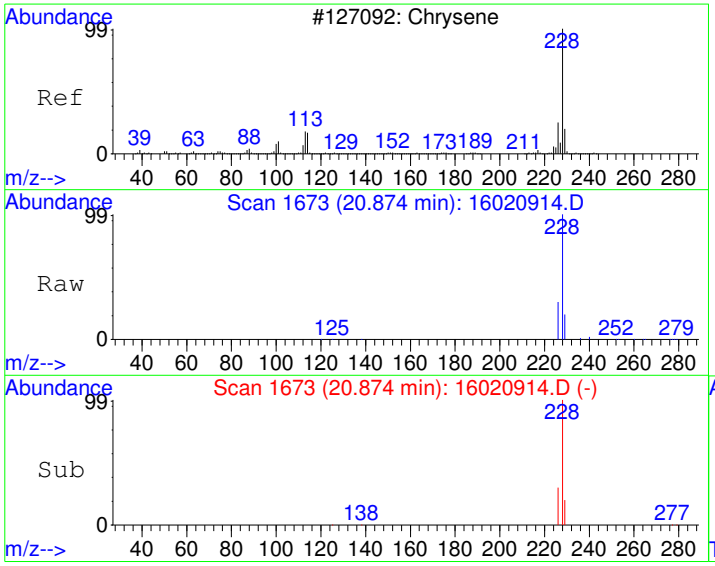


#18
Benzo[a]anthracene
Concen: 301.49 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:228 Resp: 231133

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.0
226	26.2	0.0	56.4

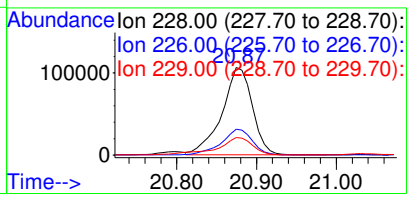


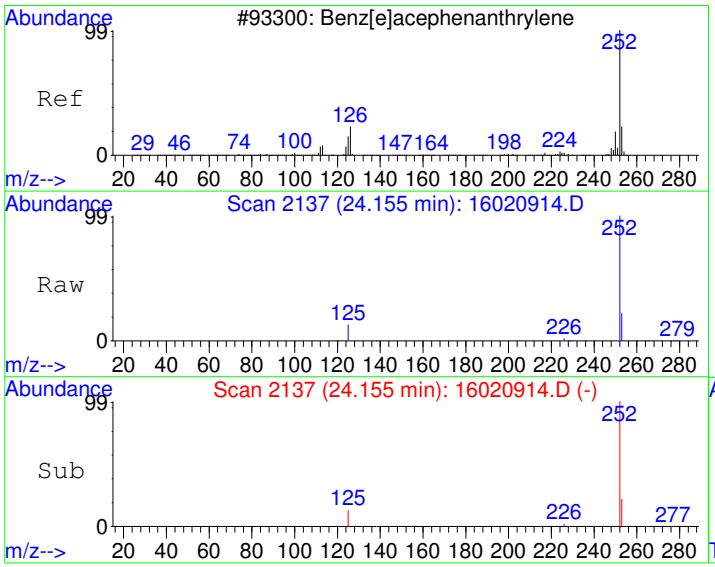


#19
Chrysene
Concen: 385.75 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:228 Resp: 281571

Ion	Ratio	Lower	Upper
228	100		
226	29.5	0.0	58.5
229	19.8	0.0	50.1

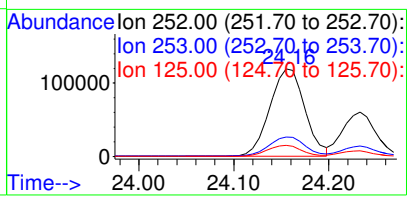


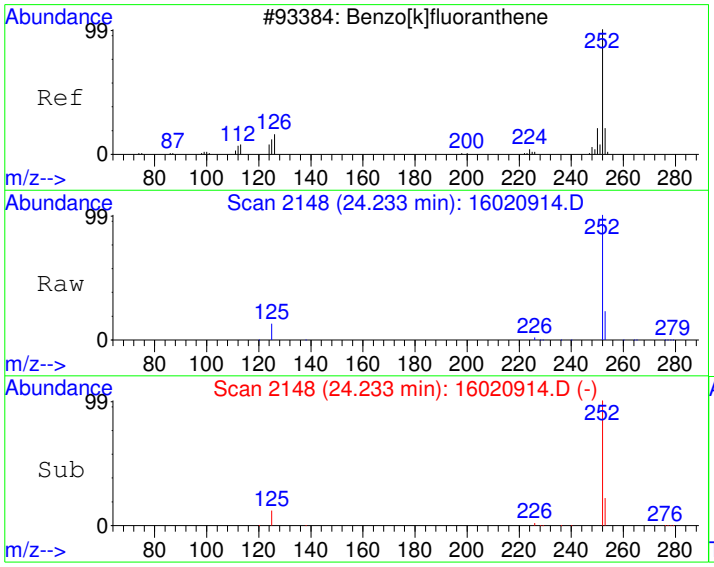


#21
Benzo[b]fluoranthene
Concen: 387.13 ug/kg
RT: 24.16 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:252 Resp: 304954

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.0
125	12.6	0.0	40.5

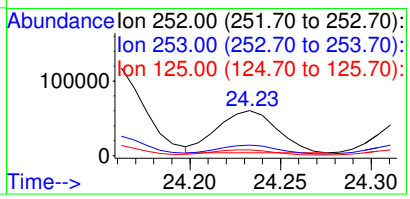


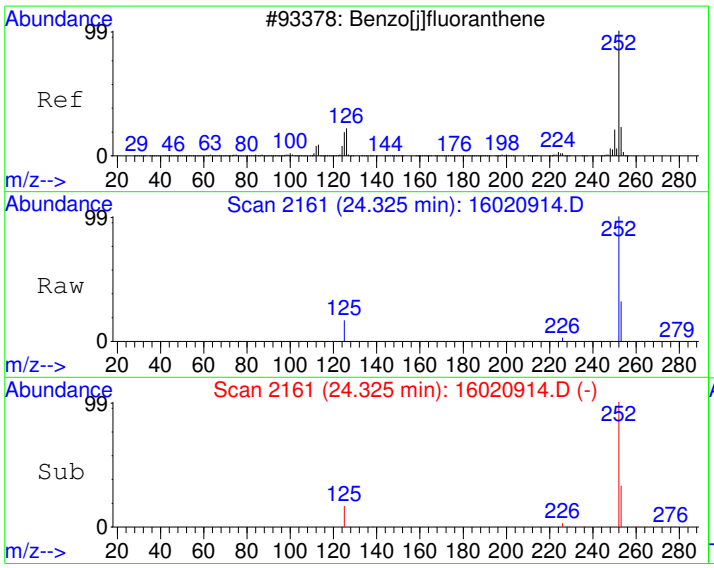


#22
Benzo[k]fluoranthene
Concen: 184.53 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:252 Resp: 129126

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	12.1	0.0	31.8

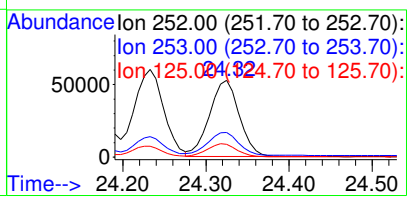


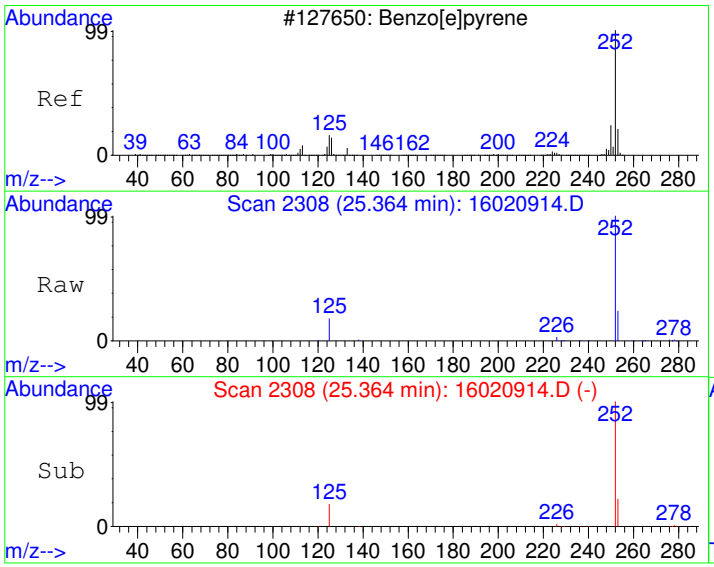


#23
Benzo(j)fluoranthene
Concen: 199.60 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:252 Resp: 131200

Ion	Ratio	Lower	Upper
252	100		
253	30.2	2.3	42.3
125	16.6	0.0	34.0

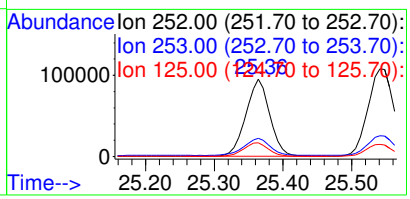


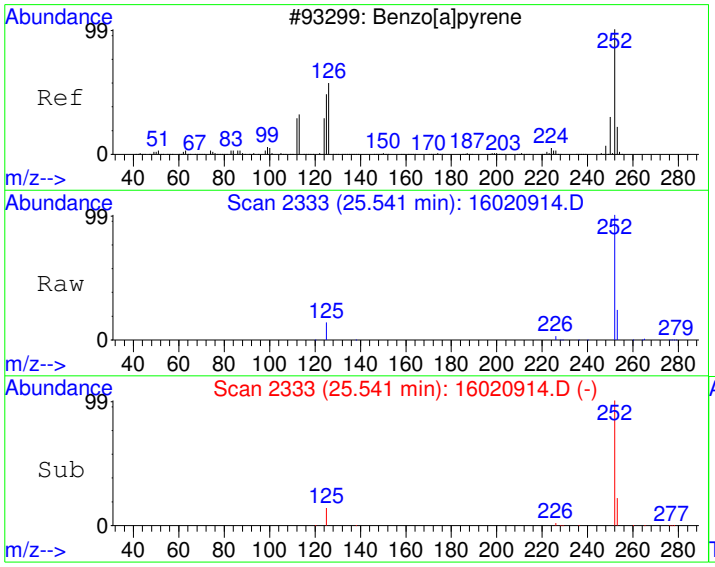


#24
Benzo[e]pyrene
Concen: 311.39 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:252 Resp: 229012

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	17.7	0.0	36.0

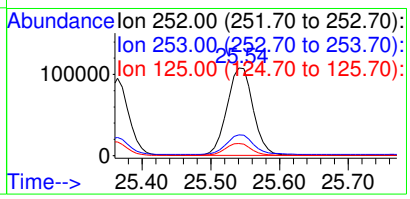


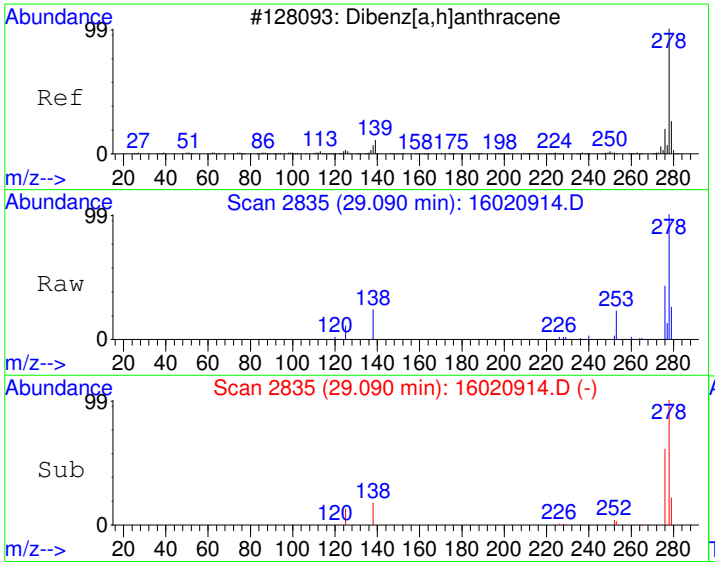


#25
Benzo[a]pyrene
Concen: 396.29 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:252 Resp: 283686

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.0	42.0
125	13.8	0.0	32.3

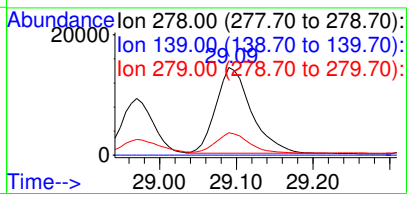


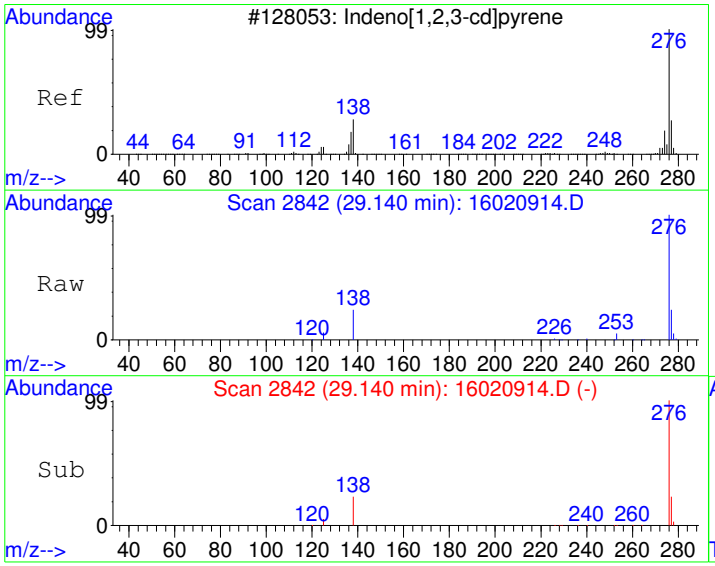


#26
Dibenz[a,h]anthracene
Concen: 69.39 ug/kg
RT: 29.09 min Scan# 2835
Delta R.T. -0.03 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:278 Resp: 45952

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.0	3.8	43.8

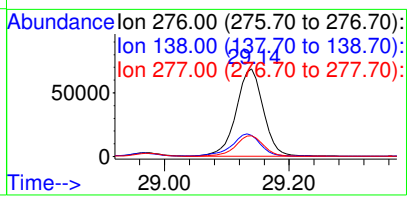


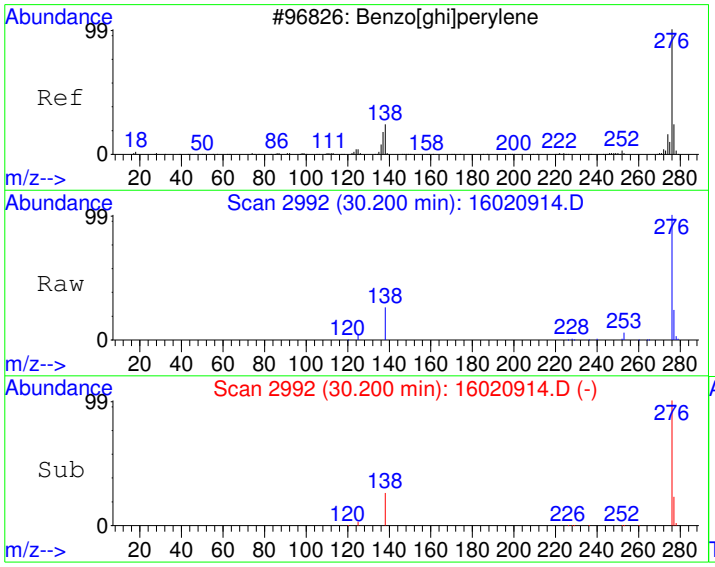


#27
Indeno[1,2,3-cd]pyrene
Concen: 256.18 ug/kg
RT: 29.14 min Scan# 2842
Delta R.T. -0.02 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:276 Resp: 206682

Ion	Ratio	Lower	Upper
276	100		
138	23.6	2.1	42.1
277	23.7	4.2	44.2

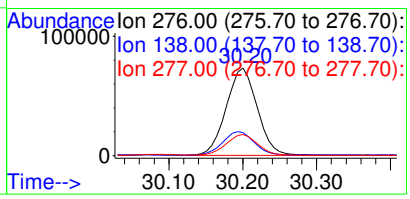




#28
Benzo[g,h,i]perylene
Concen: 314.39 ug/kg
RT: 30.20 min Scan# 2992
Delta R.T. -0.01 min
Lab File: 16020914.D
Acq: 9 Feb 2016 4:06 pm

Tgt Ion:276 Resp: 212819

Ion	Ratio	Lower	Upper
276	100		
138	26.0	3.9	43.9
277	23.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020915.D Vial: 15
Acq On : 9 Feb 2016 4:46 pm Operator:
Sample : 1601232-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2617317	4000.00 ug/kg	125
5) Acenaphthene-d10	13.15	164	2115927	4000.00 ug/kg	116
11) Phenanthrene-d10	15.23	188	3530835	4000.00 ug/kg	108
17) Chrysene-d12	20.80	240	3561147	4000.00 ug/kg	123
20) Perylene-d12	25.87	264	3148862	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	47747	77.89 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.95%#		
16) 4-Terphenyl-d14	17.65	244	49831	84.48 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.11%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7718	14.48 ug/kg#	10
12) Phenanthrene	15.26	178	7243	8.64 ug/kg	99
14) Fluoranthene	17.19	202	20072	24.14 ug/kg	98
15) Pyrene	17.76	202	18136	21.42 ug/kg	99
18) Benzo[a]anthracene	20.63	228	9692	11.80 ug/kg	98
19) Chrysene	20.88	228	12872	16.46 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	13215	15.74 ug/kg	96
22) Benzo[k]fluoranthene	24.24	252	5911	7.93 ug/kg	95
23) Benzo(j)fluoranthene	24.33	252	5855	8.36 ug/kg	89
24) Benzo[e]pyrene	25.36	252	10087	12.87 ug/kg	95
25) Benzo[a]pyrene	25.54	252	12087	15.84 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.16	276	9099	10.58 ug/kg	97
28) Benzo[g,h,i]perylene	30.22	276	9729	13.49 ug/kg	95

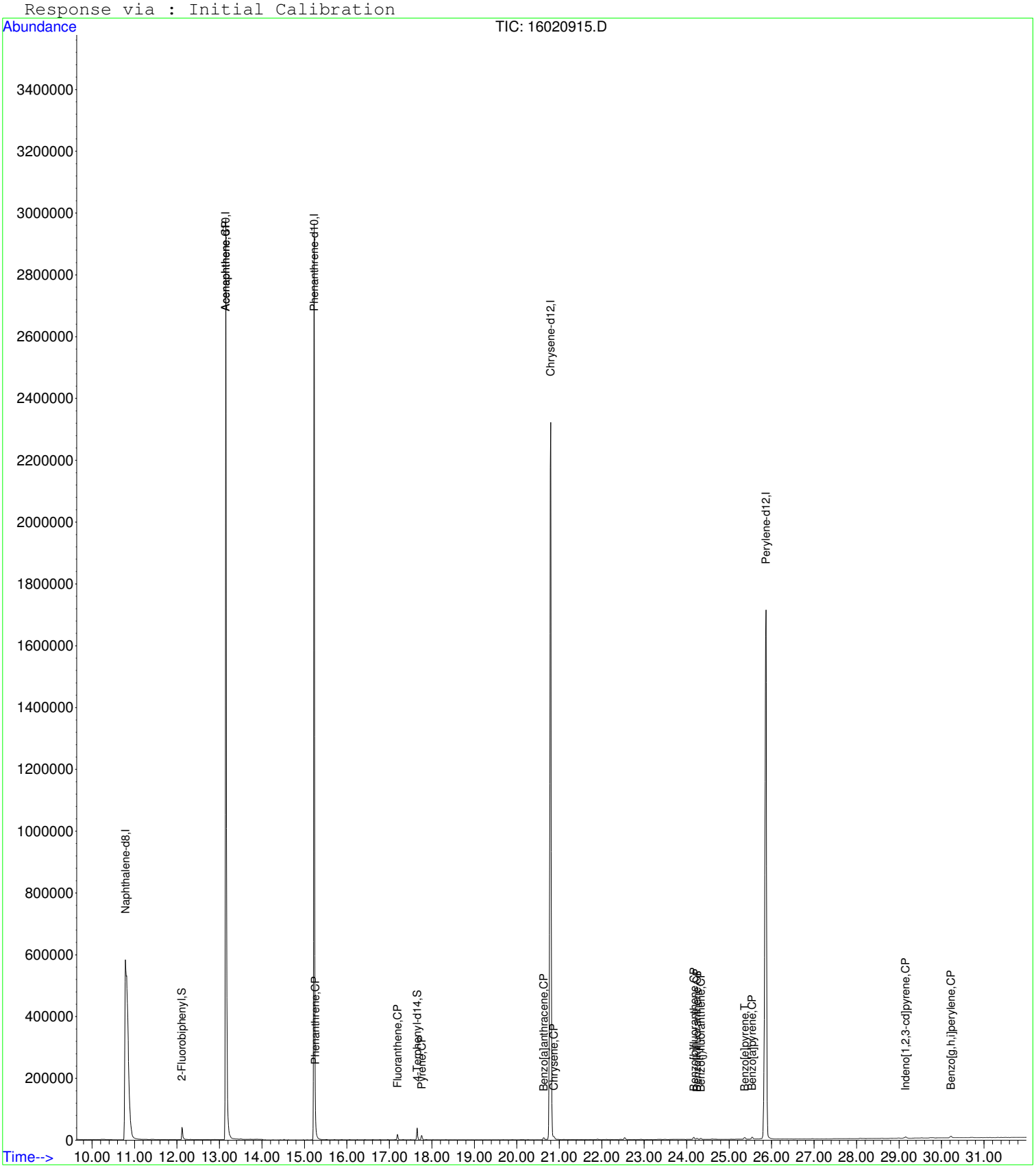
CONFIRMED
By Sherri Herschmann at 9:48:12 AM, 2/16/2016

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

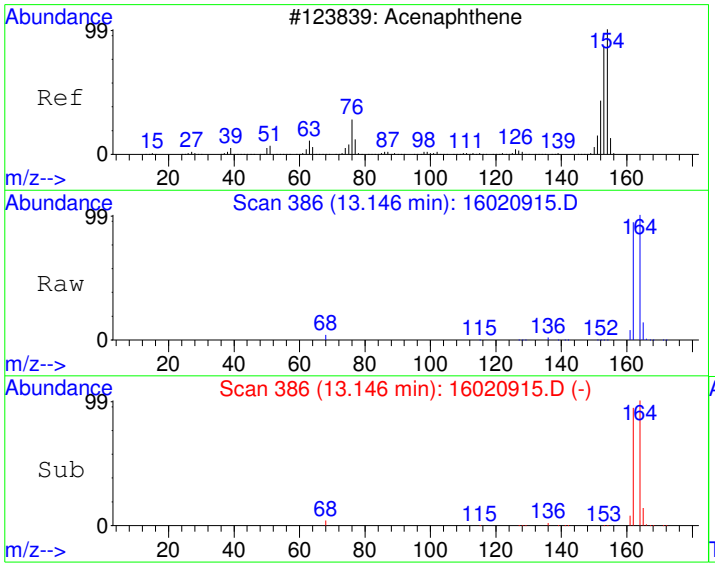
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020915.D Vial: 15
Acq On : 9 Feb 2016 4:46 pm Operator:
Sample : 1601232-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



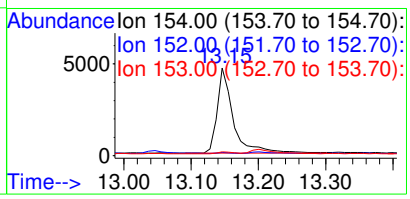
16020915.D PP160126.M Wed Feb 10 09:41:15 2016 Page 2

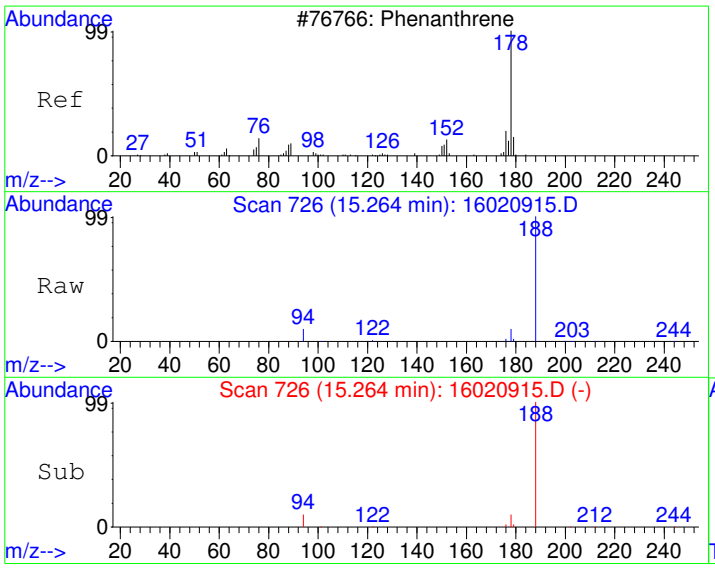


#9
Acenaphthene
Concen: 14.48 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:154 Resp: 7718

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.5	74.4	134.4#

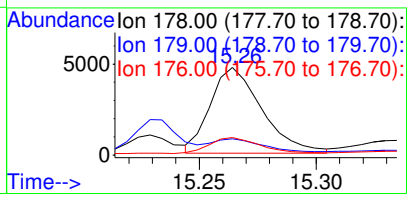


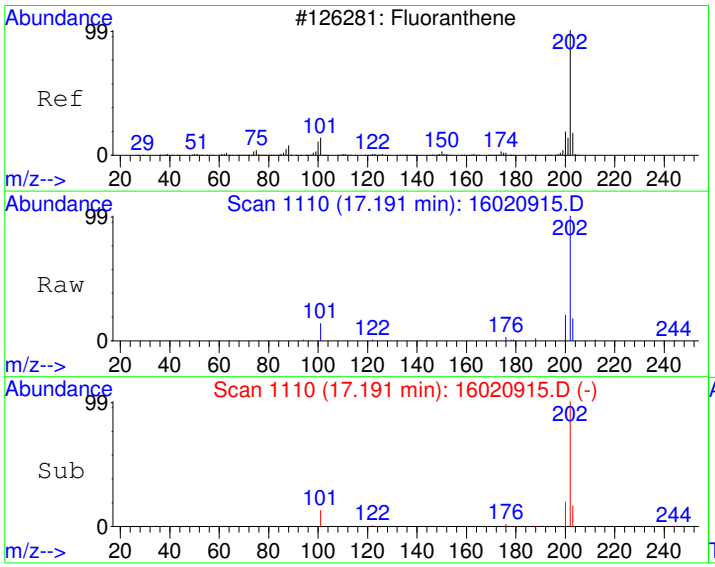


#12
Phenanthrene
Concen: 8.64 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:178 Resp: 7243

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	46.1
176	18.6	0.0	49.0

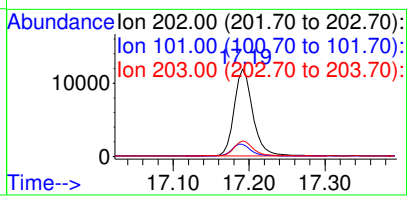


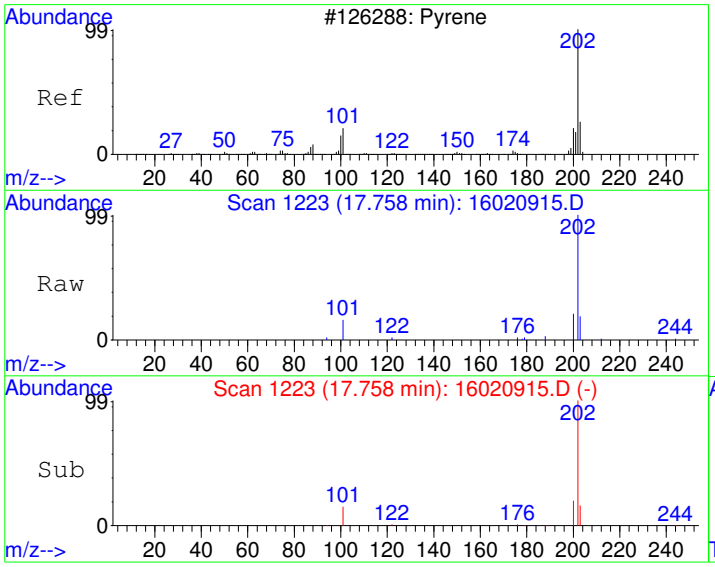


#14
Fluoranthene
Concen: 24.14 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:202 Resp: 20072

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.2	0.0	48.0

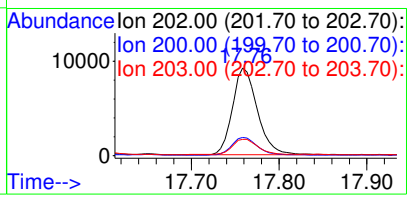


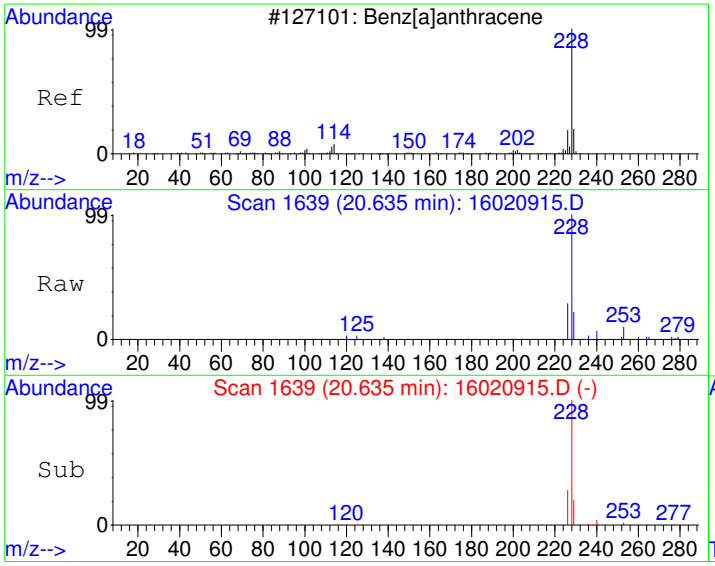


#15
Pyrene
Concen: 21.42 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:202 Resp: 18136

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	17.7	0.0	48.0

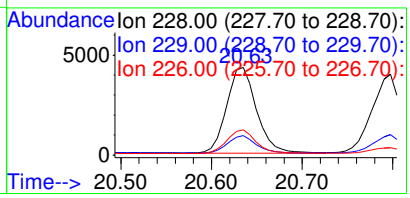


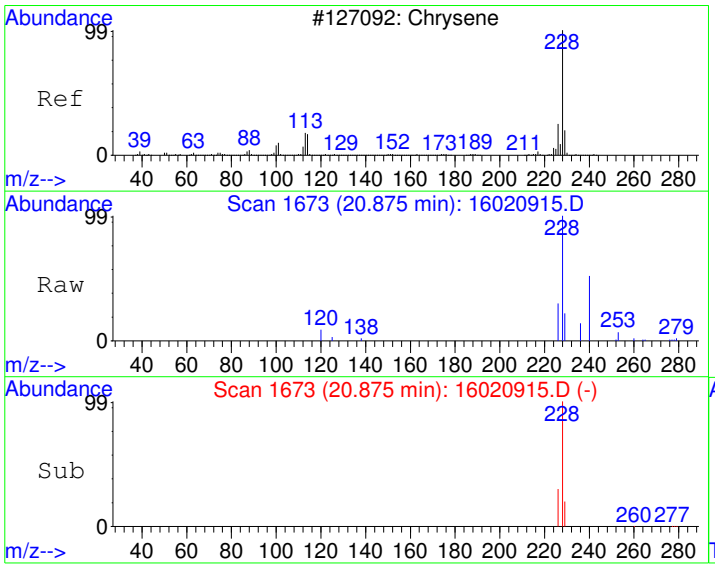


#18
Benzo[a]anthracene
Concen: 11.80 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:228 Resp: 9692

Ion	Ratio	Lower	Upper
228	100		
229	20.4	0.0	50.0
226	27.6	0.0	56.4

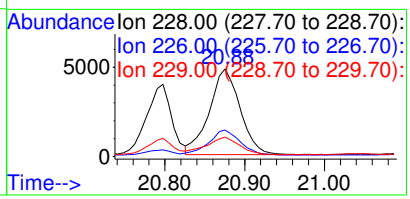


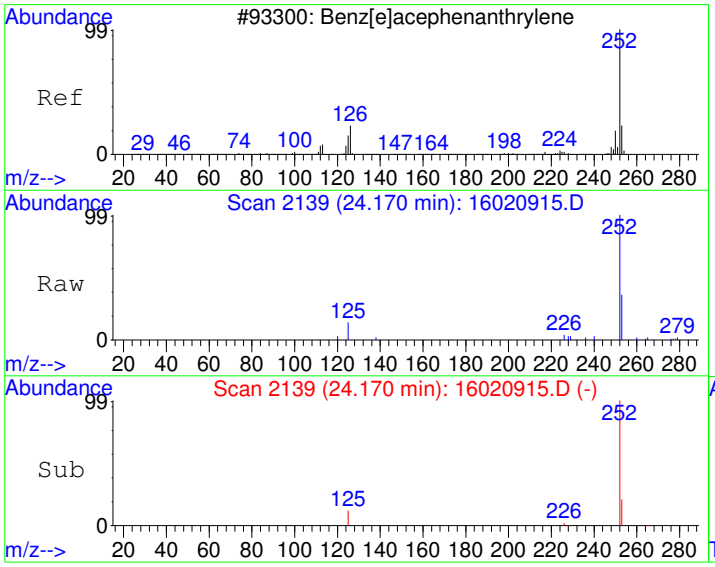


#19
Chrysene
Concen: 16.46 ug/kg
RT: 20.88 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:228 Resp: 12872

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.5
229	20.7	0.0	50.1

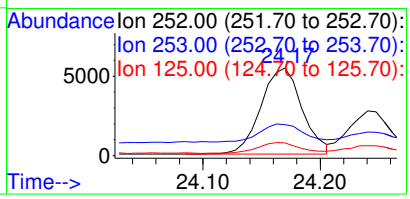


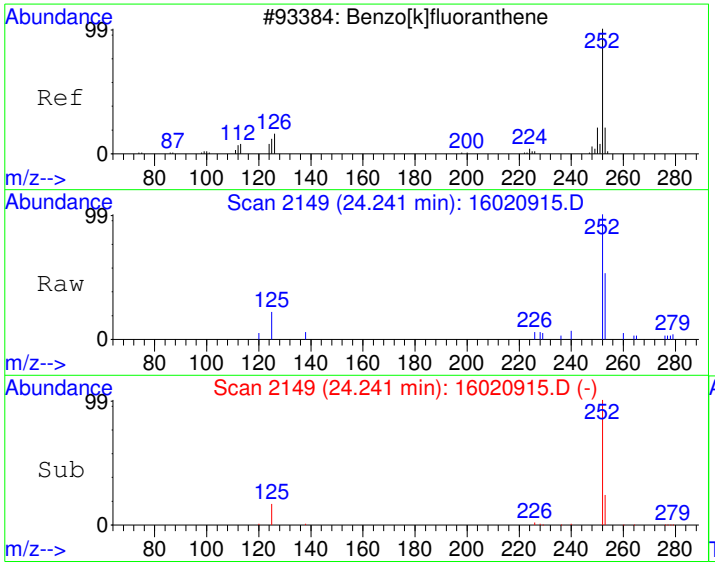


#21
Benzo[b]fluoranthene
Concen: 15.74 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:252 Resp: 13215

Ion	Ratio	Lower	Upper
252	100		
253	20.1	0.0	52.0
125	11.6	0.0	40.5

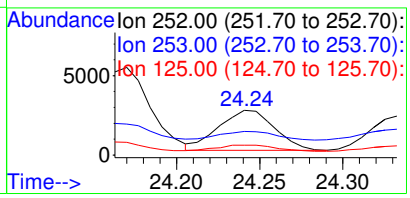


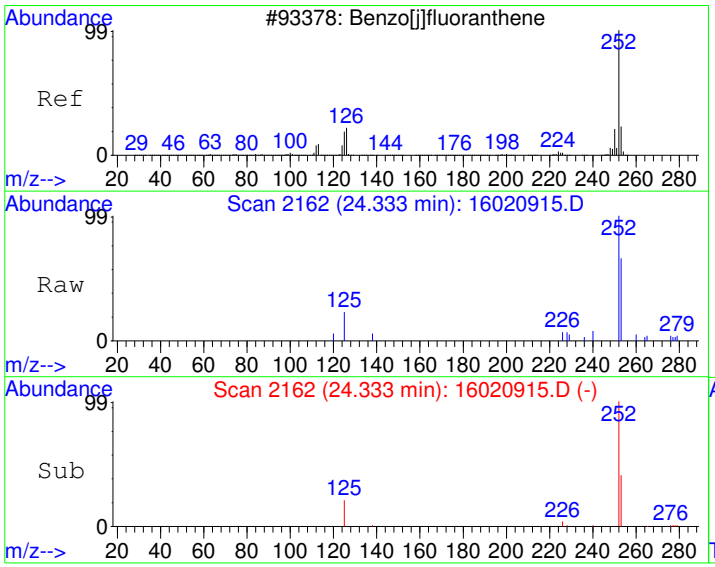


#22
Benzo[k]fluoranthene
Concen: 7.93 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:252 Resp: 5911

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.2	42.2
125	15.1	0.0	31.8

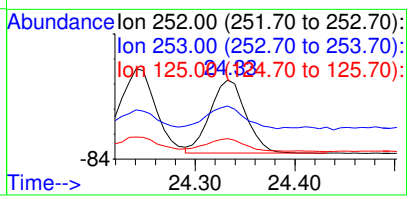


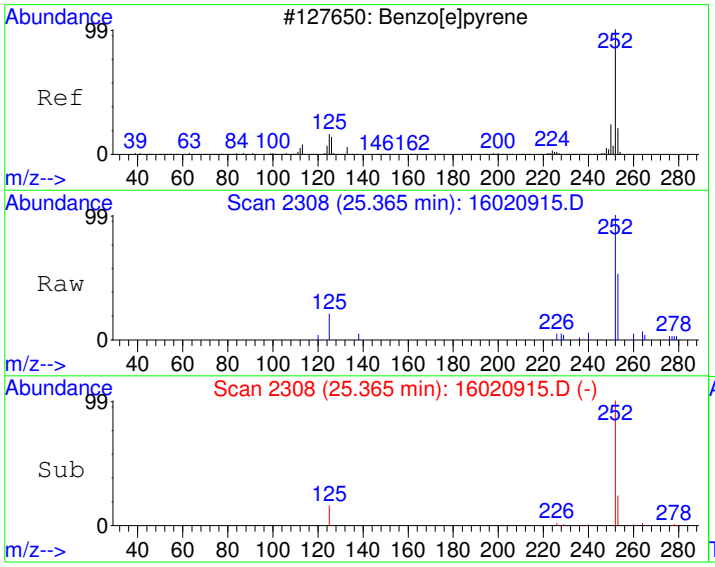


#23
Benzo(j)fluoranthene
Concen: 8.36 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:252 Resp: 5855

Ion	Ratio	Lower	Upper
252	100		
253	28.7	2.3	42.3
125	17.3	0.0	34.0

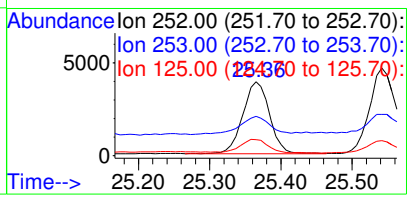


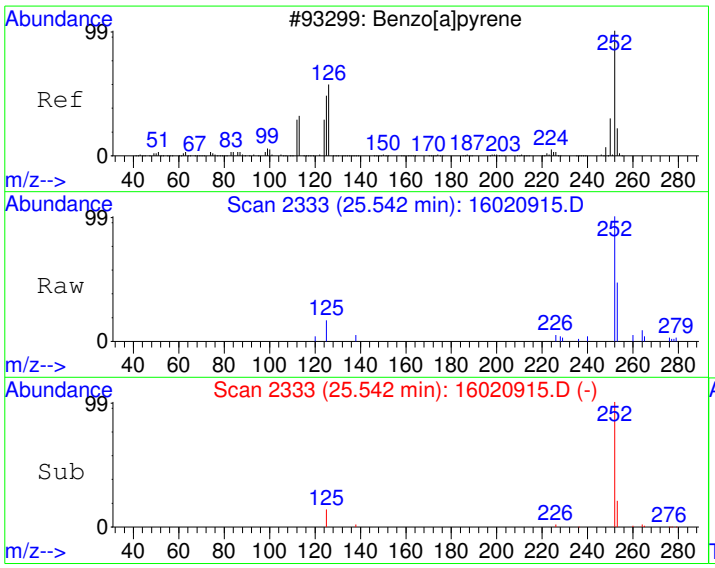


#24
Benzo[e]pyrene
Concen: 12.87 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:252 Resp: 10087

Ion	Ratio	Lower	Upper
252	100		
253	24.4	2.2	42.2
125	18.1	0.0	36.0

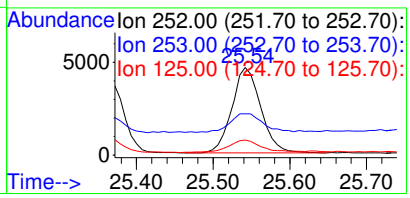


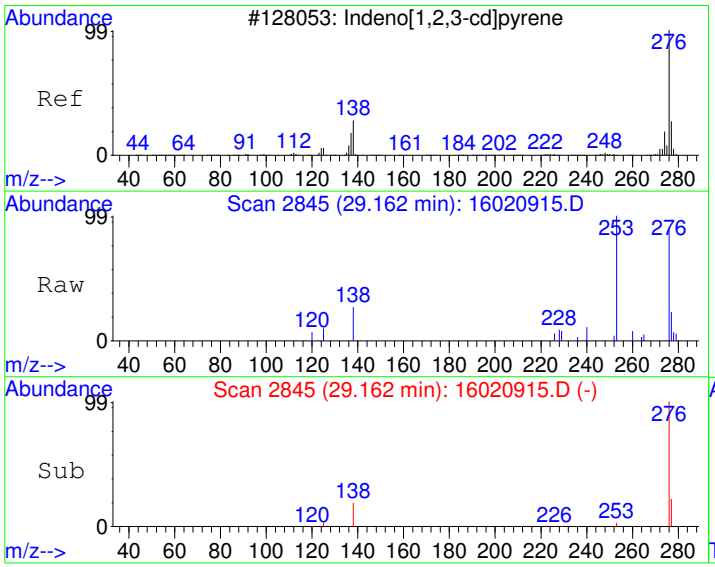


#25
Benzo[a]pyrene
Concen: 15.84 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:252 Resp: 12087

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.0	42.0
125	14.2	0.0	32.3

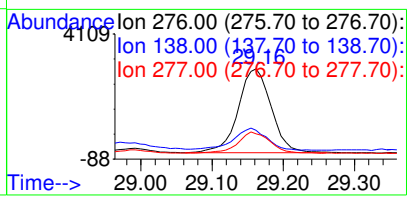


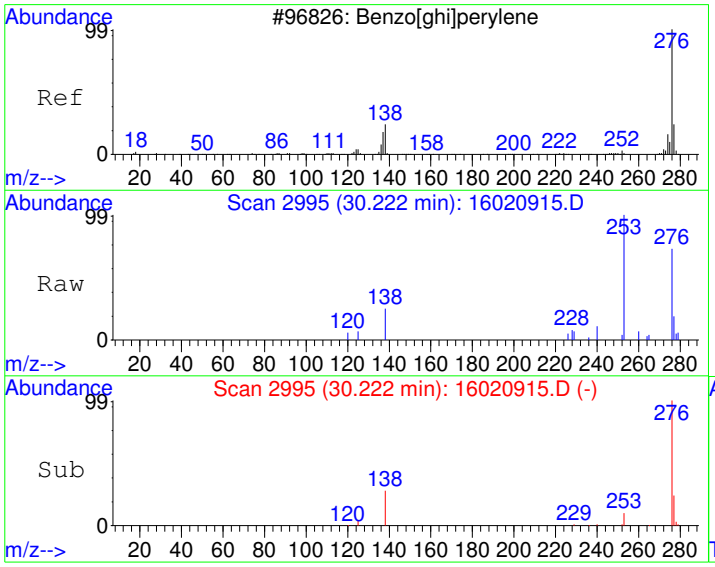


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.58 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. 0.00 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:276 Resp: 9099

Ion	Ratio	Lower	Upper
276	100		
138	23.7	2.1	42.1
277	22.9	4.2	44.2

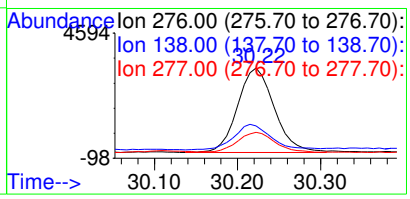




#28
Benzo[g,h,i]perylene
Concen: 13.49 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020915.D
Acq: 9 Feb 2016 4:46 pm

Tgt Ion:276 Resp: 9729

Ion	Ratio	Lower	Upper
276	100		
138	28.3	3.9	43.9
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020916.D Vial: 16
Acq On : 9 Feb 2016 5:27 pm Operator:
Sample : 1601232-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2468628	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	2052952	4000.00 ug/kg	113
11) Phenanthrene-d10	15.23	188	3407391	4000.00 ug/kg	104
17) Chrysene-d12	20.80	240	3495720	4000.00 ug/kg	121
20) Perylene-d12	25.87	264	3043977	4000.00 ug/kg	132

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46688	78.50 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	
16) 4-Terphenyl-d14	17.65	244	49388	86.76 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7383	14.27 ug/kg#	10
12) Phenanthrene	15.26	178	7229	8.93 ug/kg	100
14) Fluoranthene	17.19	202	19818	24.70 ug/kg	97
15) Pyrene	17.76	202	17830	21.82 ug/kg	99
18) Benzo[a]anthracene	20.63	228	9893	12.27 ug/kg	99
19) Chrysene	20.88	228	12859	16.76 ug/kg	100
21) Benzo[b]fluoranthene	24.17	252	13394	16.50 ug/kg	99
22) Benzo[k]fluoranthene	24.25	252	5820	8.07 ug/kg	94
23) Benzo(j)fluoranthene	24.33	252	5881	8.68 ug/kg	90
24) Benzo[e]pyrene	25.36	252	10026	13.23 ug/kg	96
25) Benzo[a]pyrene	25.54	252	12097	16.40 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.16	276	9089	10.94 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	9491	13.61 ug/kg	98

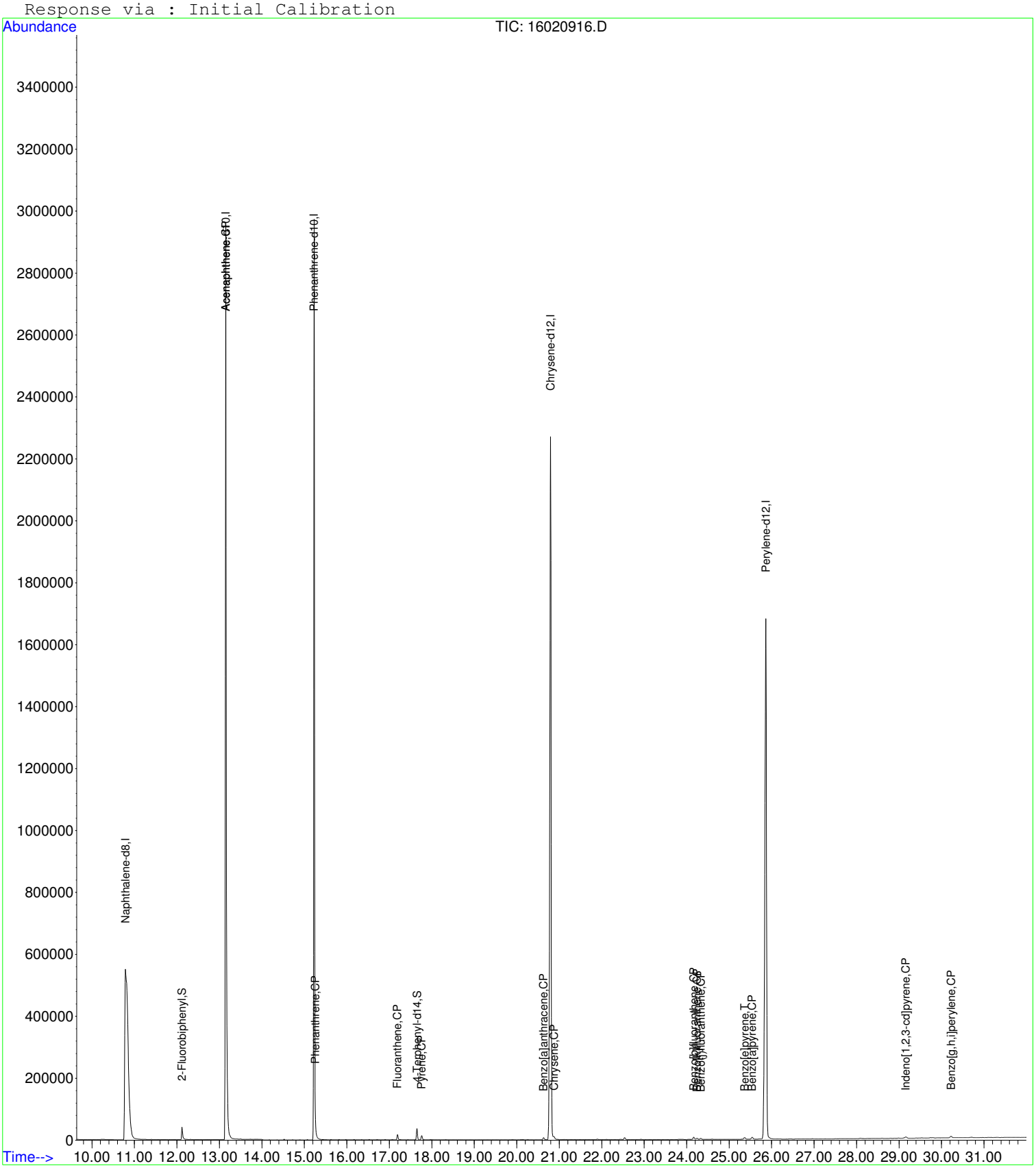
CONFIRMED
By Sherri Herschmann at 9:48:51 AM, 2/16/2016

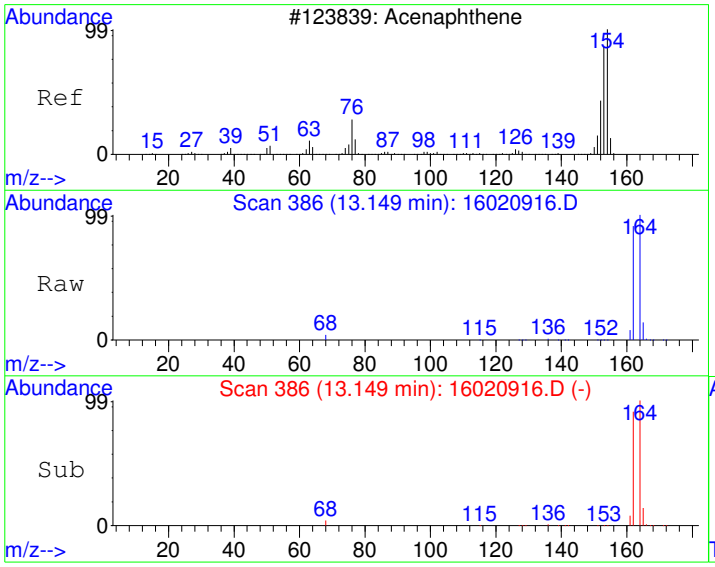
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020916.D Vial: 16
Acq On : 9 Feb 2016 5:27 pm Operator:
Sample : 1601232-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

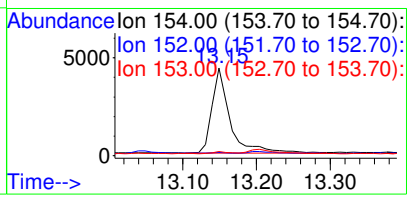


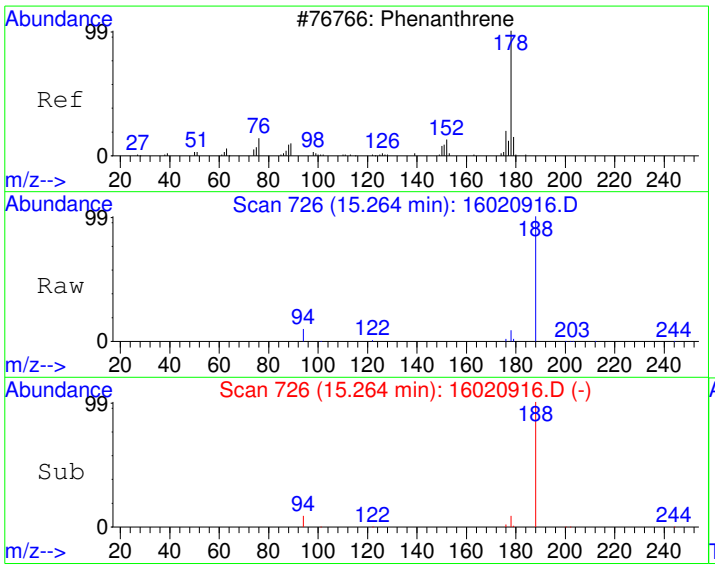


#9
Acenaphthene
Concen: 14.27 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:154 Resp: 7383

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.3	74.4	134.4#

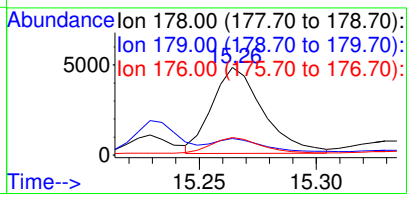


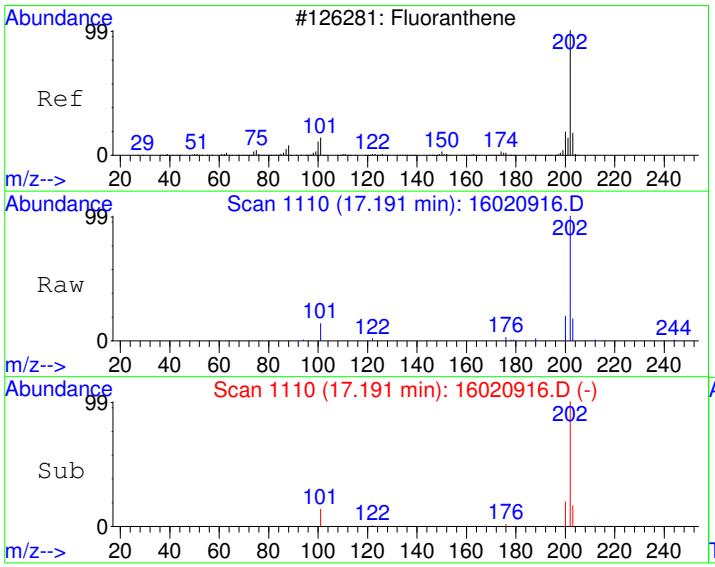


#12
Phenanthrene
Concen: 8.93 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:178 Resp: 7229

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	46.1
176	18.9	0.0	49.0

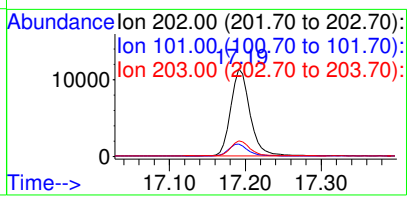


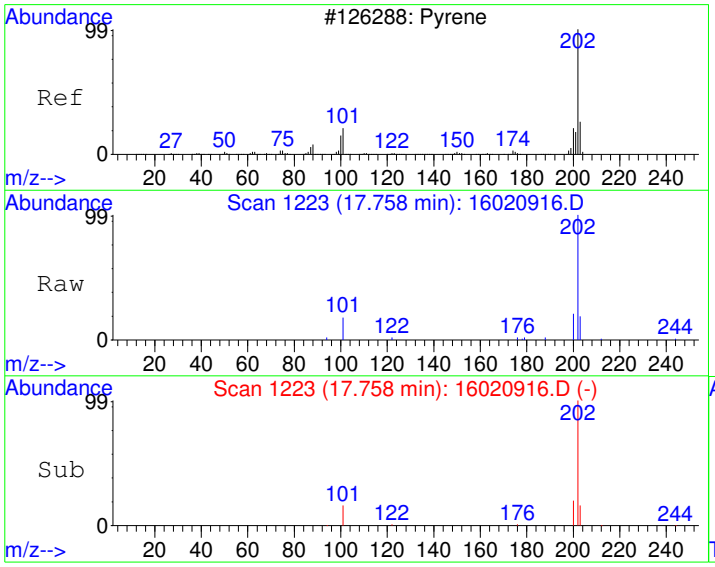


#14
Fluoranthene
Concen: 24.70 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:202 Resp: 19818

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	17.0	0.0	48.0

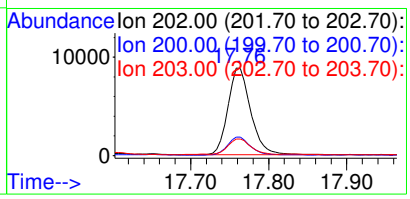


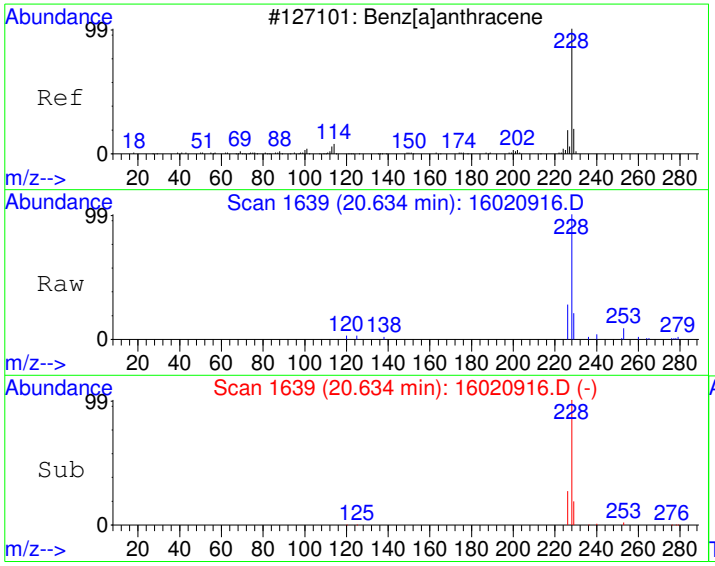


#15
Pyrene
Concen: 21.82 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:202 Resp: 17830

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	17.8	0.0	48.0

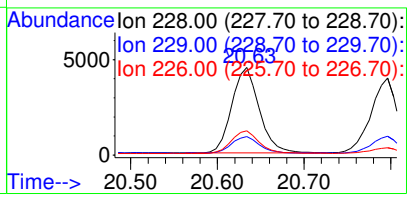


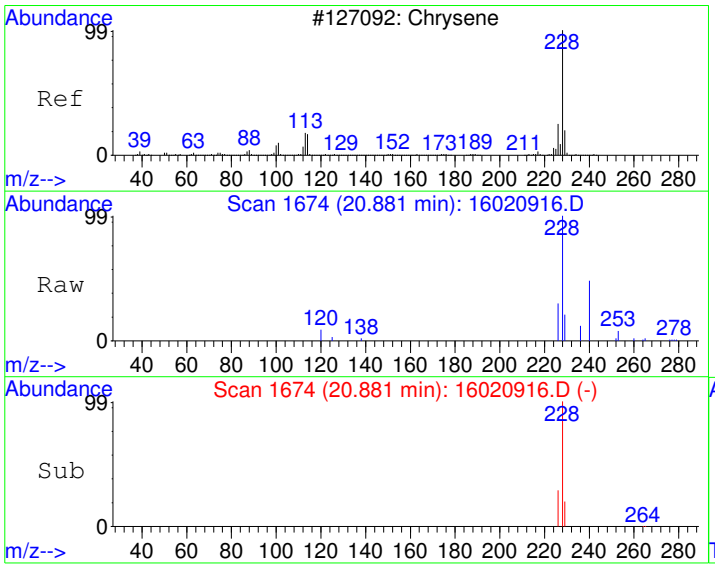


#18
Benzo[a]anthracene
Concen: 12.27 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:228 Resp: 9893

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.0
226	26.6	0.0	56.4

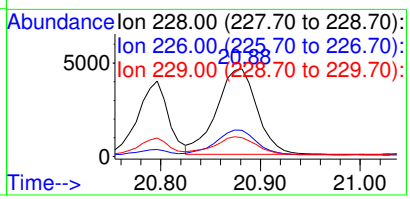


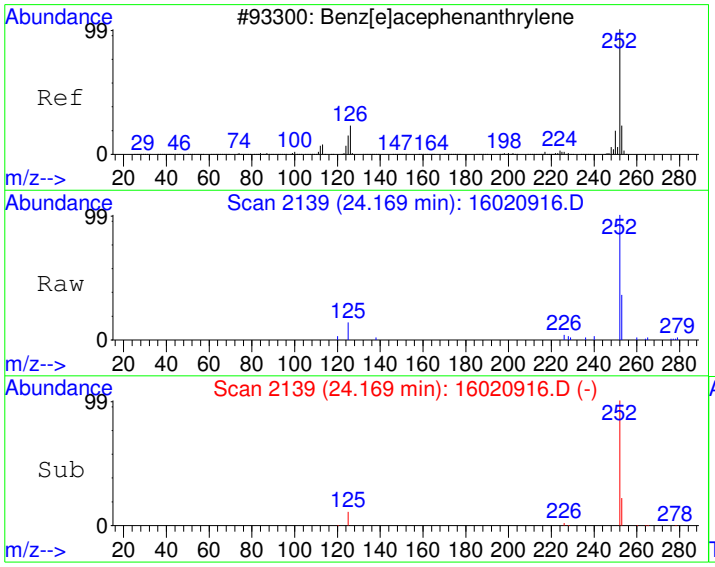


#19
Chrysene
Concen: 16.76 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:228 Resp: 12859

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.5
229	19.7	0.0	50.1

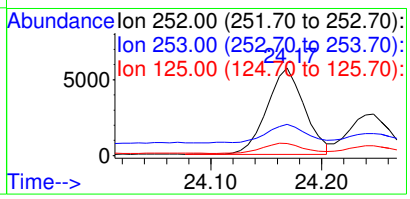


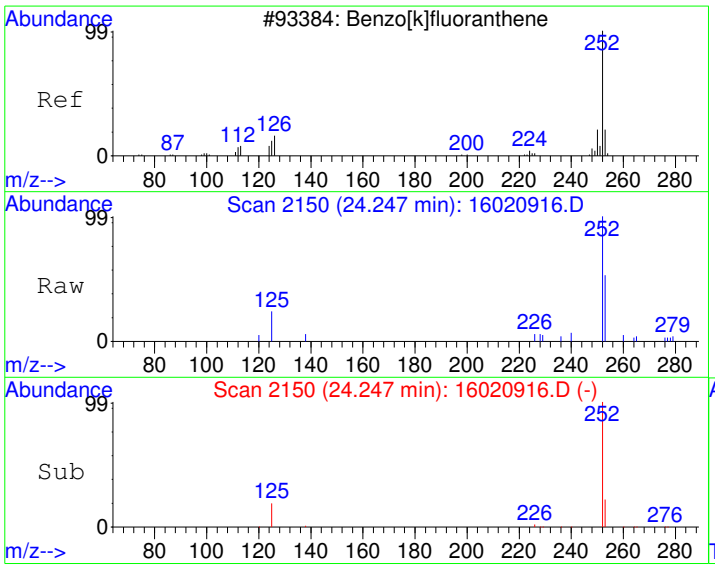


#21
Benzo[b]fluoranthene
Concen: 16.50 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:252 Resp: 13394

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.0
125	11.1	0.0	40.5

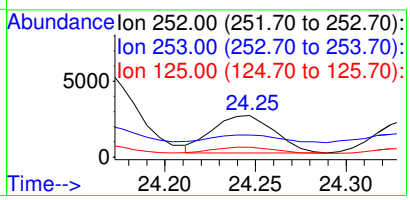


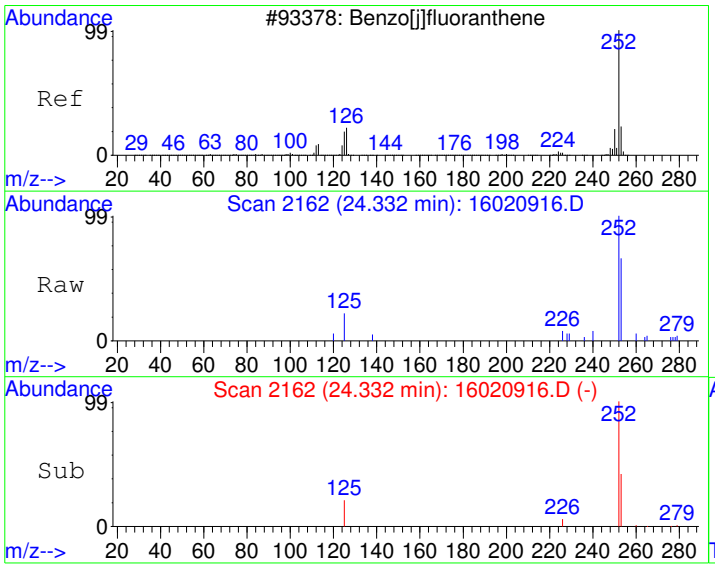


#22
Benzo[k]fluoranthene
Concen: 8.07 ug/kg
RT: 24.25 min Scan# 2150
Delta R.T. -0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:252 Resp: 5820

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.2	42.2
125	16.7	0.0	31.8

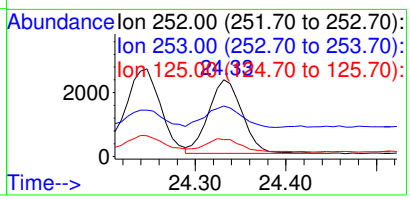


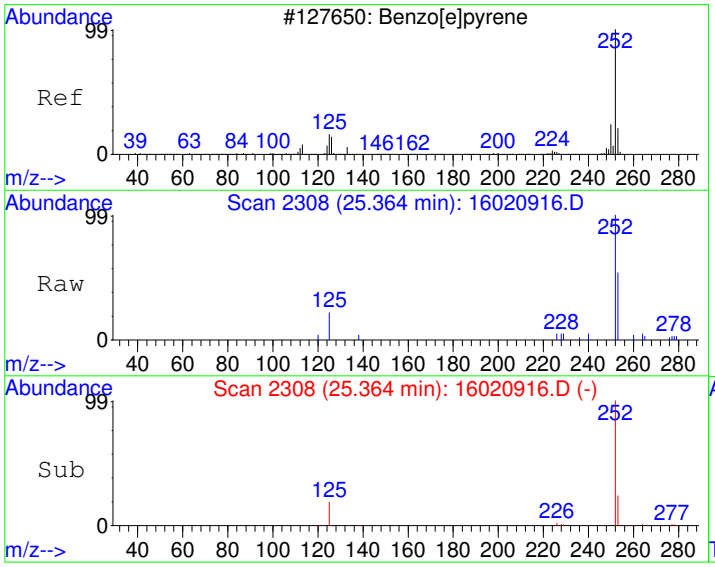


#23
Benzo(j)fluoranthene
Concen: 8.68 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:252 Resp: 5881

Ion	Ratio	Lower	Upper
252	100		
253	28.1	2.3	42.3
125	16.4	0.0	34.0

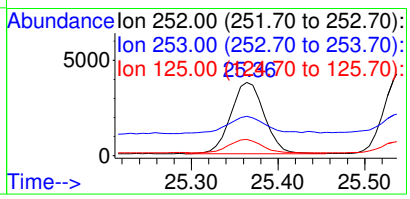


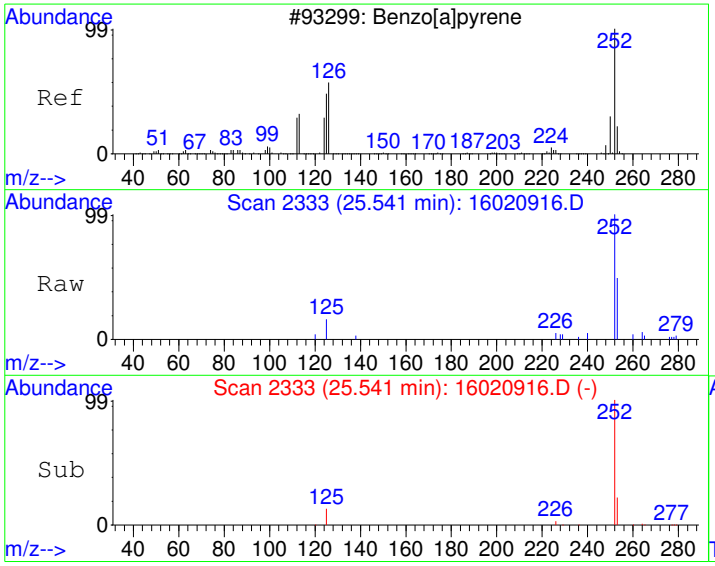


#24
Benzo[e]pyrene
Concen: 13.23 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:252 Resp: 10026

Ion	Ratio	Lower	Upper
252	100		
253	23.4	2.2	42.2
125	18.8	0.0	36.0

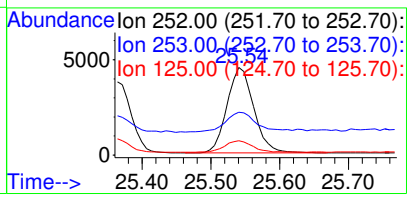


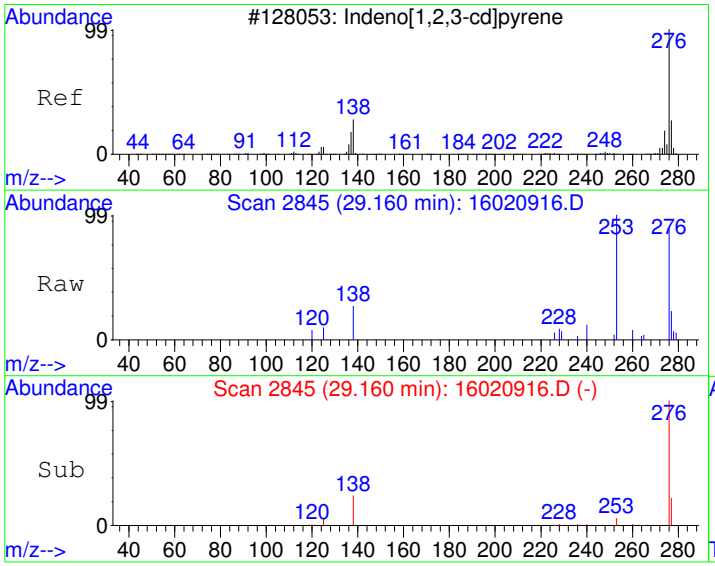


#25
Benzo[a]pyrene
Concen: 16.40 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:252 Resp: 12097

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.0	42.0
125	13.5	0.0	32.3

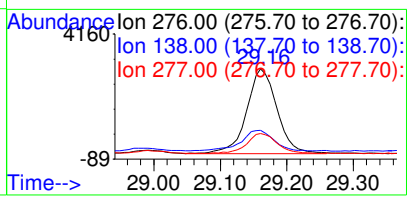


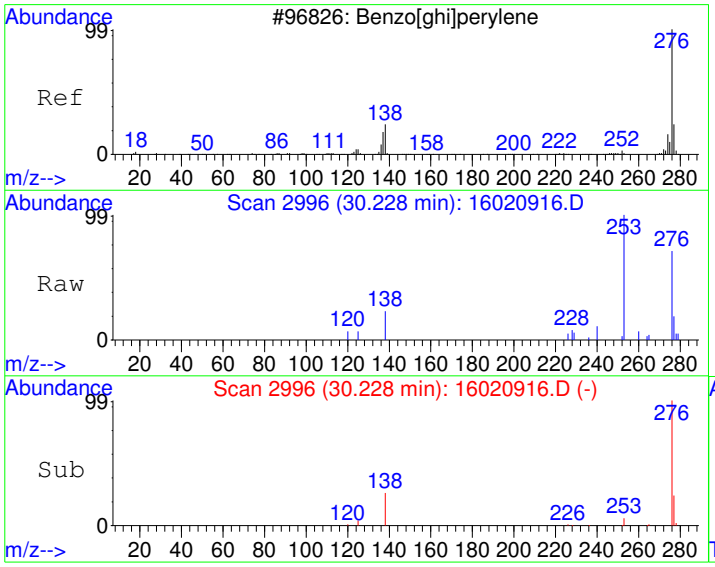


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.94 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:276 Resp: 9089

Ion	Ratio	Lower	Upper
276	100		
138	24.4	2.1	42.1
277	23.3	4.2	44.2

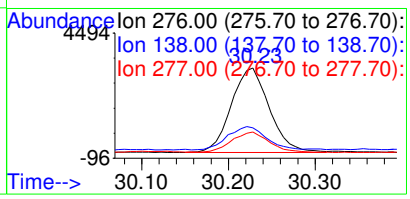




#28
Benzo[g,h,i]perylene
Concen: 13.61 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16020916.D
Acq: 9 Feb 2016 5:27 pm

Tgt Ion:276 Resp: 9491

Ion	Ratio	Lower	Upper
276	100		
138	25.5	3.9	43.9
277	24.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020917.D Vial: 17
Acq On : 9 Feb 2016 6:07 pm Operator:
Sample : 1601232-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2467182	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	2010875	4000.00 ug/kg	110
11) Phenanthrene-d10	15.23	188	3432459	4000.00 ug/kg	105
17) Chrysene-d12	20.80	240	3556640	4000.00 ug/kg	123
20) Perylene-d12	25.87	264	3109705	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46828	80.38 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#	
16) 4-Terphenyl-d14	17.65	244	49660	86.60 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7267	14.34 ug/kg#	10
12) Phenanthrene	15.26	178	7718	9.47 ug/kg	99
14) Fluoranthene	17.20	202	23222	28.73 ug/kg	98
15) Pyrene	17.76	202	21498	26.11 ug/kg	99
18) Benzo[a]anthracene	20.63	228	12581	15.34 ug/kg	98
19) Chrysene	20.87	228	16396	21.00 ug/kg	100
21) Benzo[b]fluoranthene	24.16	252	17727	21.38 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	7464	10.13 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	7687	11.11 ug/kg	88
24) Benzo[e]pyrene	25.36	252	13260	17.13 ug/kg	95
25) Benzo[a]pyrene	25.55	252	16182	21.48 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.16	276	12147	14.31 ug/kg	96
28) Benzo[g,h,i]perylene	30.22	276	12789	17.95 ug/kg	95

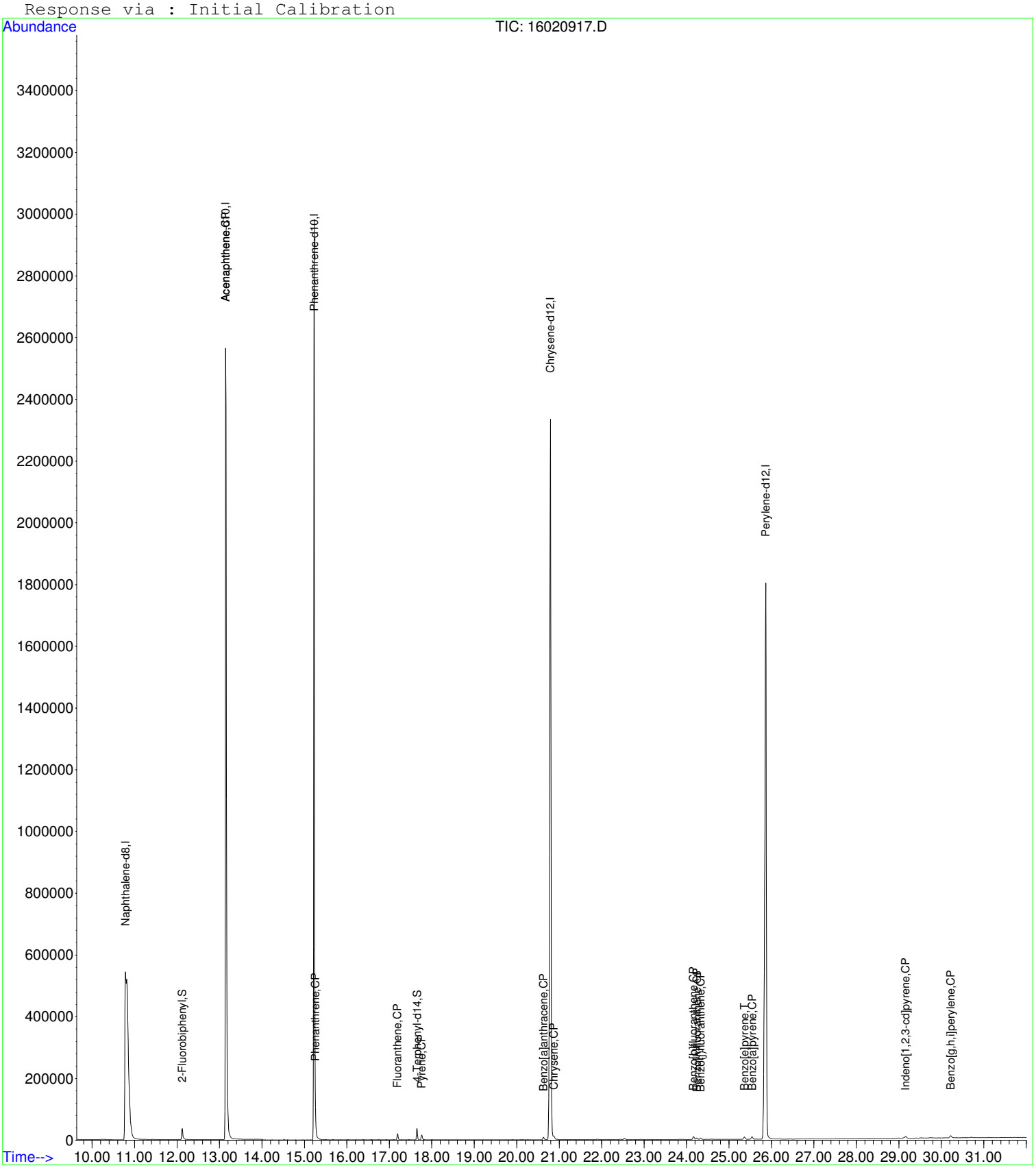
CONFIRMED
By Sherri Herschmann at 9:49:51 AM, 2/16/2016

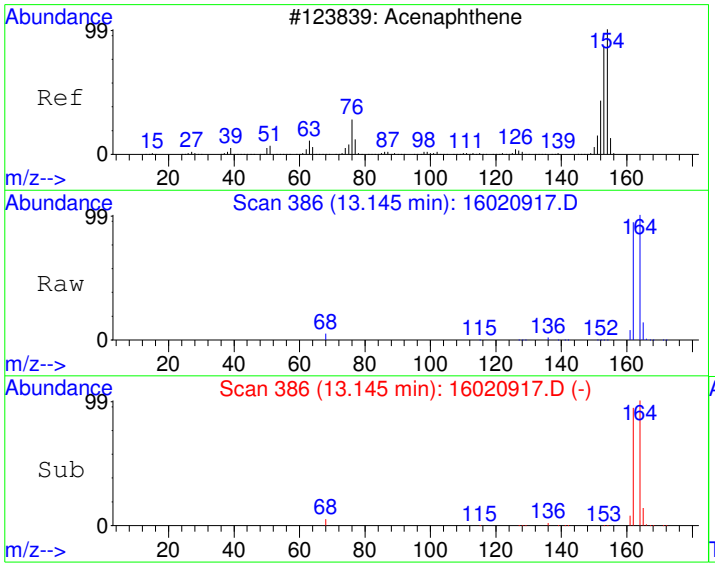
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020917.D Vial: 17
Acq On : 9 Feb 2016 6:07 pm Operator:
Sample : 1601232-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

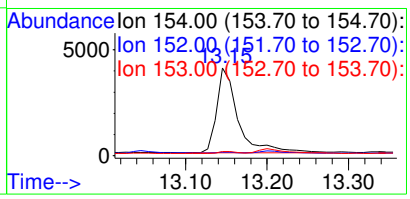


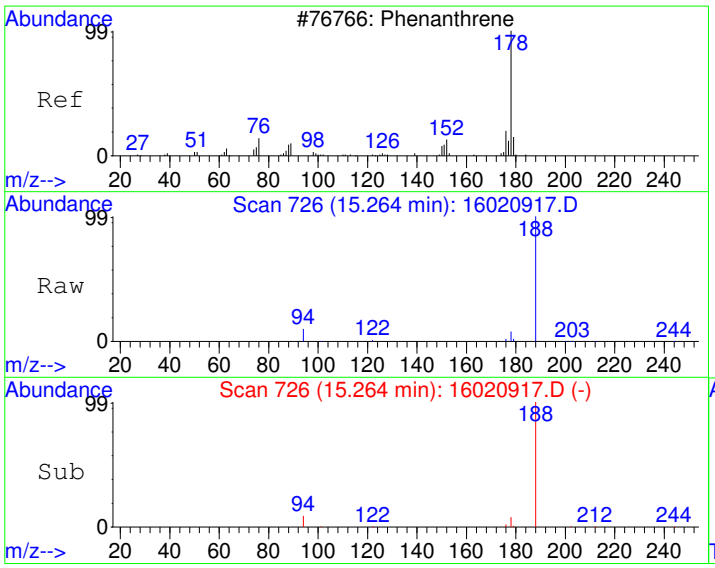


#9
Acenaphthene
Concen: 14.34 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:154 Resp: 7267

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.3	74.4	134.4#

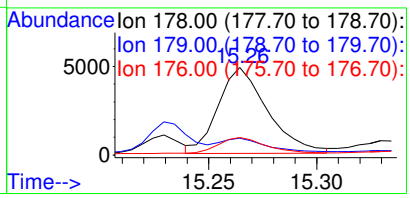


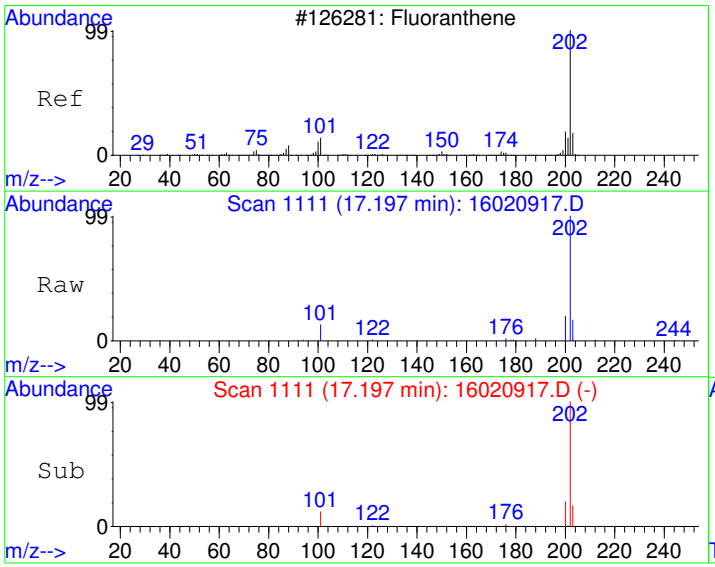


#12
Phenanthrene
Concen: 9.47 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:178 Resp: 7718

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	46.1
176	19.6	0.0	49.0

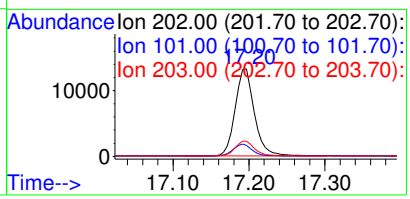


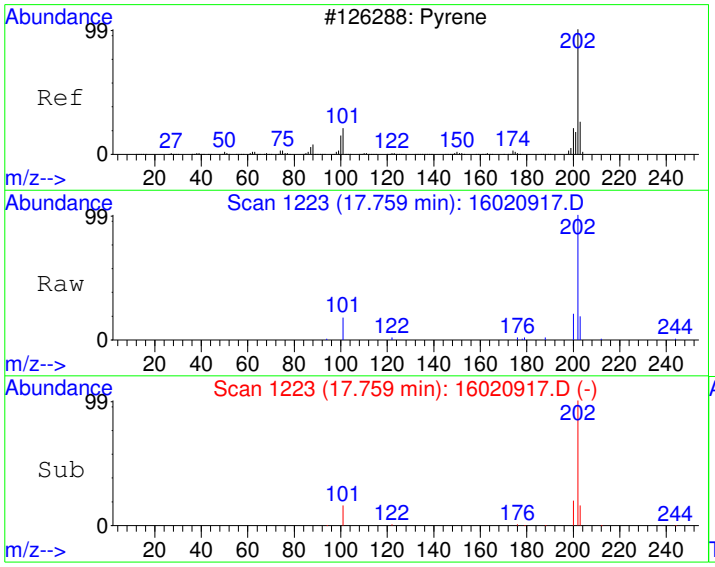


#14
Fluoranthene
Concen: 28.73 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:202 Resp: 23222

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	42.5
203	16.8	0.0	48.0

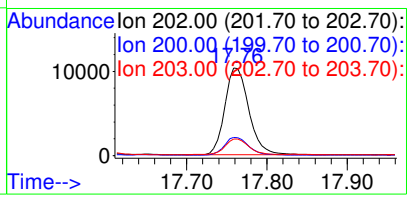


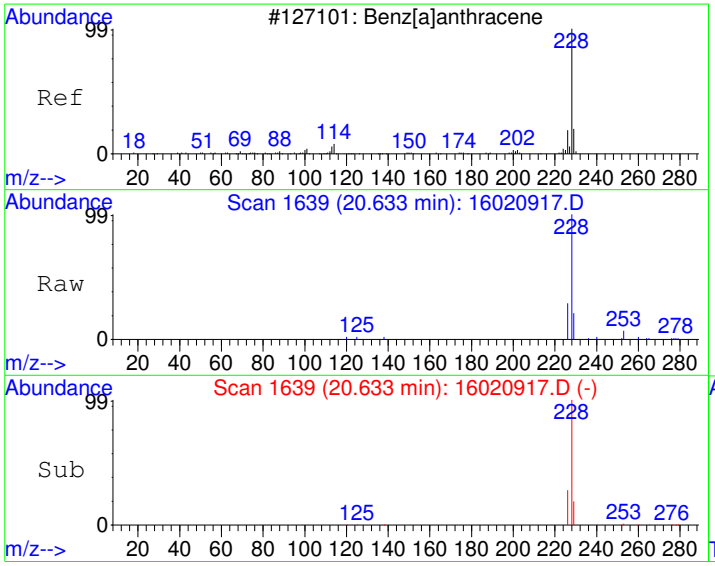


#15
Pyrene
Concen: 26.11 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:202 Resp: 21498

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	18.0	0.0	48.0

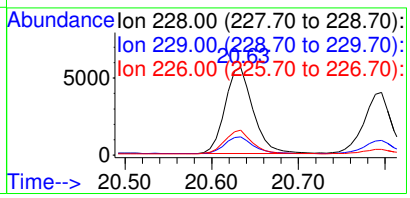


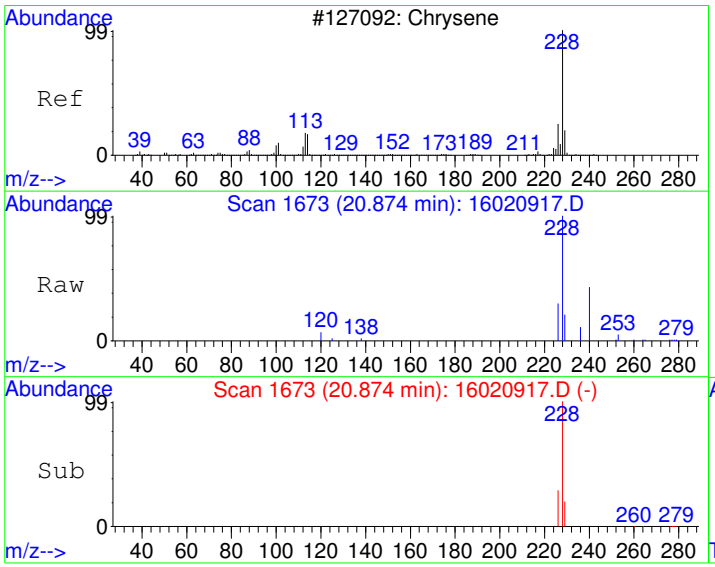


#18
Benzo[a]anthracene
Concen: 15.34 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:228 Resp: 12581

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	27.5	0.0	56.4

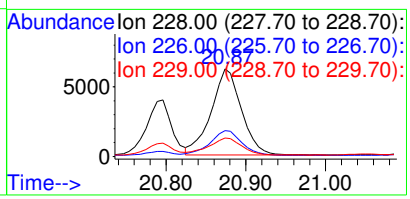


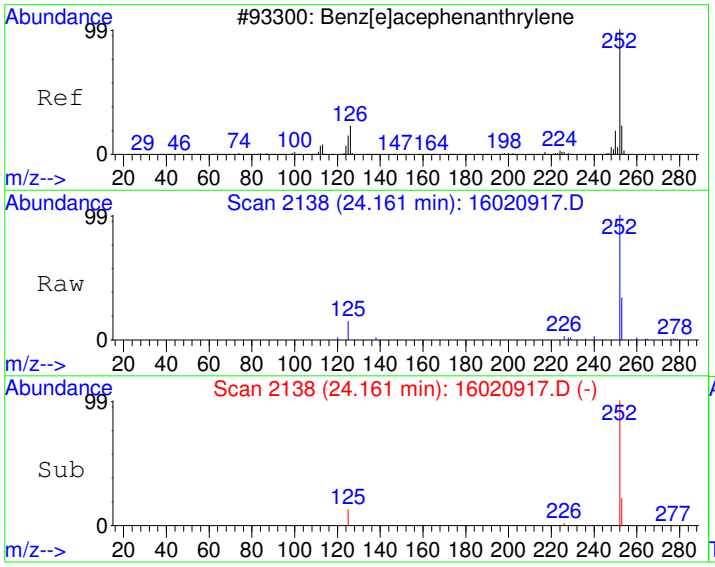


#19
Chrysene
Concen: 21.00 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:228 Resp: 16396

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.5
229	20.0	0.0	50.1

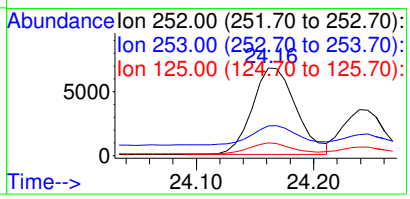


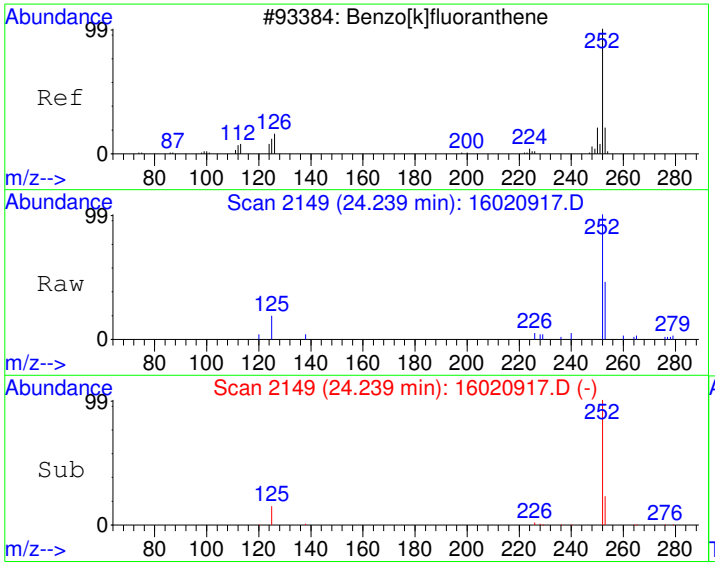


#21
Benzo[b]fluoranthene
Concen: 21.38 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:252 Resp: 17727

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	12.7	0.0	40.5

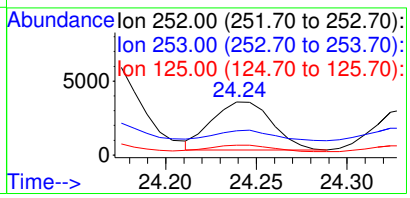


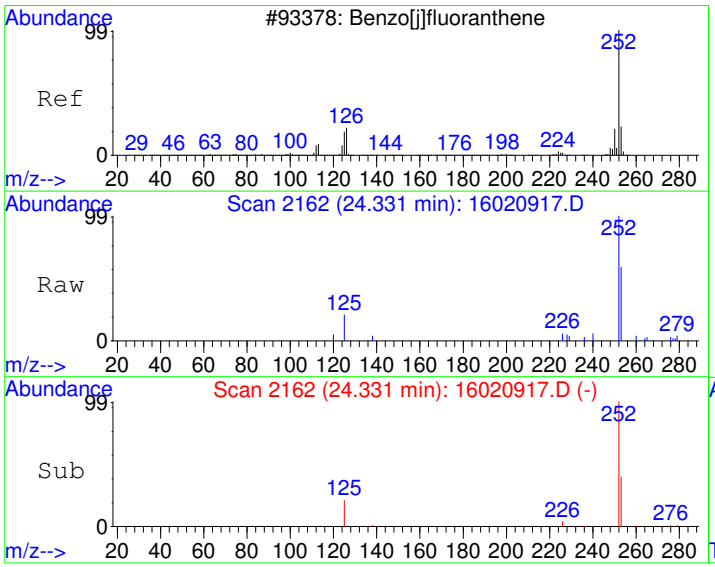


#22
Benzo[k]fluoranthene
Concen: 10.13 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:252 Resp: 7464

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.2	42.2
125	13.8	0.0	31.8

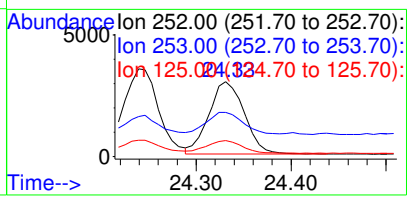


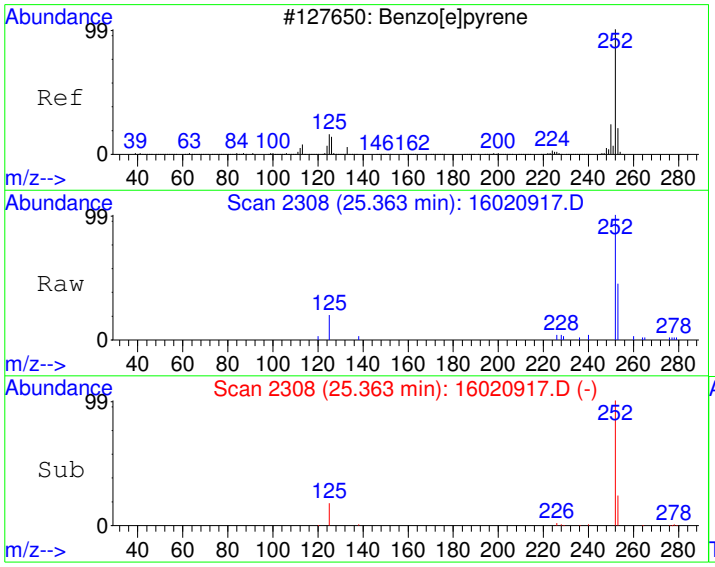


#23
Benzo(j)fluoranthene
Concen: 11.11 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:252 Resp: 7687

Ion	Ratio	Lower	Upper
252	100		
253	28.8	2.3	42.3
125	17.7	0.0	34.0

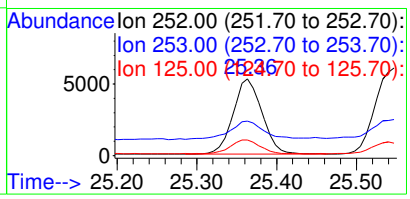


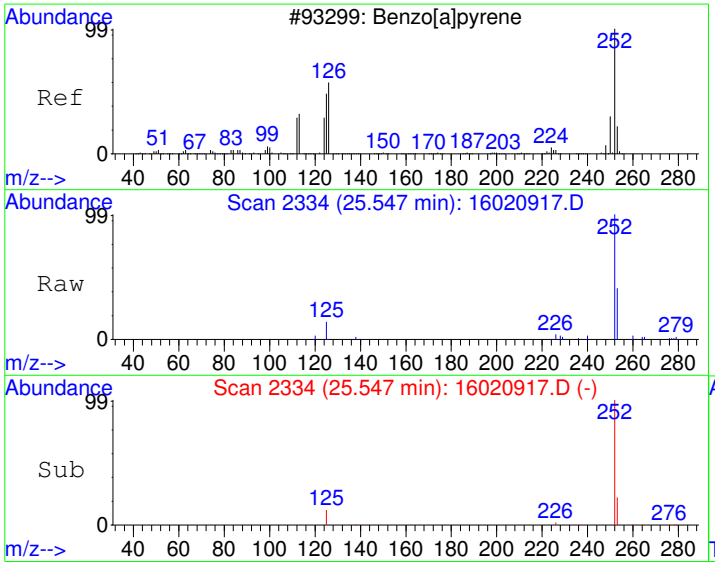


#24
Benzo[e]pyrene
Concen: 17.13 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:252 Resp: 13260

Ion	Ratio	Lower	Upper
252	100		
253	24.2	2.2	42.2
125	18.2	0.0	36.0

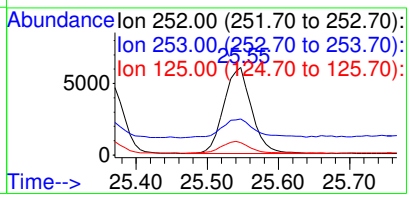


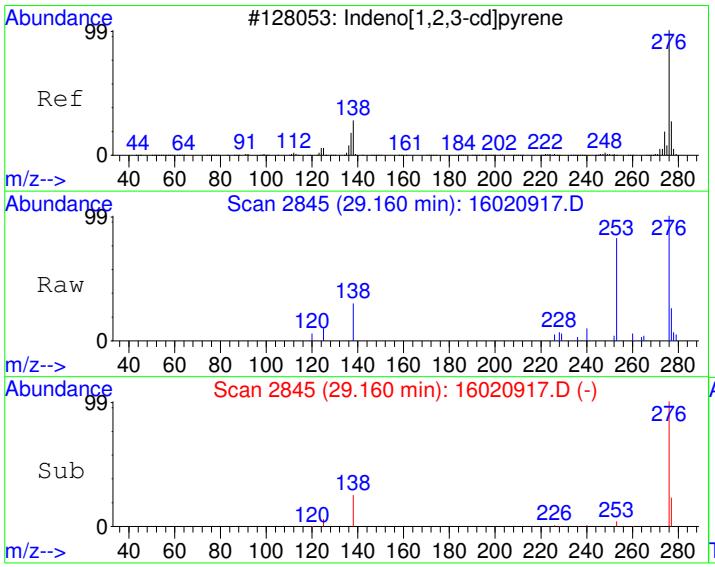


#25
Benzo[a]pyrene
Concen: 21.48 ug/kg
RT: 25.55 min Scan# 2334
Delta R.T. -0.02 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:252 Resp: 16182

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.0	42.0
125	12.3	0.0	32.3

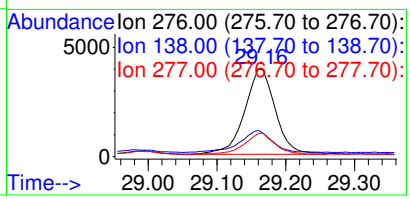


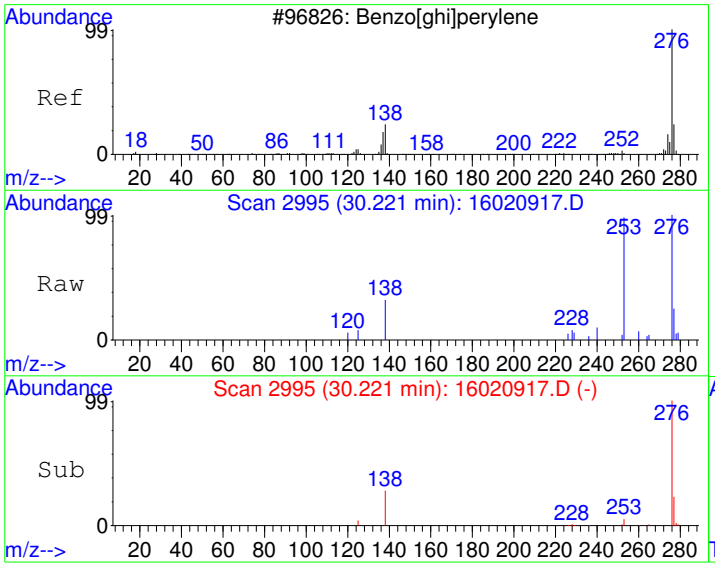


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.31 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:276 Resp: 12147

Ion	Ratio	Lower	Upper
276	100		
138	26.1	2.1	42.1
277	24.1	4.2	44.2

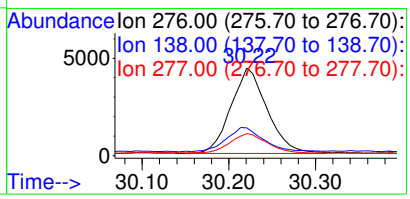




#28
Benzo[g,h,i]perylene
Concen: 17.95 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020917.D
Acq: 9 Feb 2016 6:07 pm

Tgt Ion:276 Resp: 12789

Ion	Ratio	Lower	Upper
276	100		
138	27.6	3.9	43.9
277	22.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : DFTPPLVI

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	0.00	136	0	0.00 ug/kg	0
5) Acenaphthene-d10	0.00	164	0	0.00 ug/kg	0
11) Phenanthrene-d10	0.00	188	0	0.00 ug/kg	0
17) Chrysene-d12	0.00	240	0	0.00 ug/kg	0
20) Perylene-d12	0.00	264	0	0.00 ug/kg	0

System Monitoring Compounds

7) 2-Fluorobiphenyl	0.00	172	0	0.00 ug/kg	
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#	
16) 4-Terphenyl-d14	0.00	244	0	0.00 ug/kg	
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#	

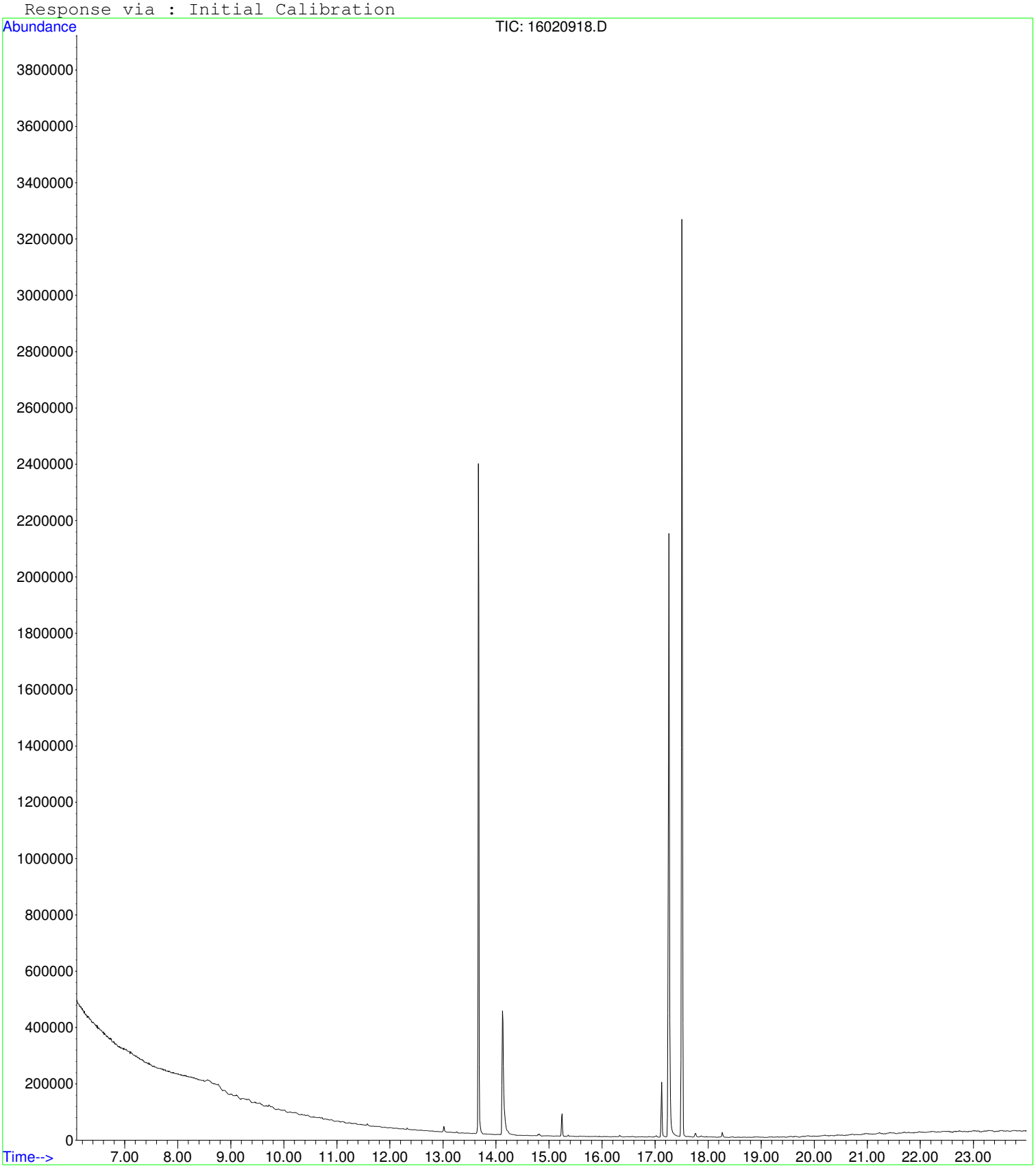
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020918.D Vial: 18
Acq On : 9 Feb 2016 6:47 pm Operator:
Sample : DFTPP2-160209 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	3048347	4000.00 ug/kg	145
5) Acenaphthene-d10	13.15	164	2397357	4000.00 ug/kg	132
11) Phenanthrene-d10	15.22	188	3758260	4000.00 ug/kg	115
17) Chrysene-d12	20.80	240	3769176	4000.00 ug/kg	131
20) Perylene-d12	25.87	264	3278588	4000.00 ug/kg	142

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1487178	2141.18 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	53.53%	
16) 4-Terphenyl-d14	17.64	244	1422696	2265.94 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	56.65%	

Target Compounds					Qvalue
2) Naphthalene	10.79	128	1669128	2188.56 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1266139	2108.47 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	1155470	2038.92 ug/kg	97
6) Dibenzofuran	13.37	168	1661577	2132.69 ug/kg	100
8) Acenaphthylene	13.03	152	2099084	2105.85 ug/kg	99
9) Acenaphthene	13.19	154	1272574	2107.03 ug/kg	97
10) Fluorene	13.85	166	1455289	2042.42 ug/kg	96
12) Phenanthrene	15.26	178	1901019	2130.06 ug/kg	98
13) Anthracene	15.31	178	1827043	2092.36 ug/kg	99
14) Fluoranthene	17.17	202	2054055	2320.97 ug/kg	97
15) Pyrene	17.74	202	2082971	2310.76 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1938225	2230.19 ug/kg	99
19) Chrysene	20.88	228	1868595	2258.16 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1895153	2168.07 ug/kg	97
22) Benzo[k]fluoranthene	24.24	252	1734065	2233.25 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	1630175	2234.97 ug/kg	97
24) Benzo[e]pyrene	25.37	252	1767460	2165.71 ug/kg	99
25) Benzo[a]pyrene	25.55	252	1746985	2199.24 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	1598144	2174.82 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.15	276	1922891	2147.90 ug/kg	99
28) Benzo[g,h,i]perylene	30.20	276	1520122	2023.72 ug/kg	99

Used as bracketing CCV - recoveries pass 80-120% limits

REVIEWED/APPROVED

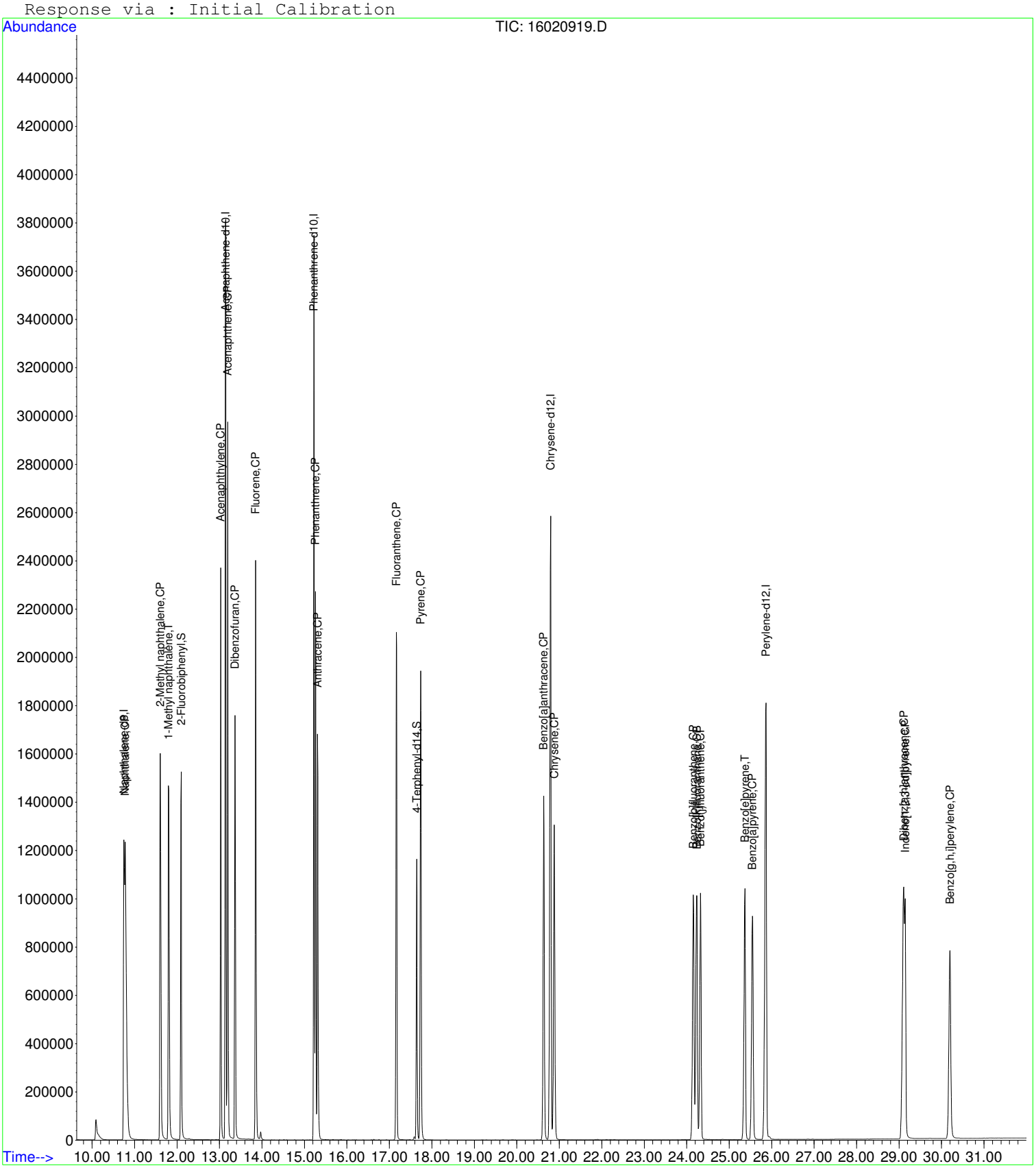
By Sherri Herschmann at 10:03:17 AM, 2/16/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

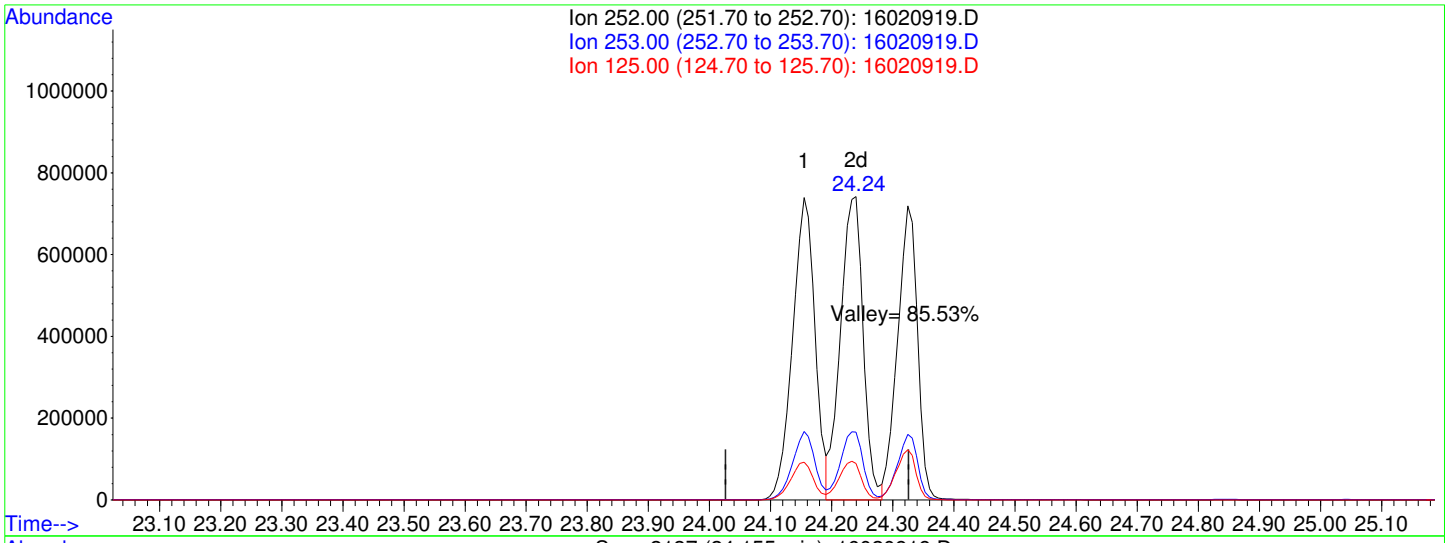
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

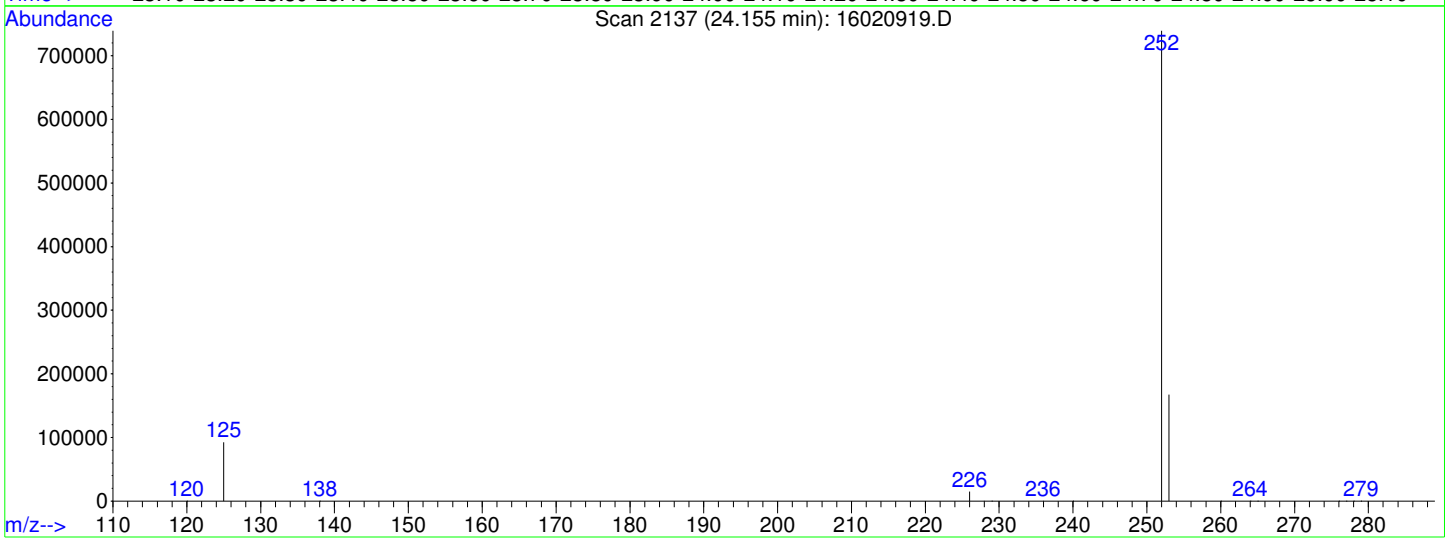


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160209\16020919.D Vial: 19
Acq On : 9 Feb 2016 7:23 pm Operator:
Sample : ICV2-160209 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 9 19:55 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration





TIC: 16020919.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2168.07ug/kg

response 1895153

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.54
125.00	10.50	12.52
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020920.D Vial: 20
Acq On : 9 Feb 2016 8:03 pm Operator:
Sample : SB-160209 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

DNR - hits present. Rerunning subsequent samples.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2471628	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	1932334	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3244846	4000.00 ug/kg	99
17) Chrysene-d12	20.79	240	3300202	4000.00 ug/kg	114
20) Perylene-d12	25.86	264	2868860	4000.00 ug/kg	124

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.14	172	255	0.46 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	
16) 4-Terphenyl-d14	17.68	244	226	0.42 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	

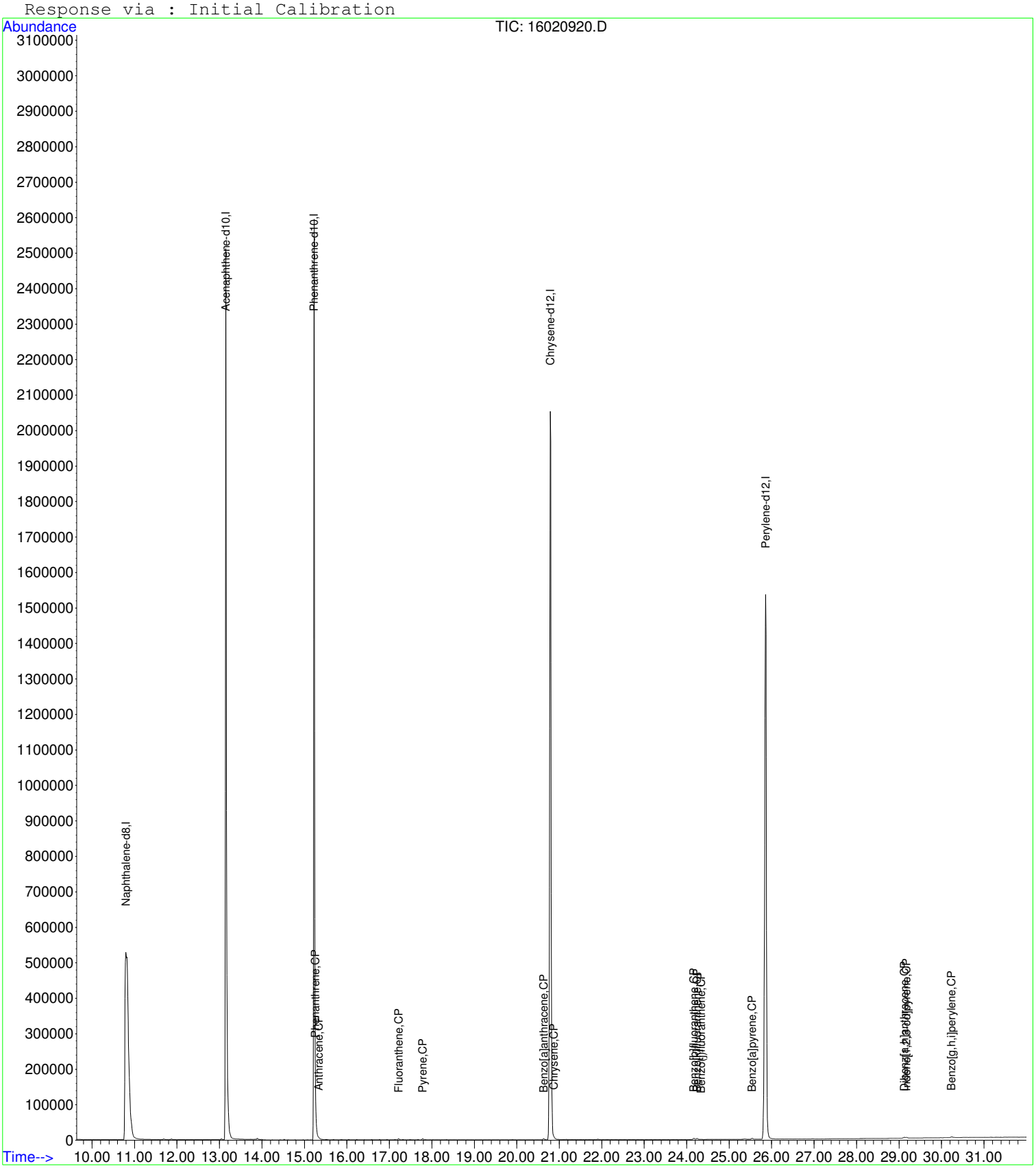
Target Compounds					Qvalue
12) Phenanthrene	15.26	178	4116	5.34 ug/kg	98
13) Anthracene	15.34	178	3980	5.28 ug/kg	98
14) Fluoranthene	17.22	202	5293	6.93 ug/kg	96
15) Pyrene	17.78	202	5674	7.29 ug/kg	98
18) Benzo[a]anthracene	20.63	228	5457	7.17 ug/kg	99
19) Chrysene	20.87	228	5633	7.77 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	5838	7.63 ug/kg	96
22) Benzo[k]fluoranthene	24.25	252	5413	7.97 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	400	0.63 ug/kg#	65
25) Benzo[a]pyrene	25.54	252	5476	7.88 ug/kg	99
26) Dibenz[a,h]anthracene	29.13	278	4693	7.30 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.18	276	5726	7.31 ug/kg	98
28) Benzo[g,h,i]perylene	30.24	276	4836	7.36 ug/kg	94

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020920.D Vial: 20
Acq On : 9 Feb 2016 8:03 pm Operator:
Sample : SB-160209 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020921.D Vial: 21
Acq On : 9 Feb 2016 8:44 pm Operator:
Sample : 1601232-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2606048	4000.00	ug/kg	124
5) Acenaphthene-d10	13.15	164	2062311	4000.00	ug/kg	113
11) Phenanthrene-d10	15.23	188	3502416	4000.00	ug/kg	107
17) Chrysene-d12	20.79	240	3612657	4000.00	ug/kg	125
20) Perylene-d12	25.86	264	3204452	4000.00	ug/kg	139

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.12	172	48887	81.82	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.05%#			
16) 4-Terphenyl-d14	17.65	244	50716	86.68	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.17%#			

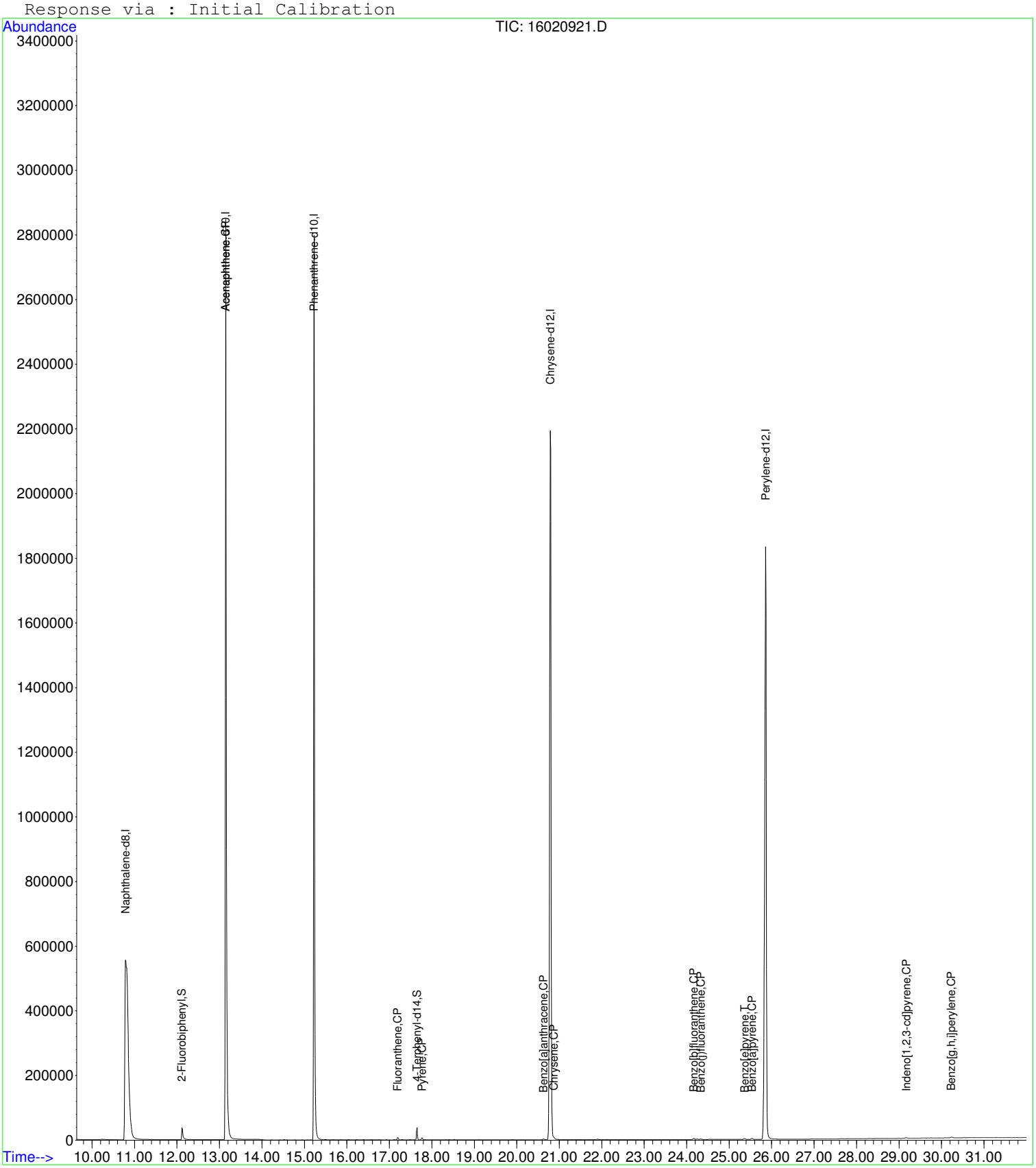
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	7372	14.19	ug/kg#	10
14) Fluoranthene	17.20	202	9519	11.54	ug/kg	98
15) Pyrene	17.77	202	8873	10.56	ug/kg	100
18) Benzo[a]anthracene	20.63	228	4544	5.46	ug/kg	100
19) Chrysene	20.87	228	6231	7.86	ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	6629	7.76	ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	2763	3.88	ug/kg	91
24) Benzo[e]pyrene	25.36	252	4816	6.04	ug/kg	98
25) Benzo[a]pyrene	25.54	252	5779	7.44	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.17	276	4430	5.06	ug/kg	97
28) Benzo[g,h,i]perylene	30.24	276	4576	6.23	ug/kg	98

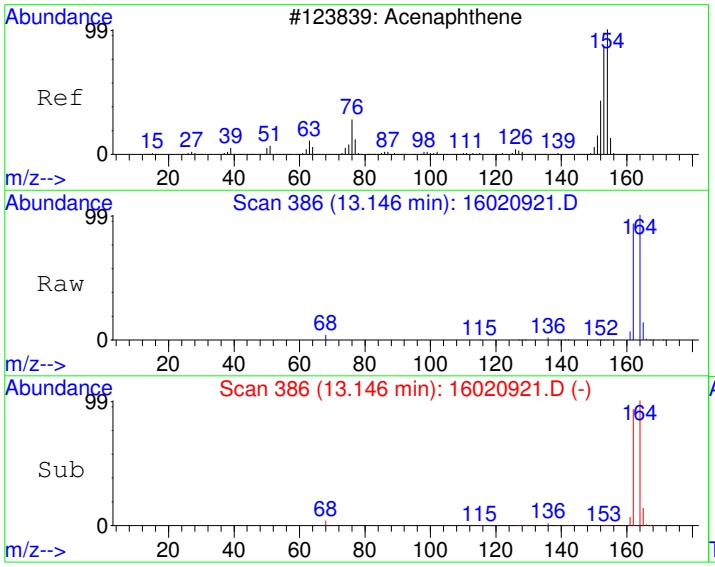
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020921.D Vial: 21
Acq On : 9 Feb 2016 8:44 pm Operator:
Sample : 1601232-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:41 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

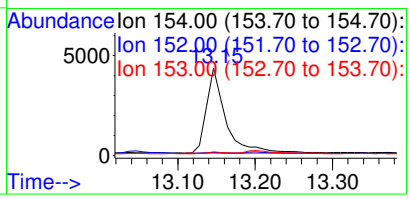


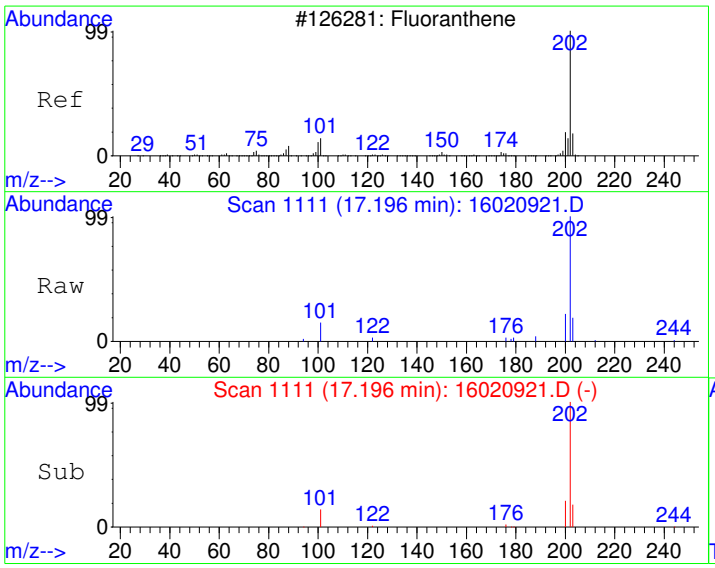


#9
Acenaphthene
Concen: 14.19 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:154 Resp: 7372

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.4	74.4	134.4#

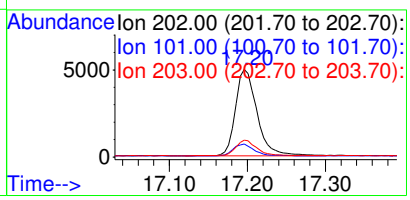


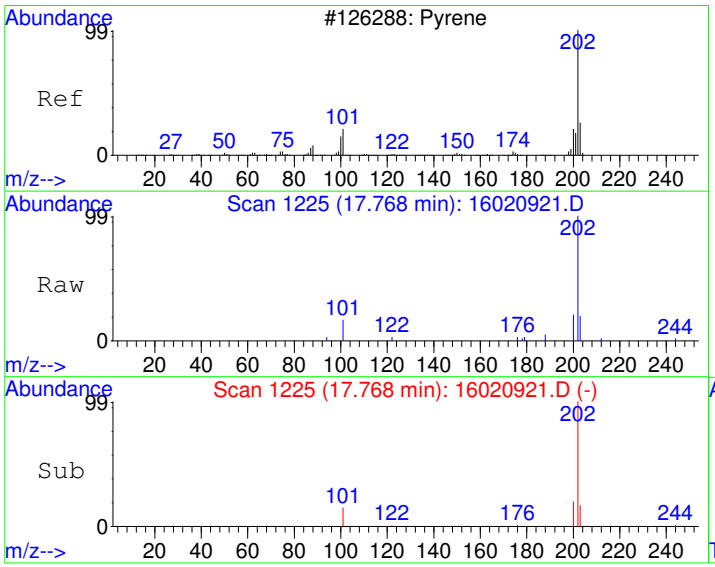


#14
Fluoranthene
Concen: 11.54 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:202 Resp: 9519

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	42.5
203	18.0	0.0	48.0

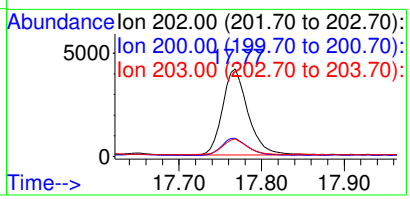


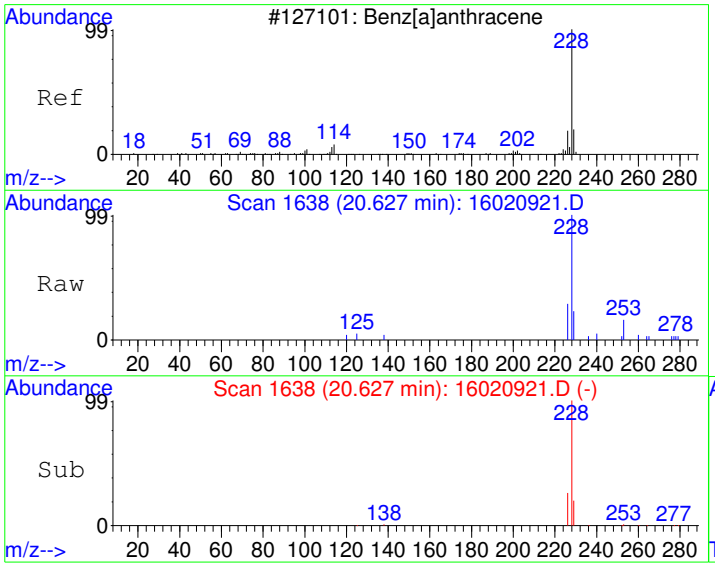


#15
Pyrene
Concen: 10.56 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:202 Resp: 8873

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	18.2	0.0	48.0

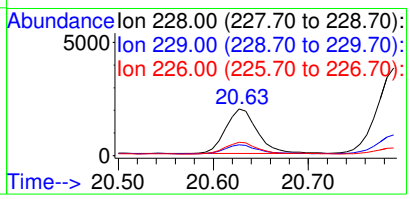


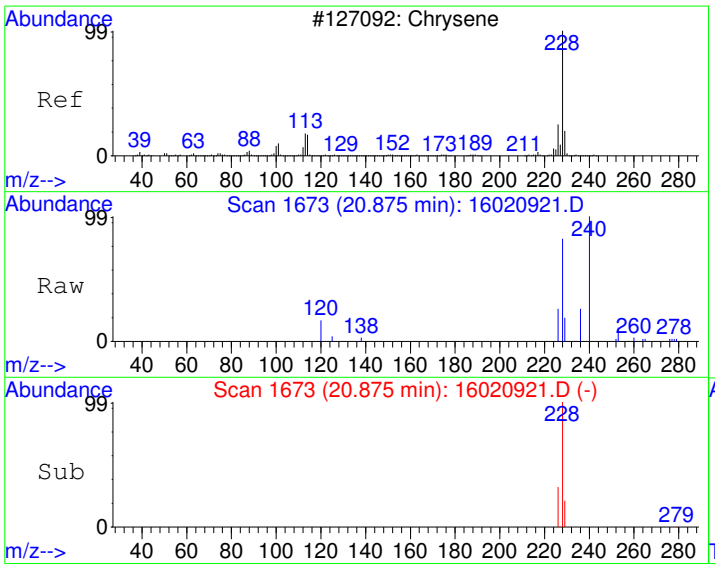


#18
Benzo[a]anthracene
Concen: 5.46 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:228 Resp: 4544

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.0
226	26.6	0.0	56.4

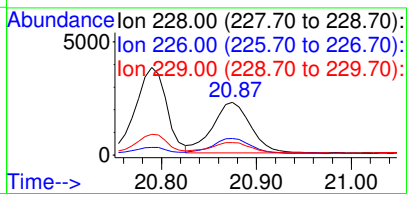


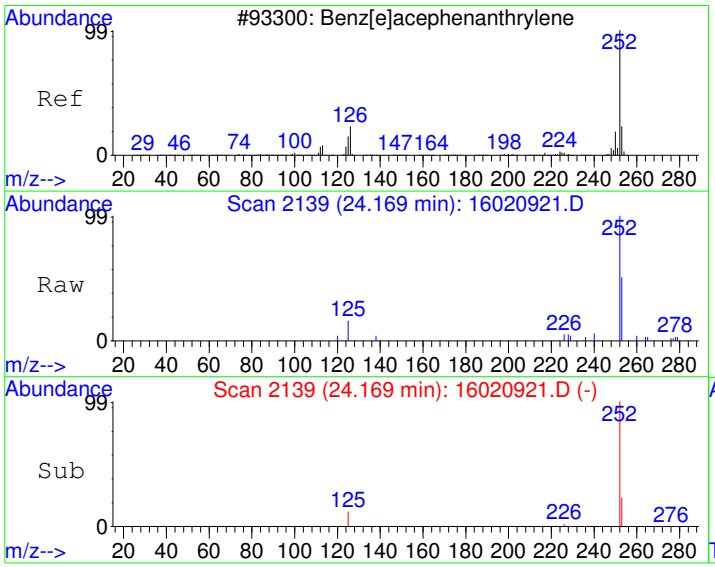


#19
Chrysene
Concen: 7.86 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:228 Resp: 6231

Ion	Ratio	Lower	Upper
228	100		
226	29.7	0.0	58.5
229	20.3	0.0	50.1

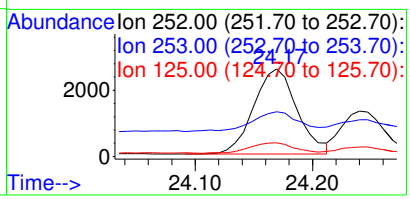


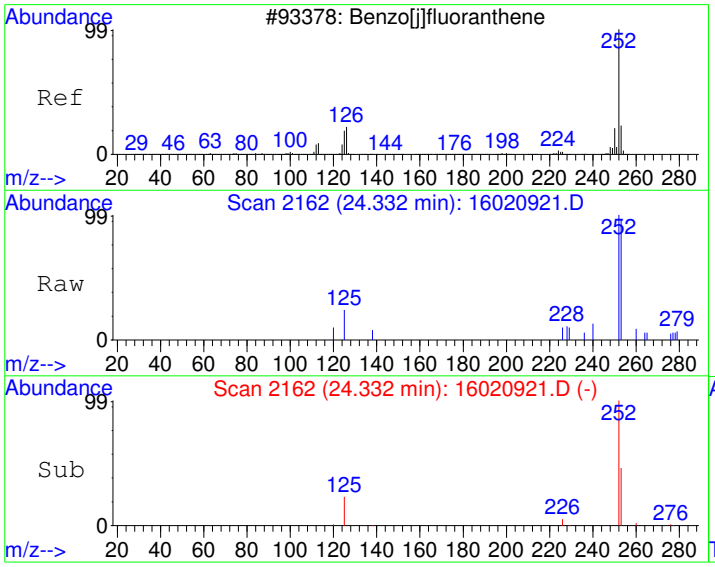


#21
Benzo[b]fluoranthene
Concen: 7.76 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:252 Resp: 6629

Ion	Ratio	Lower	Upper
252	100		
253	23.1	0.0	52.0
125	11.5	0.0	40.5

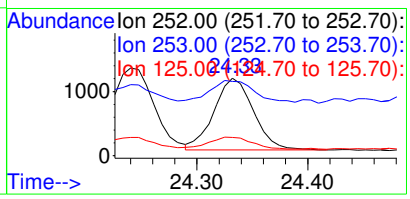


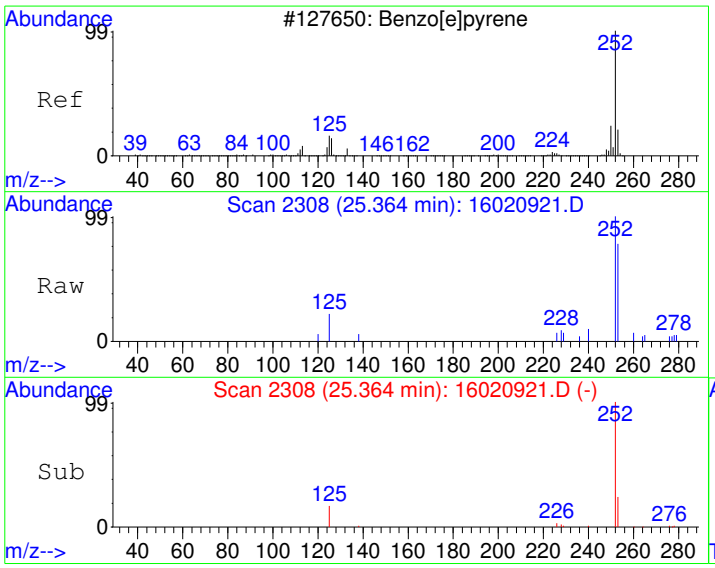


#23
Benzo(j)fluoranthene
Concen: 3.88 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:252 Resp: 2763

Ion	Ratio	Lower	Upper
252	100		
253	27.8	2.3	42.3
125	16.4	0.0	34.0

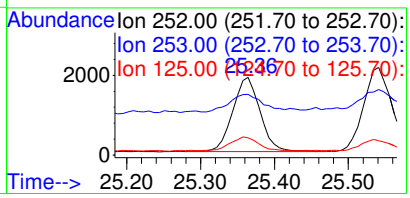


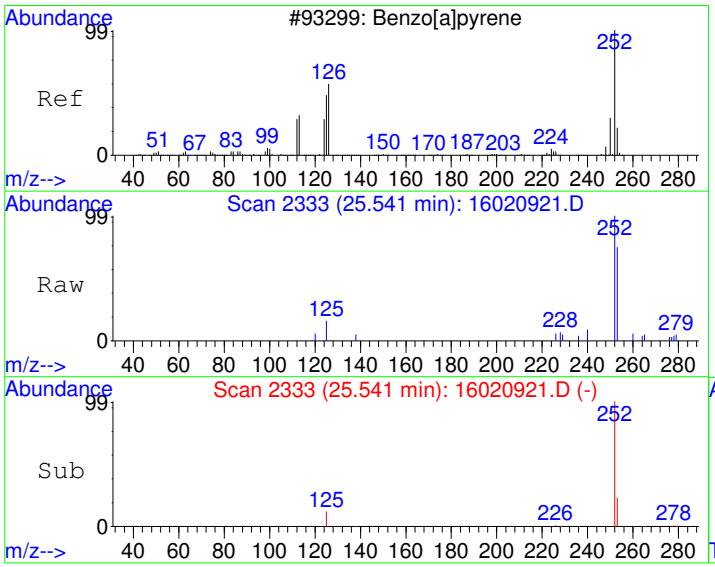


#24
Benzo[e]pyrene
Concen: 6.04 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:252 Resp: 4816

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.2	42.2
125	17.4	0.0	36.0

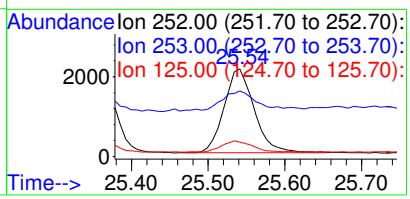


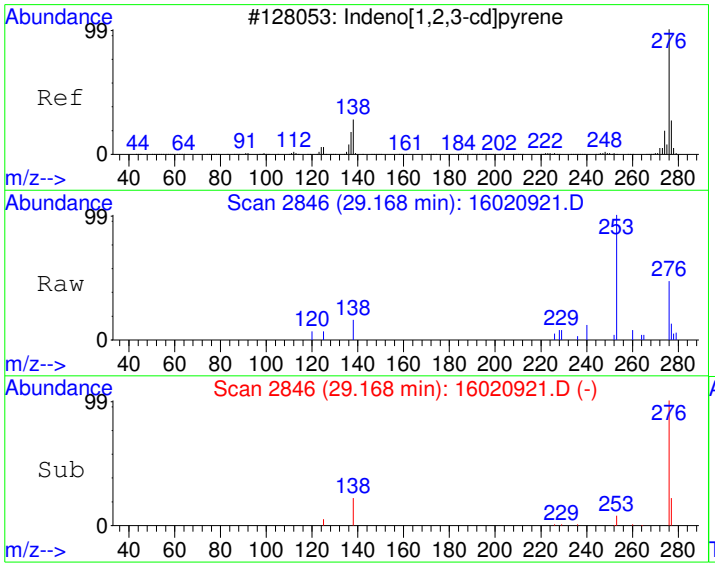


#25
Benzo[a]pyrene
Concen: 7.44 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:252 Resp: 5779

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	12.0	0.0	32.3

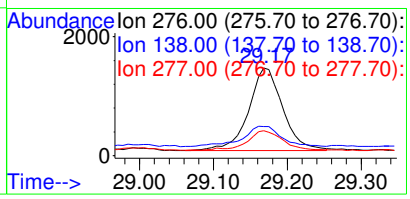


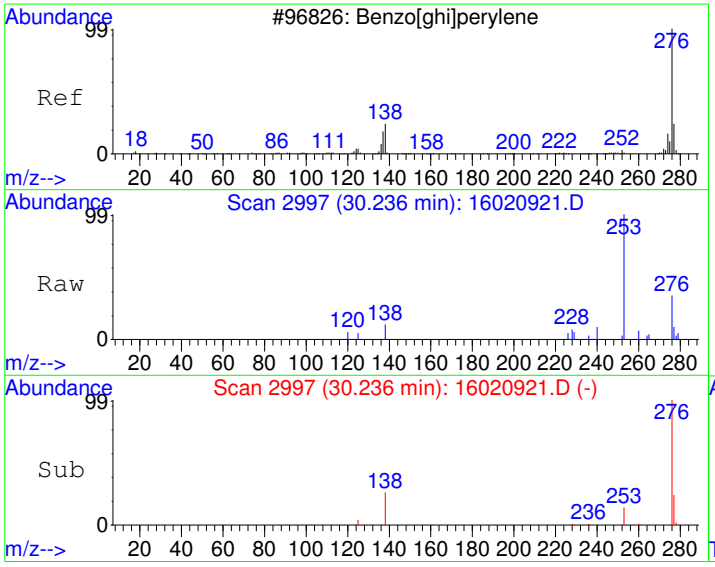


#27
Indeno[1,2,3-cd]pyrene
Concen: 5.06 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:276 Resp: 4430

Ion	Ratio	Lower	Upper
276	100		
138	24.2	2.1	42.1
277	23.6	4.2	44.2

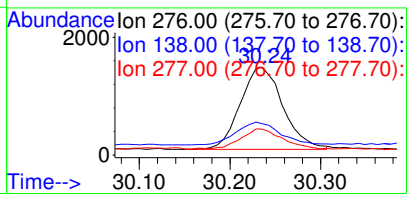




#28
Benzo[g,h,i]perylene
Concen: 6.23 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16020921.D
Acq: 9 Feb 2016 8:44 pm

Tgt Ion:276 Resp: 4576

Ion	Ratio	Lower	Upper
276	100		
138	25.6	3.9	43.9
277	24.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020922.D Vial: 22
Acq On : 9 Feb 2016 9:23 pm Operator:
Sample : 1601232-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

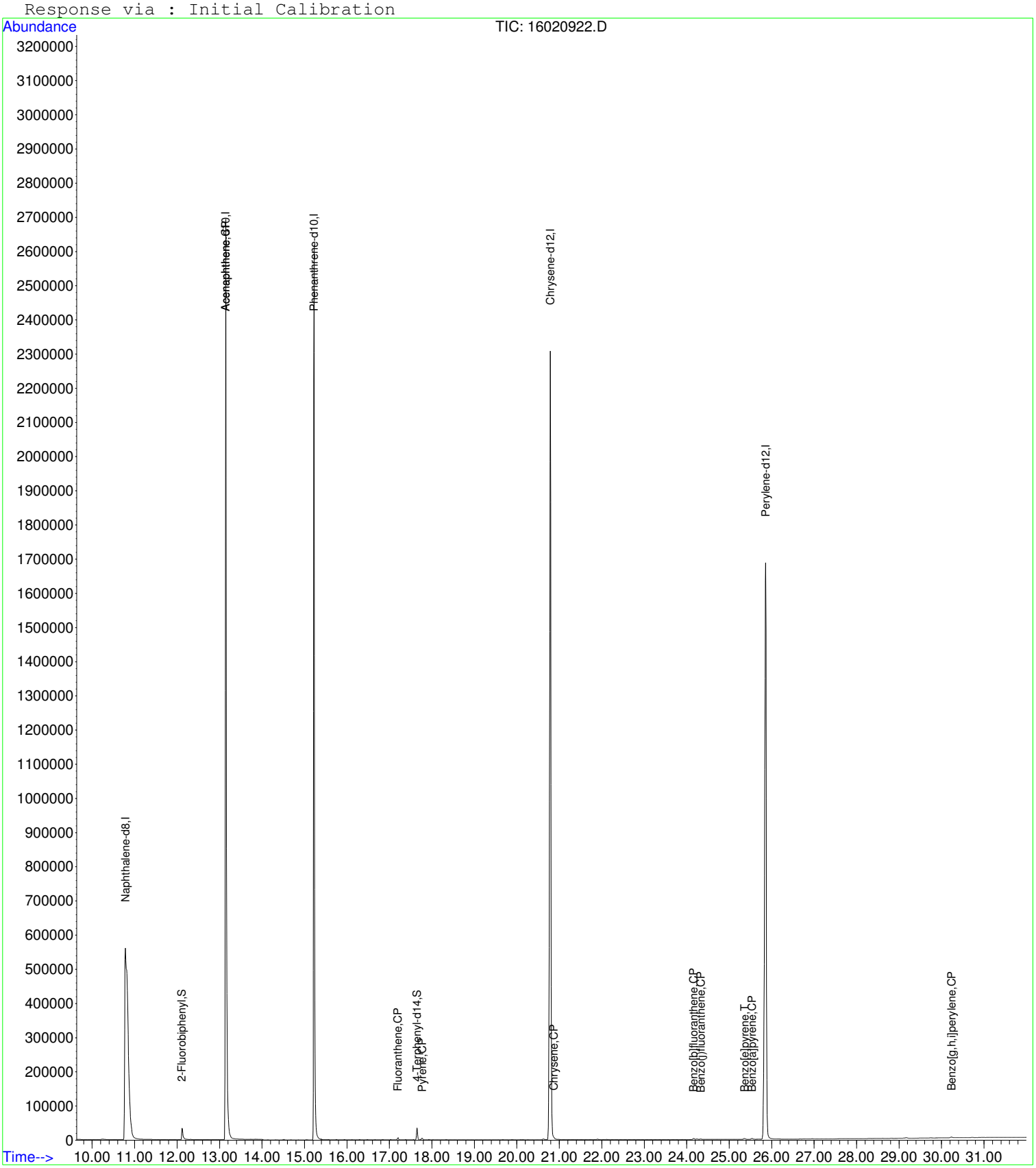
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2569128	4000.00	ug/kg	122
5) Acenaphthene-d10	13.15	164	1985113	4000.00	ug/kg	109
11) Phenanthrene-d10	15.22	188	3332729	4000.00	ug/kg	102
17) Chrysene-d12	20.79	240	3462817	4000.00	ug/kg	120
20) Perylene-d12	25.86	264	3113655	4000.00	ug/kg	135
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.12	172	46867	81.49	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#			
16) 4-Terphenyl-d14	17.65	244	48138	86.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.16%#			
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	7118	14.23	ug/kg#	10
14) Fluoranthene	17.20	202	7739	9.86	ug/kg	97
15) Pyrene	17.77	202	7307	9.14	ug/kg	99
19) Chrysene	20.87	228	5356	7.05	ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	5701	6.87	ug/kg	95
23) Benzo(j)fluoranthene	24.33	252	2486	3.59	ug/kg	91
24) Benzo[e]pyrene	25.36	252	4373	5.64	ug/kg	92
25) Benzo[a]pyrene	25.54	252	5050	6.69	ug/kg	99
28) Benzo[g,h,i]perylene	30.23	276	4191	5.87	ug/kg	93

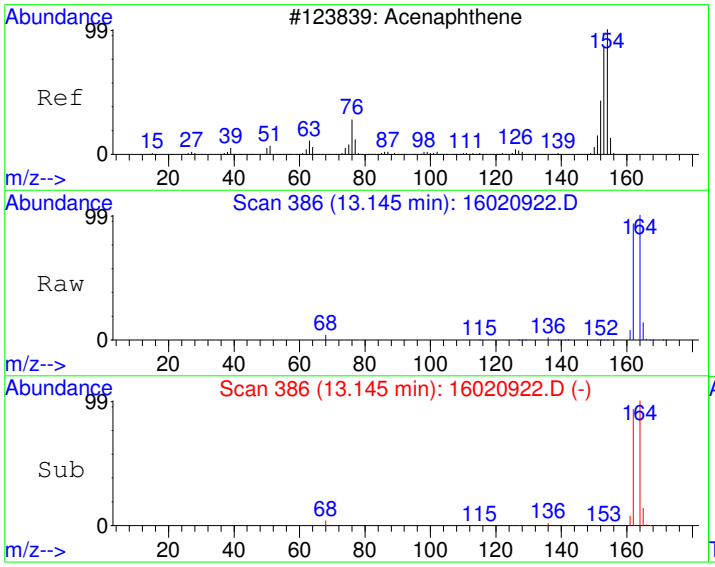
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020922.D Vial: 22
Acq On : 9 Feb 2016 9:23 pm Operator:
Sample : 1601232-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

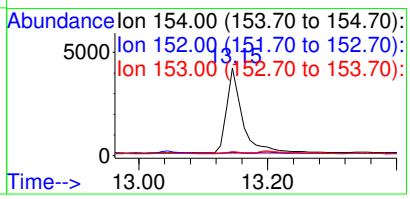


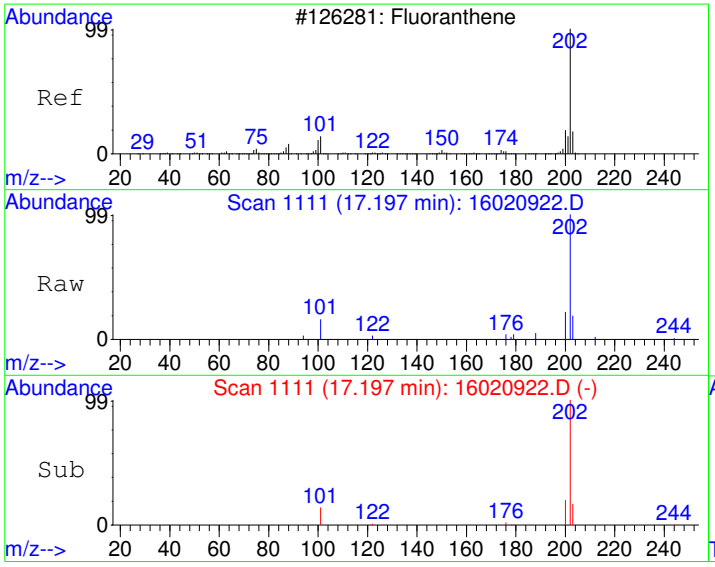


#9
Acenaphthene
Concen: 14.23 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:154 Resp: 7118

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.4	74.4	134.4#

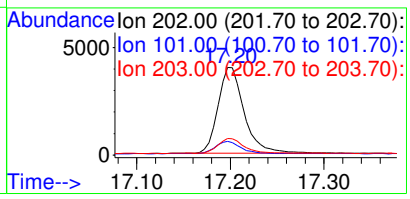


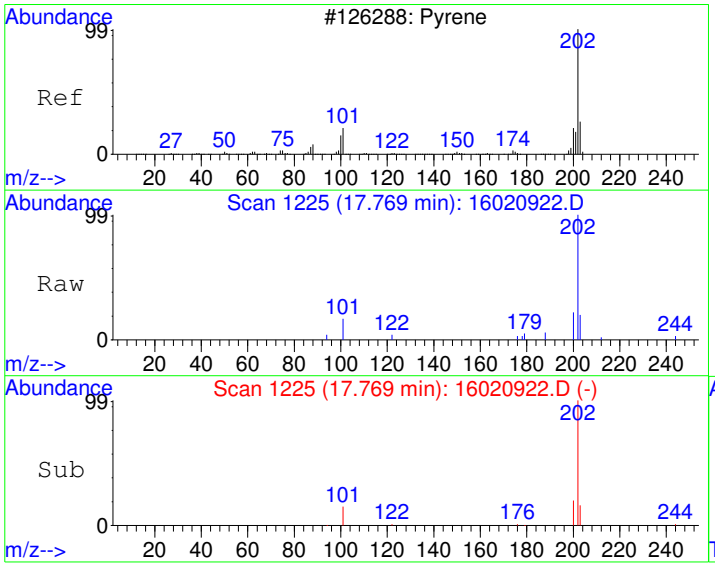


#14
Fluoranthene
Concen: 9.86 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:202 Resp: 7739

Ion	Ratio	Lower	Upper
202	100		
101	14.3	0.0	42.5
203	17.2	0.0	48.0

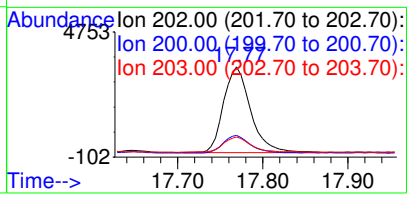


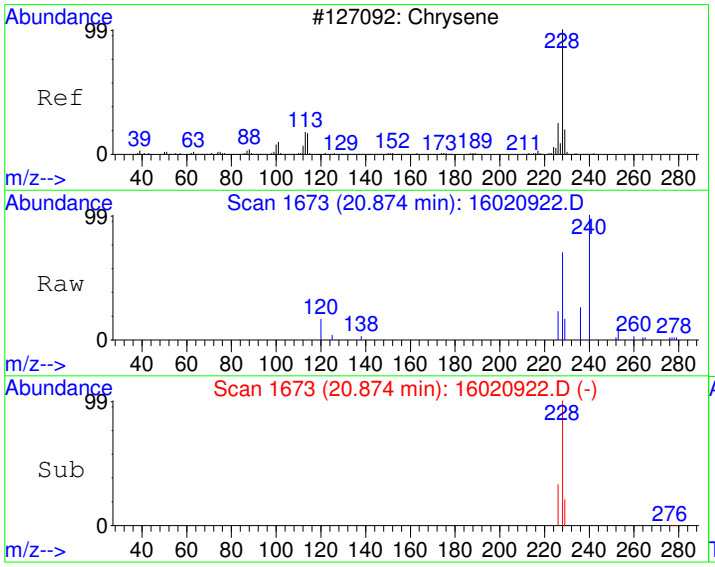


#15
Pyrene
Concen: 9.14 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:202 Resp: 7307

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	17.9	0.0	48.0

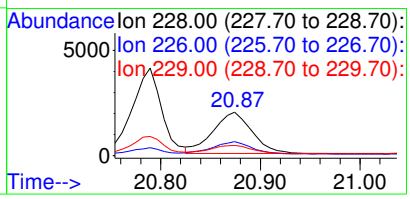


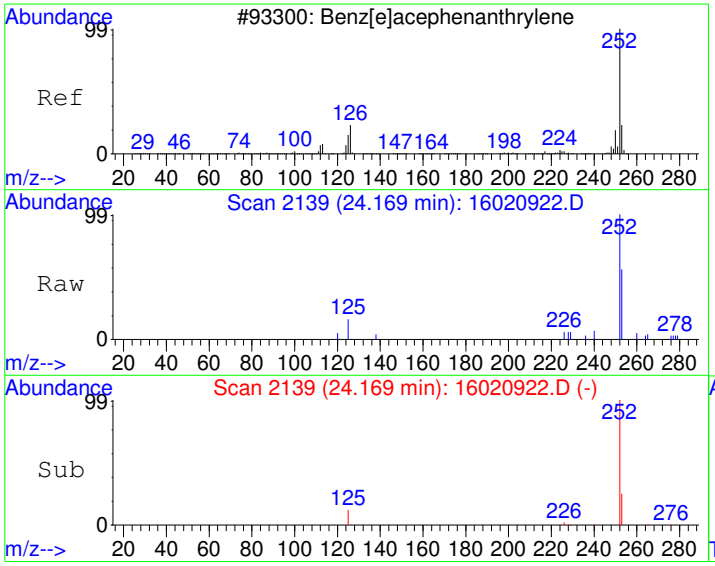


#19
Chrysene
Concen: 7.05 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:228 Resp: 5356

Ion	Ratio	Lower	Upper
228	100		
226	29.4	0.0	58.5
229	20.1	0.0	50.1

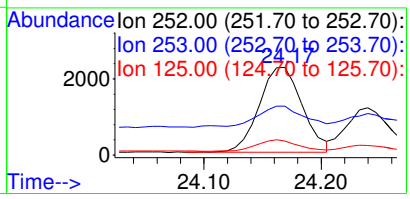


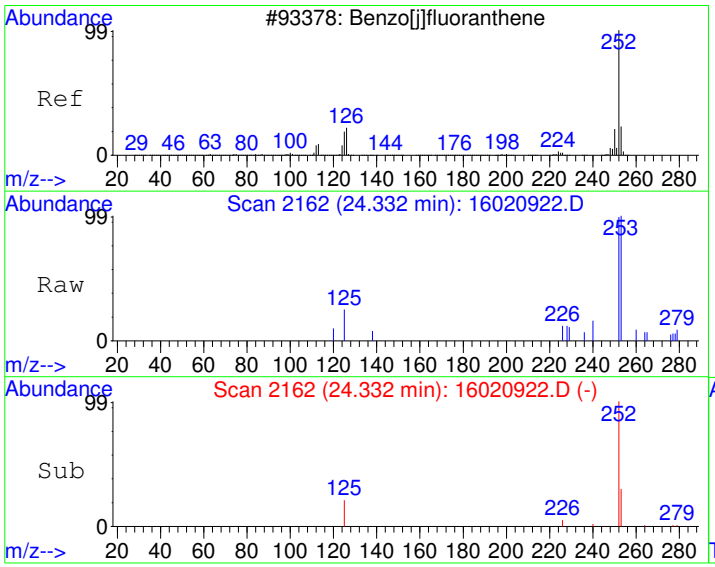


#21
Benzo[b]fluoranthene
Concen: 6.87 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:252 Resp: 5701

Ion	Ratio	Lower	Upper
252	100		
253	24.9	0.0	52.0
125	11.6	0.0	40.5

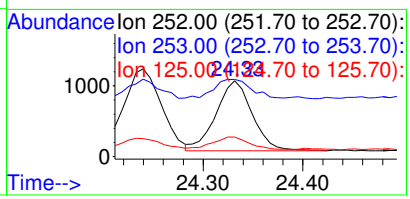


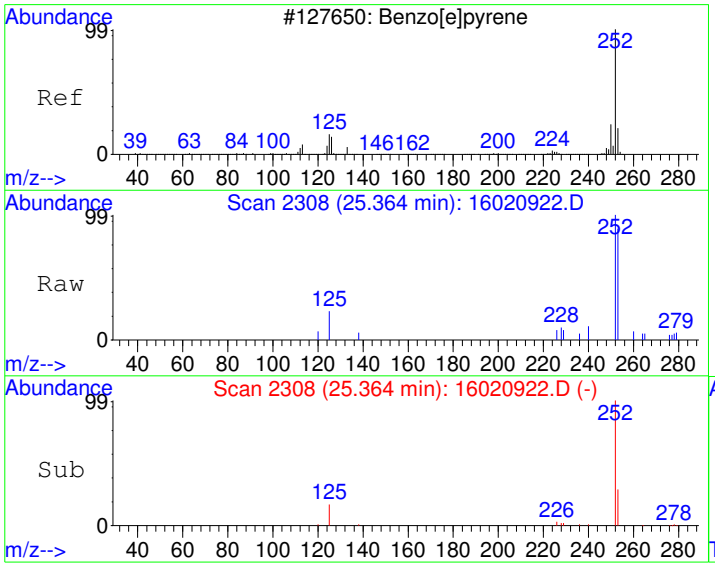


#23
Benzo(j)fluoranthene
Concen: 3.59 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:252 Resp: 2486

Ion	Ratio	Lower	Upper
252	100		
253	26.5	2.3	42.3
125	17.6	0.0	34.0

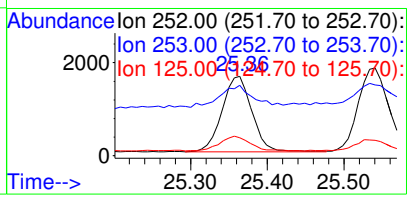


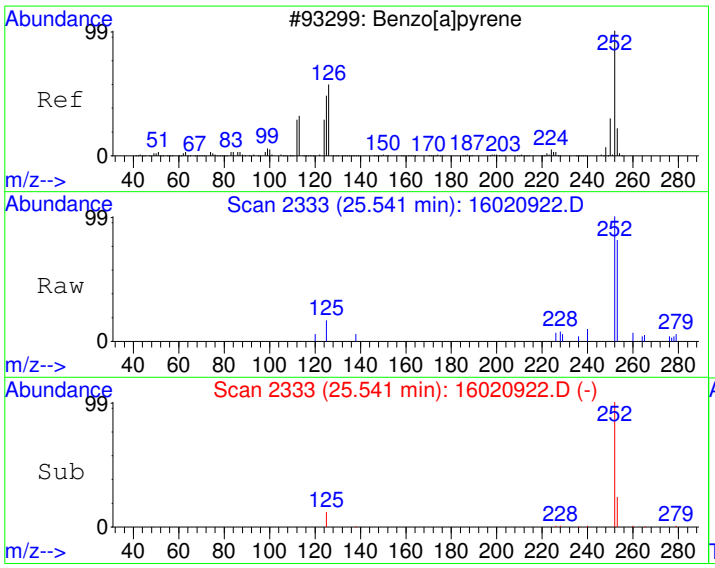


#24
Benzo[e]pyrene
Concen: 5.64 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:252 Resp: 4373

Ion	Ratio	Lower	Upper
252	100		
253	27.7	2.2	42.2
125	17.4	0.0	36.0

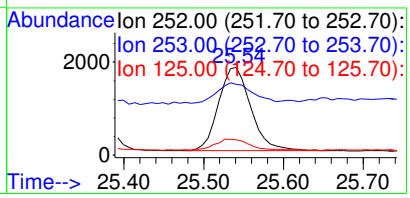


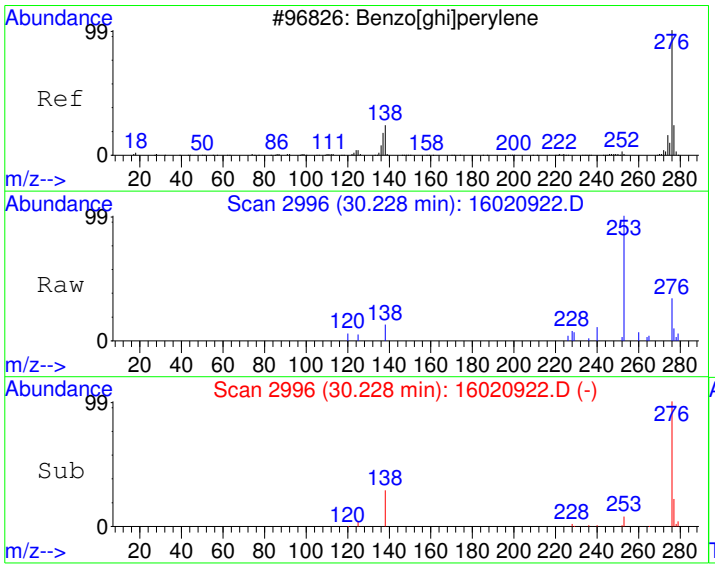


#25
Benzo[a]pyrene
Concen: 6.69 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:252 Resp: 5050

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.0	42.0
125	12.0	0.0	32.3

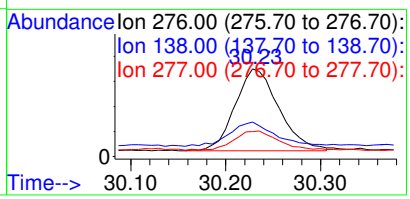




#28
Benzo[g,h,i]perylene
Concen: 5.87 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16020922.D
Acq: 9 Feb 2016 9:23 pm

Tgt Ion:276 Resp: 4191

Ion	Ratio	Lower	Upper
276	100		
138	29.9	3.9	43.9
277	22.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020923.D Vial: 23
Acq On : 9 Feb 2016 10:03 pm Operator:
Sample : 1601232-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2617896	4000.00	ug/kg	125
5) Acenaphthene-d10	13.15	164	2070955	4000.00	ug/kg	114
11) Phenanthrene-d10	15.23	188	3471780	4000.00	ug/kg	106
17) Chrysene-d12	20.79	240	3647130	4000.00	ug/kg	126
20) Perylene-d12	25.86	264	3201539	4000.00	ug/kg	139

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.12	172	47775	79.63	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#			
16) 4-Terphenyl-d14	17.65	244	50098	86.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.16%#			

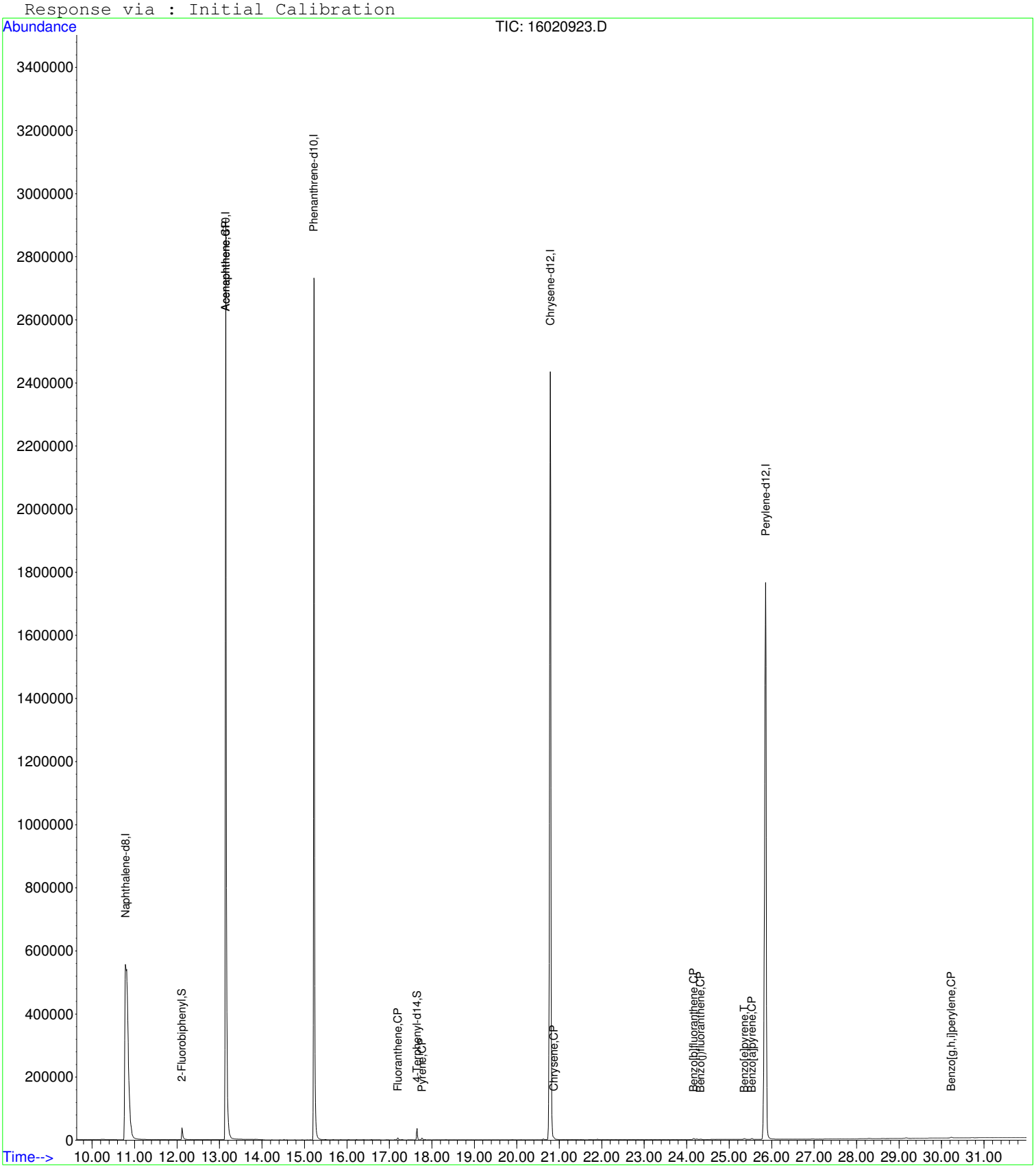
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	7473	14.32	ug/kg#	10
14) Fluoranthene	17.20	202	8516	10.42	ug/kg	99
15) Pyrene	17.77	202	7991	9.60	ug/kg	99
19) Chrysene	20.87	228	5982	7.47	ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	6299	7.38	ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	2641	3.71	ug/kg	92
24) Benzo[e]pyrene	25.36	252	4719	5.92	ug/kg	97
25) Benzo[a]pyrene	25.53	252	5374	6.93	ug/kg	98
28) Benzo[g,h,i]perylene	30.24	276	4497	6.13	ug/kg	96

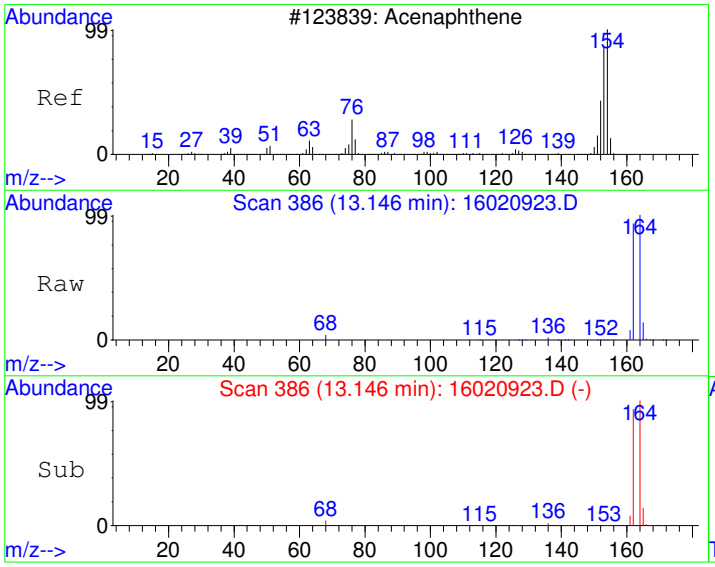
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020923.D Vial: 23
Acq On : 9 Feb 2016 10:03 pm Operator:
Sample : 1601232-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

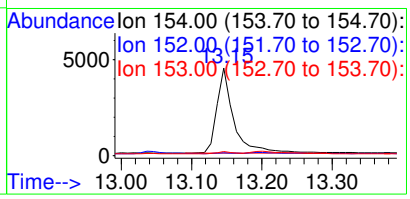


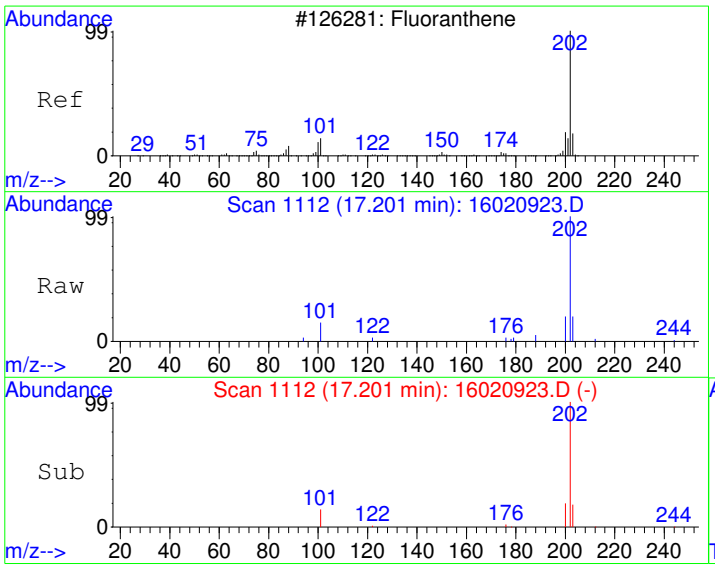


#9
Acenaphthene
Concen: 14.32 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:154 Resp: 7473

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.7	74.4	134.4#

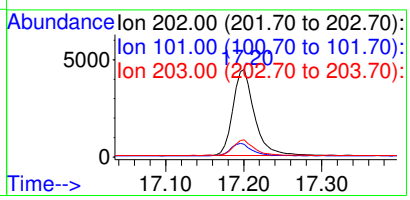


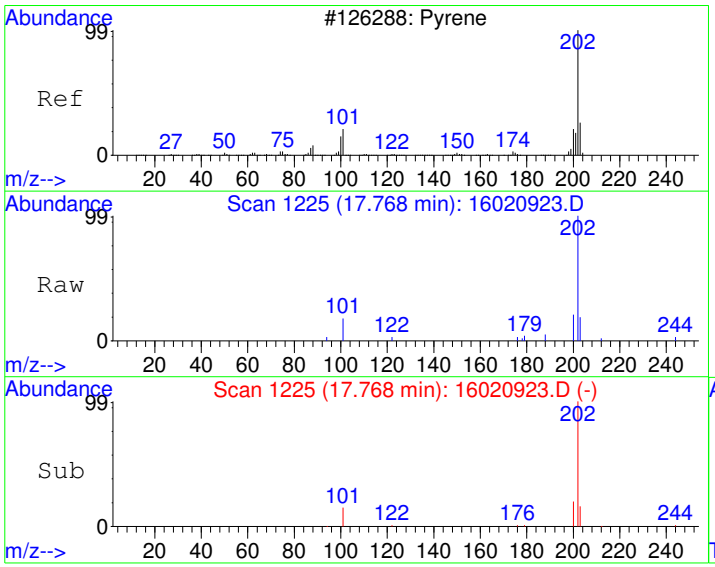


#14
Fluoranthene
Concen: 10.42 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.02 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:202 Resp: 8516

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	18.1	0.0	48.0

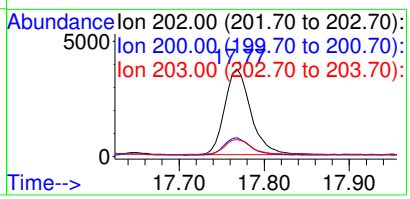


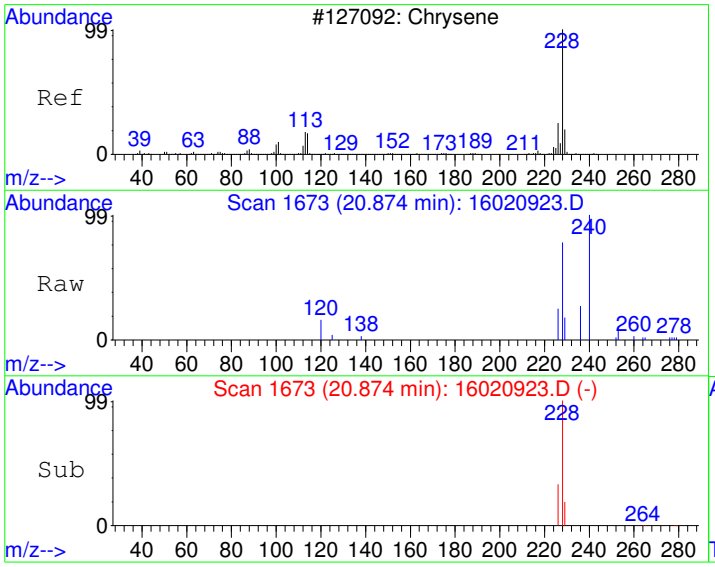


#15
Pyrene
Concen: 9.60 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:202 Resp: 7991

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	17.3	0.0	48.0

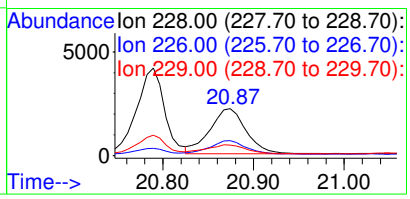


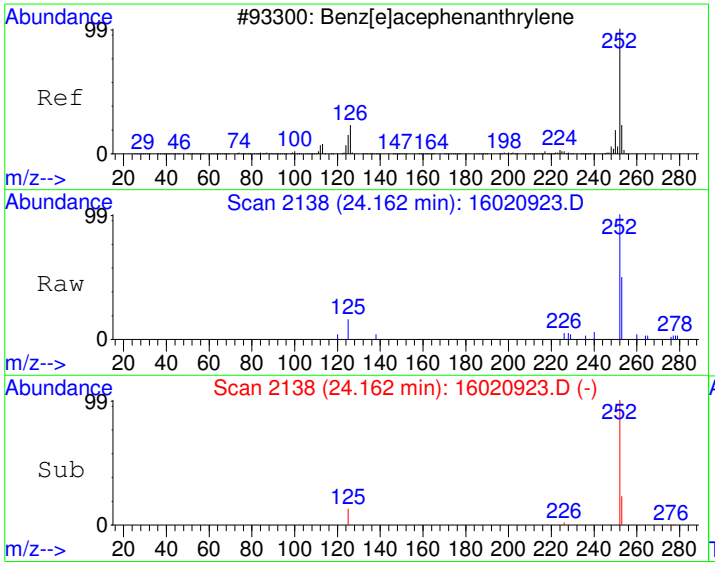


#19
Chrysene
Concen: 7.47 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:228 Resp: 5982

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.5
229	19.3	0.0	50.1

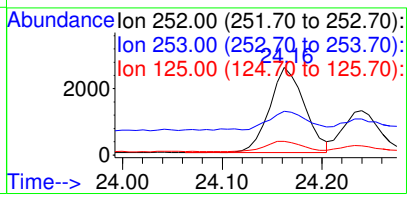


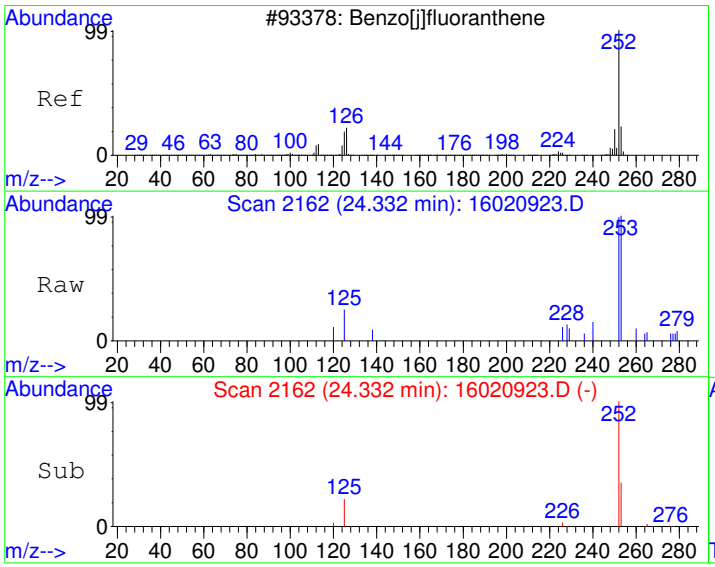


#21
Benzo[b]fluoranthene
Concen: 7.38 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:252 Resp: 6299

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	12.2	0.0	40.5

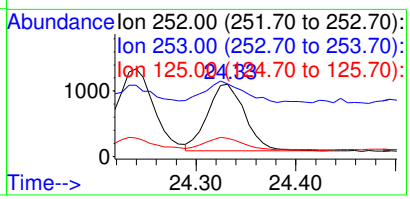


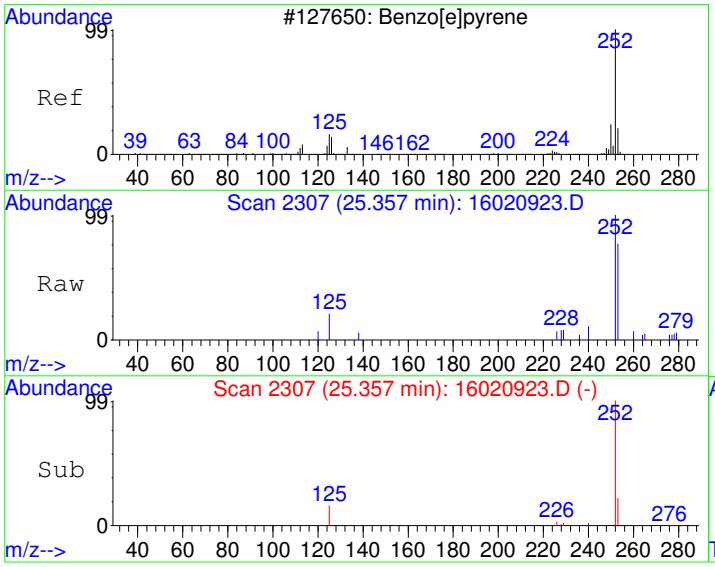


#23
Benzo(j)fluoranthene
Concen: 3.71 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:252 Resp: 2641

Ion	Ratio	Lower	Upper
252	100		
253	25.7	2.3	42.3
125	17.4	0.0	34.0

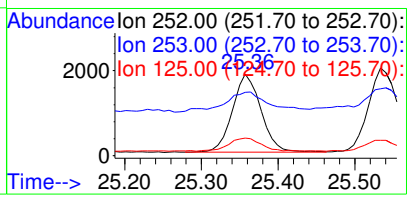


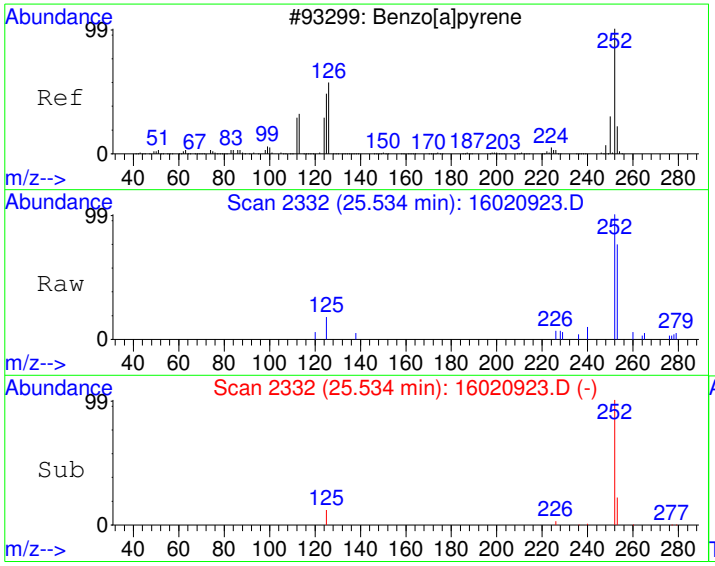


#24
Benzo[e]pyrene
Concen: 5.92 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:252 Resp: 4719

Ion	Ratio	Lower	Upper
252	100		
253	24.2	2.2	42.2
125	16.6	0.0	36.0

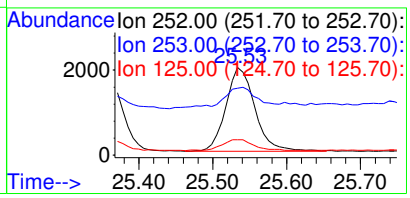


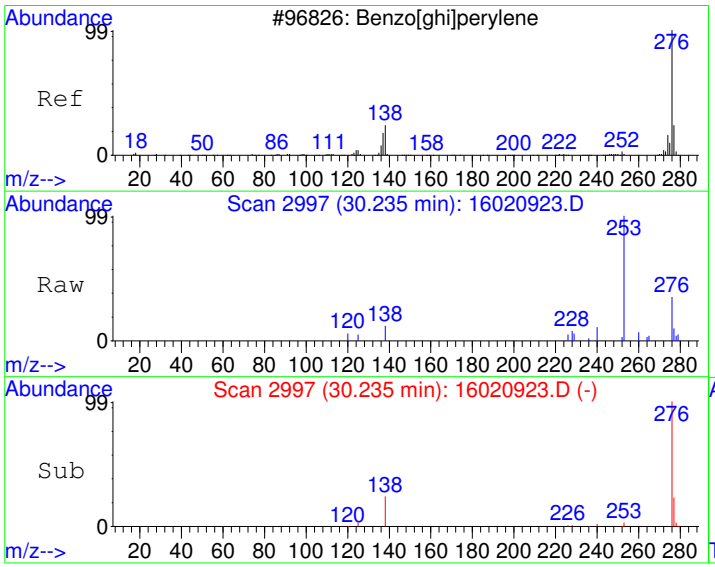


#25
Benzo[a]pyrene
Concen: 6.93 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:252 Resp: 5374

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.0	42.0
125	13.0	0.0	32.3

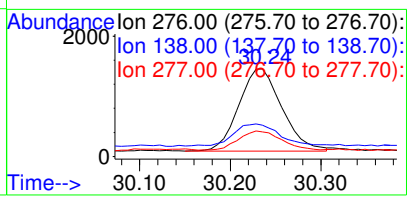




#28
Benzo[g,h,i]perylene
Concen: 6.13 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16020923.D
Acq: 9 Feb 2016 10:03 pm

Tgt Ion:276 Resp: 4497

Ion	Ratio	Lower	Upper
276	100		
138	25.3	3.9	43.9
277	21.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020924.D Vial: 24
Acq On : 9 Feb 2016 10:43 pm Operator:
Sample : 1601232-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2594091	4000.00 ug/kg	124
5) Acenaphthene-d10	13.15	164	2008730	4000.00 ug/kg	110
11) Phenanthrene-d10	15.22	188	3337617	4000.00 ug/kg	102
17) Chrysene-d12	20.78	240	3469479	4000.00 ug/kg	120
20) Perylene-d12	25.85	264	3083632	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45022	77.36 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#	
16) 4-Terphenyl-d14	17.65	244	46214	82.88 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	

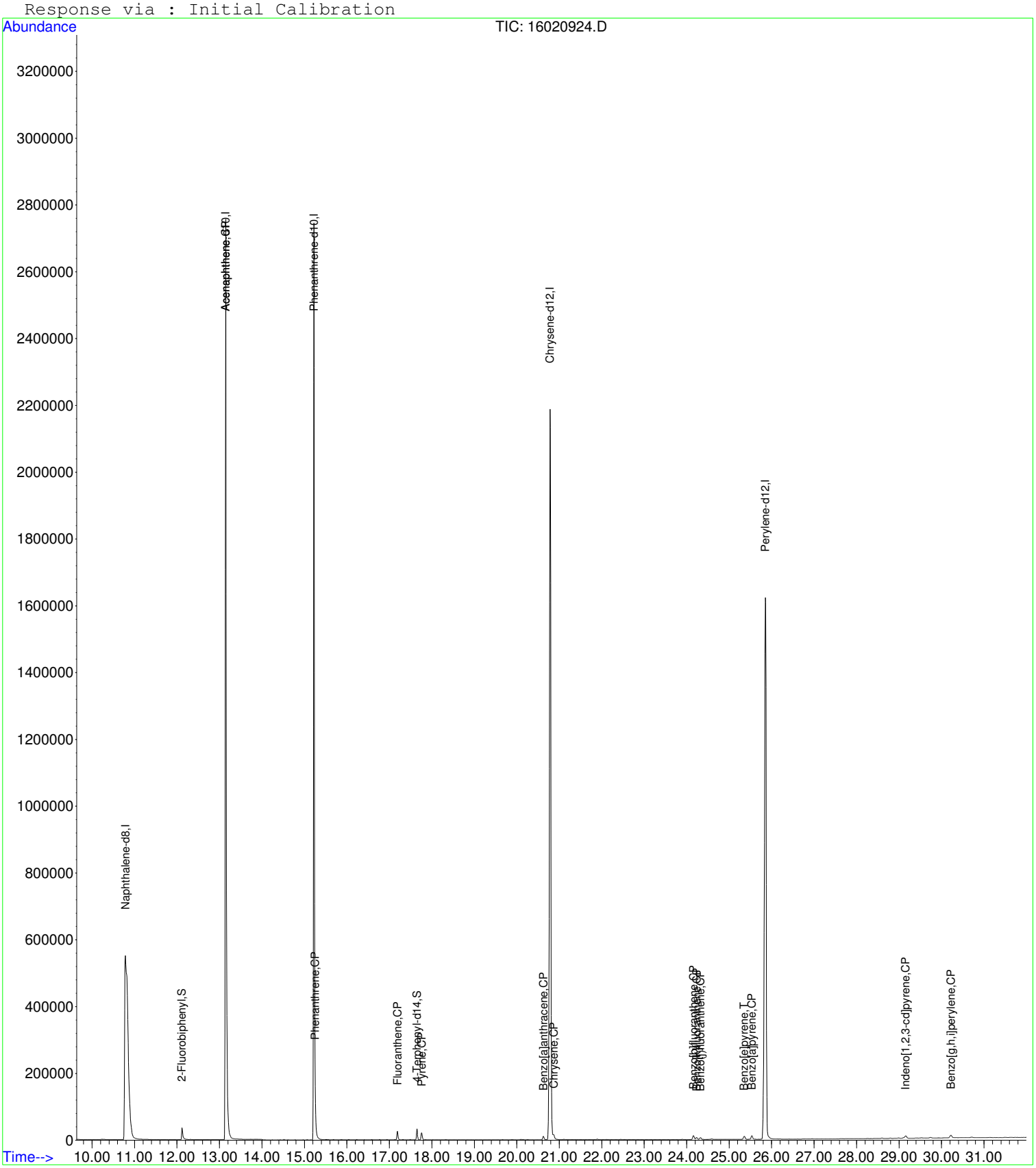
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7381	14.59 ug/kg#	10
12) Phenanthrene	15.26	178	10004	12.62 ug/kg	100
14) Fluoranthene	17.19	202	30313	38.57 ug/kg	99
15) Pyrene	17.76	202	28709	35.86 ug/kg	100
18) Benzo[a]anthracene	20.63	228	16202	20.25 ug/kg	98
19) Chrysene	20.87	228	21085	27.68 ug/kg	97
21) Benzo[b]fluoranthene	24.16	252	22036	26.80 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	9735	13.33 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	9660	14.08 ug/kg	87
24) Benzo[e]pyrene	25.35	252	16845	21.95 ug/kg	96
25) Benzo[a]pyrene	25.53	252	20634	27.62 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.16	276	15154	18.00 ug/kg	98
28) Benzo[g,h,i]perylene	30.22	276	15826	22.40 ug/kg	97

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

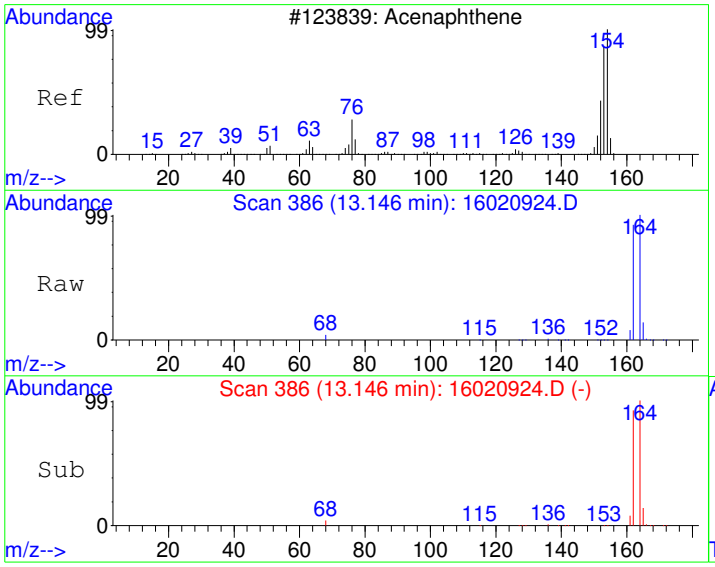
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020924.D Vial: 24
Acq On : 9 Feb 2016 10:43 pm Operator:
Sample : 1601232-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



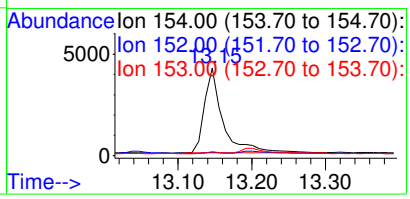
16020924.D PP160126.M Wed Feb 10 09:42:42 2016 Page 2

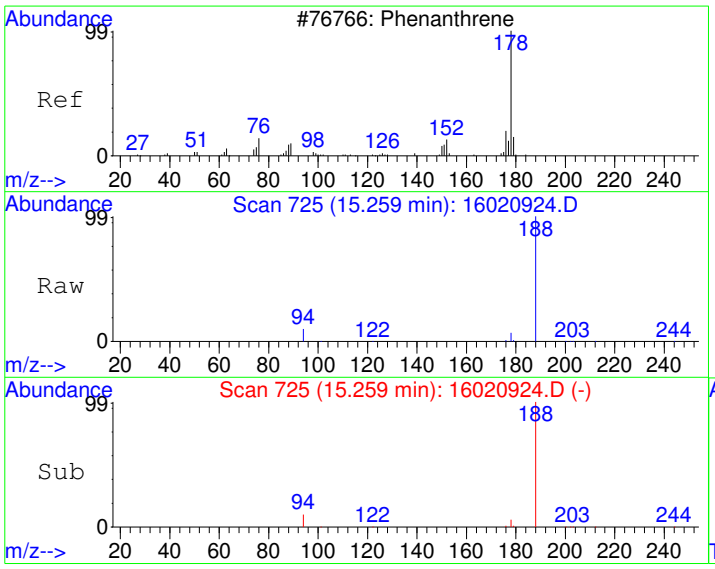


#9
Acenaphthene
Concen: 14.59 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:154 Resp: 7381

Ion	Ratio	Lower	Upper
154	100		
152	1.5	18.7	78.7#
153	2.3	74.4	134.4#

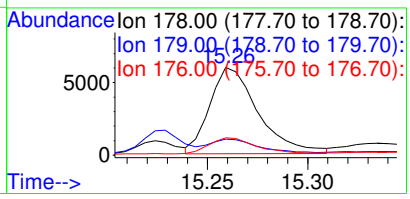


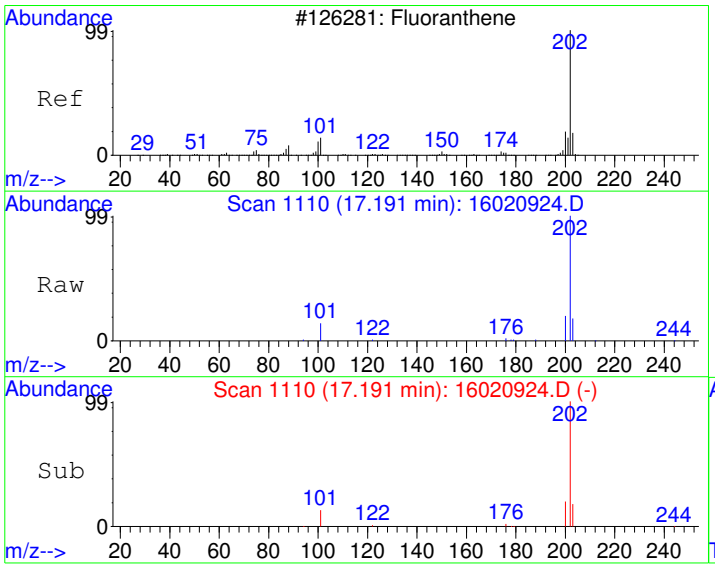


#12
Phenanthrene
Concen: 12.62 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.00 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:178 Resp: 10004

Ion	Ratio	Lower	Upper
178	100		
179	16.3	0.0	46.1
176	19.1	0.0	49.0

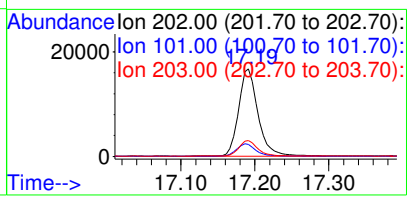


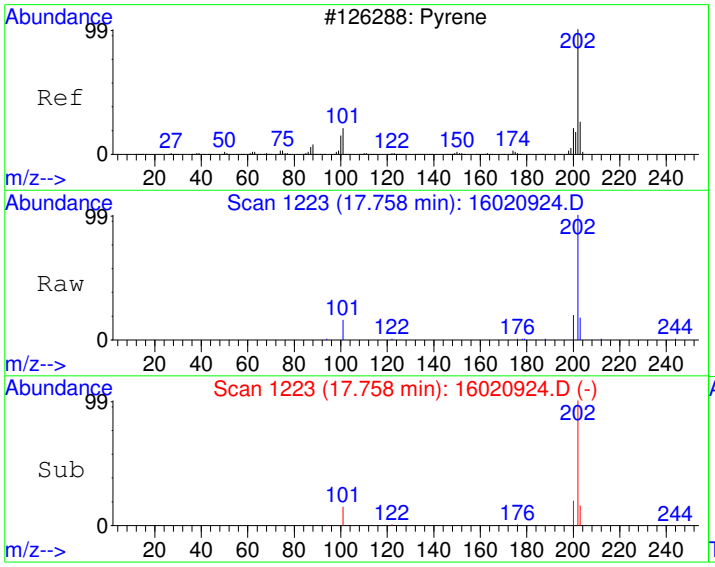


#14
Fluoranthene
Concen: 38.57 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:202 Resp: 30313

Ion	Ratio	Lower	Upper
202	100		
101	13.4	0.0	42.5
203	17.8	0.0	48.0

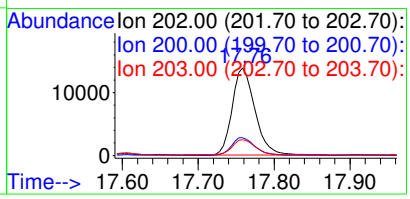


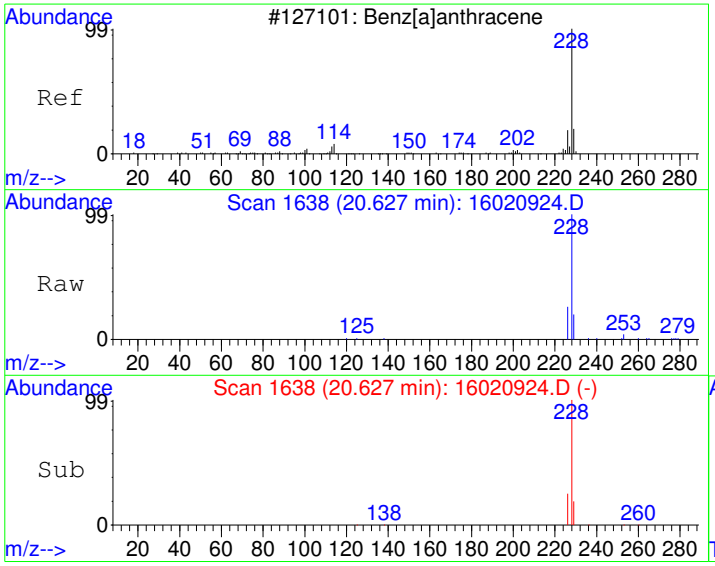


#15
Pyrene
Concen: 35.86 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:202 Resp: 28709

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

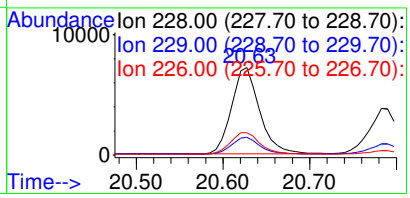


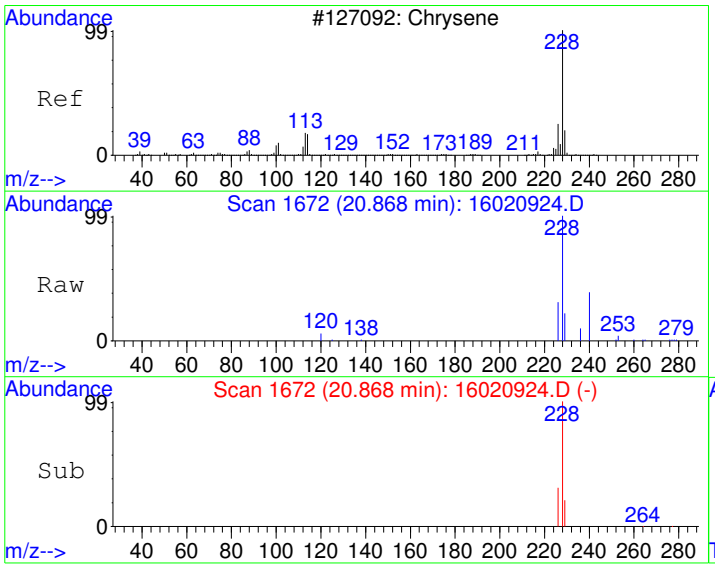


#18
Benzo[a]anthracene
Concen: 20.25 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:228 Resp: 16202

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	24.9	0.0	56.4

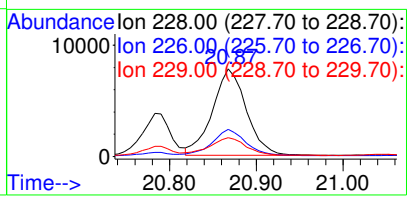


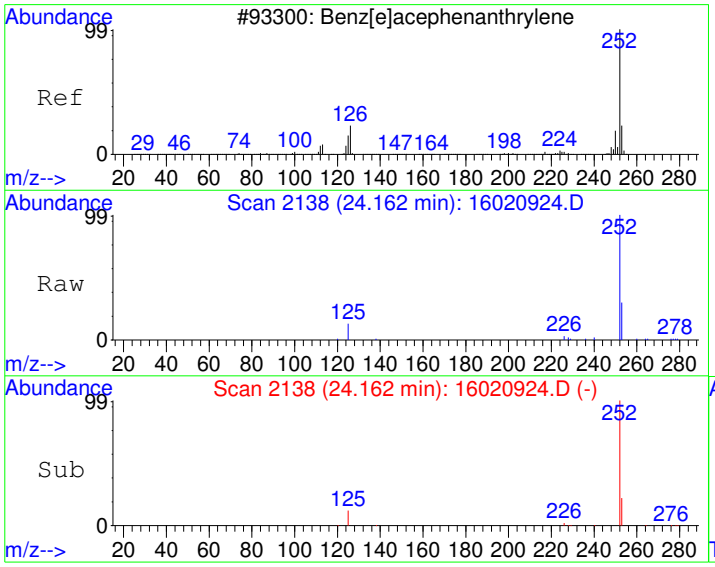


#19
Chrysene
Concen: 27.68 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:228 Resp: 21085

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	58.5
229	20.8	0.0	50.1

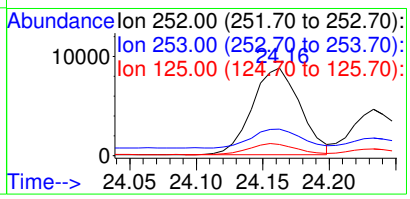


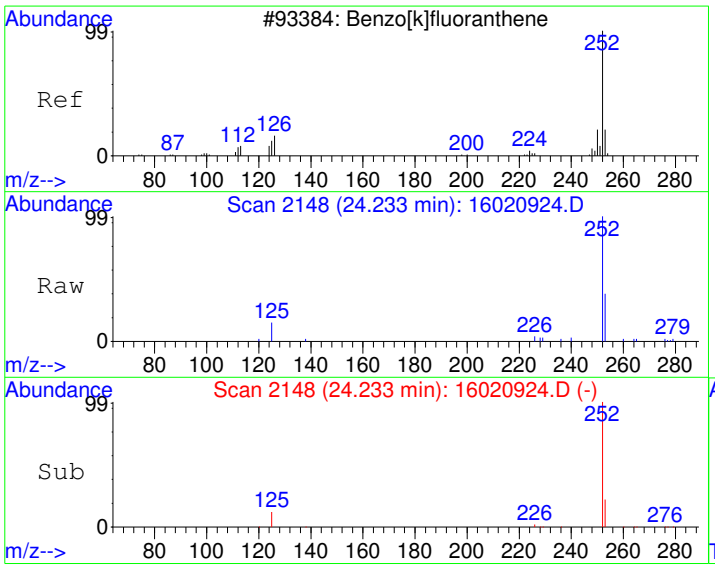


#21
Benzo[b]fluoranthene
Concen: 26.80 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:252 Resp: 22036

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	11.7	0.0	40.5

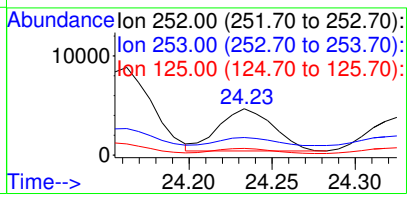


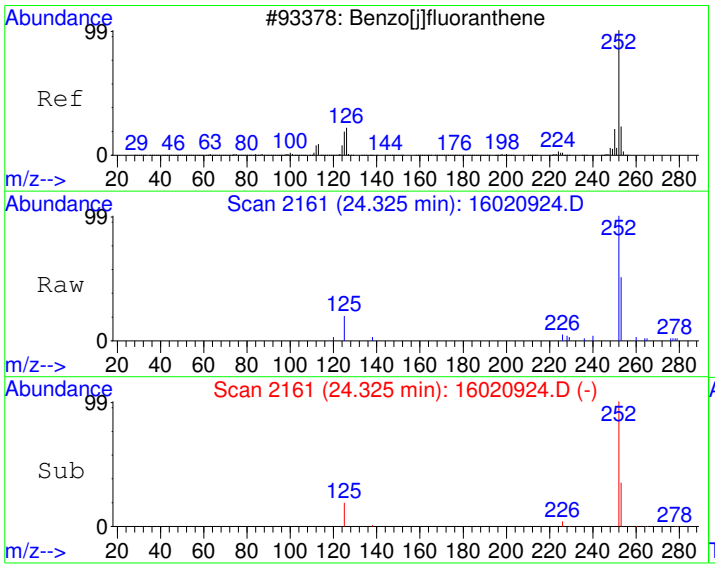


#22
Benzo[k]fluoranthene
Concen: 13.33 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:252 Resp: 9735

Ion	Ratio	Lower	Upper
252	100		
253	19.1	2.2	42.2
125	12.0	0.0	31.8

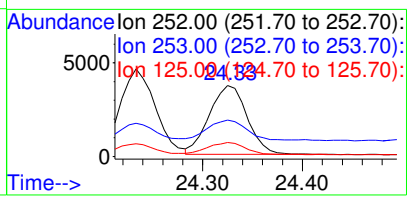


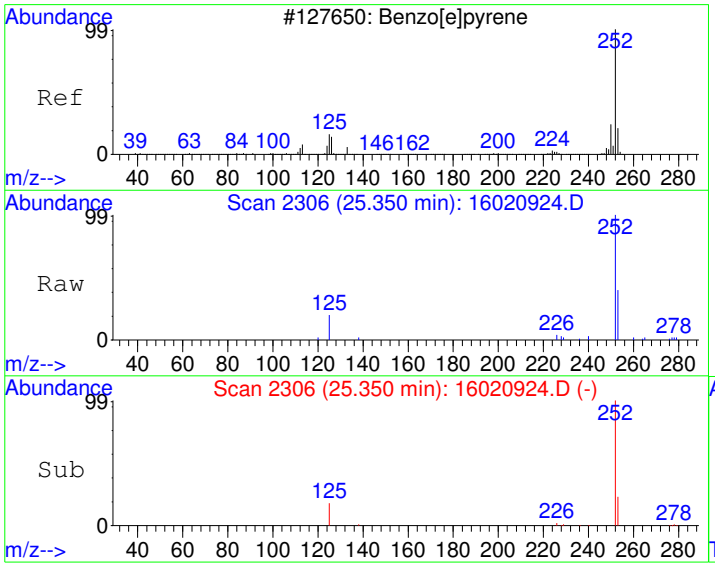


#23
Benzo(j)fluoranthene
Concen: 14.08 ug/kg
RT: 24.33 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:252 Resp: 9660

Ion	Ratio	Lower	Upper
252	100		
253	29.6	2.3	42.3
125	17.5	0.0	34.0

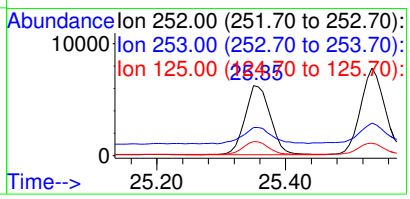


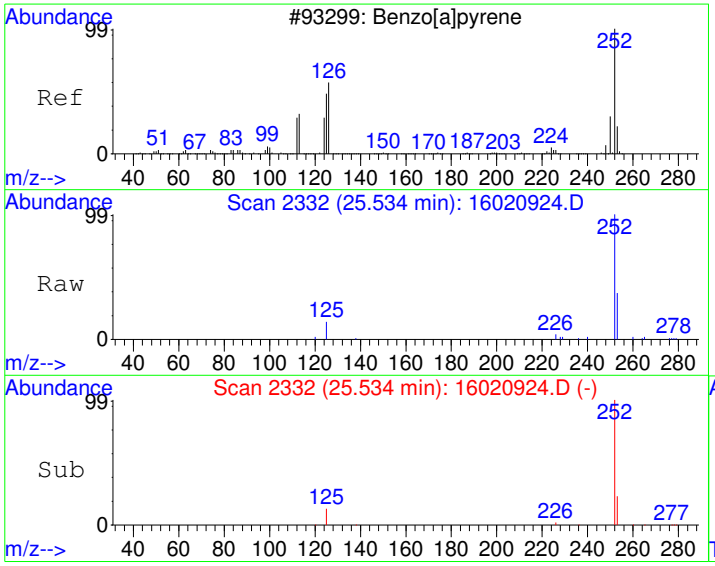


#24
Benzo[e]pyrene
Concen: 21.95 ug/kg
RT: 25.35 min Scan# 2306
Delta R.T. -0.04 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:252 Resp: 16845

Ion	Ratio	Lower	Upper
252	100		
253	23.4	2.2	42.2
125	18.5	0.0	36.0

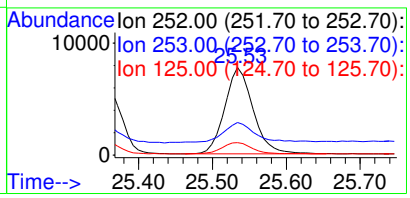


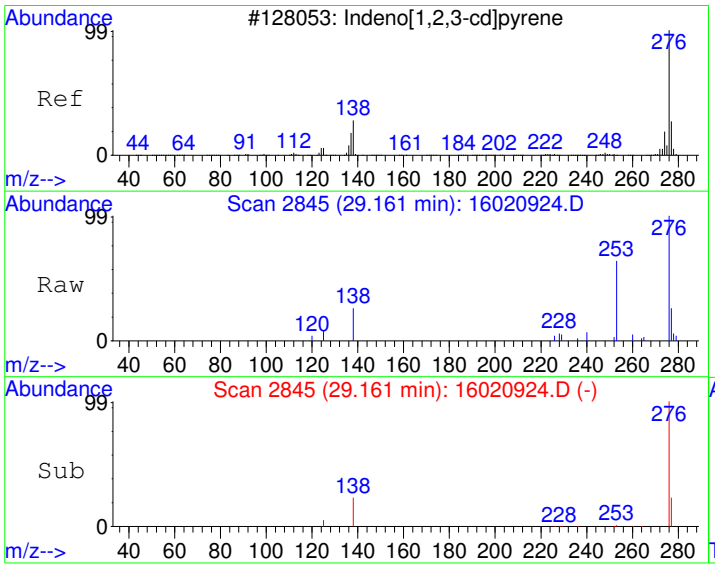


#25
Benzo[a]pyrene
Concen: 27.62 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:252 Resp: 20634

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.0	42.0
125	12.9	0.0	32.3

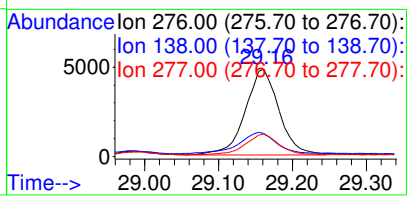


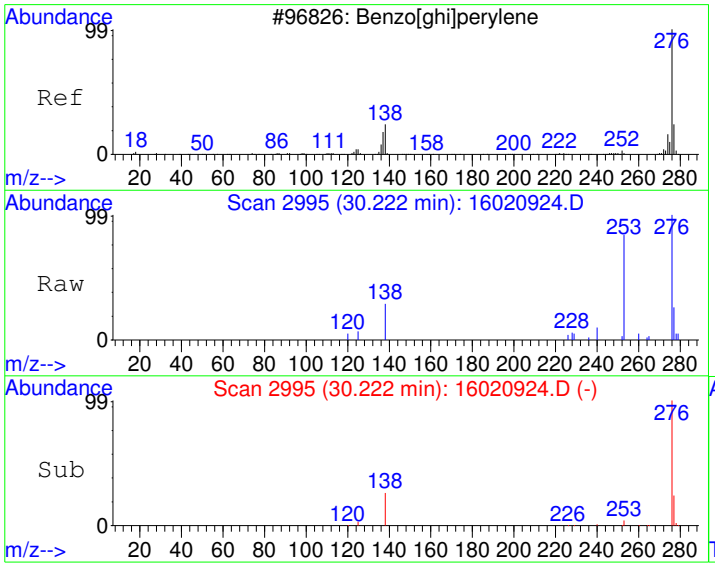


#27
Indeno[1,2,3-cd]pyrene
Concen: 18.00 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. 0.00 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:276 Resp: 15154

Ion	Ratio	Lower	Upper
276	100		
138	23.4	2.1	42.1
277	23.9	4.2	44.2

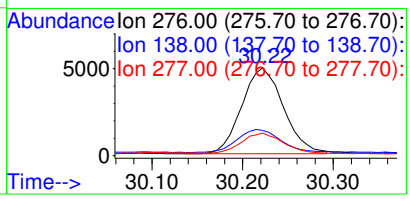




#28
Benzo[g,h,i]perylene
Concen: 22.40 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020924.D
Acq: 9 Feb 2016 10:43 pm

Tgt Ion:276 Resp: 15826

Ion	Ratio	Lower	Upper
276	100		
138	25.8	3.9	43.9
277	23.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020925.D Vial: 25
Acq On : 9 Feb 2016 11:22 pm Operator:
Sample : 1601232-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2445728	4000.00 ug/kg	117
5) Acenaphthene-d10	13.15	164	1993095	4000.00 ug/kg	109
11) Phenanthrene-d10	15.22	188	3413934	4000.00 ug/kg	104
17) Chrysene-d12	20.79	240	3619502	4000.00 ug/kg	125
20) Perylene-d12	25.86	264	3196337	4000.00 ug/kg	138

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46201	80.01 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.65	244	48150	84.42 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#	

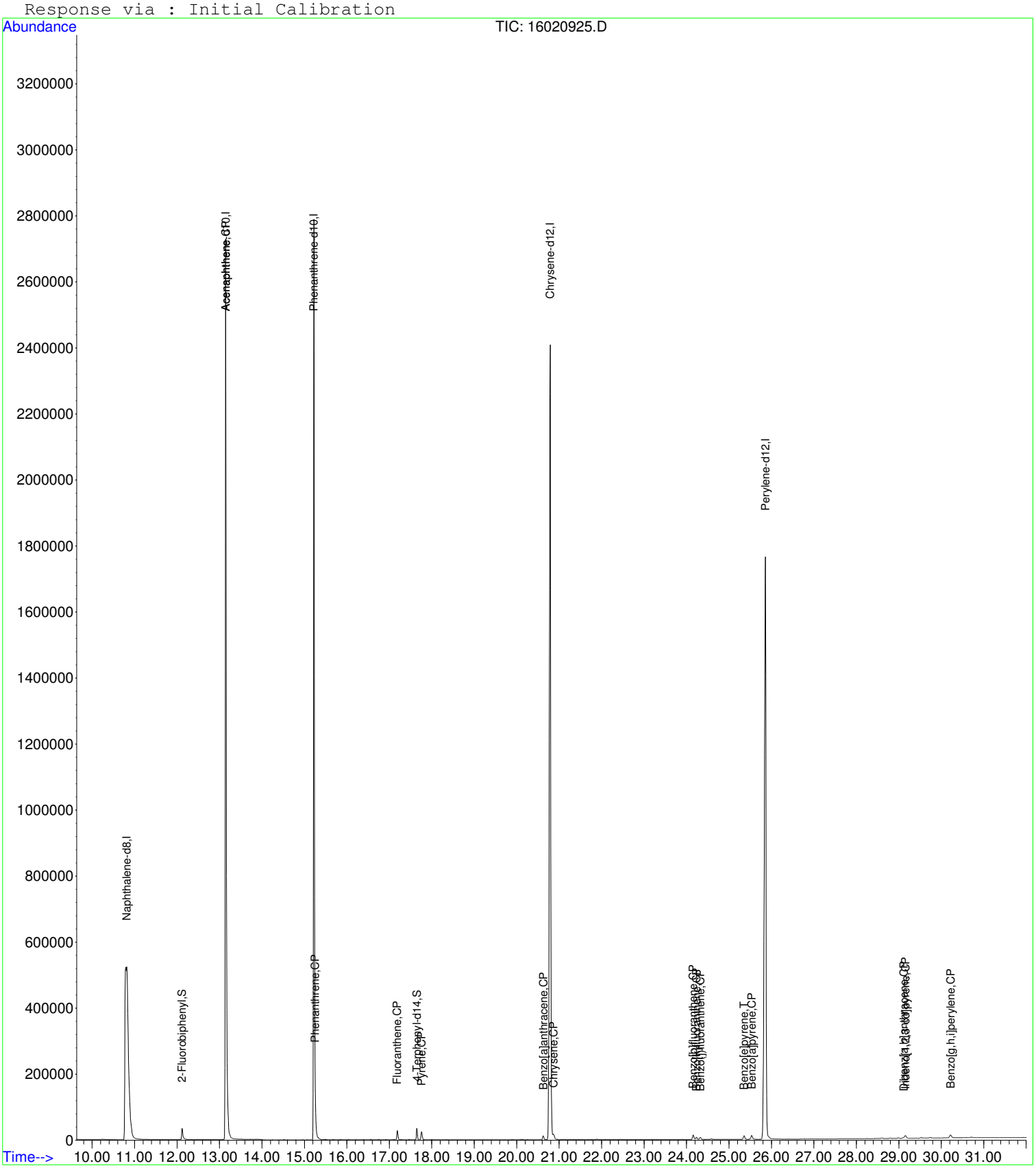
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7453	14.84 ug/kg#	10
12) Phenanthrene	15.26	178	11140	13.74 ug/kg	99
14) Fluoranthene	17.19	202	34386	42.77 ug/kg	97
15) Pyrene	17.76	202	32701	39.94 ug/kg	100
18) Benzo[a]anthracene	20.63	228	18061	21.64 ug/kg	99
19) Chrysene	20.87	228	23669	29.79 ug/kg	100
21) Benzo[b]fluoranthene	24.15	252	24713	29.00 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	10742	14.19 ug/kg	96
23) Benzo(j)fluoranthene	24.32	252	10879	15.30 ug/kg	88
24) Benzo[e]pyrene	25.36	252	18845	23.69 ug/kg	99
25) Benzo[a]pyrene	25.53	252	22903	29.57 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	3740	5.22 ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.16	276	16833	19.29 ug/kg	98
28) Benzo[g,h,i]perylene	30.22	276	17514	23.92 ug/kg	96

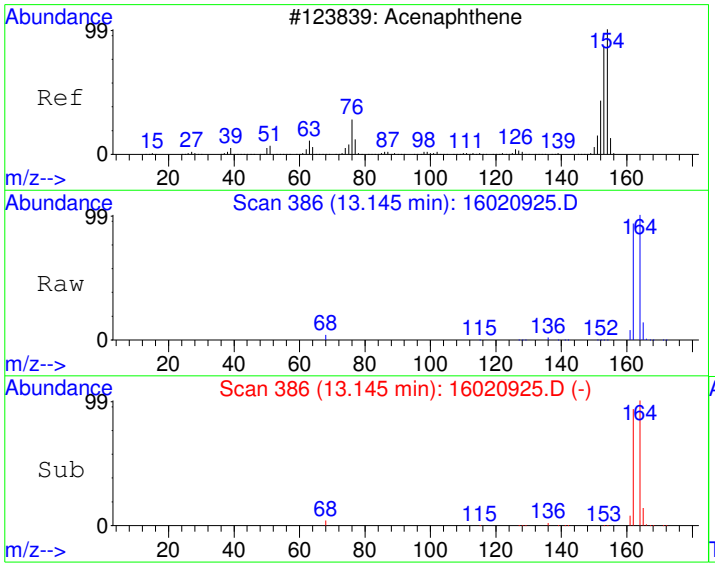
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020925.D Vial: 25
Acq On : 9 Feb 2016 11:22 pm Operator:
Sample : 1601232-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:42 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

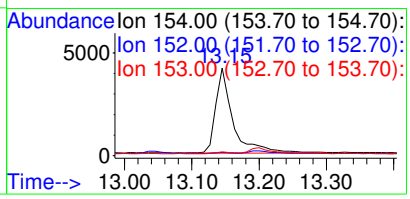


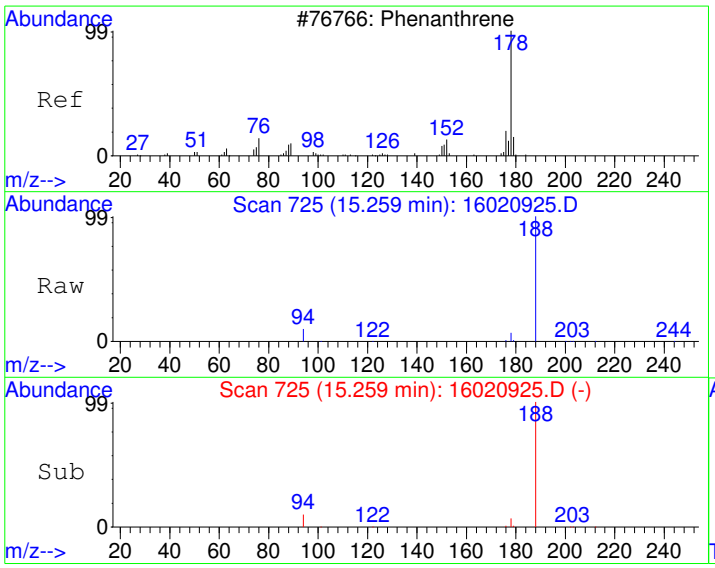


#9
Acenaphthene
Concen: 14.84 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:154 Resp: 7453

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.2	74.4	134.4#

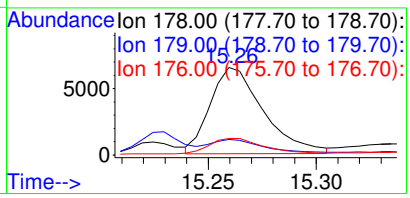


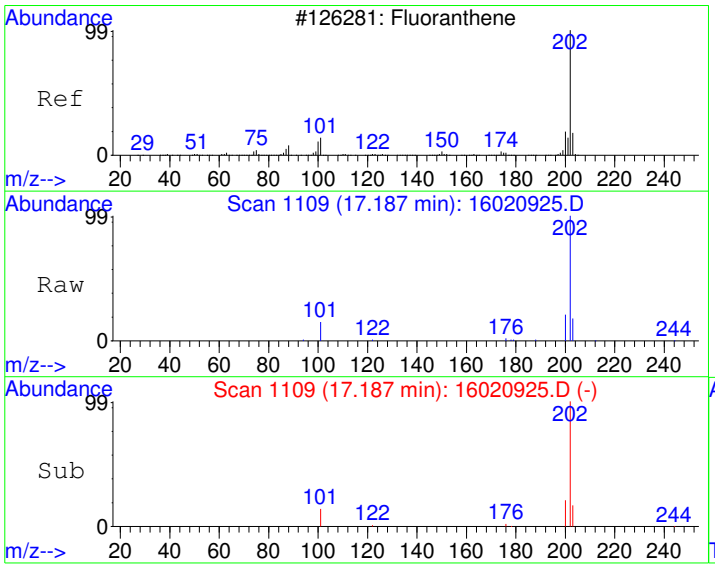


#12
Phenanthrene
Concen: 13.74 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.00 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:178 Resp: 11140

Ion	Ratio	Lower	Upper
178	100		
179	15.9	0.0	46.1
176	18.2	0.0	49.0

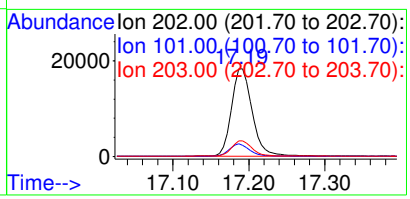


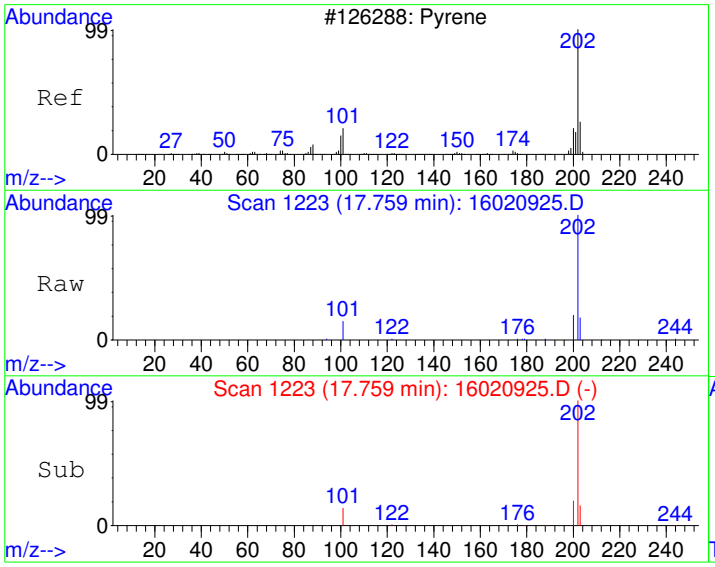


#14
Fluoranthene
Concen: 42.77 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:202 Resp: 34386

Ion	Ratio	Lower	Upper
202	100		
101	14.4	0.0	42.5
203	17.4	0.0	48.0

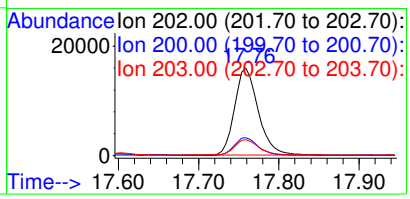


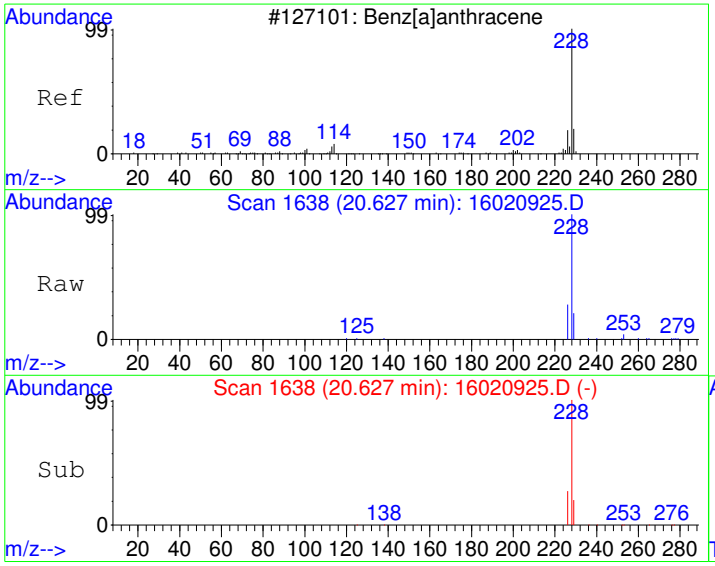


#15
Pyrene
Concen: 39.94 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:202 Resp: 32701

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.9	0.0	48.0

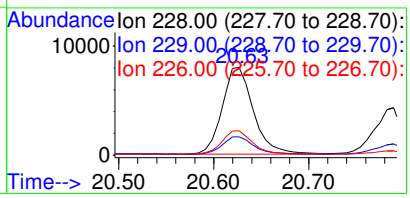


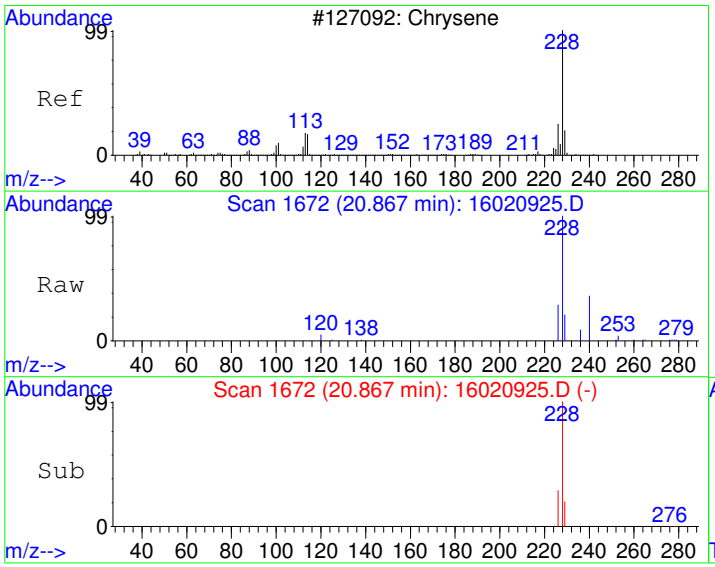


#18
Benzo[a]anthracene
Concen: 21.64 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:228 Resp: 18061

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.0
226	26.9	0.0	56.4

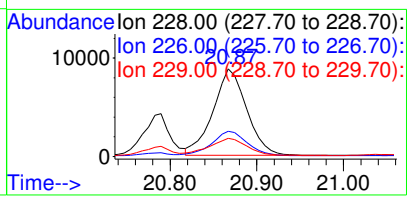


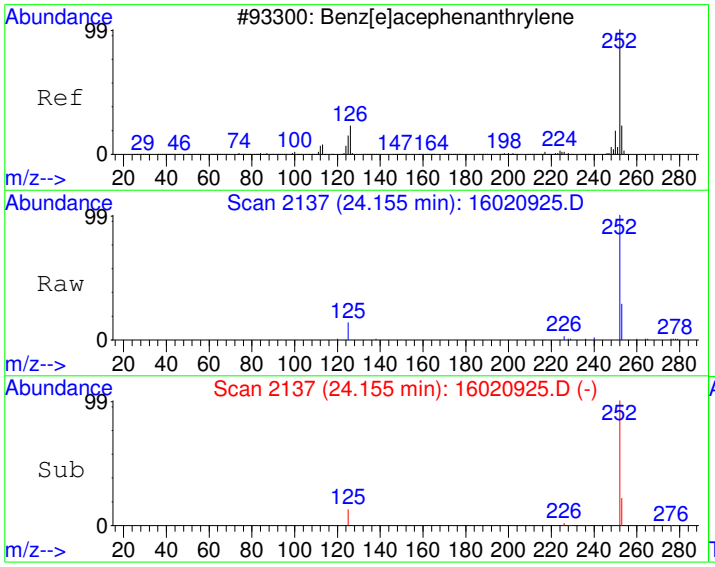


#19
Chrysene
Concen: 29.79 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:228 Resp: 23669

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.0	58.5
229	20.2	0.0	50.1

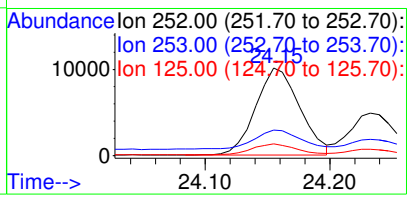


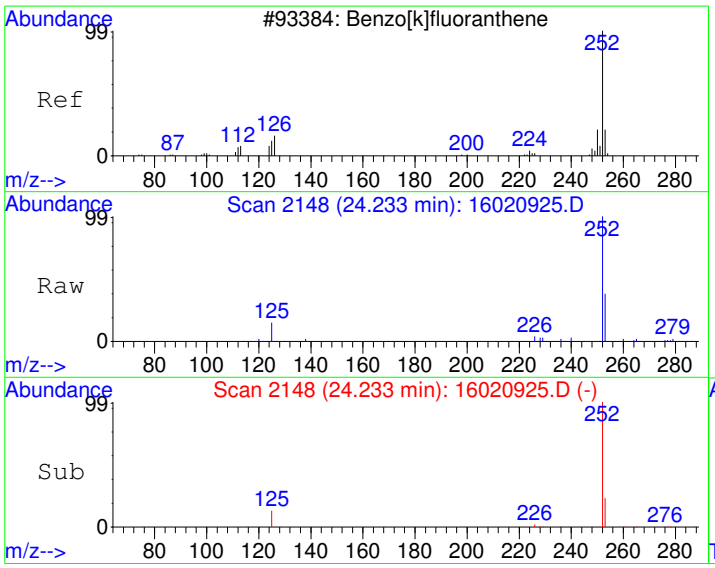


#21
Benzo[b]fluoranthene
Concen: 29.00 ug/kg
RT: 24.15 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:252 Resp: 24713

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.0
125	12.5	0.0	40.5

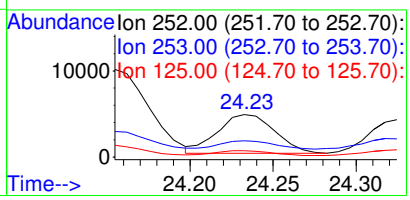


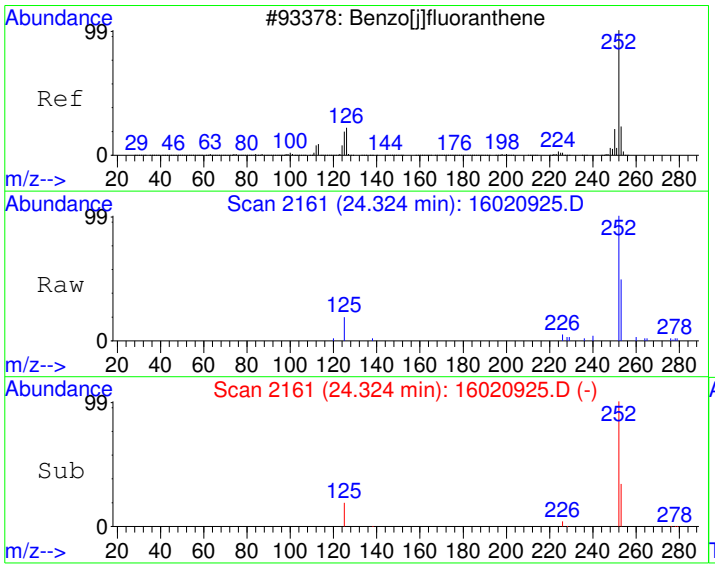


#22
Benzo[k]fluoranthene
Concen: 14.19 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:252 Resp: 10742

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	12.6	0.0	31.8

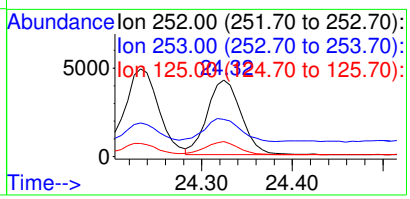


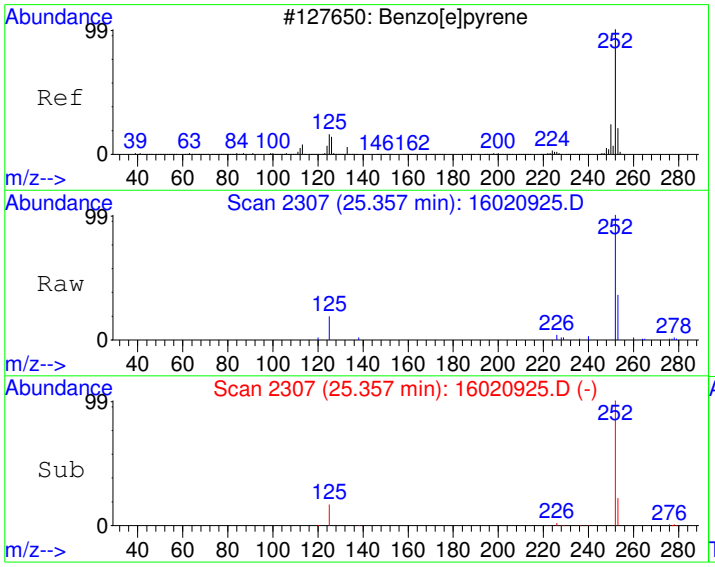


#23
Benzo(j)fluoranthene
Concen: 15.30 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:252 Resp: 10879

Ion	Ratio	Lower	Upper
252	100		
253	29.3	2.3	42.3
125	17.4	0.0	34.0

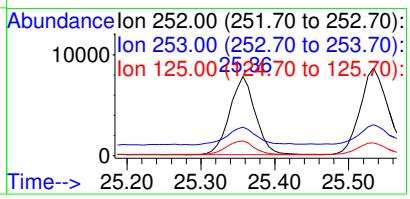


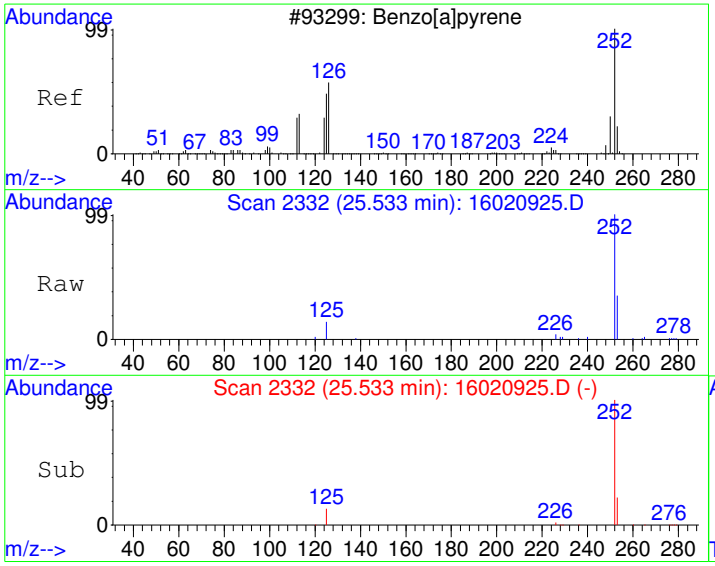


#24
Benzo[e]pyrene
Concen: 23.69 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:252 Resp: 18845

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.2	42.2
125	17.3	0.0	36.0

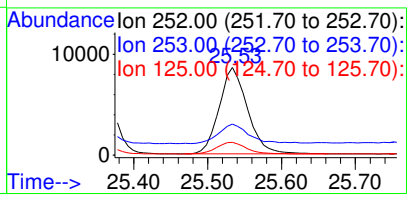


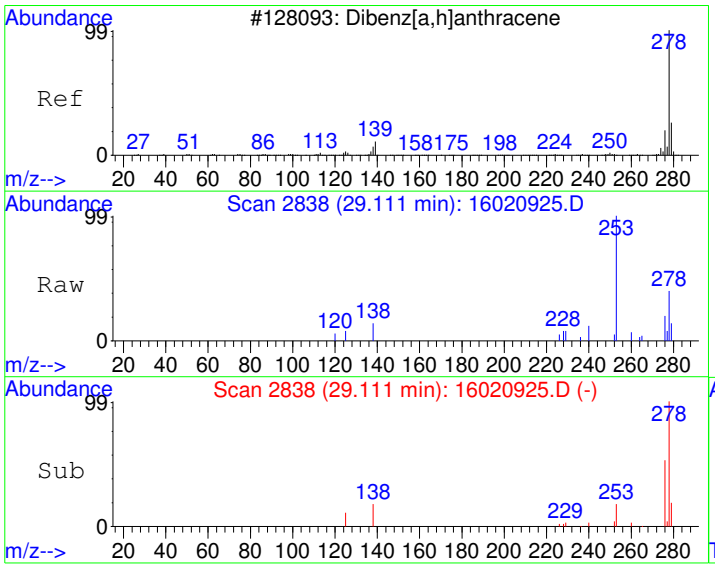


#25
Benzo[a]pyrene
Concen: 29.57 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:252 Resp: 22903

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.1	0.0	32.3

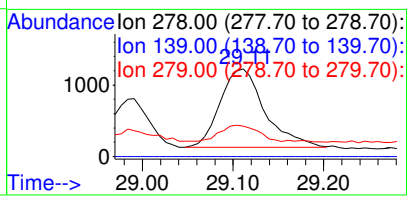


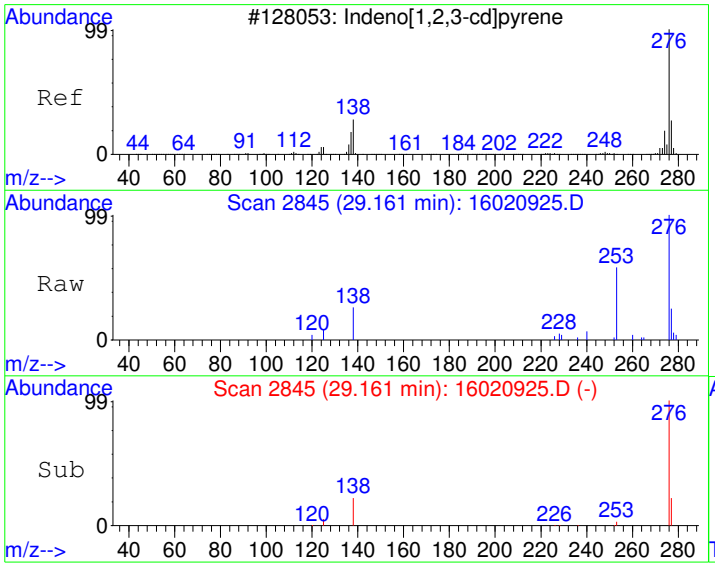


#26
Dibenz[a,h]anthracene
Concen: 5.22 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:278 Resp: 3740

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.4	3.8	43.8

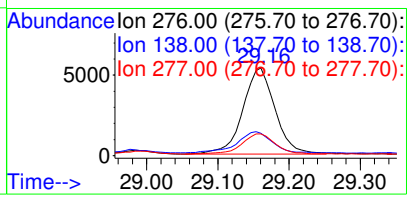


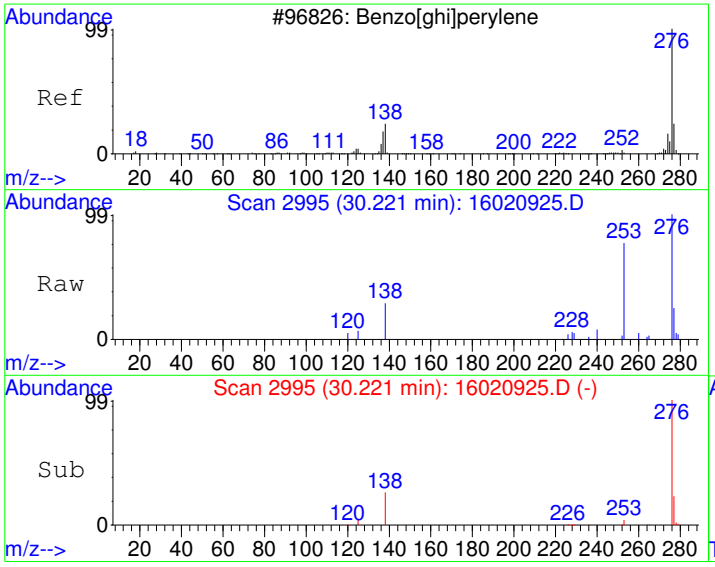


#27
Indeno[1,2,3-cd]pyrene
Concen: 19.29 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:276 Resp: 16833

Ion	Ratio	Lower	Upper
276	100		
138	22.6	2.1	42.1
277	23.1	4.2	44.2

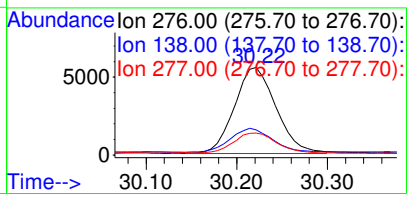




#28
Benzo[g,h,i]perylene
Concen: 23.92 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020925.D
Acq: 9 Feb 2016 11:22 pm

Tgt Ion:276 Resp: 17514

Ion	Ratio	Lower	Upper
276	100		
138	26.1	3.9	43.9
277	22.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020926.D Vial: 26
Acq On : 10 Feb 2016 12:02 am Operator:
Sample : 1601232-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:43 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2593853	4000.00 ug/kg	124
5) Acenaphthene-d10	13.15	164	2084570	4000.00 ug/kg	114
11) Phenanthrene-d10	15.22	188	3529473	4000.00 ug/kg	108
17) Chrysene-d12	20.79	240	3654174	4000.00 ug/kg	127
20) Perylene-d12	25.86	264	3256941	4000.00 ug/kg	141

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	46669	77.27 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.93%#		
16) 4-Terphenyl-d14	17.65	244	48835	82.82 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.07%#		

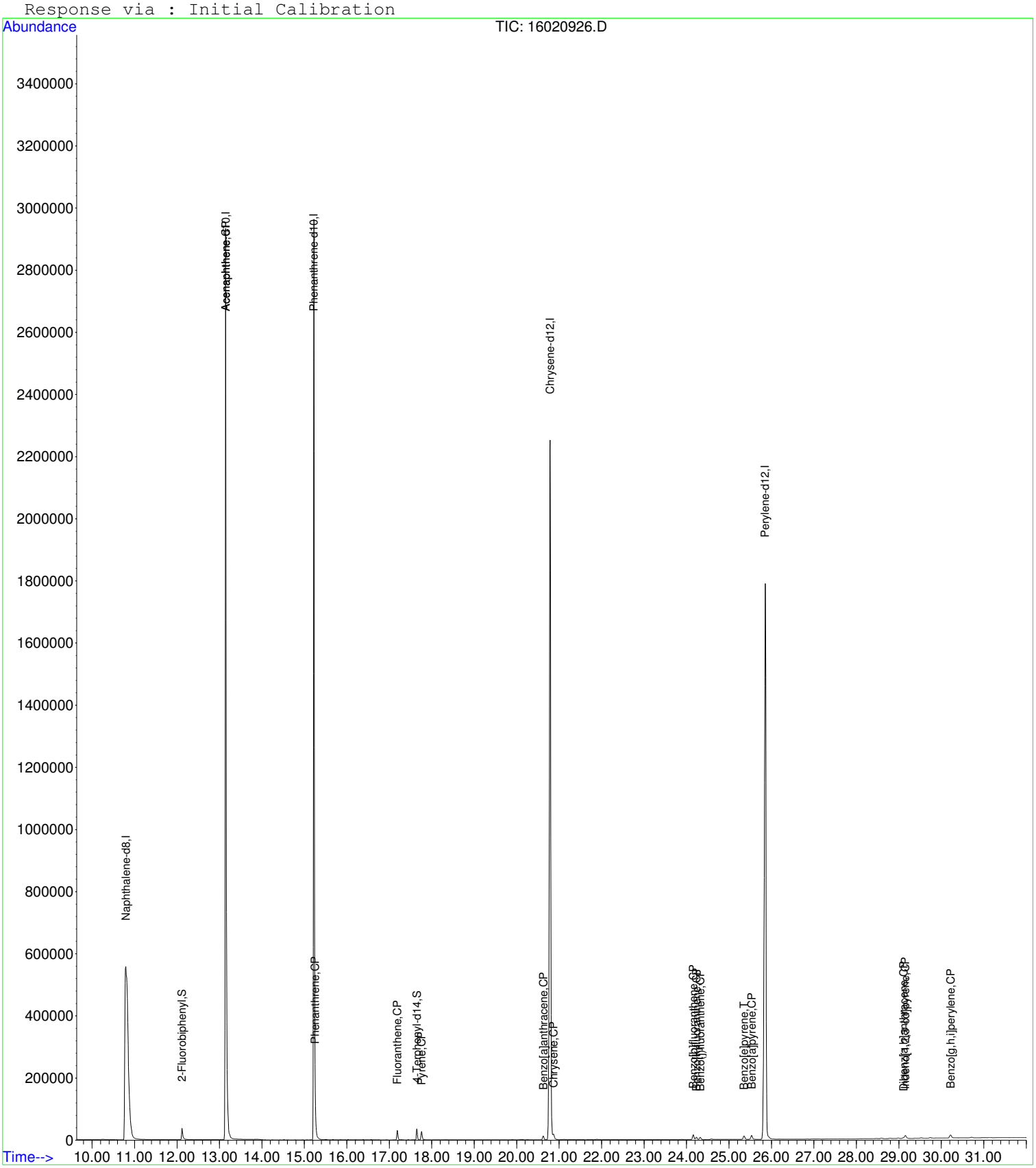
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7722	14.70 ug/kg#	10
12) Phenanthrene	15.26	178	11635	13.88 ug/kg	98
14) Fluoranthene	17.19	202	36343	43.73 ug/kg	97
15) Pyrene	17.76	202	34644	40.92 ug/kg	100
18) Benzo[a]anthracene	20.63	228	19833	23.54 ug/kg	100
19) Chrysene	20.87	228	25525	31.82 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	26925	31.01 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	11991	15.55 ug/kg	96
23) Benzo(j)fluoranthene	24.32	252	11981	16.54 ug/kg	87
24) Benzo[e]pyrene	25.36	252	20924	25.81 ug/kg	98
25) Benzo[a]pyrene	25.53	252	25626	32.47 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	4079	5.59 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.15	276	18499	20.80 ug/kg	95
28) Benzo[g,h,i]perylene	30.22	276	19417	26.02 ug/kg	97

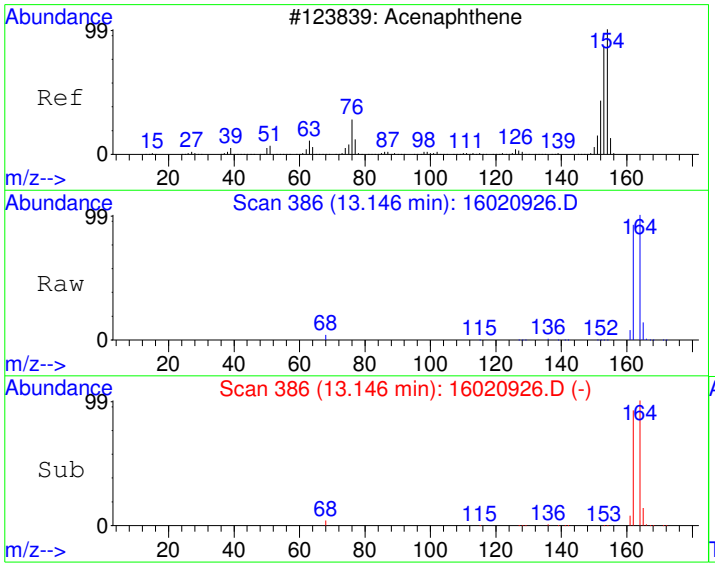
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020926.D Vial: 26
Acq On : 10 Feb 2016 12:02 am Operator:
Sample : 1601232-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:43 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

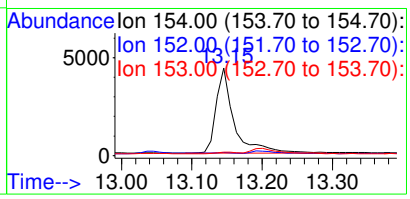


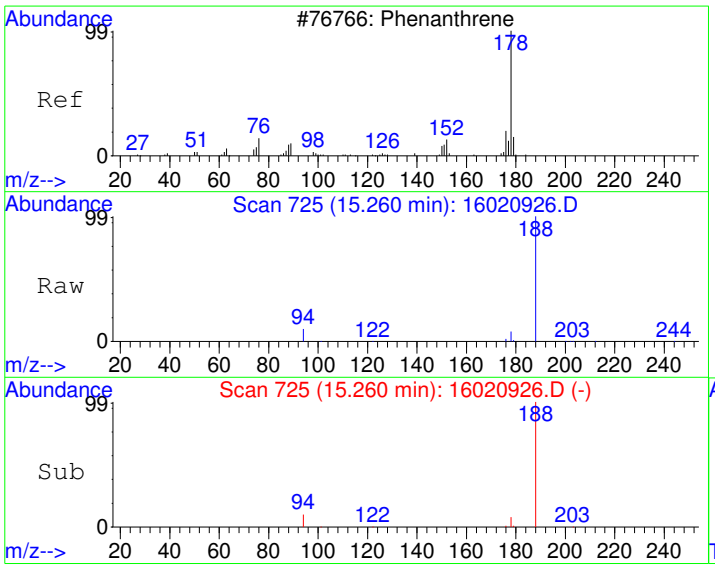


#9
Acenaphthene
Concen: 14.70 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:154 Resp: 7722

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.0	74.4	134.4#

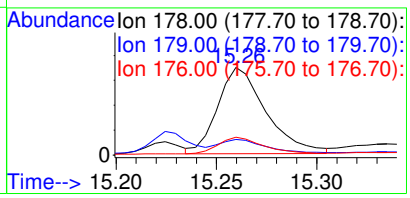


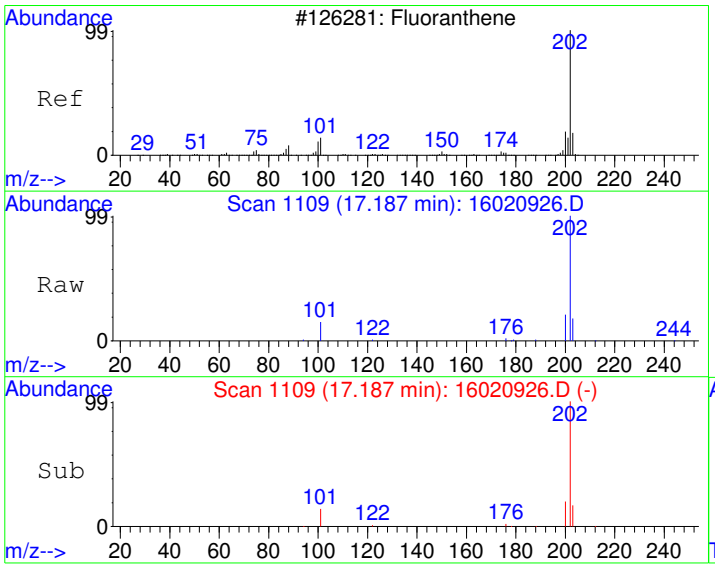


#12
Phenanthrene
Concen: 13.88 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.00 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:178 Resp: 11635

Ion	Ratio	Lower	Upper
178	100		
179	16.1	0.0	46.1
176	20.5	0.0	49.0

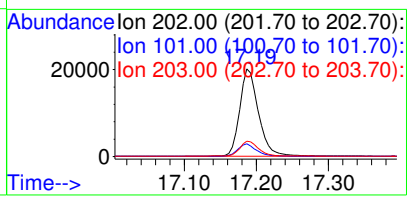


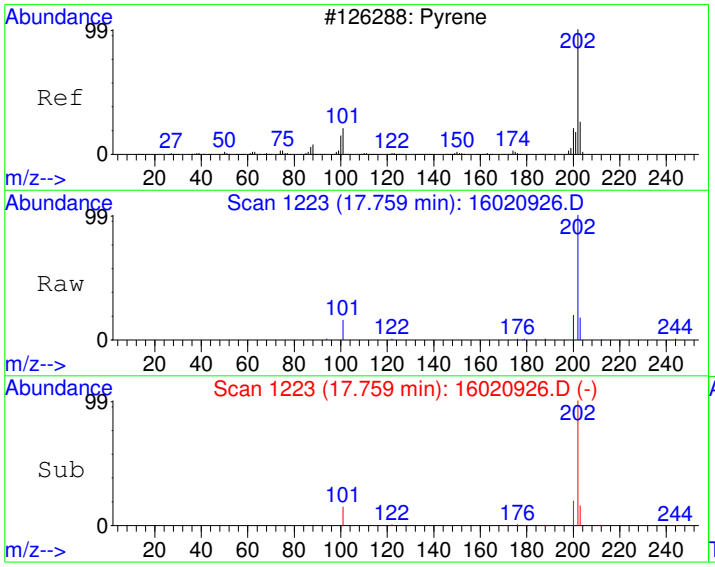


#14
Fluoranthene
Concen: 43.73 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:202 Resp: 36343

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	42.5
203	17.3	0.0	48.0

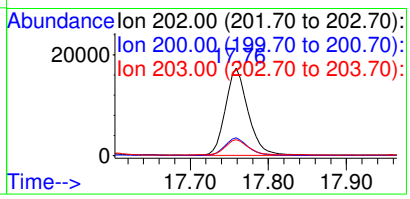


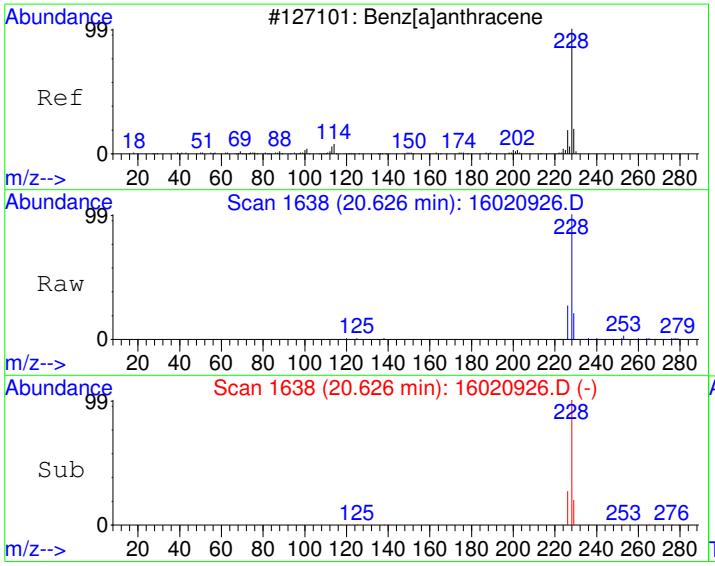


#15
Pyrene
Concen: 40.92 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:202 Resp: 34644

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.9	0.0	48.0

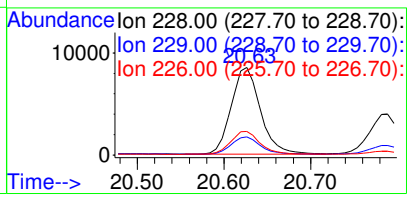


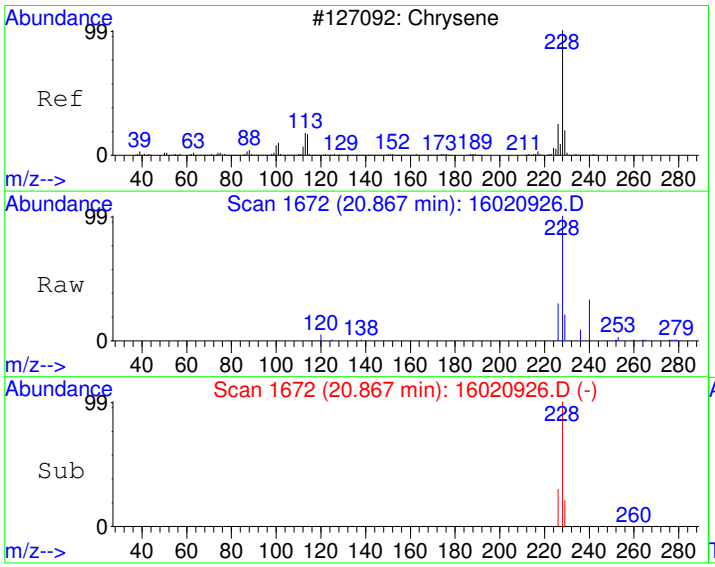


#18
Benzo[a]anthracene
Concen: 23.54 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:228 Resp: 19833

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.0
226	26.5	0.0	56.4

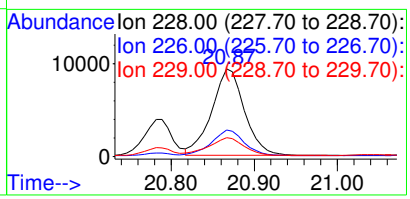


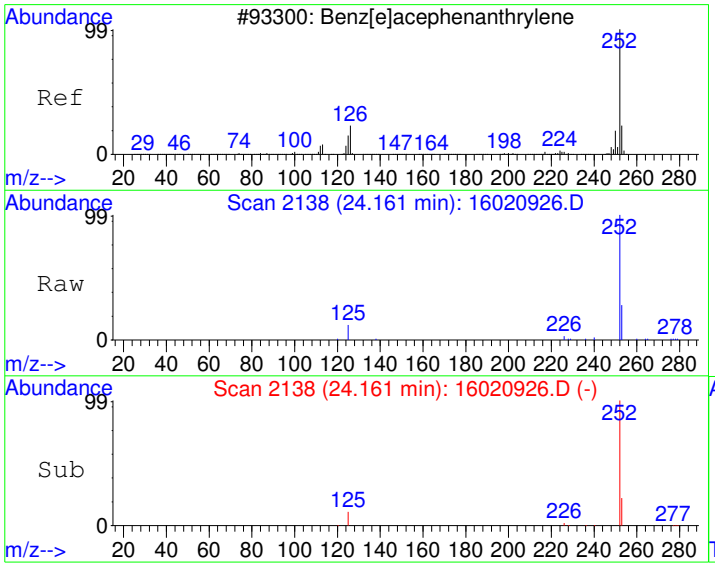


#19
Chrysene
Concen: 31.82 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:228 Resp: 25525

Ion	Ratio	Lower	Upper
228	100		
226	29.8	0.0	58.5
229	20.7	0.0	50.1

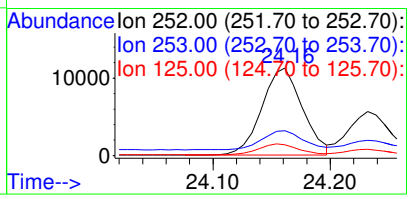


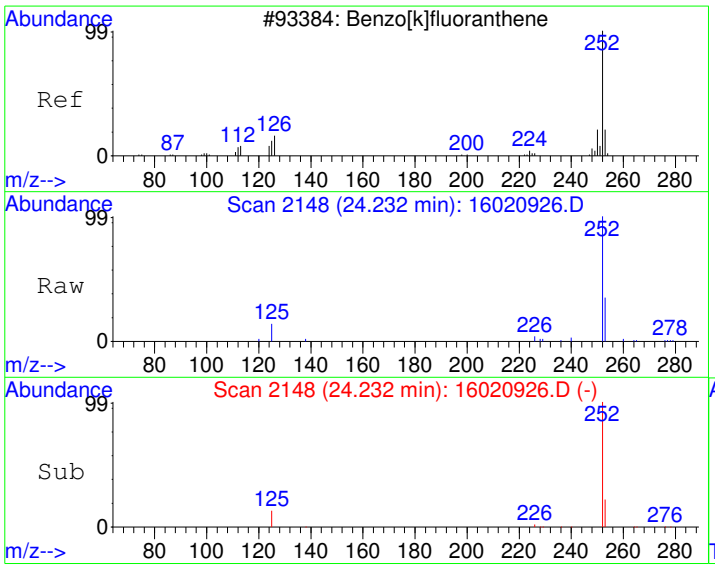


#21
Benzo[b]fluoranthene
Concen: 31.01 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.02 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:252 Resp: 26925

Ion	Ratio	Lower	Upper
252	100		
253	21.8	0.0	52.0
125	11.5	0.0	40.5

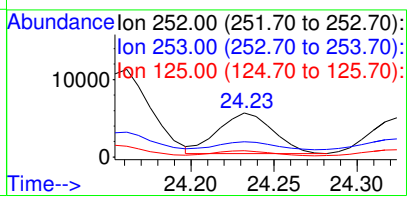


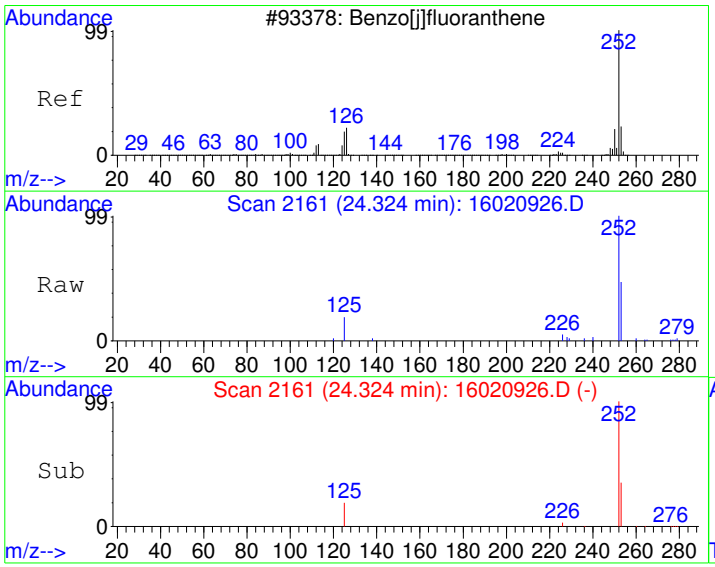


#22
Benzo[k]fluoranthene
Concen: 15.55 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:252 Resp: 11991

Ion	Ratio	Lower	Upper
252	100		
253	19.6	2.2	42.2
125	11.9	0.0	31.8

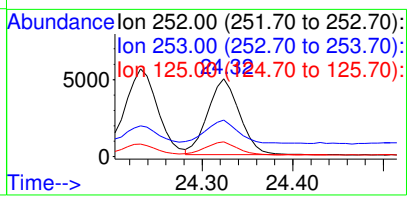


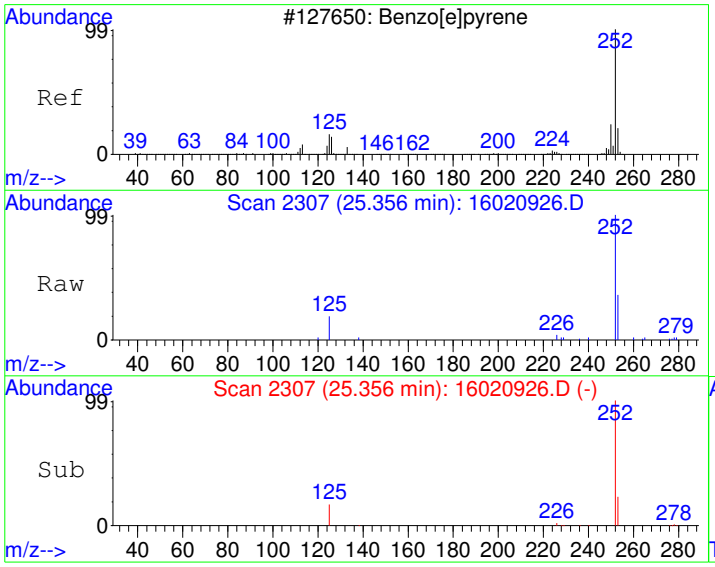


#23
Benzo(j)fluoranthene
Concen: 16.54 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:252 Resp: 11981

Ion	Ratio	Lower	Upper
252	100		
253	30.5	2.3	42.3
125	17.2	0.0	34.0

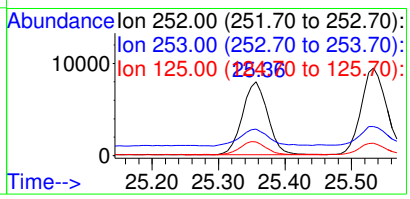


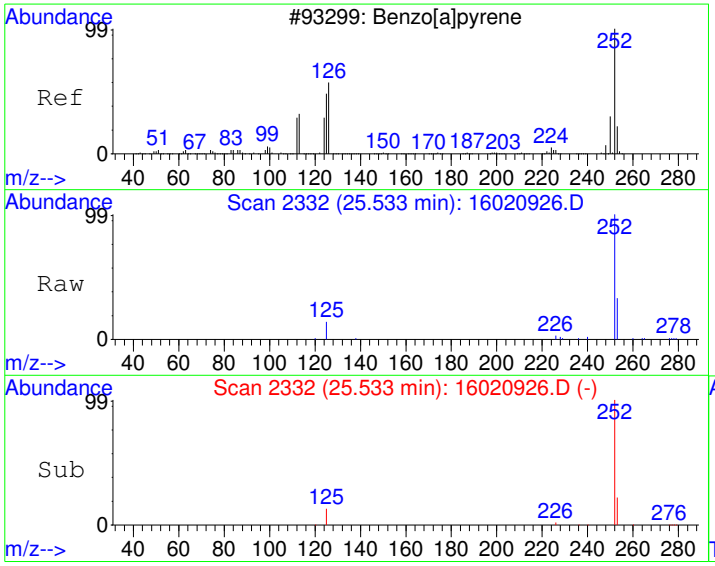


#24
Benzo[e]pyrene
Concen: 25.81 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:252 Resp: 20924

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	17.4	0.0	36.0

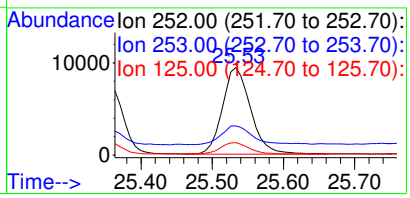


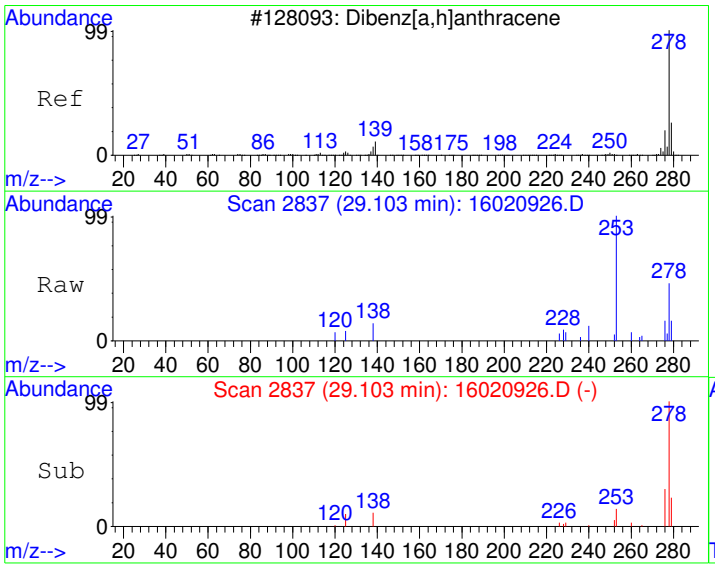


#25
Benzo[a]pyrene
Concen: 32.47 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:252 Resp: 25626

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.0	42.0
125	13.0	0.0	32.3

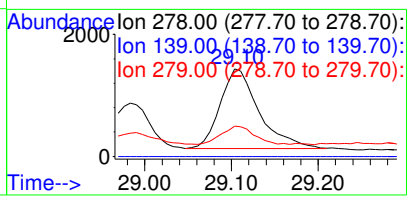


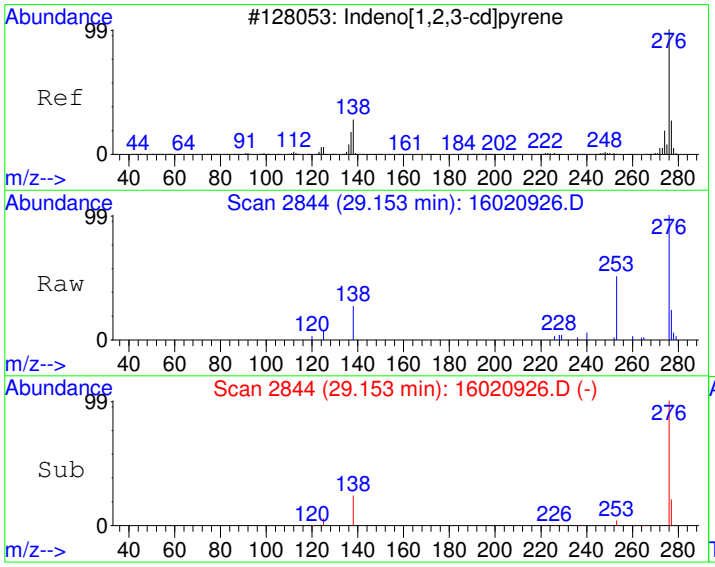


#26
Dibenz[a,h]anthracene
Concen: 5.59 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.02 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:278 Resp: 4079

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	3.8	43.8

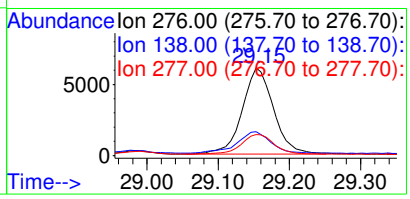


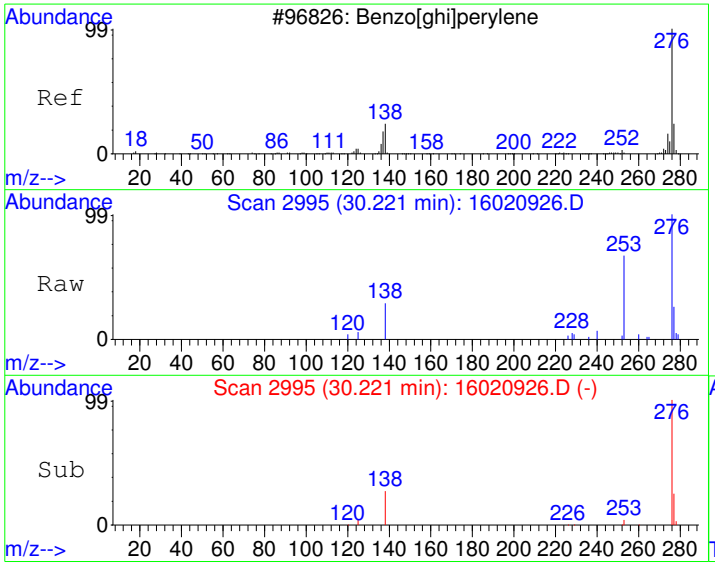


#27
Indeno[1,2,3-cd]pyrene
Concen: 20.80 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:276 Resp: 18499

Ion	Ratio	Lower	Upper
276	100		
138	25.0	2.1	42.1
277	22.5	4.2	44.2

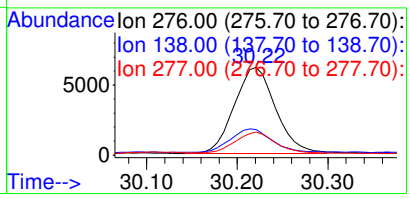




#28
Benzo[g,h,i]perylene
Concen: 26.02 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020926.D
Acq: 10 Feb 2016 12:02 am

Tgt Ion:276 Resp: 19417

Ion	Ratio	Lower	Upper
276	100		
138	26.6	3.9	43.9
277	24.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020927.D Vial: 27
Acq On : 10 Feb 2016 12:41 am Operator:
Sample : 1601232-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:43 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2658836	4000.00 ug/kg	127
5) Acenaphthene-d10	13.14	164	2078051	4000.00 ug/kg	114
11) Phenanthrene-d10	15.22	188	3485976	4000.00 ug/kg	107
17) Chrysene-d12	20.79	240	3640912	4000.00 ug/kg	126
20) Perylene-d12	25.85	264	3213664	4000.00 ug/kg	139

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	47285	78.54 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	
16) 4-Terphenyl-d14	17.65	244	49390	84.81 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	

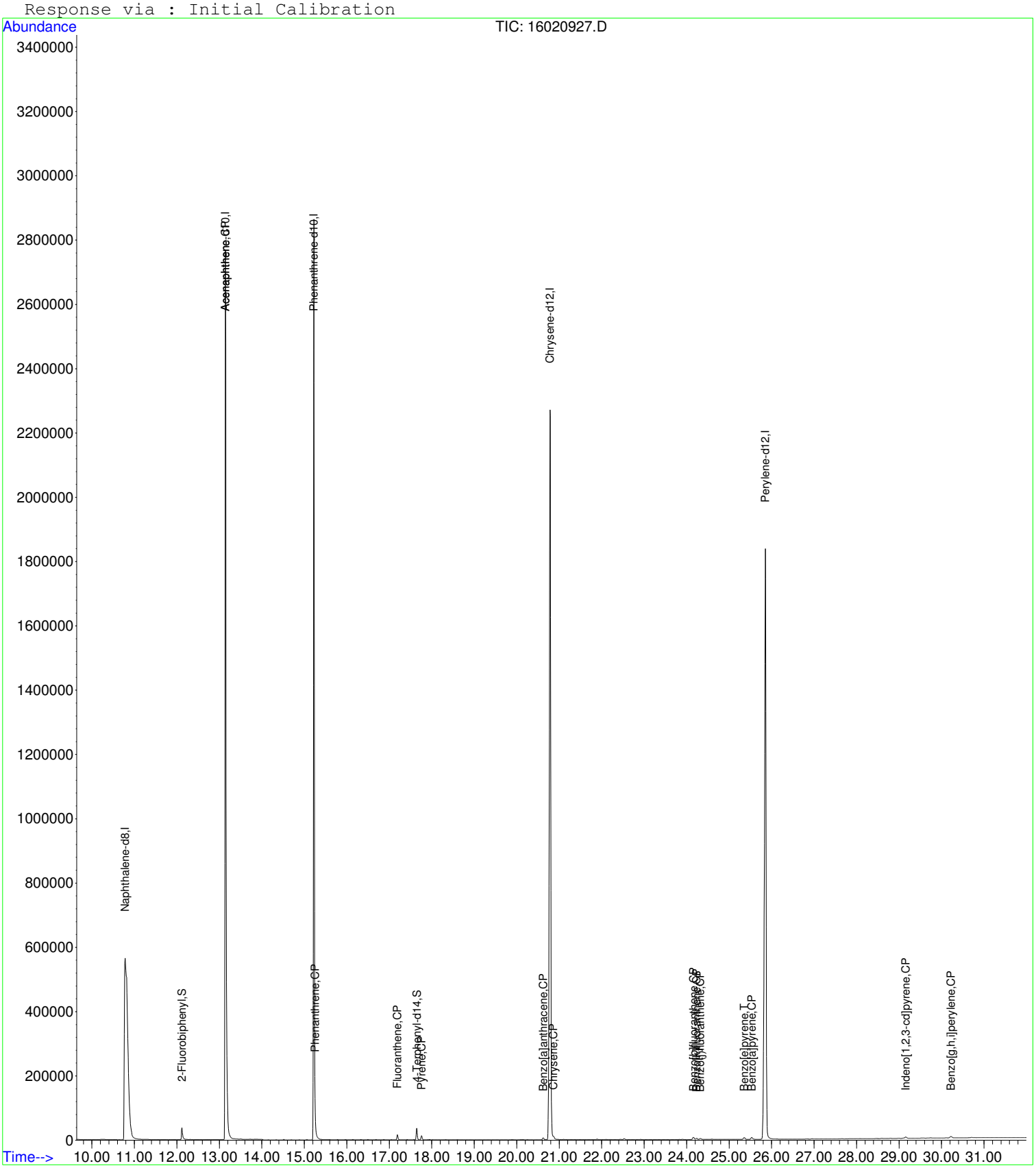
Target Compounds					Qvalue
9) Acenaphthene	13.14	154	7542	14.41 ug/kg#	10
12) Phenanthrene	15.26	178	6368	7.69 ug/kg	98
14) Fluoranthene	17.19	202	19080	23.24 ug/kg	98
15) Pyrene	17.76	202	17314	20.71 ug/kg	99
18) Benzo[a]anthracene	20.62	228	9743	11.61 ug/kg	100
19) Chrysene	20.87	228	12621	15.79 ug/kg	100
21) Benzo[b]fluoranthene	24.16	252	13113	15.30 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	5978	7.85 ug/kg	94
23) Benzo(j)fluoranthene	24.32	252	5716	7.99 ug/kg	85
24) Benzo[e]pyrene	25.36	252	9837	12.30 ug/kg	97
25) Benzo[a]pyrene	25.53	252	11932	15.32 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.16	276	8913	10.16 ug/kg	96
28) Benzo[g,h,i]perylene	30.22	276	9157	12.44 ug/kg	94

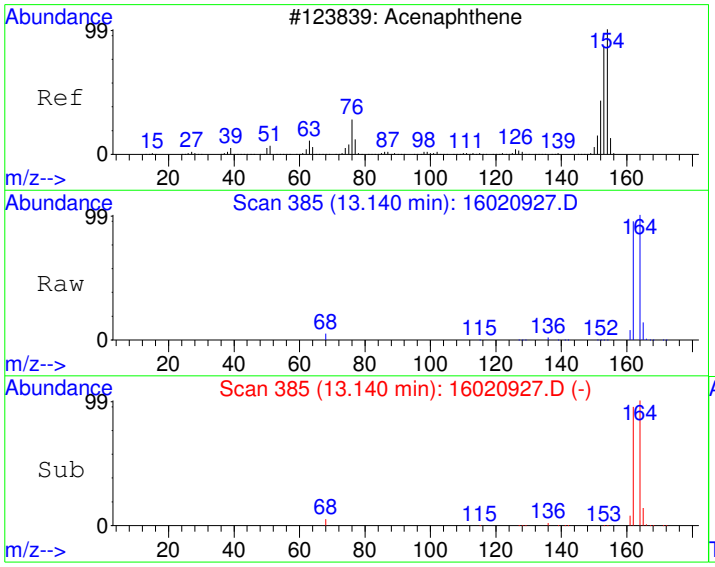
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020927.D Vial: 27
Acq On : 10 Feb 2016 12:41 am Operator:
Sample : 1601232-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:43 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

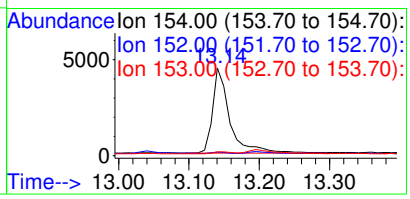


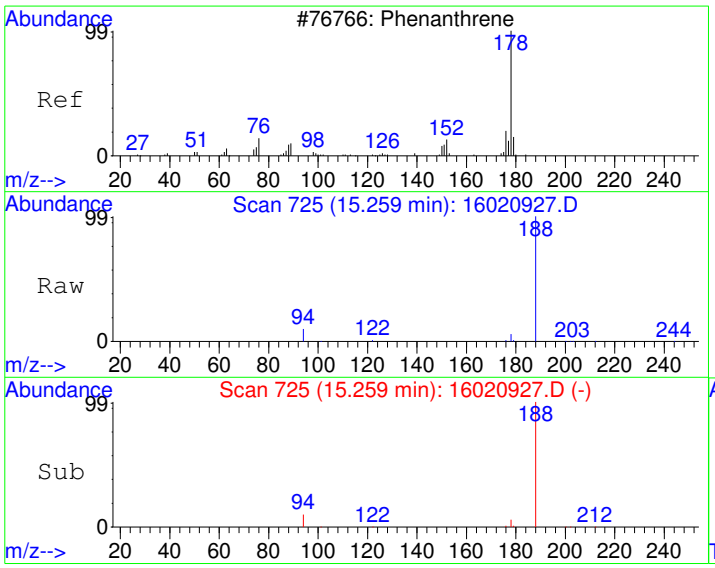


#9
Acenaphthene
Concen: 14.41 ug/kg
RT: 13.14 min Scan# 385
Delta R.T. -0.05 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:154 Resp: 7542

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.1	74.4	134.4#

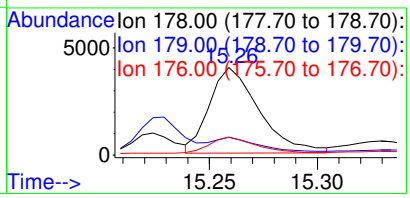


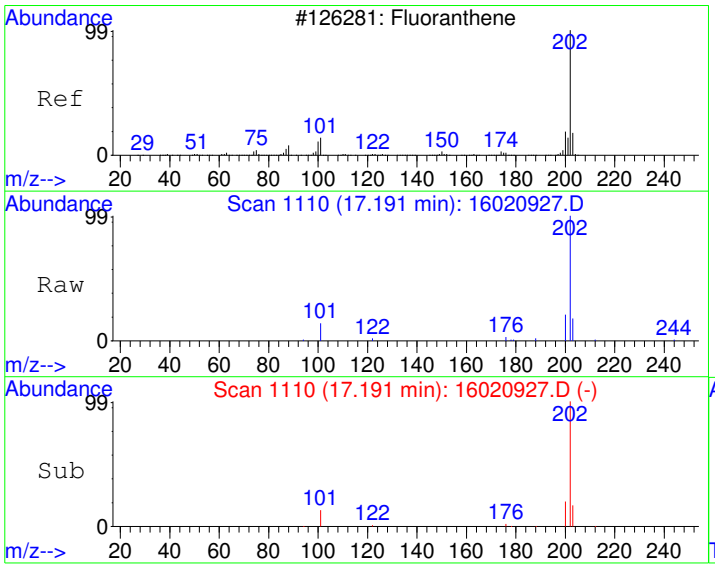


#12
Phenanthrene
Concen: 7.69 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.00 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:178 Resp: 6368

Ion	Ratio	Lower	Upper
178	100		
179	17.6	0.0	46.1
176	19.1	0.0	49.0

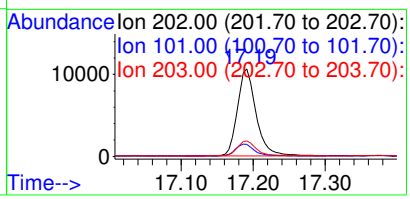


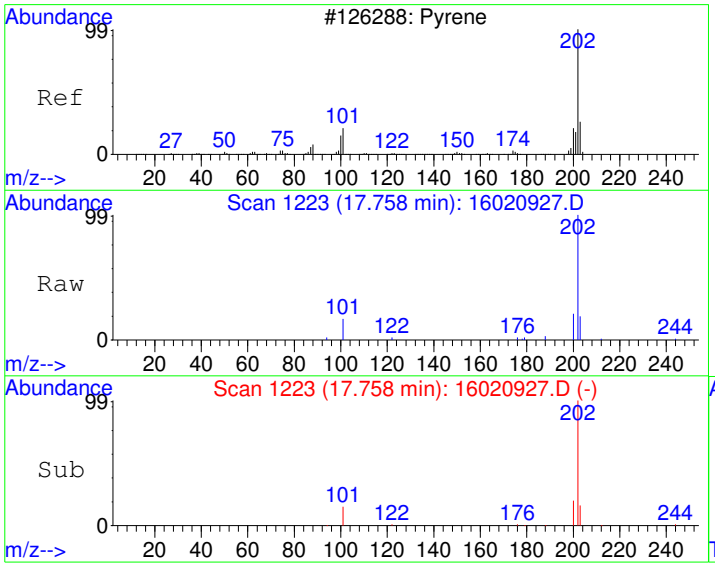


#14
Fluoranthene
Concen: 23.24 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:202 Resp: 19080

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	42.5
203	17.3	0.0	48.0

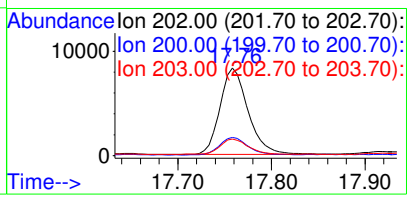


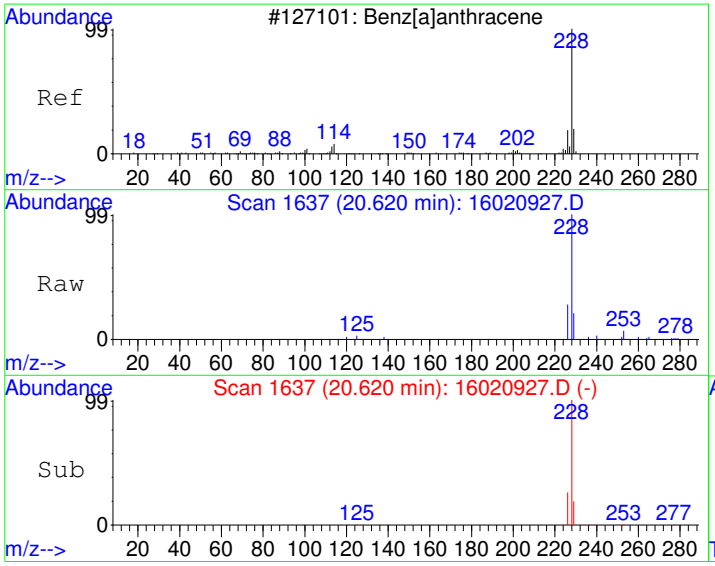


#15
Pyrene
Concen: 20.71 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:202 Resp: 17314

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.7	0.0	48.0

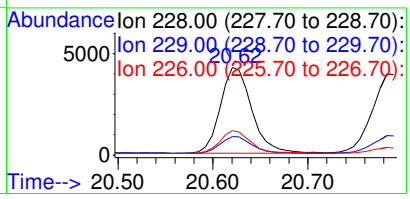


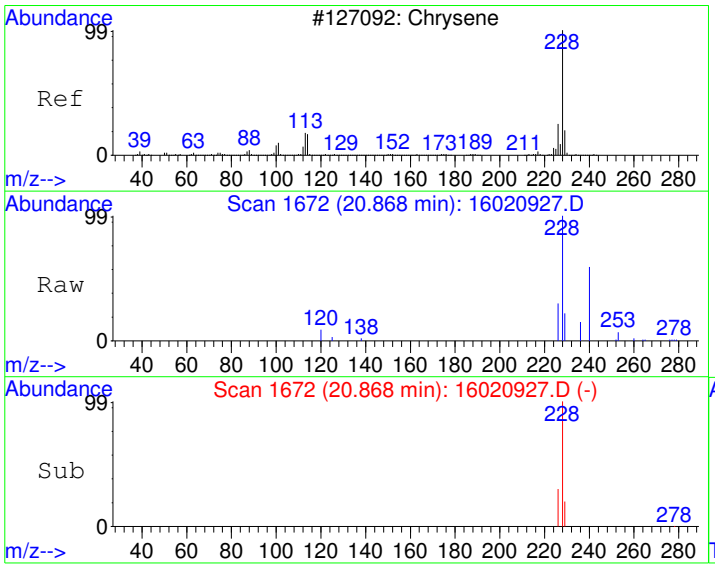


#18
Benzo[a]anthracene
Concen: 11.61 ug/kg
RT: 20.62 min Scan# 1637
Delta R.T. -0.03 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:228 Resp: 9743

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.5	0.0	56.4

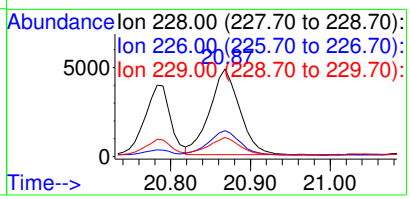


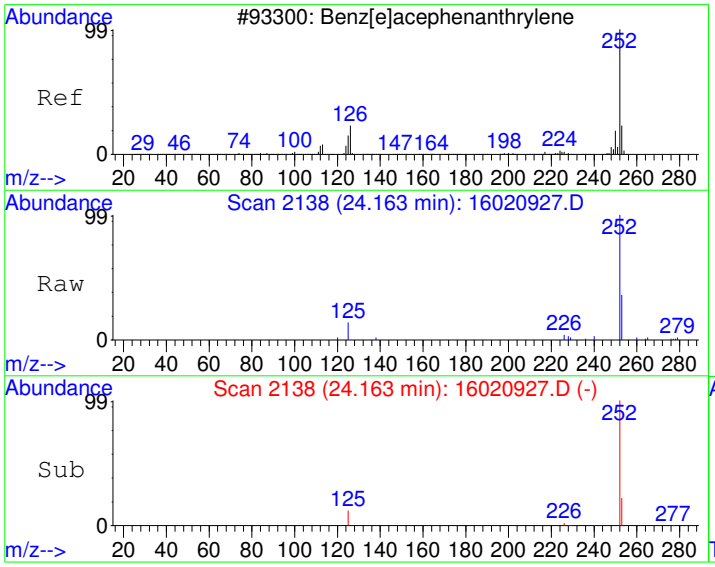


#19
Chrysene
Concen: 15.79 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:228 Resp: 12621

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.5
229	20.5	0.0	50.1

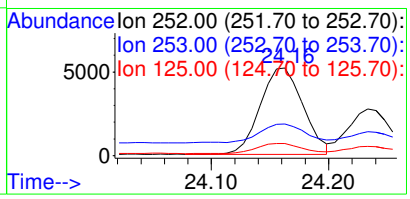


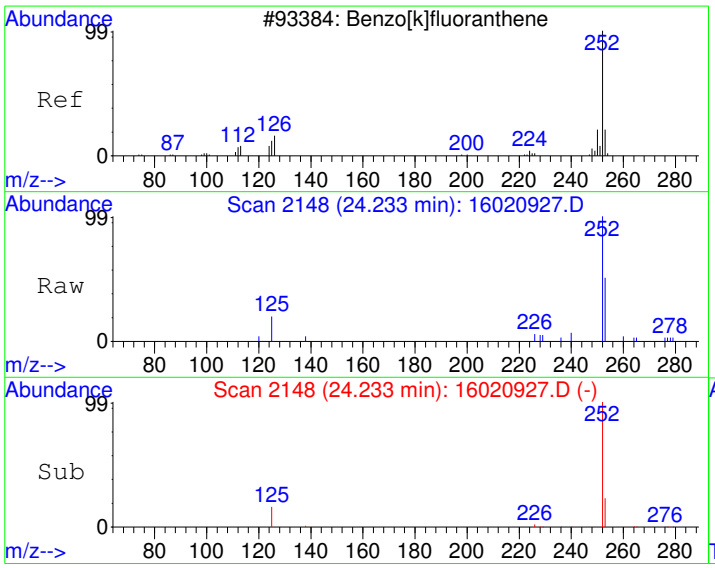


#21
Benzo[b]fluoranthene
Concen: 15.30 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:252 Resp: 13113

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	11.8	0.0	40.5

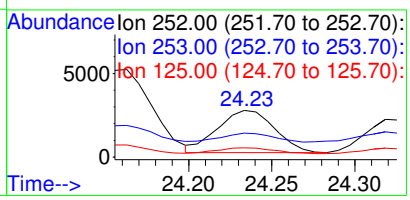


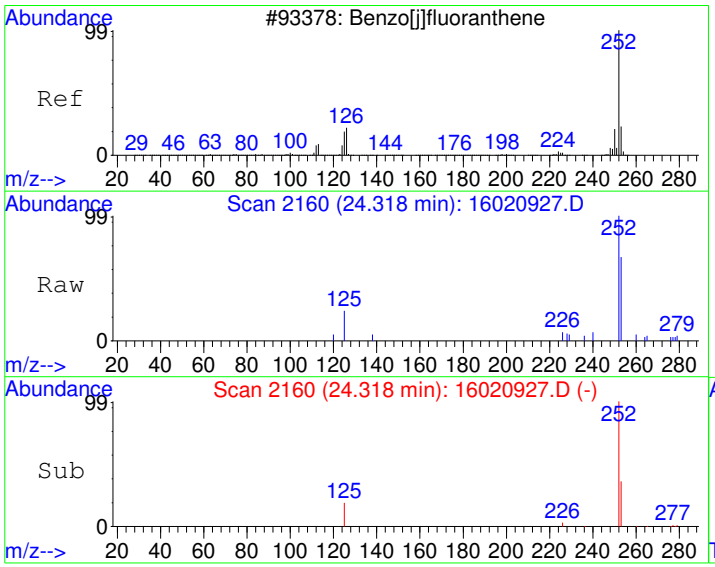


#22
Benzo[k]fluoranthene
Concen: 7.85 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:252 Resp: 5978

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.2	42.2
125	14.2	0.0	31.8

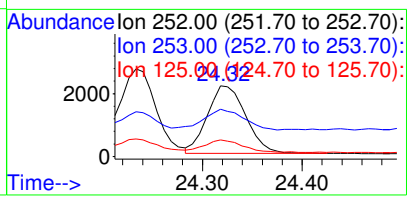


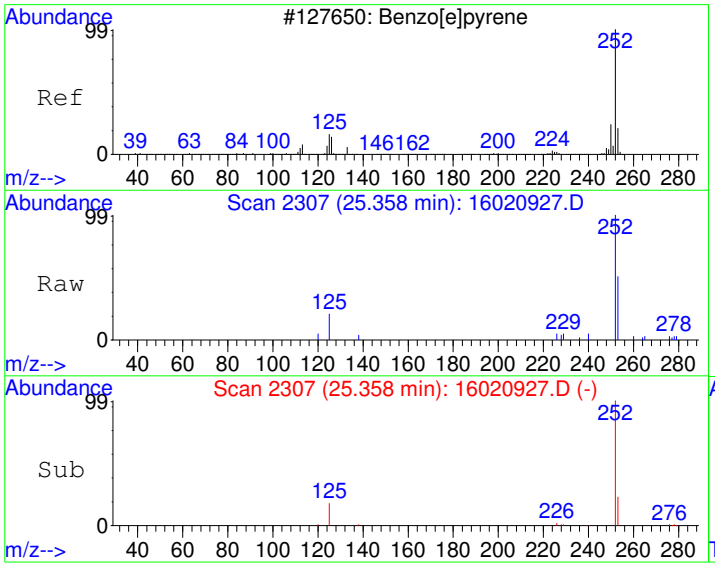


#23
Benzo(j)fluoranthene
Concen: 7.99 ug/kg
RT: 24.32 min Scan# 2160
Delta R.T. -0.03 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:252 Resp: 5716

Ion	Ratio	Lower	Upper
252	100		
253	30.2	2.3	42.3
125	18.6	0.0	34.0

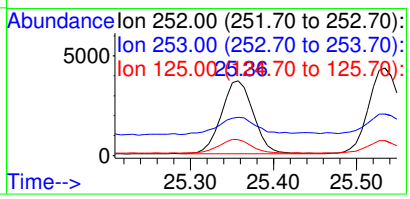


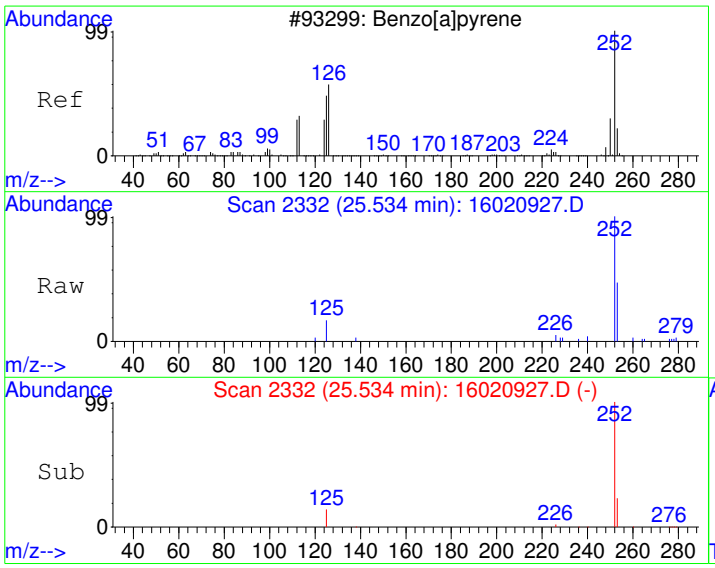


#24
Benzo[e]pyrene
Concen: 12.30 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:252 Resp: 9837

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.2	42.2
125	17.9	0.0	36.0

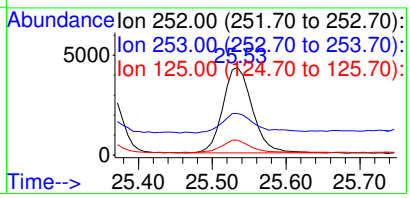


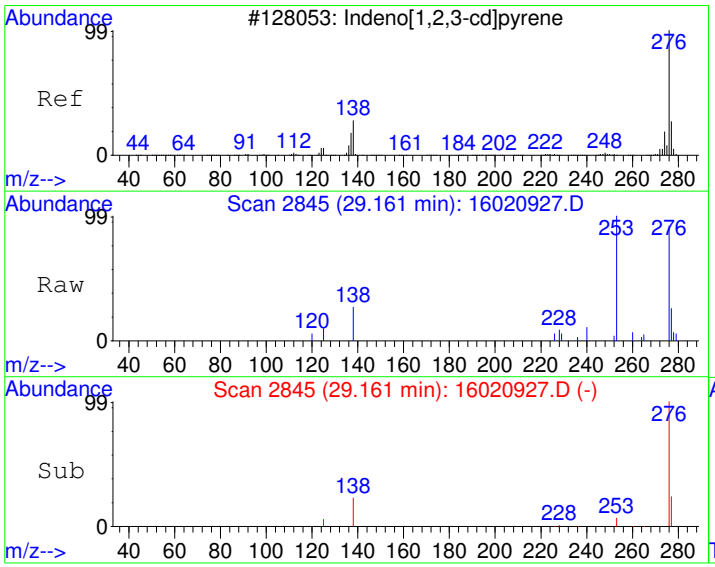


#25
Benzo[a]pyrene
Concen: 15.32 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:252 Resp: 11932

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.0	42.0
125	14.3	0.0	32.3

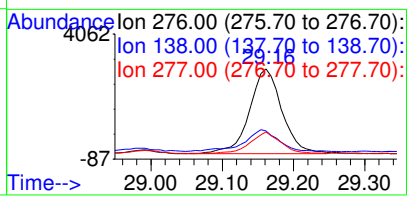


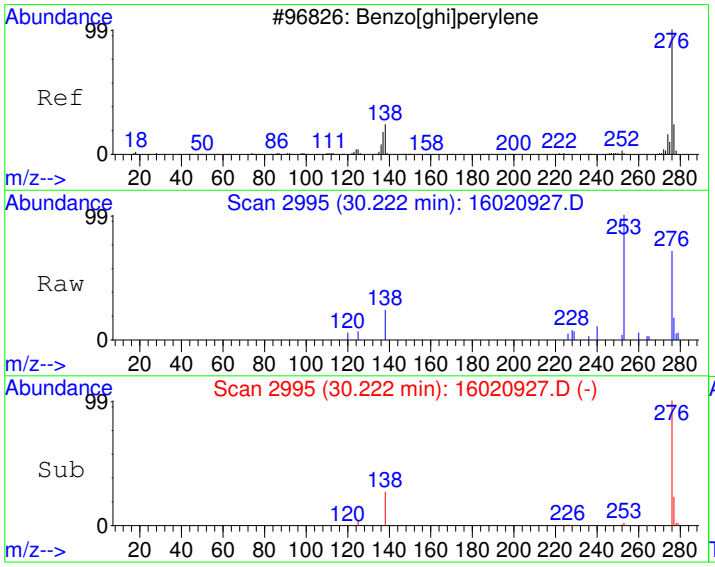


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.16 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. 0.00 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:276 Resp: 8913

Ion	Ratio	Lower	Upper
276	100		
138	24.4	2.1	42.1
277	25.5	4.2	44.2

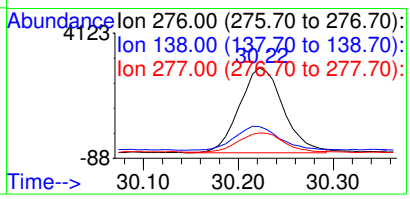




#28
Benzo[g,h,i]perylene
Concen: 12.44 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16020927.D
Acq: 10 Feb 2016 12:41 am

Tgt Ion:276 Resp: 9157

Ion	Ratio	Lower	Upper
276	100		
138	28.0	3.9	43.9
277	22.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020928.D Vial: 28
Acq On : 10 Feb 2016 1:21 am Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2571995	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2025679	4000.00 ug/kg	111
11) Phenanthrene-d10	15.22	188	3439064	4000.00 ug/kg	105
17) Chrysene-d12	20.78	240	3493369	4000.00 ug/kg	121
20) Perylene-d12	25.85	264	3140068	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45278	77.15 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#	
16) 4-Terphenyl-d14	17.64	244	48212	83.91 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	

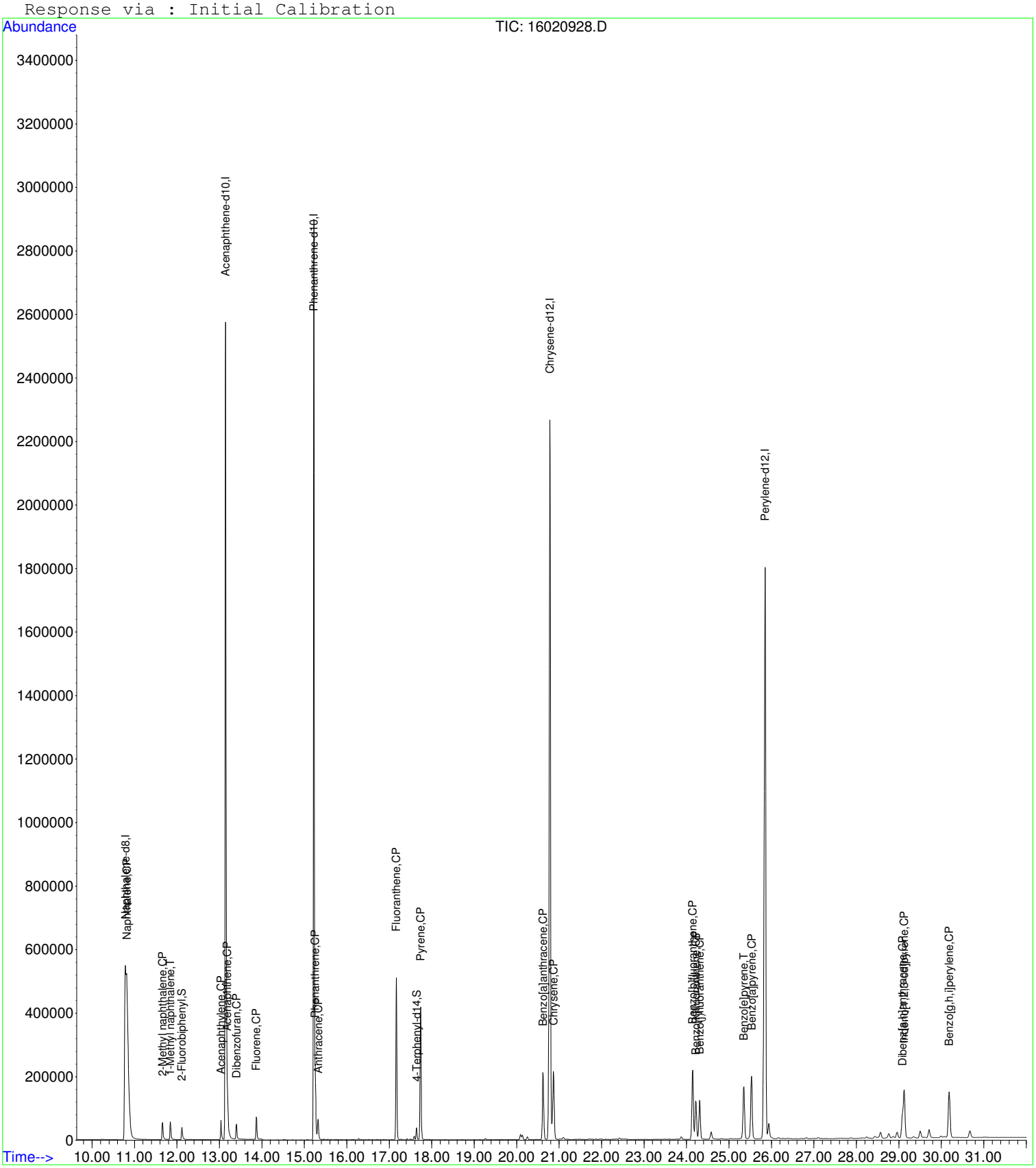
Target Compounds					Qvalue
2) Naphthalene	10.83	128	63512	98.70 ug/kg	99
3) 2-Methyl naphthalene	11.66	142	43601	86.06 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	41236	86.24 ug/kg	97
6) Dibenzofuran	13.40	168	56785	86.26 ug/kg	99
8) Acenaphthylene	13.04	152	67537	80.19 ug/kg	98
9) Acenaphthene	13.19	154	45201	88.57 ug/kg	96
10) Fluorene	13.87	166	48843	81.13 ug/kg	96
12) Phenanthrene	15.26	178	200600	245.63 ug/kg	99
13) Anthracene	15.32	178	86621	108.41 ug/kg	99
14) Fluoranthene	17.17	202	513352	633.90 ug/kg	99
15) Pyrene	17.74	202	481092	583.24 ug/kg	99
18) Benzo[a]anthracene	20.62	228	308284	382.73 ug/kg	100
19) Chrysene	20.87	228	357988	466.78 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	389143	464.82 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	202290	272.02 ug/kg	98
23) Benzo(j)fluoranthene	24.31	252	196102	280.72 ug/kg	91
24) Benzo[e]pyrene	25.35	252	301093	385.21 ug/kg	98
25) Benzo[a]pyrene	25.53	252	361593	475.28 ug/kg	100
26) Dibenz[a,h]anthracene	29.08	278	105572	150.00 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	284956	332.34 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	275429	382.85 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020928.D Vial: 28
Acq On : 10 Feb 2016 1:21 am Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:37 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16020928.D PP160126.M Wed Feb 10 09:38:02 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020929.D Vial: 29
Acq On : 10 Feb 2016 2:01 am Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2587433	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2004853	4000.00 ug/kg	110
11) Phenanthrene-d10	15.22	188	3354913	4000.00 ug/kg	103
17) Chrysene-d12	20.78	240	3476474	4000.00 ug/kg	120
20) Perylene-d12	25.85	264	3124171	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44279	76.23 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.64	244	47649	85.01 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#	

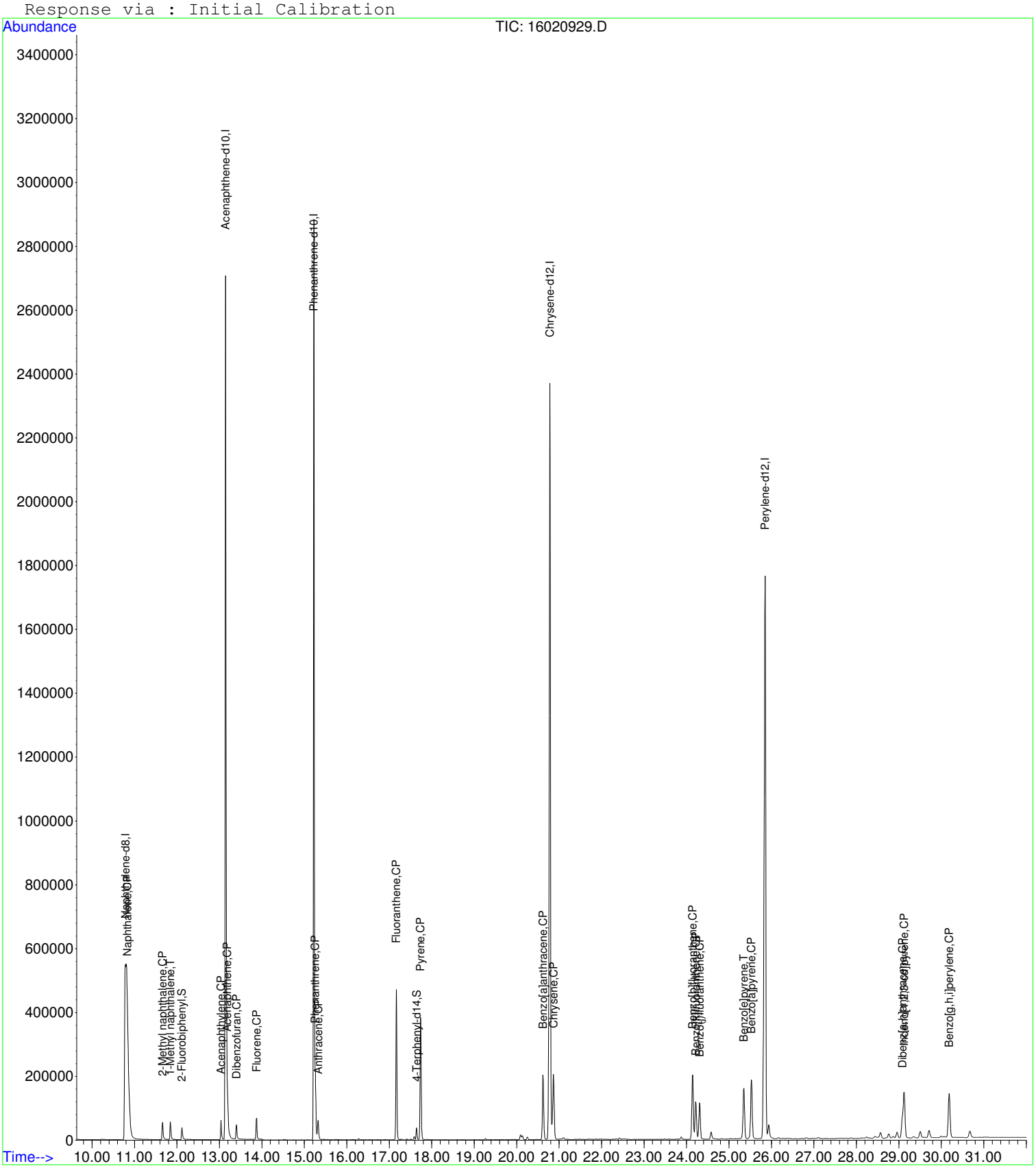
Target Compounds					Qvalue
2) Naphthalene	10.84	128	62572	96.66 ug/kg	99
3) 2-Methyl naphthalene	11.66	142	42983	84.33 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	40166	83.50 ug/kg	95
6) Dibenzofuran	13.40	168	54947	84.33 ug/kg	100
8) Acenaphthylene	13.04	152	66071	79.26 ug/kg	99
9) Acenaphthene	13.19	154	44034	87.18 ug/kg	97
10) Fluorene	13.88	166	47460	79.65 ug/kg	98
12) Phenanthrene	15.26	178	183145	229.88 ug/kg	99
13) Anthracene	15.32	178	83399	106.99 ug/kg	99
14) Fluoranthene	17.17	202	464791	588.33 ug/kg	98
15) Pyrene	17.74	202	440165	547.01 ug/kg	99
18) Benzo[a]anthracene	20.62	228	285624	356.32 ug/kg	100
19) Chrysene	20.87	228	336033	440.28 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	369440	443.53 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	195198	263.81 ug/kg	98
23) Benzo(j)fluoranthene	24.31	252	186480	268.30 ug/kg	91
24) Benzo[e]pyrene	25.35	252	284825	366.25 ug/kg	98
25) Benzo[a]pyrene	25.53	252	338501	447.19 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	102670	146.62 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	272689	319.65 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	259969	363.20 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020929.D Vial: 29
Acq On : 10 Feb 2016 2:01 am Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



16020929.D PP160126.M Wed Feb 10 09:38:02 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160209\16020930.D Vial: 30
Acq On : 10 Feb 2016 2:41 am Operator:
Sample : CCV1-160209 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2982919	4000.00 ug/kg	142
5) Acenaphthene-d10	13.14	164	2212646	4000.00 ug/kg	121
11) Phenanthrene-d10	15.22	188	3510529	4000.00 ug/kg	107
17) Chrysene-d12	20.78	240	3561134	4000.00 ug/kg	123
20) Perylene-d12	25.86	264	3121023	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	638756	996.43 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.91%#	
16) 4-Terphenyl-d14	17.64	244	599710	1022.57 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	25.56%#	

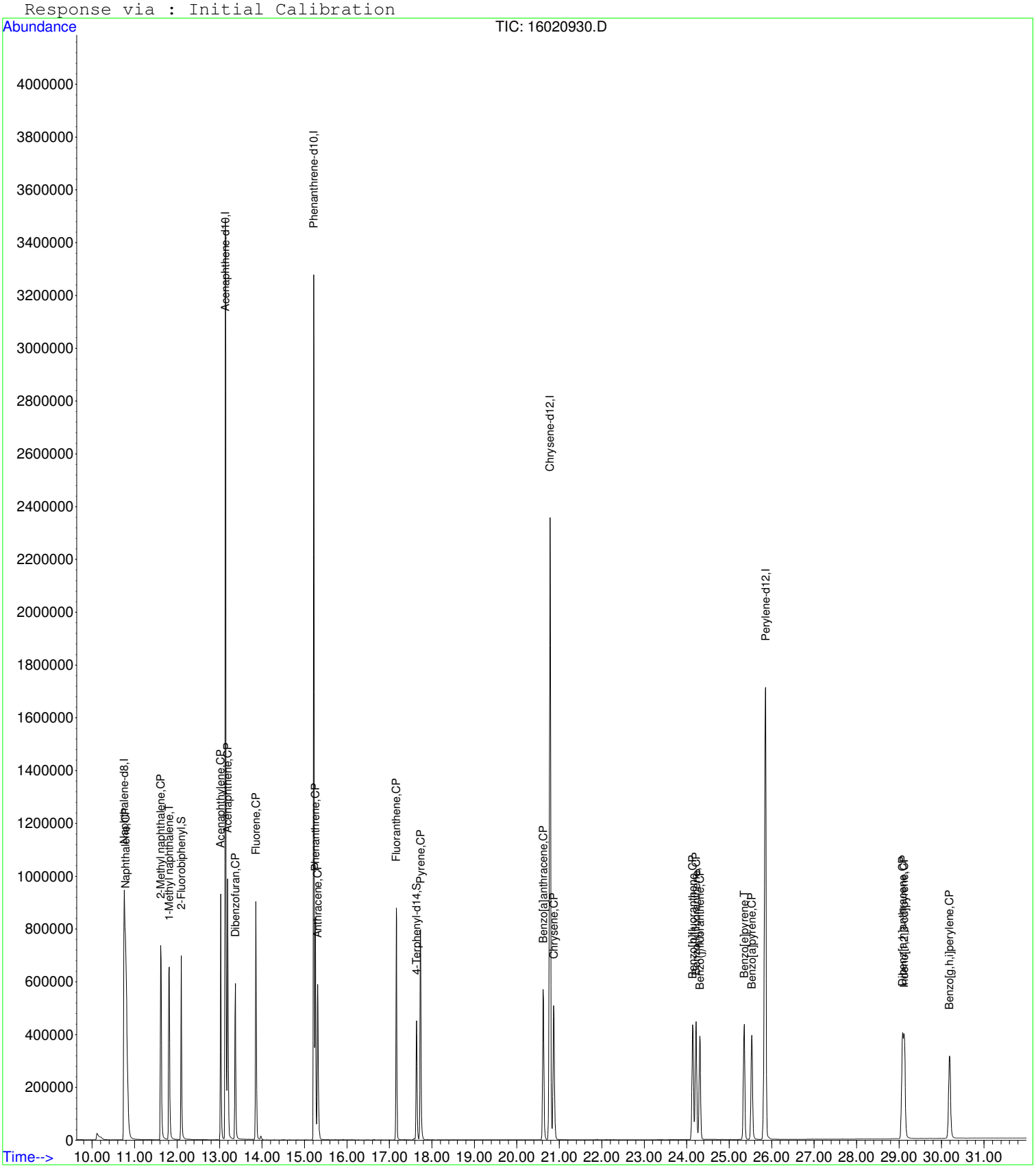
Target Compounds					Qvalue
2) Naphthalene	10.79	128	769925	1031.67 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	569508	969.19 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	520227	938.12 ug/kg	98
6) Dibenzofuran	13.37	168	666476	926.86 ug/kg	100
8) Acenaphthylene	13.03	152	872145	948.00 ug/kg	100
9) Acenaphthene	13.19	154	512585	919.55 ug/kg	97
10) Fluorene	13.86	166	570541	867.57 ug/kg	98
12) Phenanthrene	15.25	178	769963	923.61 ug/kg	99
13) Anthracene	15.31	178	753159	923.40 ug/kg	99
14) Fluoranthene	17.16	202	880646	1065.30 ug/kg	98
15) Pyrene	17.73	202	904205	1073.87 ug/kg	99
18) Benzo[a]anthracene	20.62	228	807358	983.24 ug/kg	99
19) Chrysene	20.87	228	785063	1004.16 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	803534	965.66 ug/kg	98
22) Benzo[k]fluoranthene	24.22	252	746069	1009.35 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	688703	991.88 ug/kg	97
24) Benzo[e]pyrene	25.36	252	767352	987.72 ug/kg	99
25) Benzo[a]pyrene	25.53	252	745077	985.32 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	671053	959.30 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	801867	940.92 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	657532	919.56 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160209\16020930.D Vial: 30
Acq On : 10 Feb 2016 2:41 am Operator:
Sample : CCV1-160209 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 9:38 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021102.D Vial: 2
Acq On : 11 Feb 2016 9:26 am Operator:
Sample : ICV-160211 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2931868	4000.00 ug/kg	140
5) Acenaphthene-d10	13.15	164	2018577	4000.00 ug/kg	111
11) Phenanthrene-d10	15.22	188	3289876	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3228099	4000.00 ug/kg	112
20) Perylene-d12	25.85	264	2862089	4000.00 ug/kg	124

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.10	172	1244791	2128.50 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	53.21%	
16) 4-Terphenyl-d14	17.64	244	1150004	2092.39 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	52.31%	

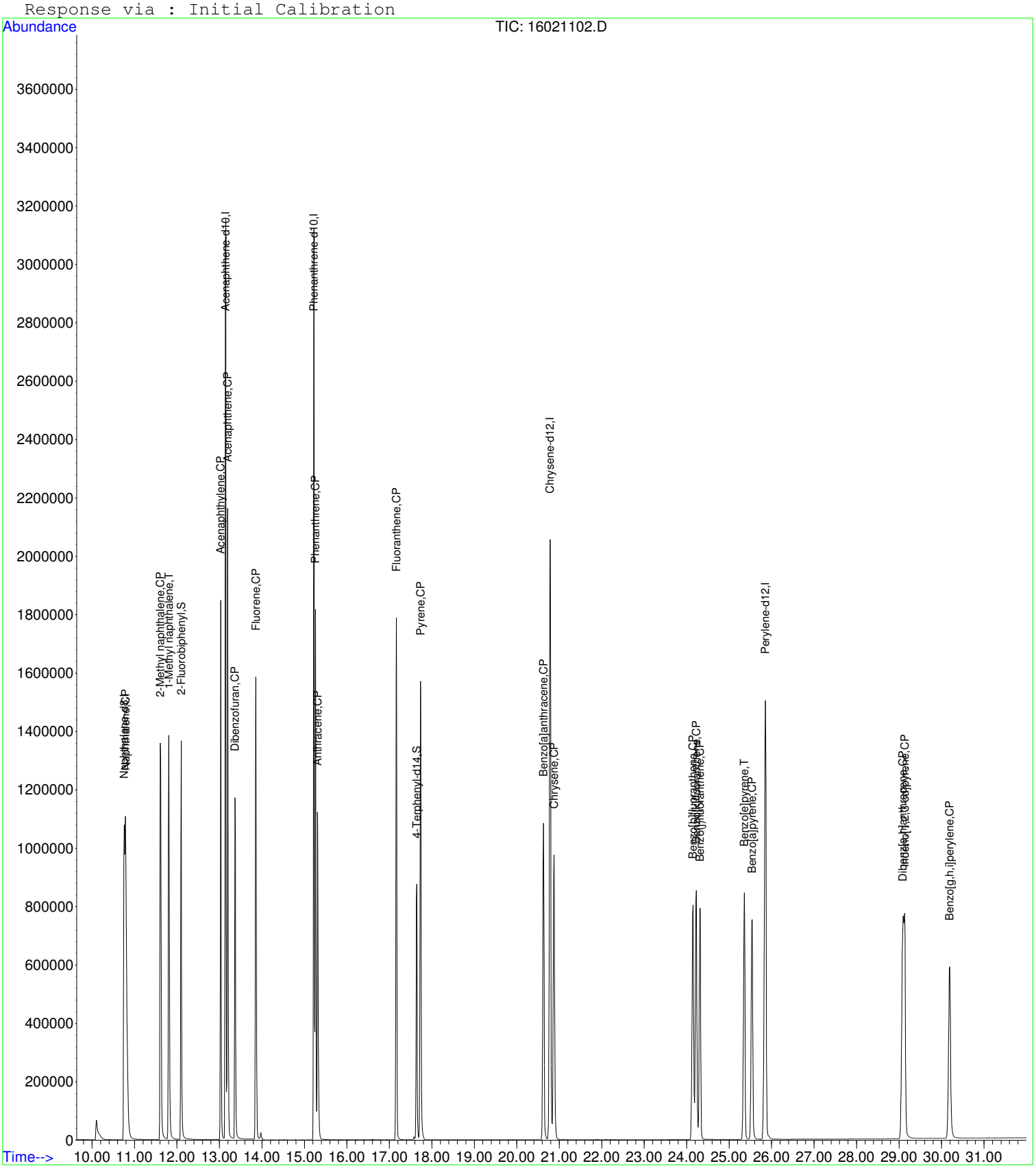
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1486118	2026.01 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	1100592	1905.61 ug/kg	97
4) 1-Methyl naphthalene	11.81	142	1011814	1856.36 ug/kg	97
6) Dibenzofuran	13.37	168	1258548	1918.51 ug/kg	99
8) Acenaphthylene	13.03	152	1678103	1999.42 ug/kg	99
9) Acenaphthene	13.19	154	997192	1960.90 ug/kg	97
10) Fluorene	13.86	166	1079827	1799.85 ug/kg	98
12) Phenanthrene	15.26	178	1505376	1926.89 ug/kg	99
13) Anthracene	15.31	178	1422408	1860.88 ug/kg	99
14) Fluoranthene	17.17	202	1684096	2173.86 ug/kg	98
15) Pyrene	17.73	202	1698839	2152.94 ug/kg	98
18) Benzo[a]anthracene	20.63	228	1539455	2068.25 ug/kg	99
19) Chrysene	20.87	228	1483950	2093.91 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1569153	2056.36 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	1411598	2082.51 ug/kg	100
23) Benzo(j)fluoranthene	24.32	252	1309750	2056.97 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1456852	2044.89 ug/kg	97
25) Benzo[a]pyrene	25.54	252	1429864	2061.97 ug/kg	99
26) Dibenz[a,h]anthracene	29.08	278	1289307	2009.87 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1548924	1981.95 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	1235766	1884.57 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021102.D Vial: 2
Acq On : 11 Feb 2016 9:26 am Operator:
Sample : ICV-160211 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

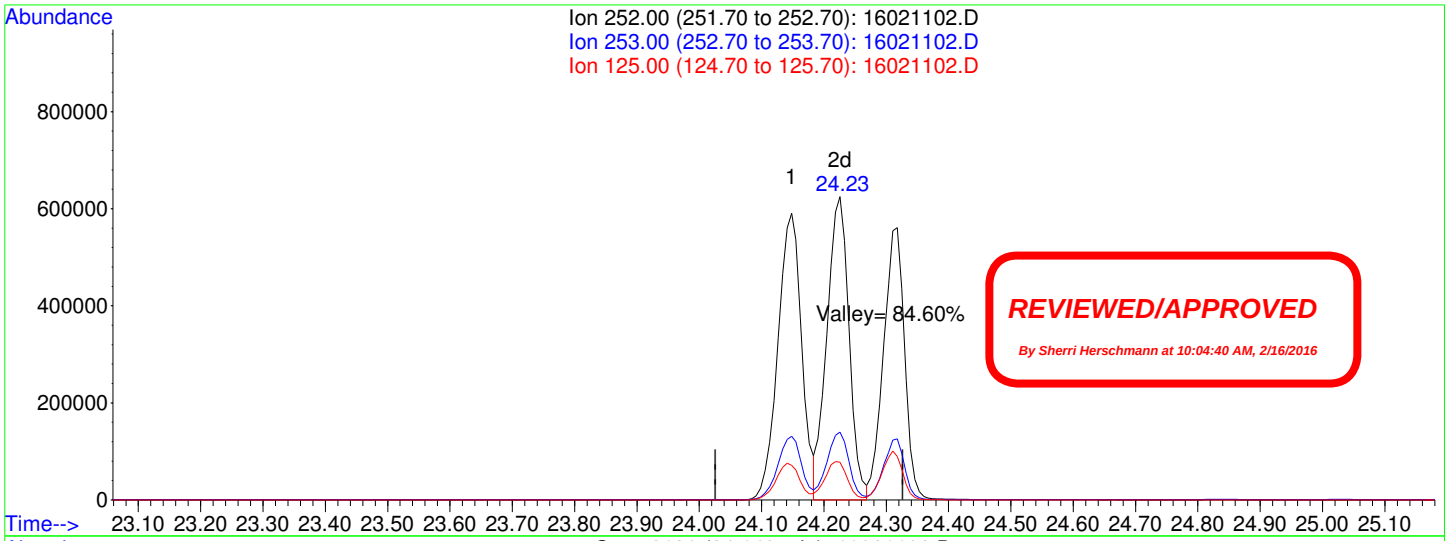
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

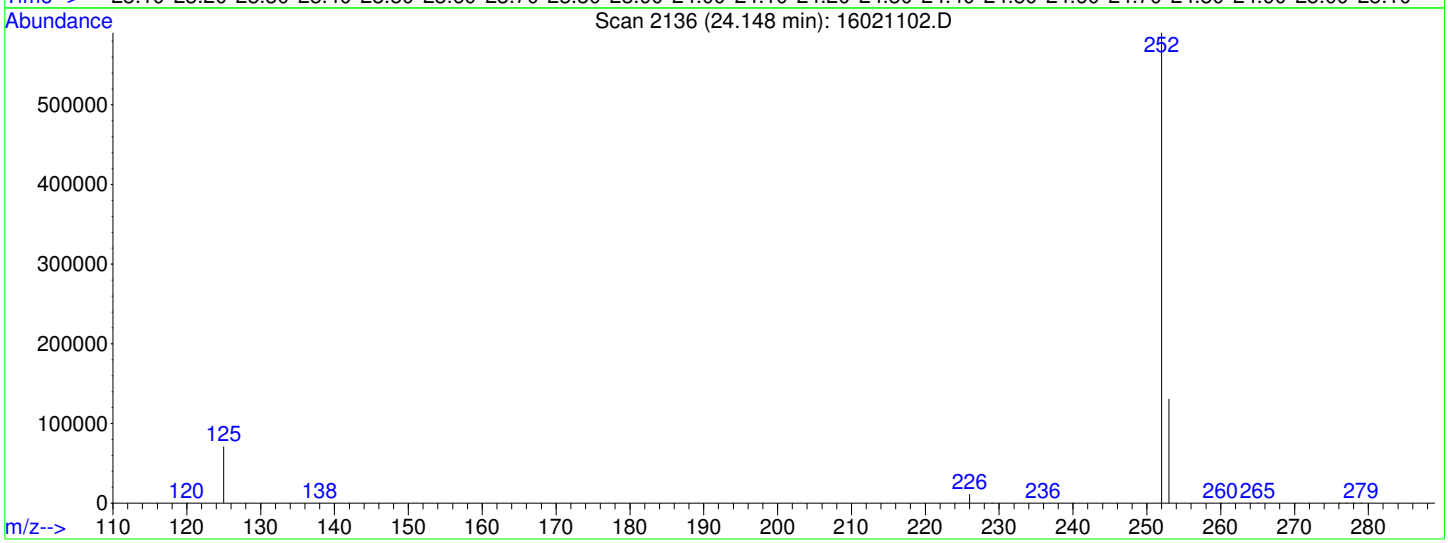


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160211\16021102.D          Vial: 2
Acq On    : 11 Feb 2016   9:26 am                   Operator:
Sample    : ICV-160211                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11  9:58 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration
```





TIC: 16021102.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2056.36ug/kg

response 1569153

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.09
125.00	10.50	12.04
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021103.D Vial: 3
Acq On : 11 Feb 2016 10:06 am Operator:
Sample : SBLK-160211 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2042432	4000.00	ug/kg	97
5) Acenaphthene-d10	13.15	164	1452810	4000.00	ug/kg	80
11) Phenanthrene-d10	15.23	188	2557551	4000.00	ug/kg	78
17) Chrysene-d12	20.79	240	2630064	4000.00	ug/kg	91
20) Perylene-d12	25.85	264	2319554	4000.00	ug/kg	100

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.04	172	85	0.20	ug/kg	-0.06
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
16) 4-Terphenyl-d14	17.68	244	260	0.61	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			

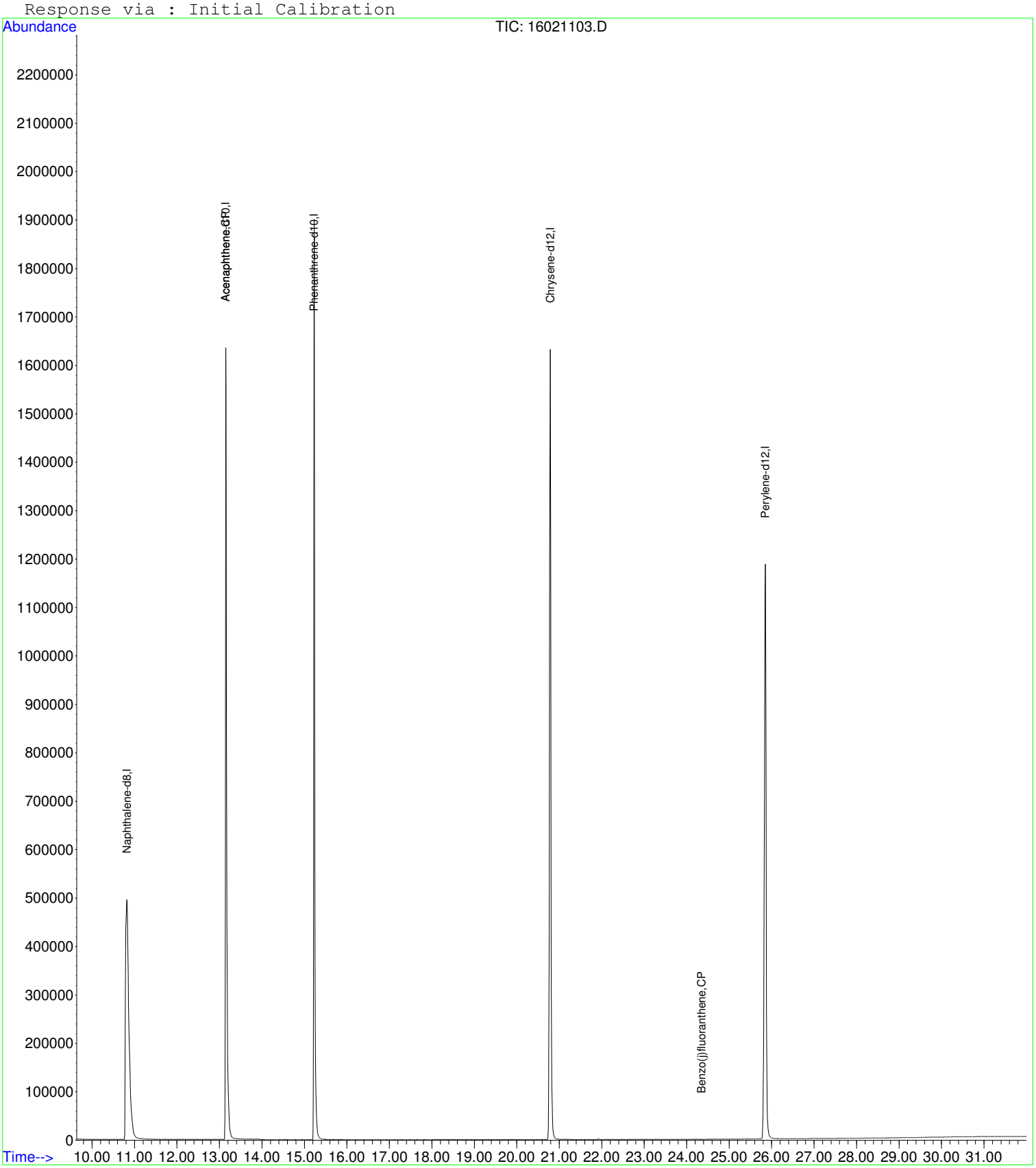
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	5293	14.46	ug/kg#	10
23) Benzo(j)fluoranthene	24.35	252	87	0.17	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021103.D Vial: 3
Acq On : 11 Feb 2016 10:06 am Operator:
Sample : SBLK-160211 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021104.D Vial: 4
Acq On : 11 Feb 2016 10:46 am Operator:
Sample : 1601232-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2300720	4000.00 ug/kg	110
5) Acenaphthene-d10	13.15	164	1738657	4000.00 ug/kg	95
11) Phenanthrene-d10	15.23	188	3001110	4000.00 ug/kg	92
17) Chrysene-d12	20.79	240	3282081	4000.00 ug/kg	114
20) Perylene-d12	25.85	264	2925820	4000.00 ug/kg	127

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	42688	84.75 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	
16) 4-Terphenyl-d14	17.65	244	44844	89.44 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.24%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6359	14.52 ug/kg#	10
14) Fluoranthene	17.20	202	8283	11.72 ug/kg	96
15) Pyrene	17.77	202	7780	10.81 ug/kg	98
18) Benzo[a]anthracene	20.63	228	4173	5.51 ug/kg	99
19) Chrysene	20.87	228	5781	8.02 ug/kg	98
21) Benzo[b]fluoranthene	24.17	252	5927	7.60 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	2554	3.92 ug/kg	89
24) Benzo[e]pyrene	25.36	252	4518	6.20 ug/kg	96
25) Benzo[a]pyrene	25.53	252	5062	7.14 ug/kg	98
28) Benzo[g,h,i]perylene	30.25	276	3816	5.69 ug/kg	93

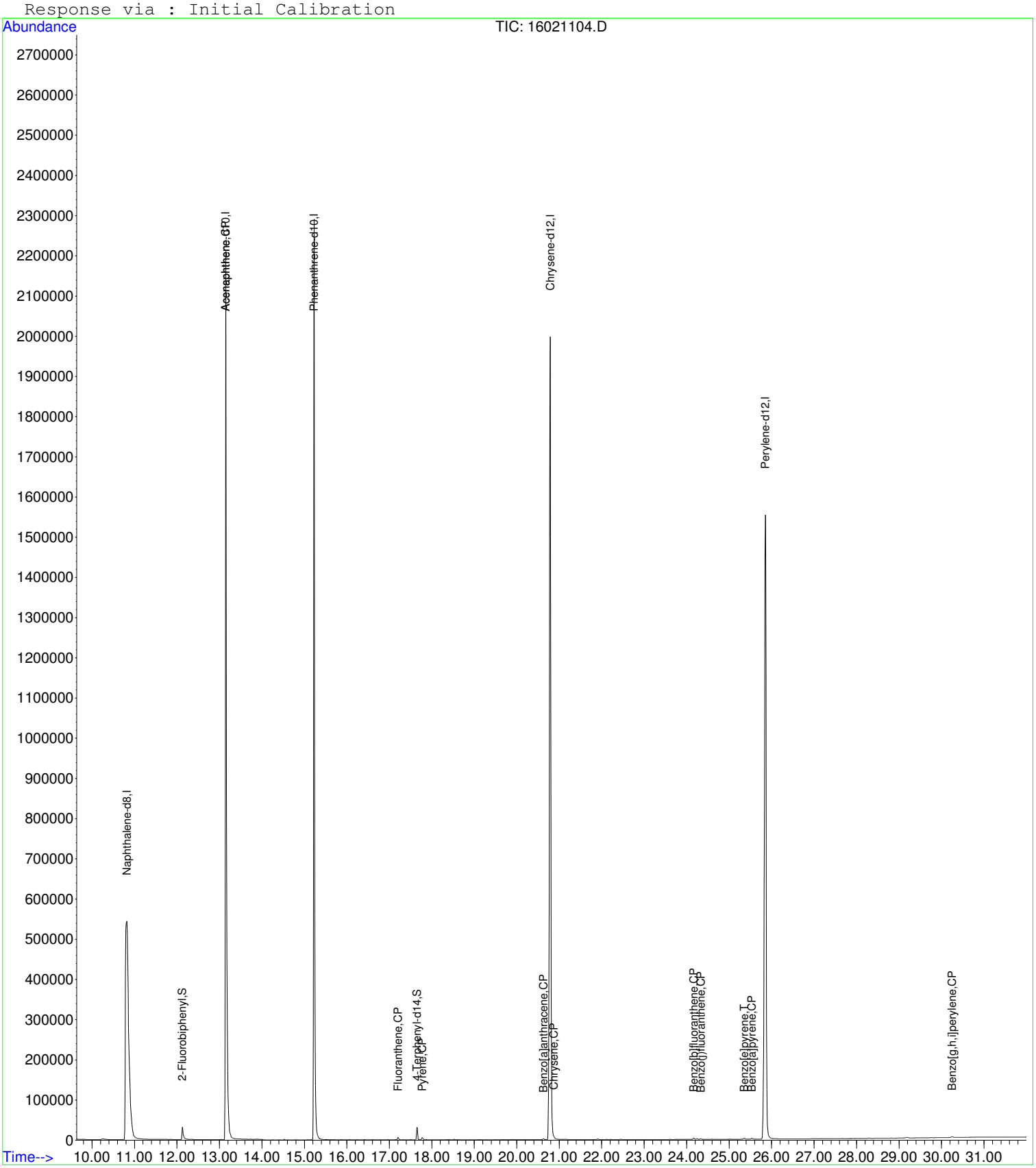
CONFIRMED
By Sherri Herschmann at 10:05:16 AM, 2/16/2016

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

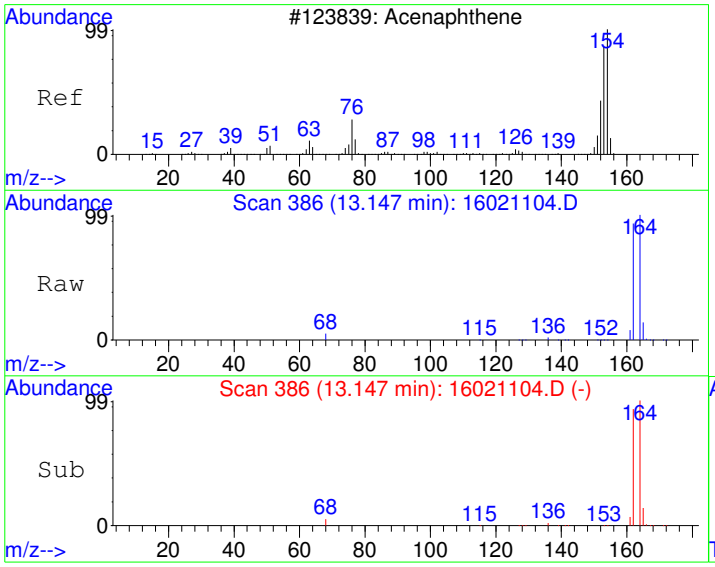
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021104.D Vial: 4
Acq On : 11 Feb 2016 10:46 am Operator:
Sample : 1601232-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



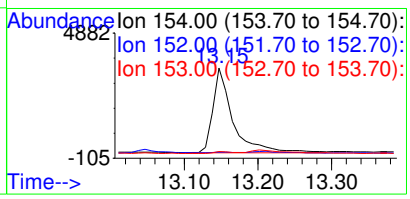
16021104.D PP160126.M Fri Feb 12 11:54:33 2016 Page 2

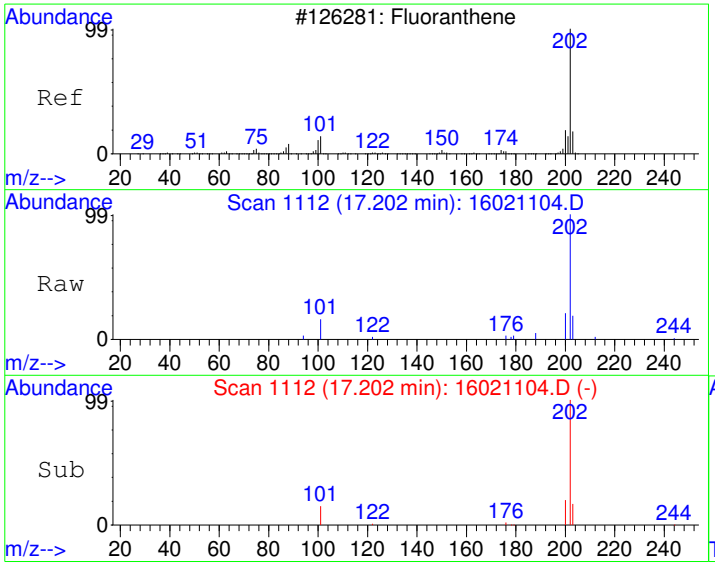


#9
Acenaphthene
Concen: 14.52 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:154 Resp: 6359

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.1	74.4	134.4#

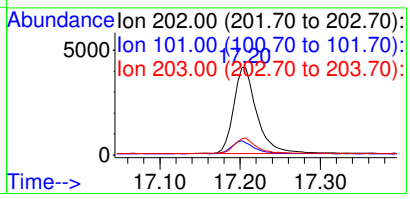


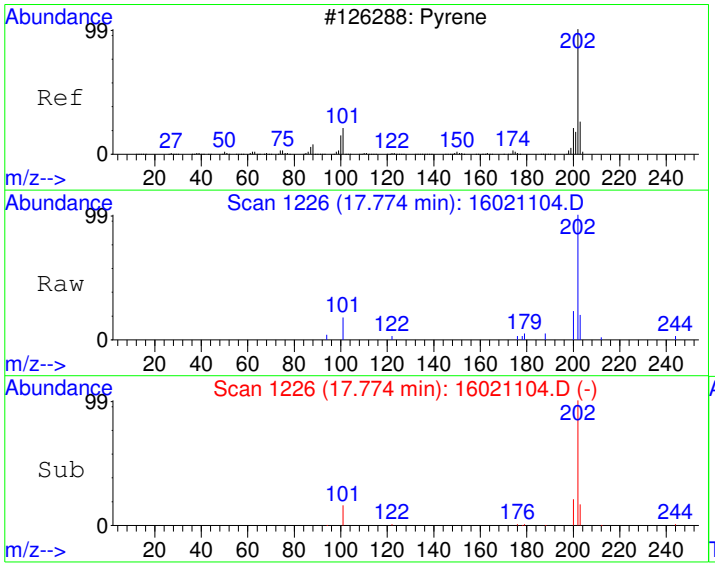


#14
Fluoranthene
Concen: 11.72 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.03 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:202 Resp: 8283

Ion	Ratio	Lower	Upper
202	100		
101	15.0	0.0	42.5
203	17.2	0.0	48.0

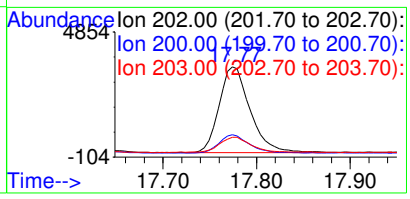


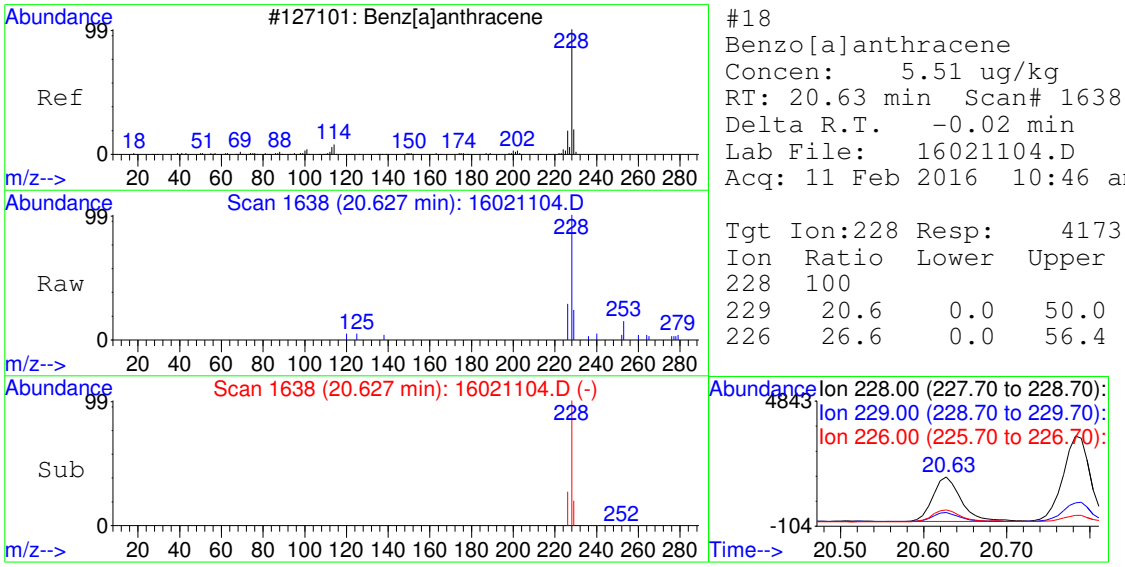


#15
Pyrene
Concen: 10.81 ug/kg
RT: 17.77 min Scan# 1226
Delta R.T. 0.03 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:202 Resp: 7780

Ion	Ratio	Lower	Upper
202	100		
200	21.4	0.0	50.0
203	17.4	0.0	48.0

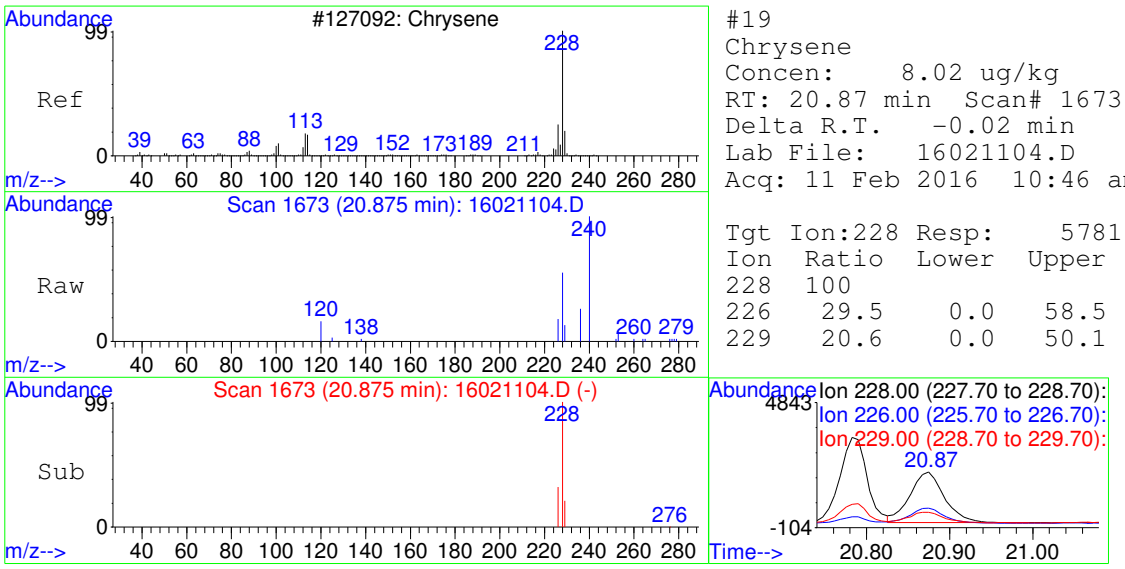




#18
Benzo[a]anthracene
Concen: 5.51 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:228 Resp: 4173

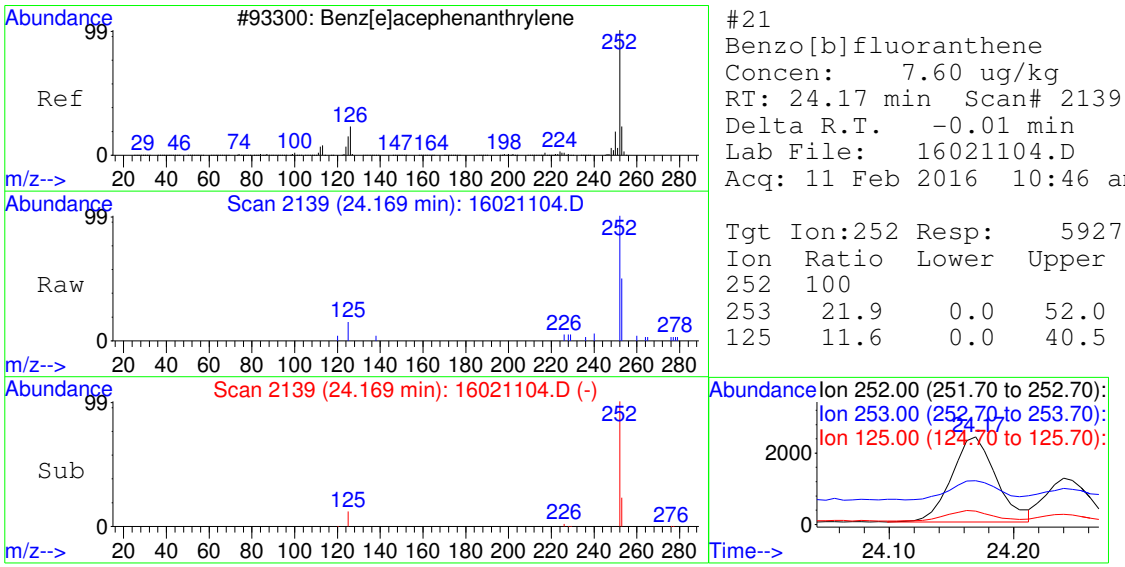
Ion	Ratio	Lower	Upper
228	100		
229	20.6	0.0	50.0
226	26.6	0.0	56.4



#19
Chrysene
Concen: 8.02 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:228 Resp: 5781

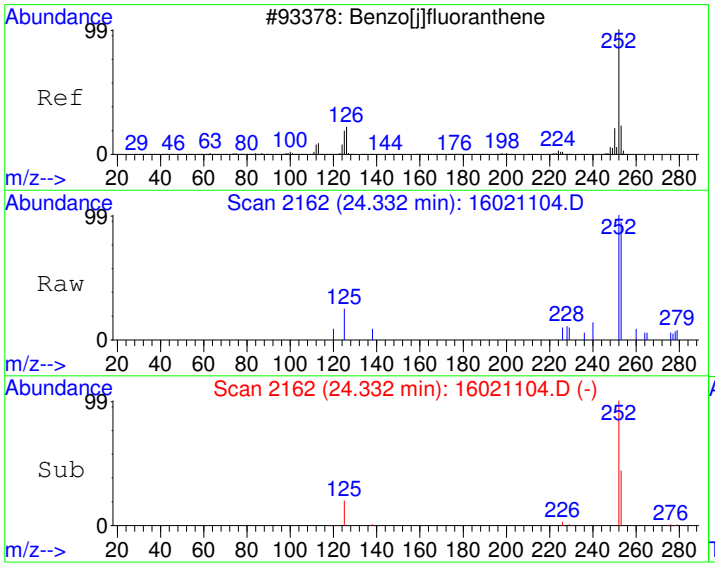
Ion	Ratio	Lower	Upper
228	100		
226	29.5	0.0	58.5
229	20.6	0.0	50.1



#21
Benzo[b]fluoranthene
Concen: 7.60 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:252 Resp: 5927

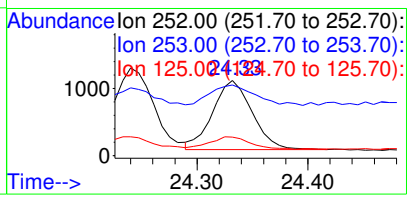
Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	11.6	0.0	40.5

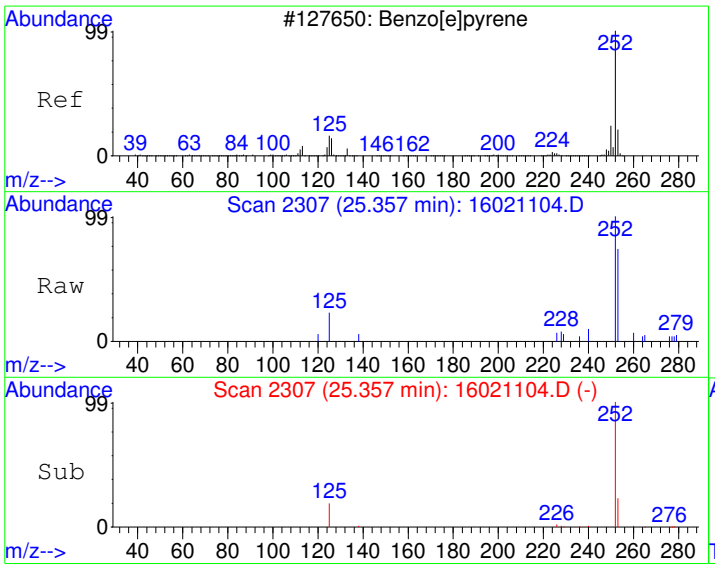


#23
Benzo(j)fluoranthene
Concen: 3.92 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:252 Resp: 2554

Ion	Ratio	Lower	Upper
252	100		
253	28.8	2.3	42.3
125	16.9	0.0	34.0

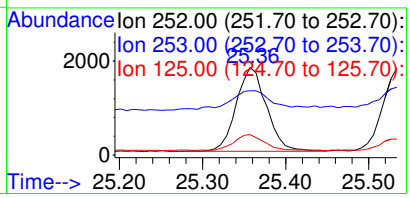


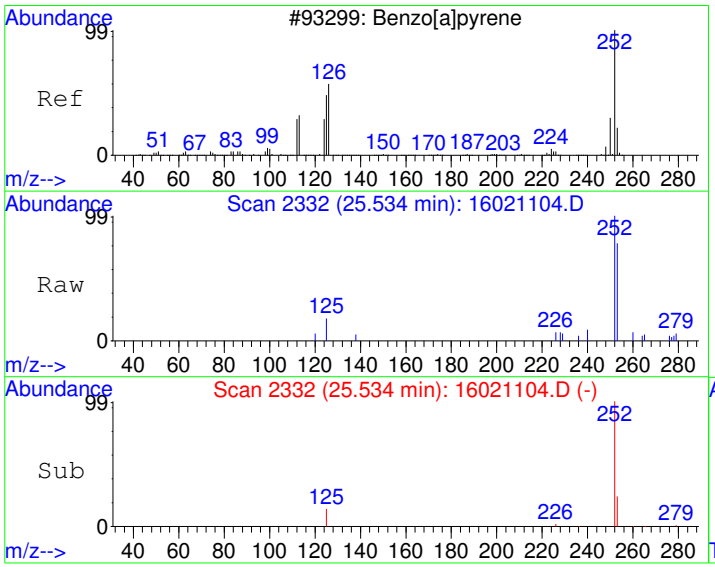


#24
Benzo[e]pyrene
Concen: 6.20 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:252 Resp: 4518

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	19.0	0.0	36.0

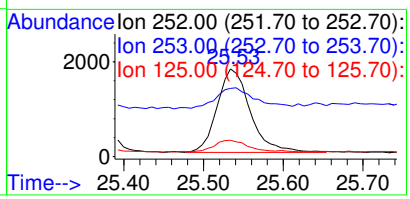


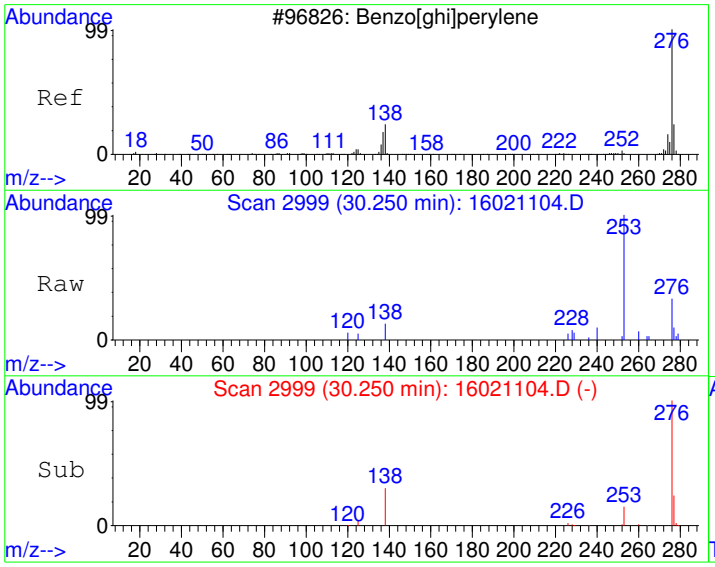


#25
Benzo[a]pyrene
Concen: 7.14 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:252 Resp: 5062

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	13.4	0.0	32.3

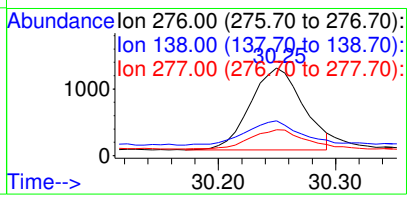




#28
Benzo[g,h,i]perylene
Concen: 5.69 ug/kg
RT: 30.25 min Scan# 2999
Delta R.T. 0.04 min
Lab File: 16021104.D
Acq: 11 Feb 2016 10:46 am

Tgt Ion:276 Resp: 3816

Ion	Ratio	Lower	Upper
276	100		
138	29.9	3.9	43.9
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021105.D Vial: 5
Acq On : 11 Feb 2016 11:27 am Operator:
Sample : 1601232-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2325881	4000.00 ug/kg	111
5) Acenaphthene-d10	13.15	164	1740388	4000.00 ug/kg	96
11) Phenanthrene-d10	15.23	188	3087349	4000.00 ug/kg	94
17) Chrysene-d12	20.79	240	3260085	4000.00 ug/kg	113
20) Perylene-d12	25.85	264	2894996	4000.00 ug/kg	125

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	40795	80.91 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#		
16) 4-Terphenyl-d14	17.65	244	42863	83.10 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.08%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6240	14.23 ug/kg#	10
14) Fluoranthene	17.21	202	6901	9.49 ug/kg	99
15) Pyrene	17.78	202	6462	8.73 ug/kg	98
19) Chrysene	20.87	228	5003	6.99 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	5367	6.95 ug/kg	98
23) Benzo(j)fluoranthene	24.33	252	2271	3.53 ug/kg	92
24) Benzo[e]pyrene	25.36	252	4152	5.76 ug/kg	96
25) Benzo[a]pyrene	25.53	252	4512	6.43 ug/kg	98
28) Benzo[g,h,i]perylene	30.25	276	3499	5.28 ug/kg	96

REVIEWED/APPROVED

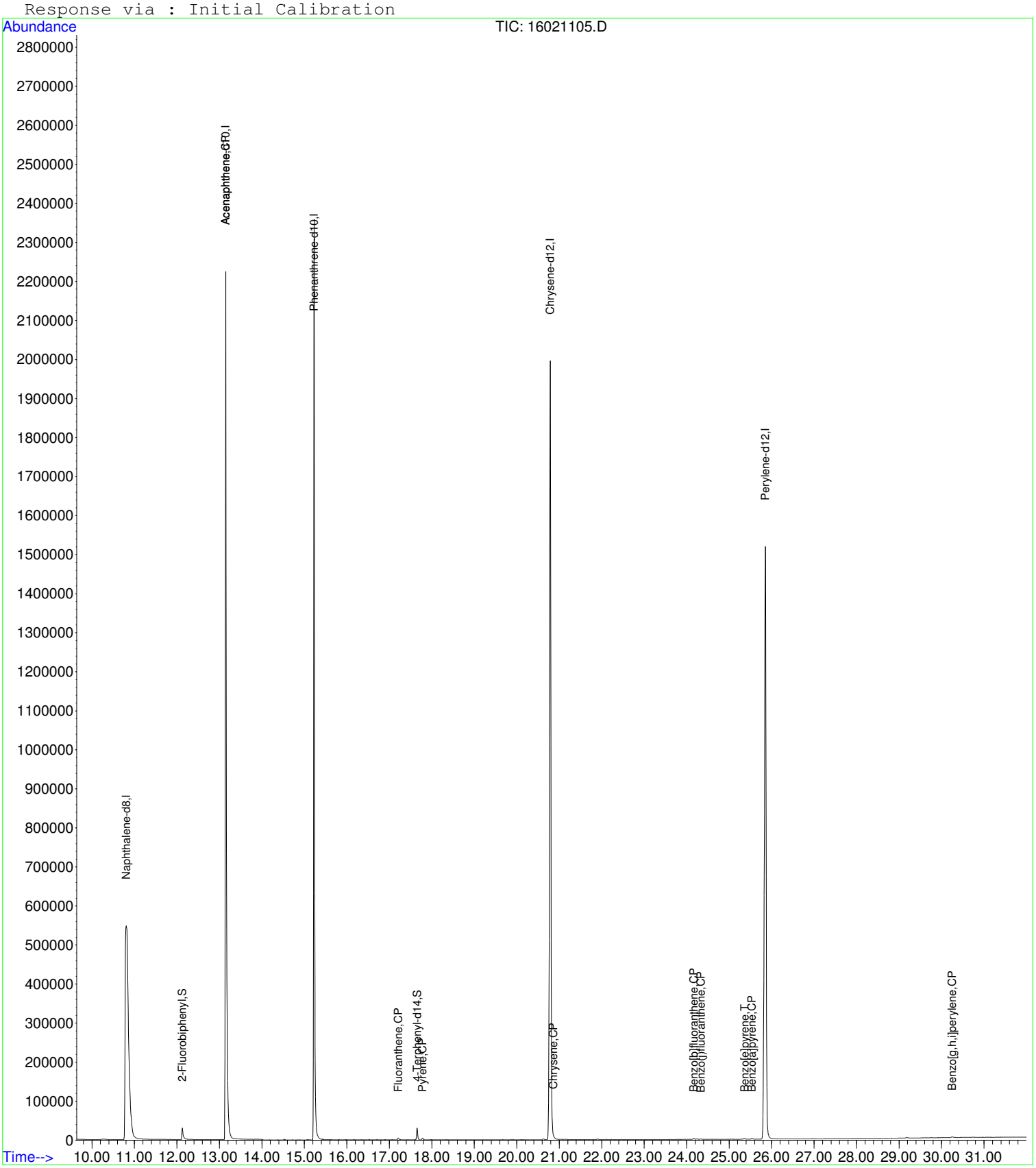
By Sherri Herschmann at 10:05:52 AM, 2/16/2016

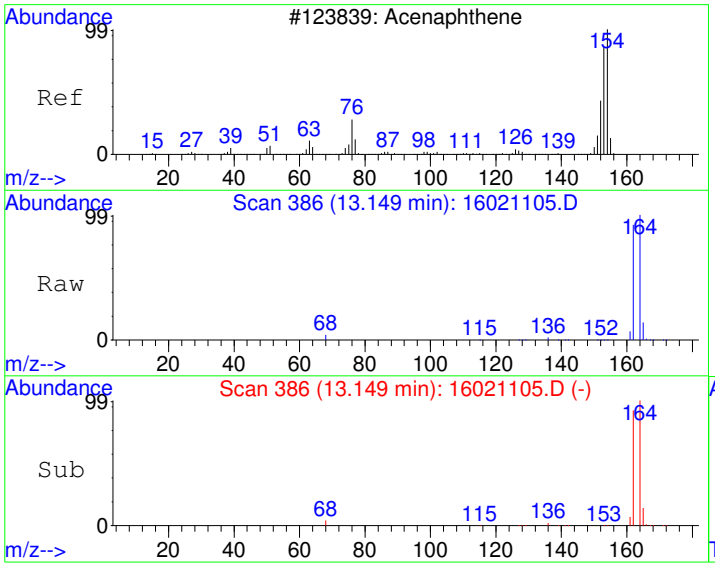
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021105.D Vial: 5
Acq On : 11 Feb 2016 11:27 am Operator:
Sample : 1601232-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

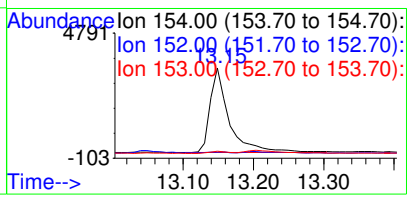


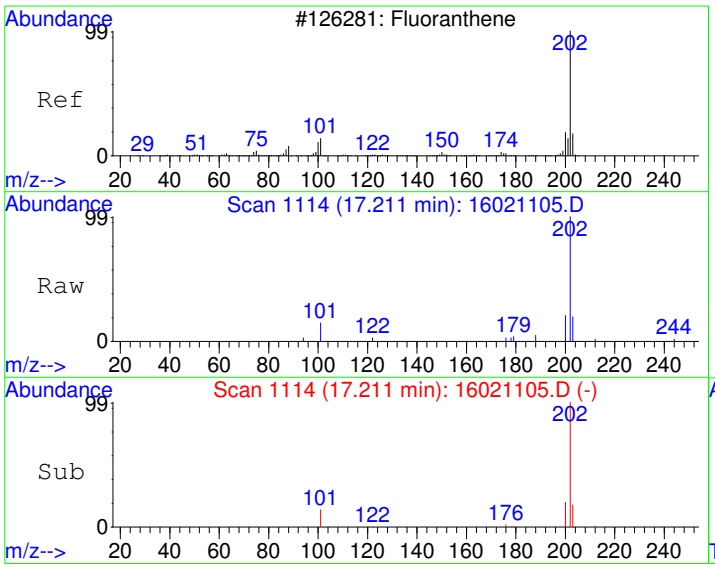


#9
Acenaphthene
Concen: 14.23 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:154 Resp: 6240

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.5	74.4	134.4#

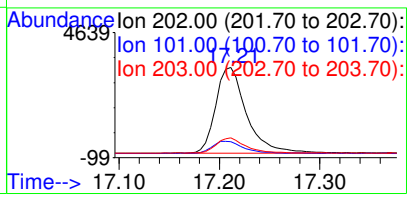


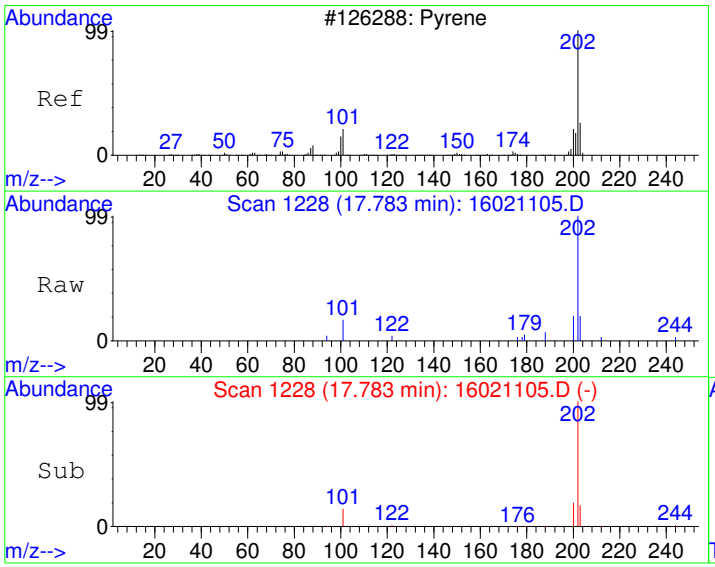


#14
Fluoranthene
Concen: 9.49 ug/kg
RT: 17.21 min Scan# 1114
Delta R.T. 0.04 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:202 Resp: 6901

Ion	Ratio	Lower	Upper
202	100		
101	13.4	0.0	42.5
203	17.9	0.0	48.0

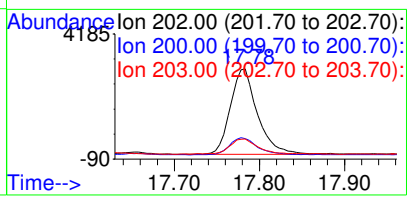


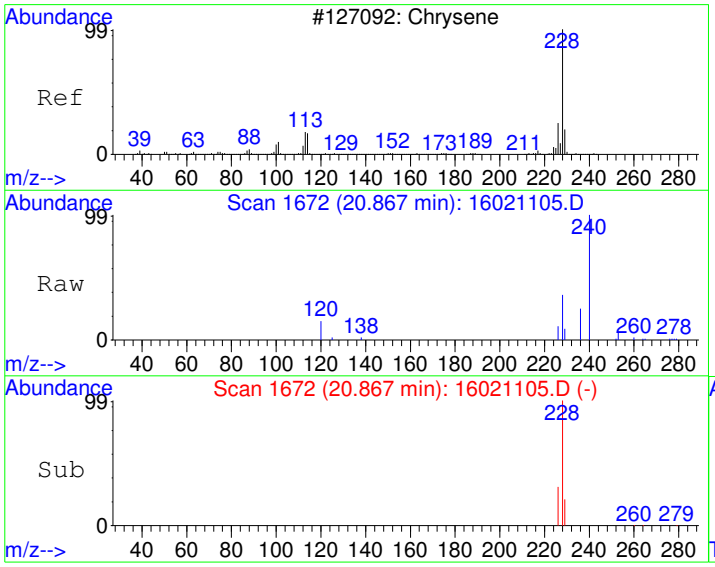


#15
Pyrene
Concen: 8.73 ug/kg
RT: 17.78 min Scan# 1228
Delta R.T. 0.04 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:202 Resp: 6462

Ion	Ratio	Lower	Upper
202	100		
200	18.7	0.0	50.0
203	17.6	0.0	48.0

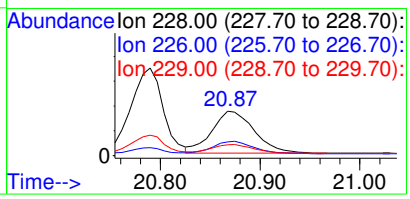


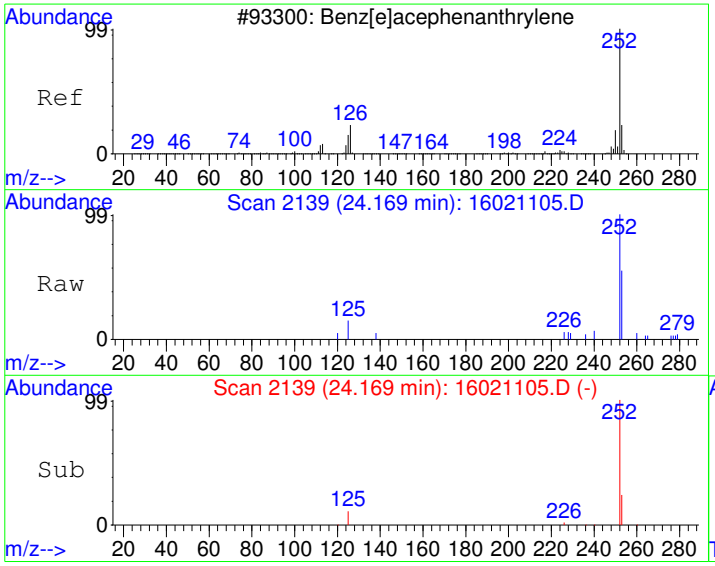


#19
Chrysene
Concen: 6.99 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:228 Resp: 5003

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.5
229	21.1	0.0	50.1

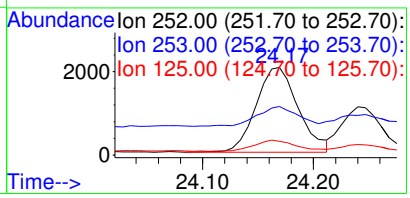


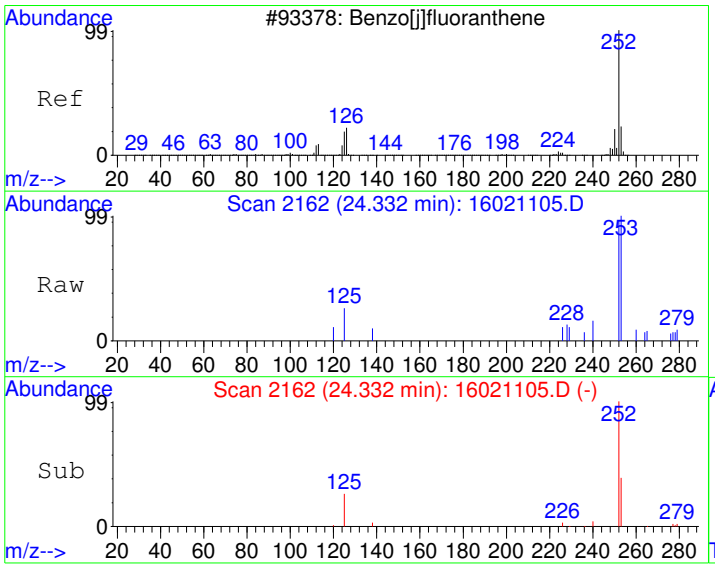


#21
Benzo[b]fluoranthene
Concen: 6.95 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:252 Resp: 5367

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	52.0
125	11.2	0.0	40.5

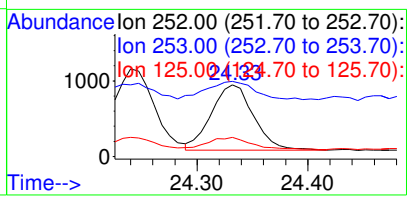


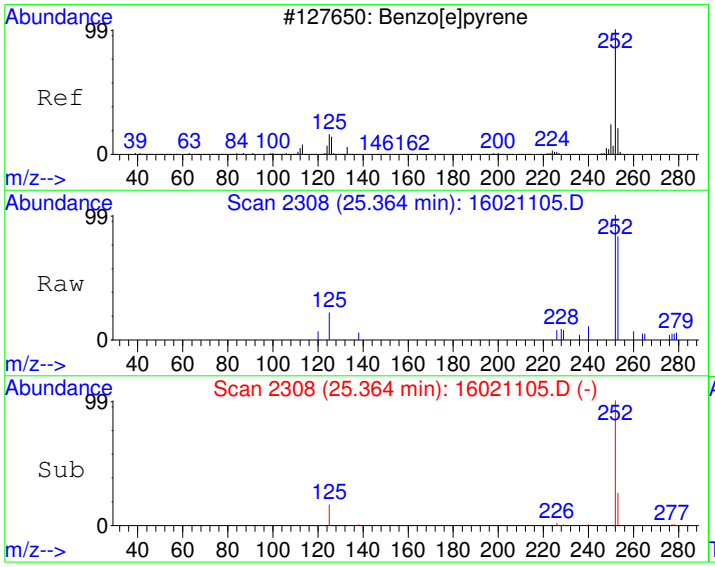


#23
Benzo(j)fluoranthene
Concen: 3.53 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:252 Resp: 2271

Ion	Ratio	Lower	Upper
252	100		
253	25.5	2.3	42.3
125	18.5	0.0	34.0

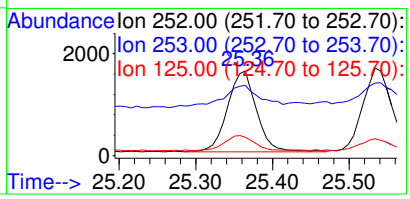


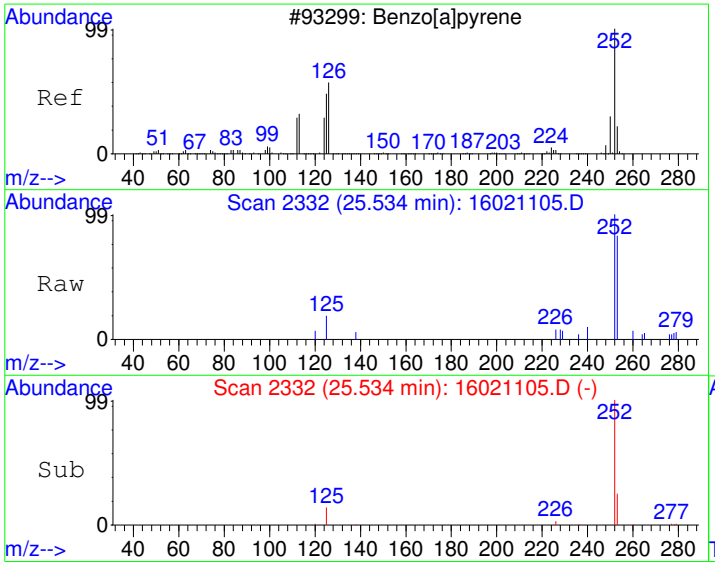


#24
Benzo[e]pyrene
Concen: 5.76 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:252 Resp: 4152

Ion	Ratio	Lower	Upper
252	100		
253	25.6	2.2	42.2
125	16.2	0.0	36.0

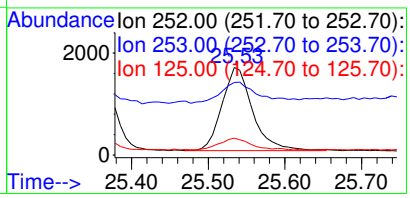


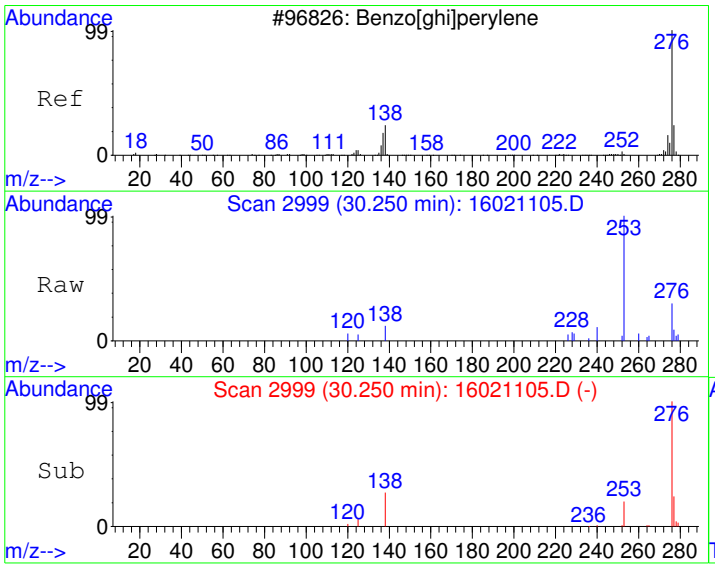


#25
Benzo[a]pyrene
Concen: 6.43 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:252 Resp: 4512

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.0	42.0
125	13.6	0.0	32.3

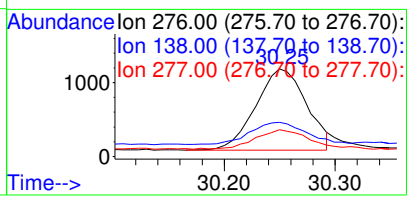




#28
Benzo[g,h,i]perylene
Concen: 5.28 ug/kg
RT: 30.25 min Scan# 2999
Delta R.T. 0.04 min
Lab File: 16021105.D
Acq: 11 Feb 2016 11:27 am

Tgt Ion:276 Resp: 3499

Ion	Ratio	Lower	Upper
276	100		
138	27.2	3.9	43.9
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021106.D Vial: 6
Acq On : 11 Feb 2016 12:07 pm Operator:
Sample : 1601232-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2378465	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1779680	4000.00 ug/kg	98
11) Phenanthrene-d10	15.23	188	3105804	4000.00 ug/kg	95
17) Chrysene-d12	20.79	240	3341640	4000.00 ug/kg	116
20) Perylene-d12	25.86	264	2995963	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	41035	79.59 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#	
16) 4-Terphenyl-d14	17.66	244	44419	85.61 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#	

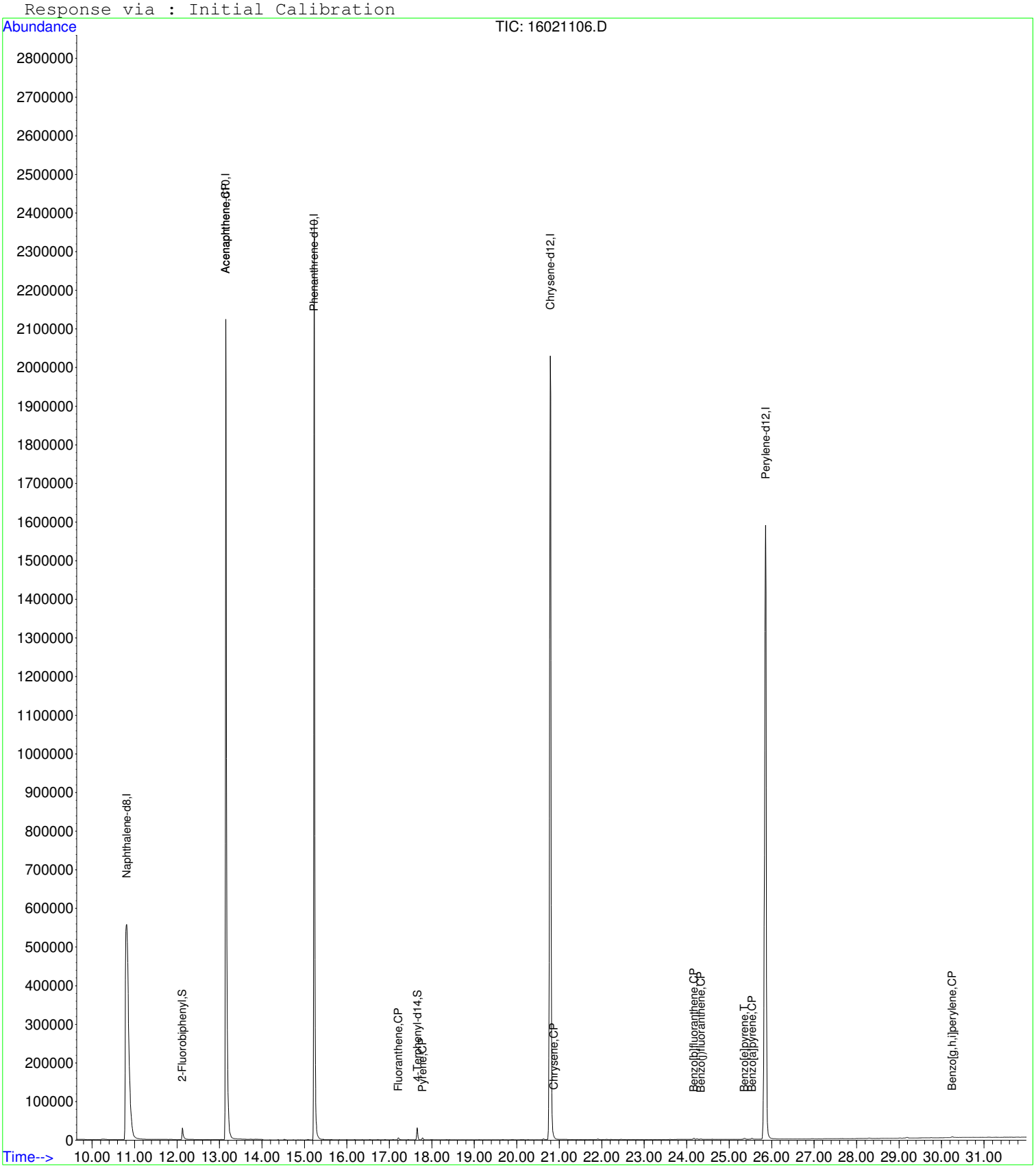
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6340	14.14 ug/kg#	10
14) Fluoranthene	17.21	202	7528	10.29 ug/kg	97
15) Pyrene	17.78	202	7020	9.42 ug/kg	99
19) Chrysene	20.87	228	5449	7.43 ug/kg	97
21) Benzo[b]fluoranthene	24.17	252	5581	6.99 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	2401	3.60 ug/kg	79
24) Benzo[e]pyrene	25.36	252	4367	5.86 ug/kg	95
25) Benzo[a]pyrene	25.54	252	4838	6.67 ug/kg	96
28) Benzo[g,h,i]perylene	30.25	276	3830	5.58 ug/kg	96

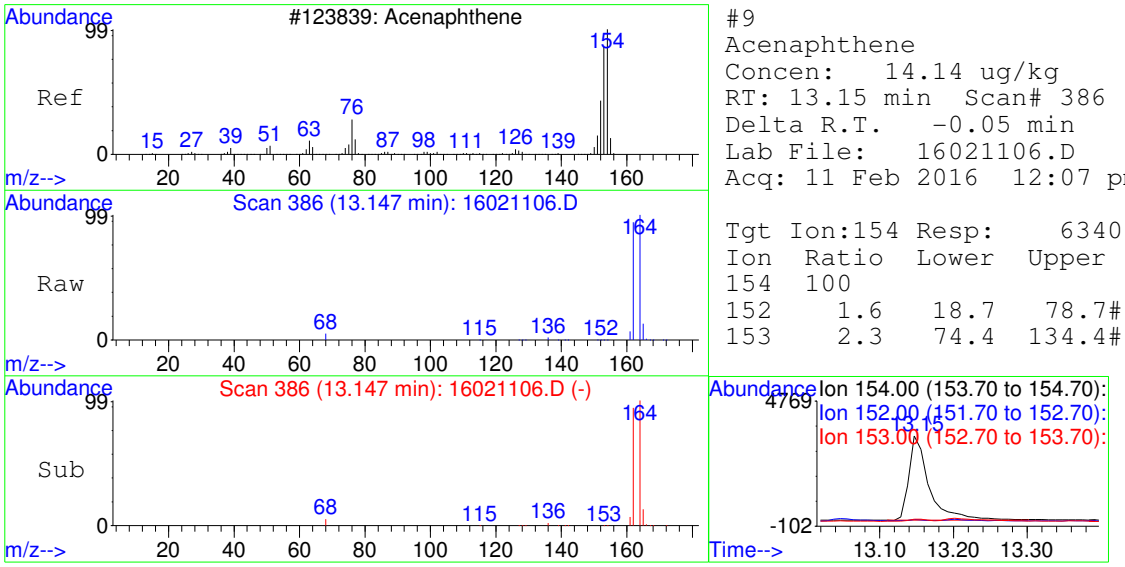
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021106.D Vial: 6
Acq On : 11 Feb 2016 12:07 pm Operator:
Sample : 1601232-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

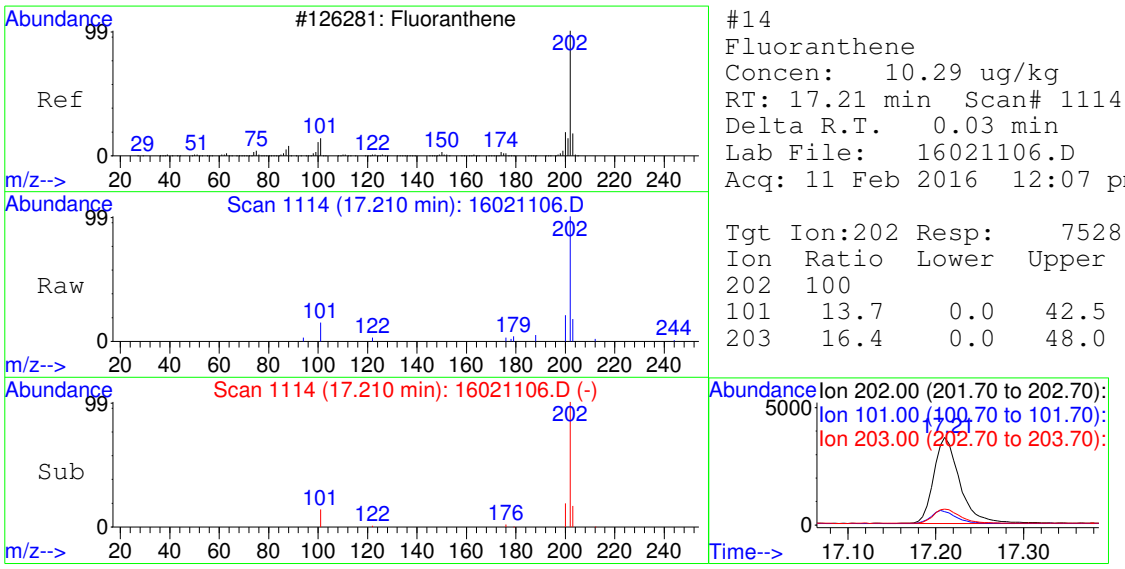




#9
Acenaphthene
Concen: 14.14 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:154 Resp: 6340

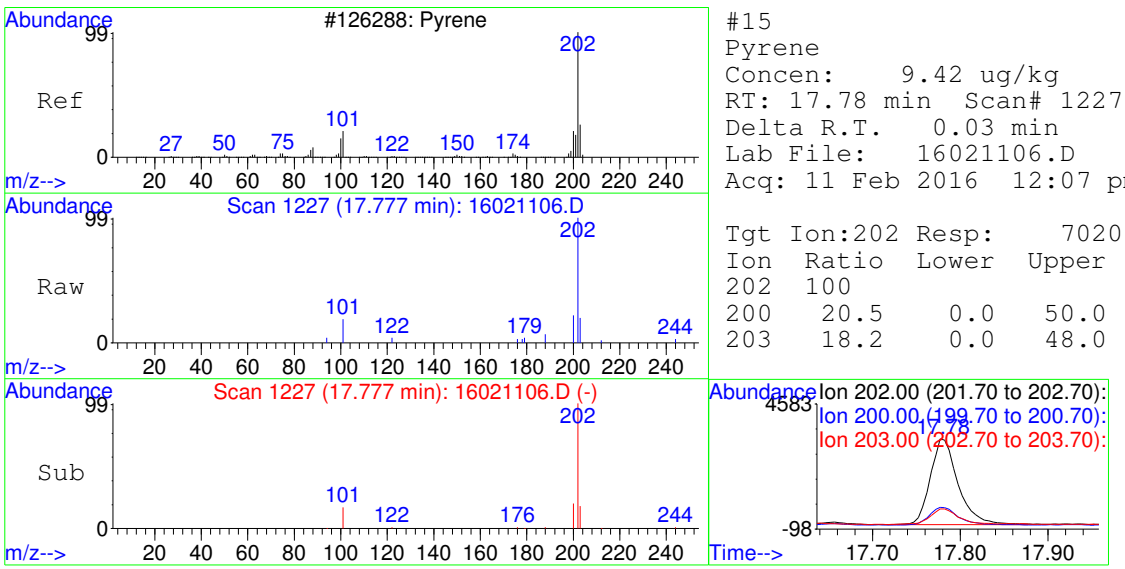
Ion	Ratio	Lower	Upper
154	100		
152	1.6	18.7	78.7#
153	2.3	74.4	134.4#



#14
Fluoranthene
Concen: 10.29 ug/kg
RT: 17.21 min Scan# 1114
Delta R.T. 0.03 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:202 Resp: 7528

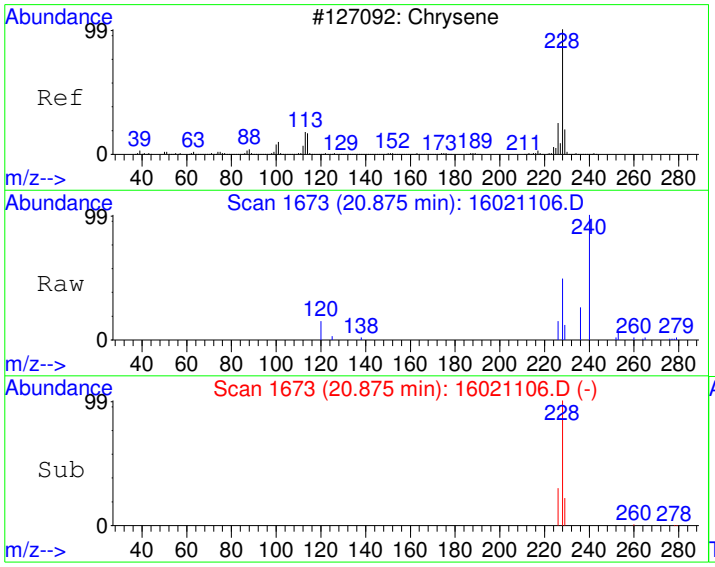
Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	16.4	0.0	48.0



#15
Pyrene
Concen: 9.42 ug/kg
RT: 17.78 min Scan# 1227
Delta R.T. 0.03 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:202 Resp: 7020

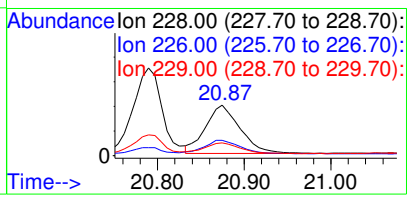
Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.2	0.0	48.0

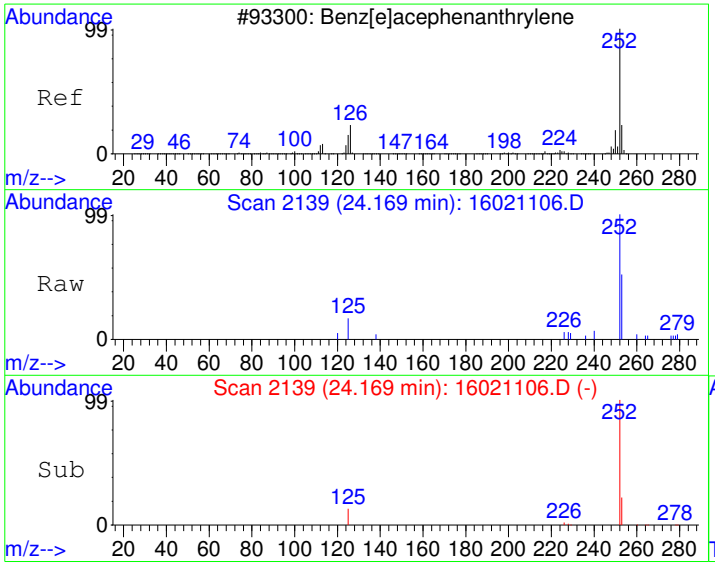


#19
Chrysene
Concen: 7.43 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:228 Resp: 5449

Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	58.5
229	22.4	0.0	50.1

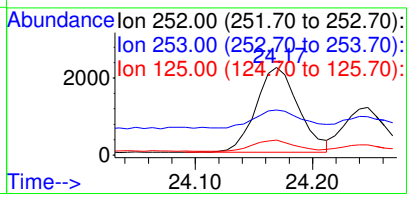


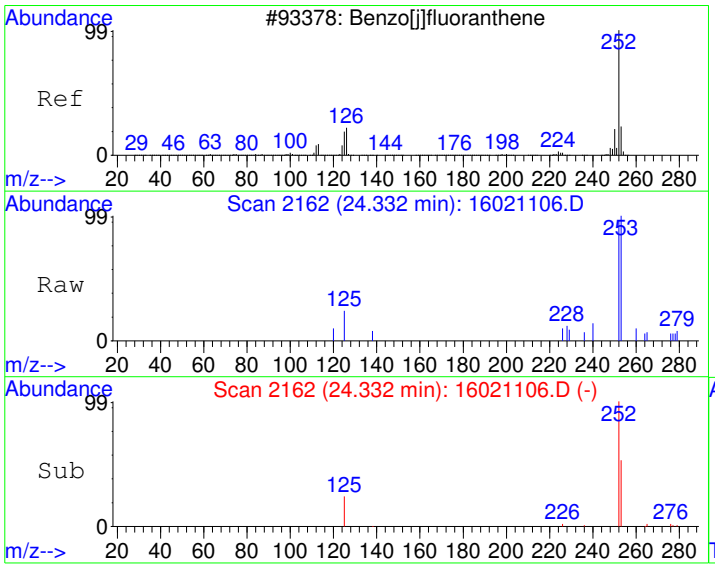


#21
Benzo[b]fluoranthene
Concen: 6.99 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:252 Resp: 5581

Ion	Ratio	Lower	Upper
252	100		
253	20.6	0.0	52.0
125	12.9	0.0	40.5

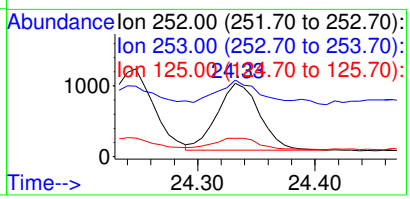


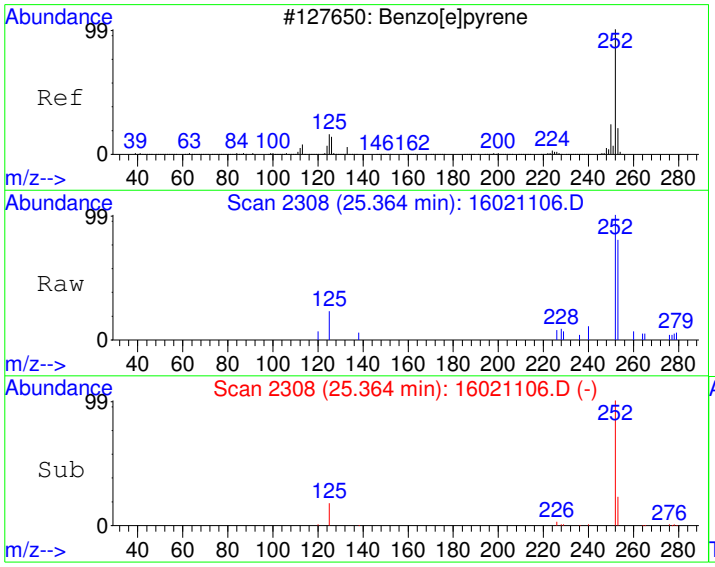


#23
Benzo(j)fluoranthene
Concen: 3.60 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:252 Resp: 2401

Ion	Ratio	Lower	Upper
252	100		
253	36.6	2.3	42.3
125	16.4	0.0	34.0

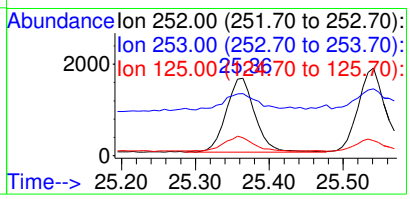


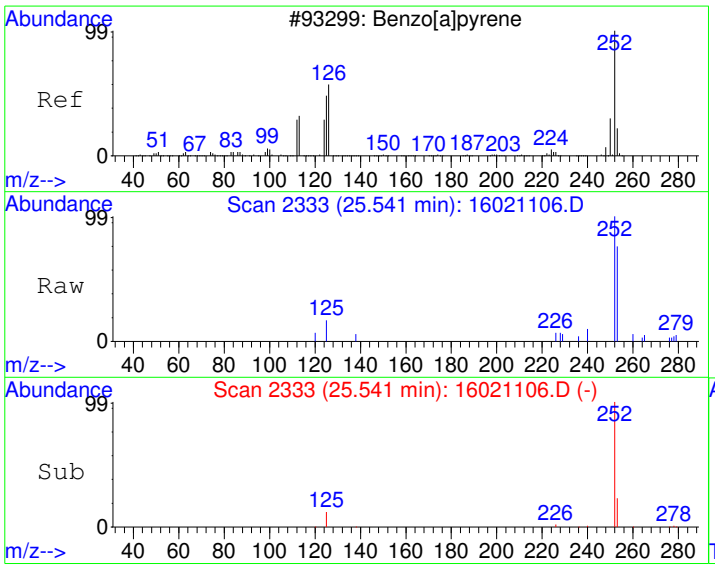


#24
Benzo[e]pyrene
Concen: 5.86 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:252 Resp: 4367

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	18.0	0.0	36.0

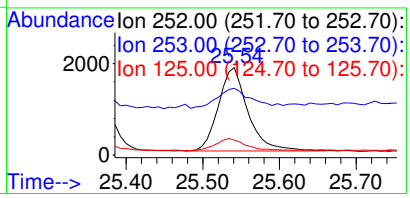


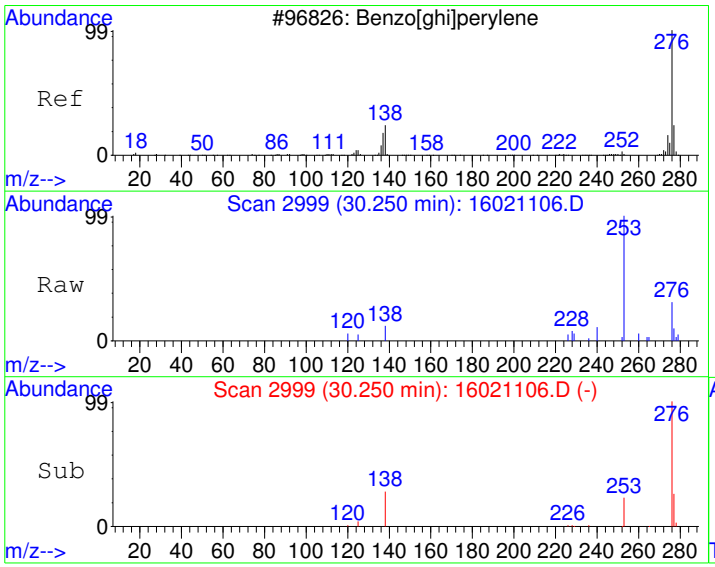


#25
Benzo[a]pyrene
Concen: 6.67 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:252 Resp: 4838

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.0	42.0
125	12.6	0.0	32.3

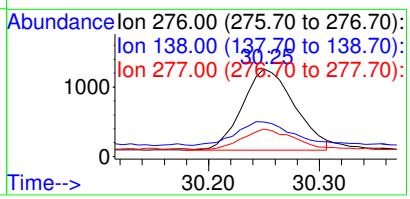




#28
Benzo[g,h,i]perylene
Concen: 5.58 ug/kg
RT: 30.25 min Scan# 2999
Delta R.T. 0.04 min
Lab File: 16021106.D
Acq: 11 Feb 2016 12:07 pm

Tgt Ion:276 Resp: 3830

Ion	Ratio	Lower	Upper
276	100		
138	28.3	3.9	43.9
277	24.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021107.D Vial: 7
Acq On : 11 Feb 2016 12:47 pm Operator:
Sample : 1601232-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2375121	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1749119	4000.00 ug/kg	96
11) Phenanthrene-d10	15.23	188	3129569	4000.00 ug/kg	96
17) Chrysene-d12	20.80	240	3262539	4000.00 ug/kg	113
20) Perylene-d12	25.86	264	2942298	4000.00 ug/kg	127

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	39285	77.52 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#		
16) 4-Terphenyl-d14	17.66	244	41627	79.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6397	14.52 ug/kg#	10
12) Phenanthrene	15.26	178	9360	12.59 ug/kg	98
14) Fluoranthene	17.20	202	27416	37.20 ug/kg	97
15) Pyrene	17.77	202	25862	34.45 ug/kg	99
18) Benzo[a]anthracene	20.63	228	14497	19.27 ug/kg	99
19) Chrysene	20.87	228	19262	26.89 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	19977	25.47 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	8888	12.75 ug/kg	95
23) Benzo(j)fluoranthene	24.33	252	9050	13.83 ug/kg	89
24) Benzo[e]pyrene	25.36	252	15731	21.48 ug/kg	98
25) Benzo[a]pyrene	25.54	252	18431	25.85 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.18	276	13461	16.75 ug/kg	99
28) Benzo[g,h,i]perylene	30.23	276	13855	20.55 ug/kg	94

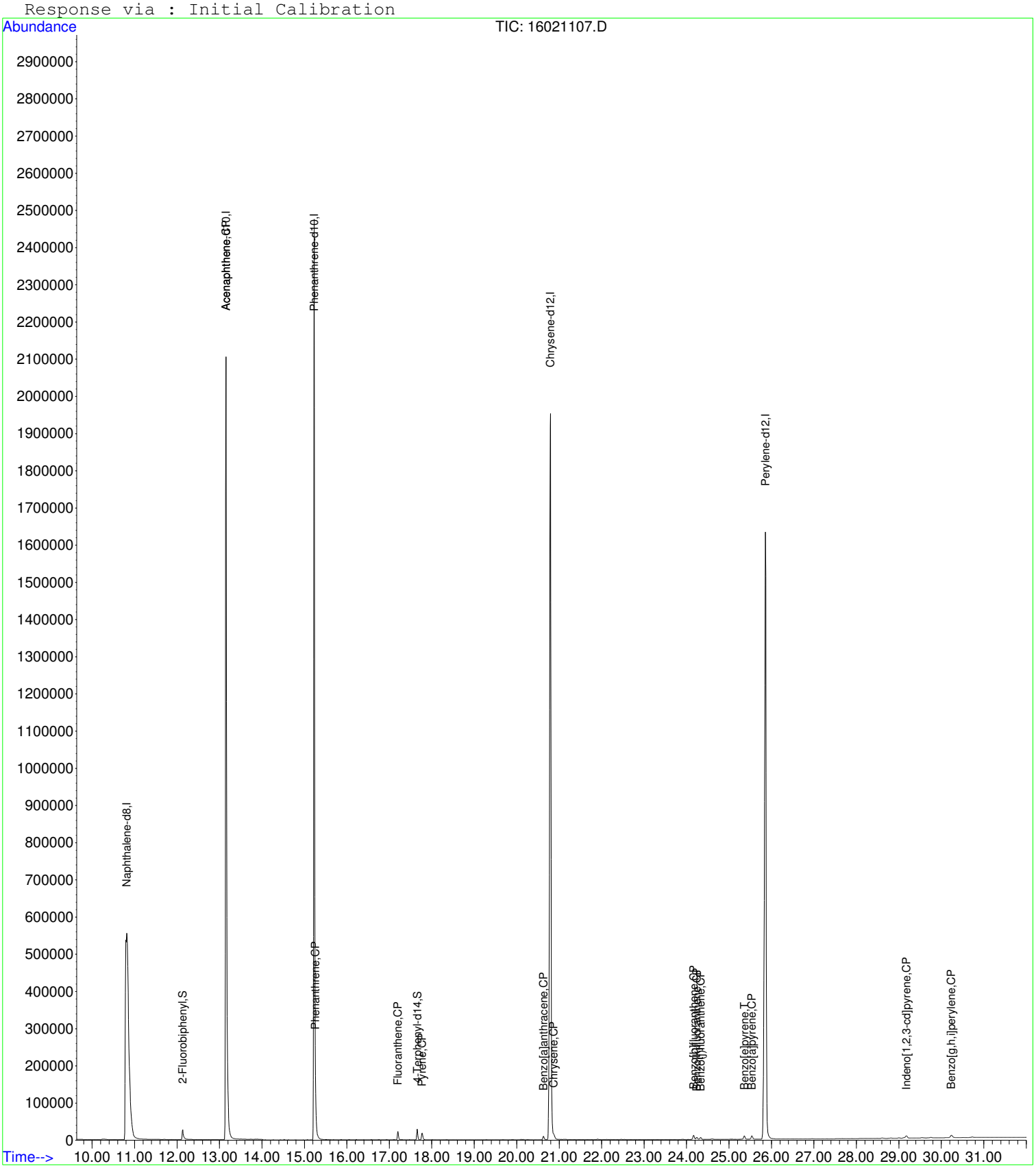
CONFIRMED
By Sherri Herschmann at 10:29:36 AM, 2/16/2016

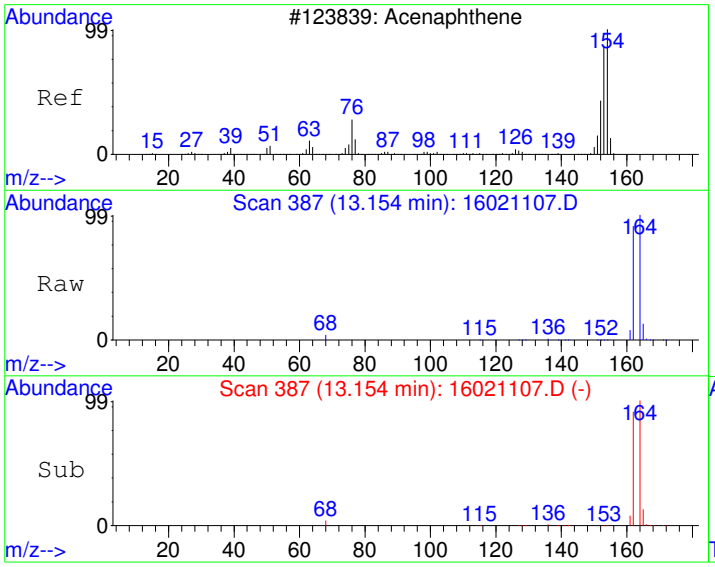
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021107.D Vial: 7
Acq On : 11 Feb 2016 12:47 pm Operator:
Sample : 1601232-13A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

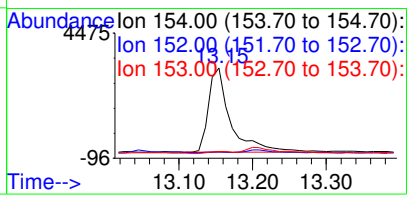


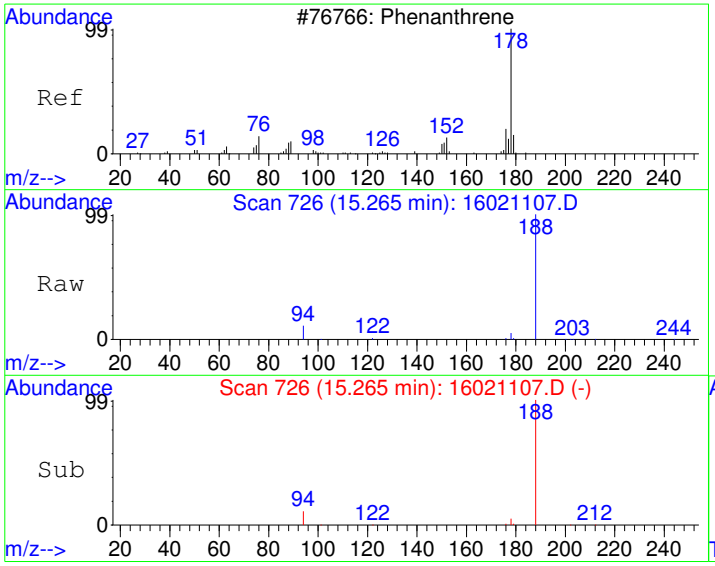


#9
Acenaphthene
Concen: 14.52 ug/kg
RT: 13.15 min Scan# 387
Delta R.T. -0.04 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:154 Resp: 6397

Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.7	78.7#
153	2.1	74.4	134.4#

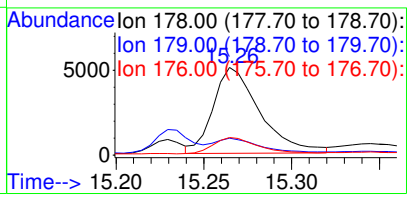


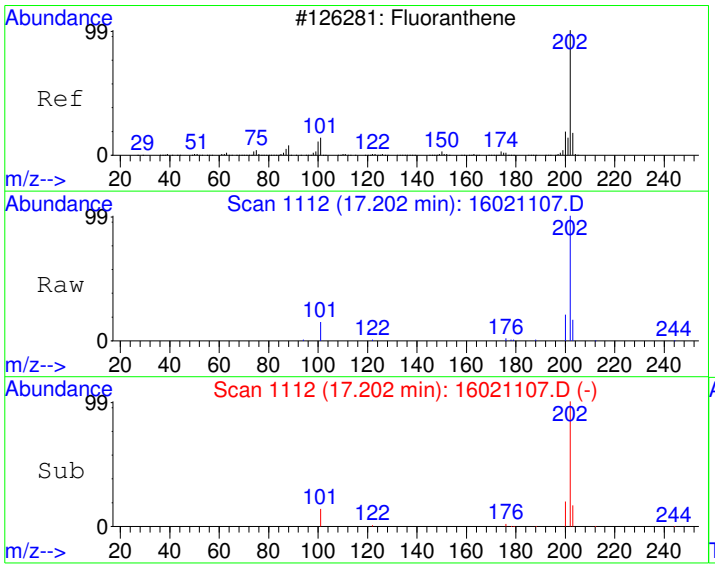


#12
Phenanthrene
Concen: 12.59 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:178 Resp: 9360

Ion	Ratio	Lower	Upper
178	100		
179	17.0	0.0	46.1
176	20.1	0.0	49.0

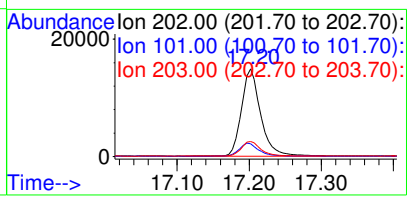


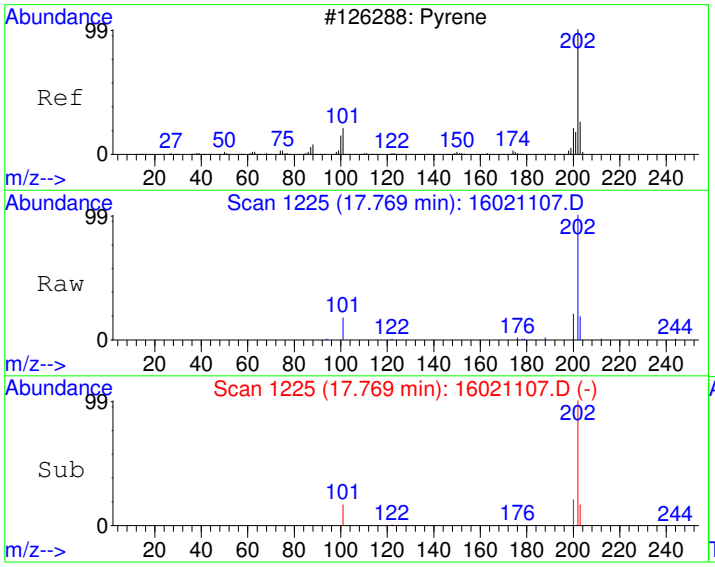


#14
Fluoranthene
Concen: 37.20 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.03 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:202 Resp: 27416

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	42.5
203	16.8	0.0	48.0

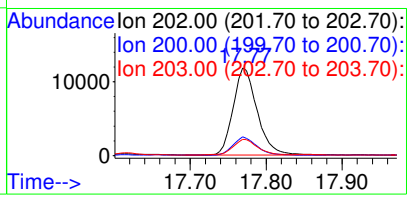


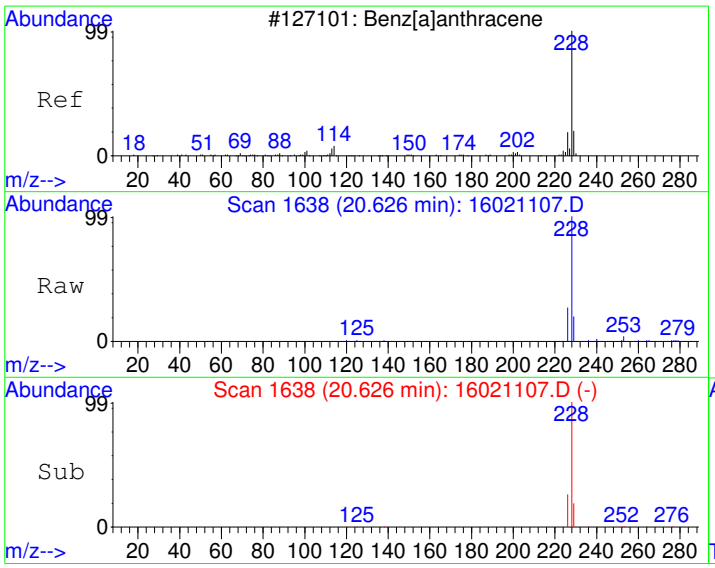


#15
Pyrene
Concen: 34.45 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:202 Resp: 25862

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	50.0
203	17.9	0.0	48.0

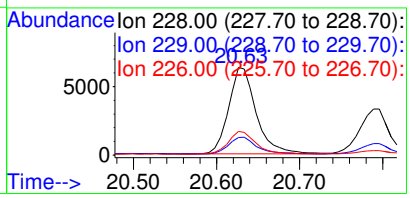


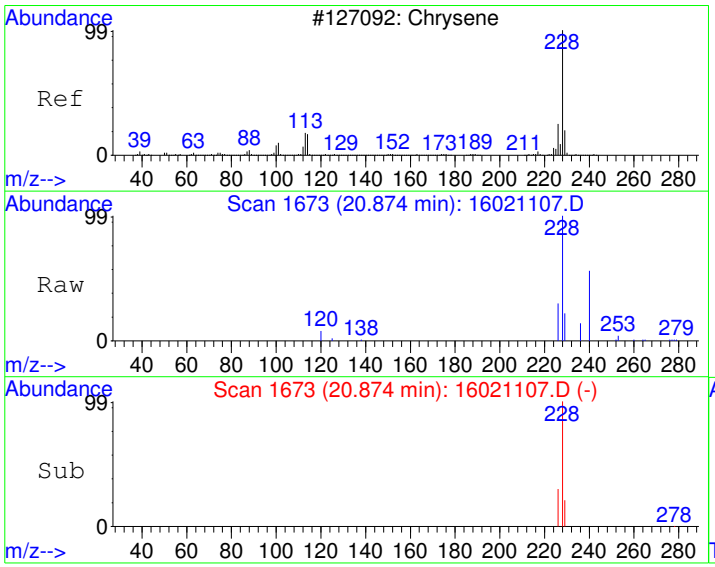


#18
Benzo[a]anthracene
Concen: 19.27 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:228 Resp: 14497

Ion	Ratio	Lower	Upper
228	100		
229	18.9	0.0	50.0
226	26.4	0.0	56.4

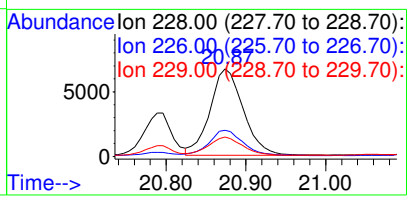


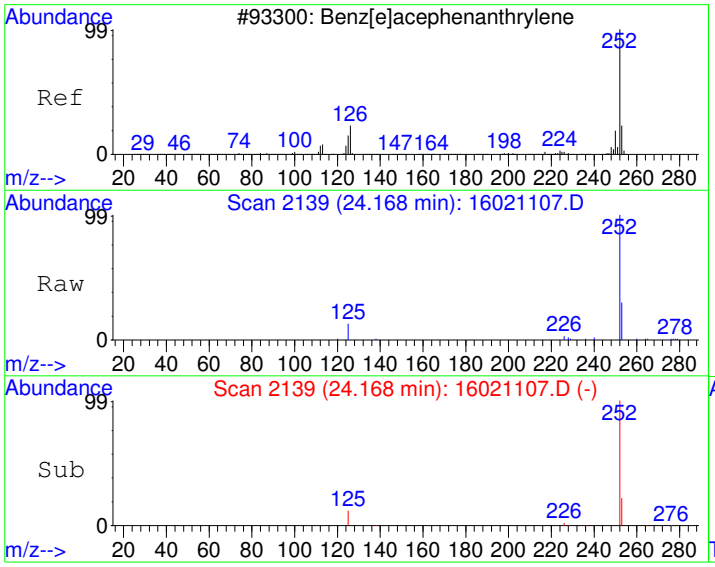


#19
Chrysene
Concen: 26.89 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:228 Resp: 19262

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.0	58.5
229	21.0	0.0	50.1

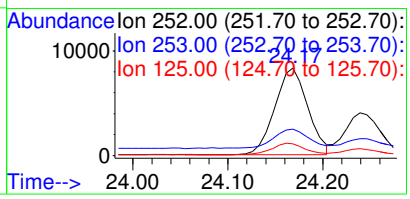


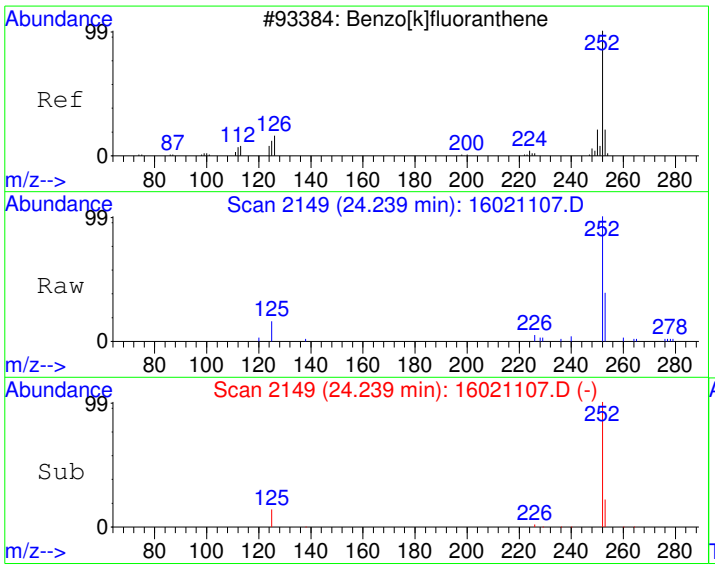


#21
Benzo[b]fluoranthene
Concen: 25.47 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:252 Resp: 19977

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	52.0
125	12.3	0.0	40.5

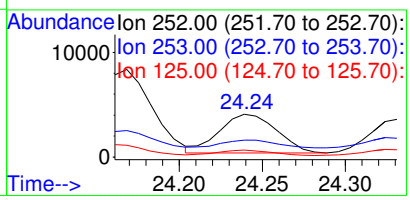


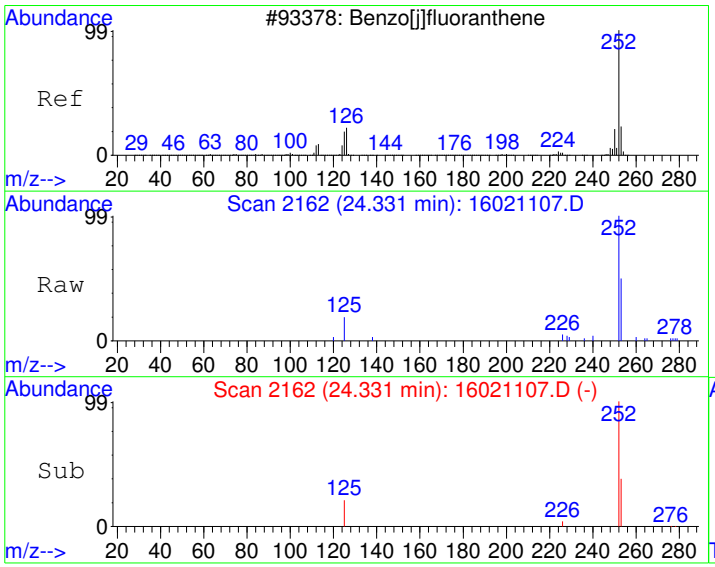


#22
Benzo[k]fluoranthene
Concen: 12.75 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:252 Resp: 8888

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.2	42.2
125	13.2	0.0	31.8

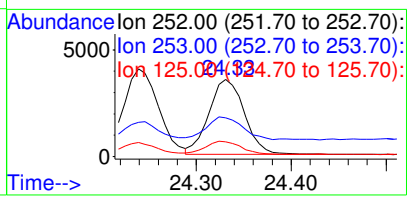


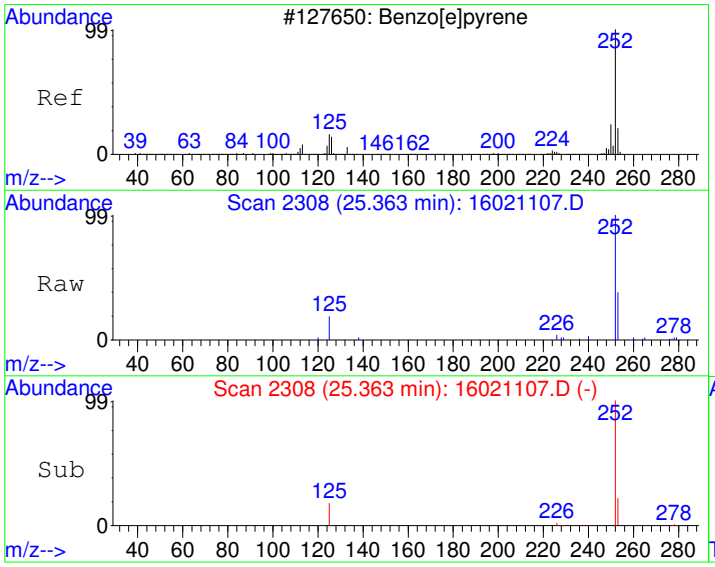


#23
Benzo(j)fluoranthene
Concen: 13.83 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:252 Resp: 9050

Ion	Ratio	Lower	Upper
252	100		
253	28.5	2.3	42.3
125	16.8	0.0	34.0

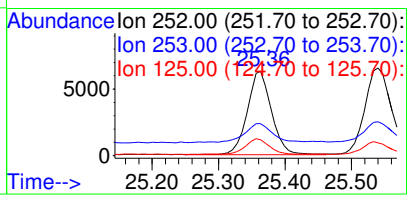


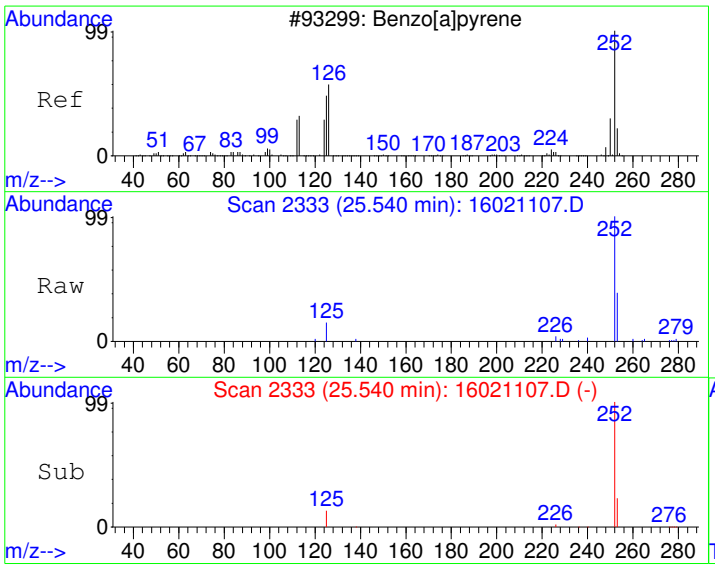


#24
Benzo[e]pyrene
Concen: 21.48 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:252 Resp: 15731

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	17.5	0.0	36.0

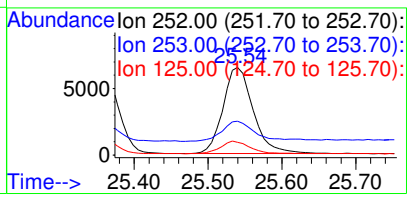


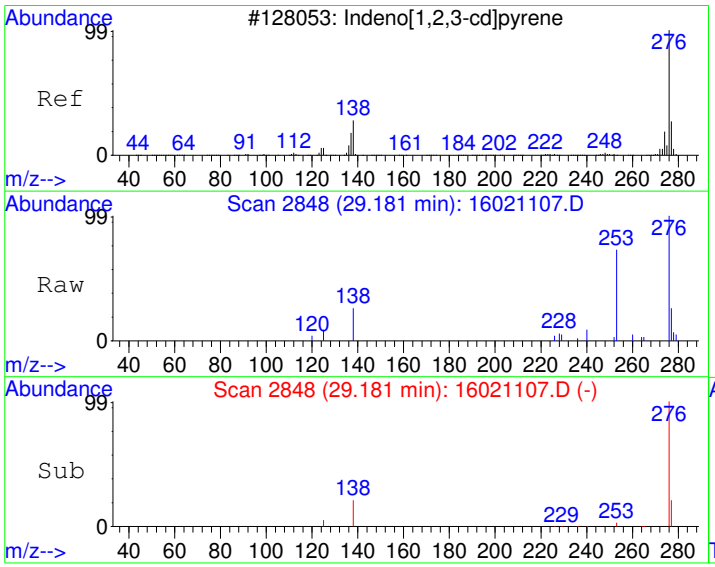


#25
Benzo[a]pyrene
Concen: 25.85 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:252 Resp: 18431

Ion	Ratio	Lower	Upper
252	100		
253	23.4	2.0	42.0
125	13.4	0.0	32.3

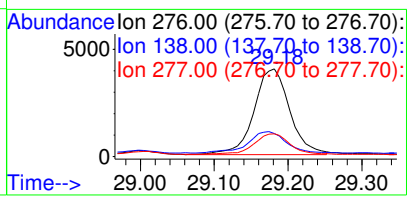


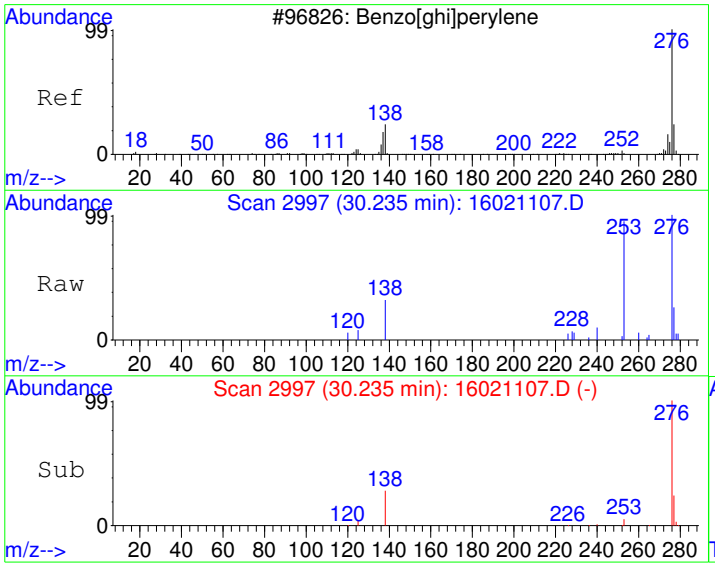


#27
Indeno[1,2,3-cd]pyrene
Concen: 16.75 ug/kg
RT: 29.18 min Scan# 2848
Delta R.T. 0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:276 Resp: 13461

Ion	Ratio	Lower	Upper
276	100		
138	22.8	2.1	42.1
277	24.1	4.2	44.2

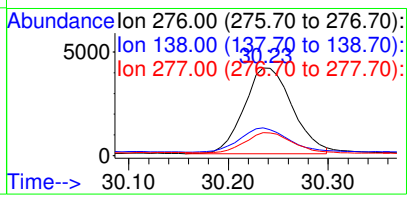




#28
Benzo[g,h,i]perylene
Concen: 20.55 ug/kg
RT: 30.23 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16021107.D
Acq: 11 Feb 2016 12:47 pm

Tgt Ion:276 Resp: 13855

Ion	Ratio	Lower	Upper
276	100		
138	28.4	3.9	43.9
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021108.D Vial: 8
Acq On : 11 Feb 2016 1:27 pm Operator:
Sample : 1601232-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2330477	4000.00 ug/kg	111
5) Acenaphthene-d10	13.15	164	1714626	4000.00 ug/kg	94
11) Phenanthrene-d10	15.23	188	3089407	4000.00 ug/kg	95
17) Chrysene-d12	20.80	240	3212353	4000.00 ug/kg	111
20) Perylene-d12	25.86	264	2904050	4000.00 ug/kg	126

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	39694	79.91 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.66	244	42156	81.68 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.04%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6325	14.64 ug/kg#	10
12) Phenanthrene	15.26	178	10085	13.75 ug/kg	99
14) Fluoranthene	17.20	202	30469	41.88 ug/kg	97
15) Pyrene	17.77	202	28366	38.28 ug/kg	99
18) Benzo[a]anthracene	20.63	228	15890	21.45 ug/kg	100
19) Chrysene	20.87	228	20836	29.54 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	21853	28.22 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	9401	13.67 ug/kg	94
23) Benzo(j)fluoranthene	24.33	252	9582	14.83 ug/kg	89
24) Benzo[e]pyrene	25.36	252	16878	23.35 ug/kg	97
25) Benzo[a]pyrene	25.54	252	20131	28.61 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.18	276	14756	18.61 ug/kg	98
28) Benzo[g,h,i]perylene	30.24	276	15344	23.06 ug/kg	95

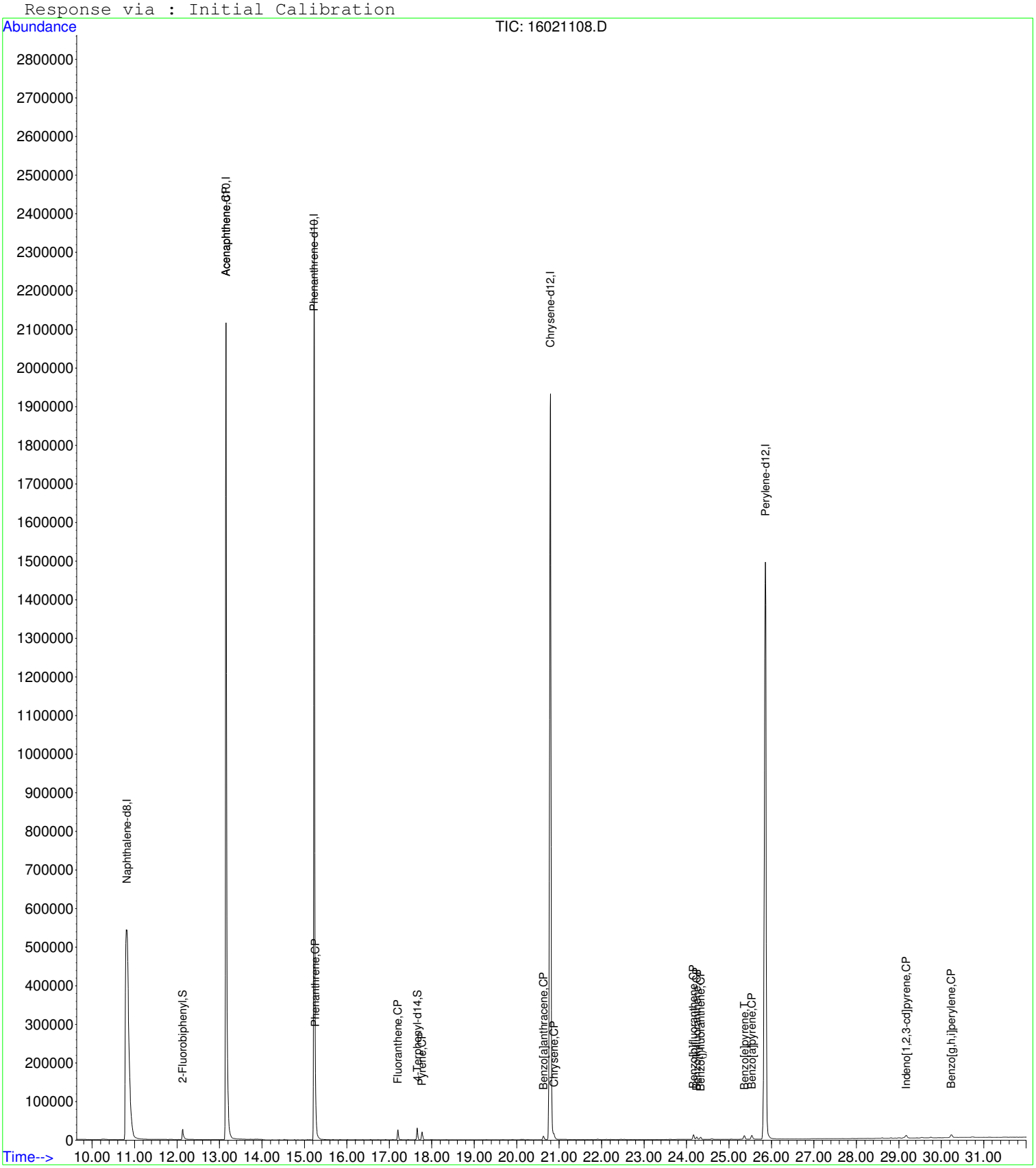
CONFIRMED
By Sherri Herschmann at 10:29:42 AM, 2/16/2016

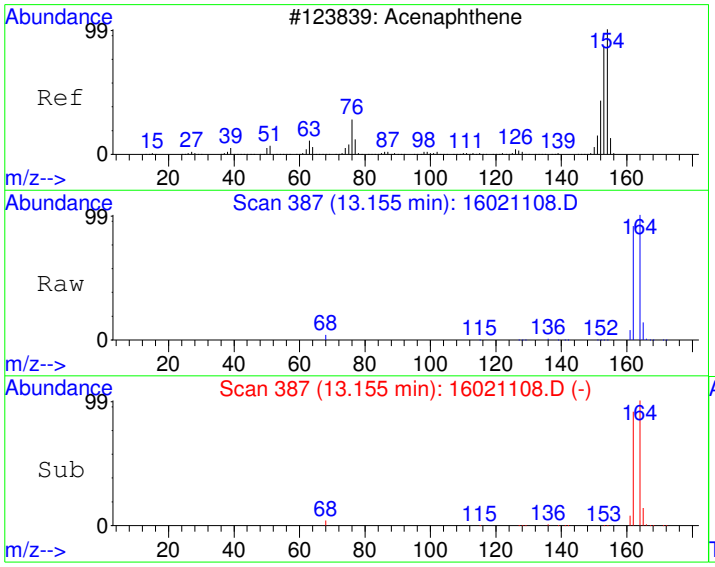
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021108.D Vial: 8
Acq On : 11 Feb 2016 1:27 pm Operator:
Sample : 1601232-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

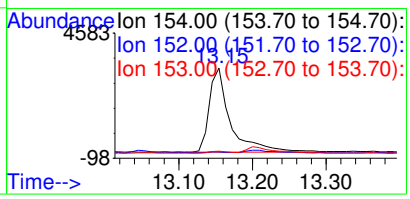


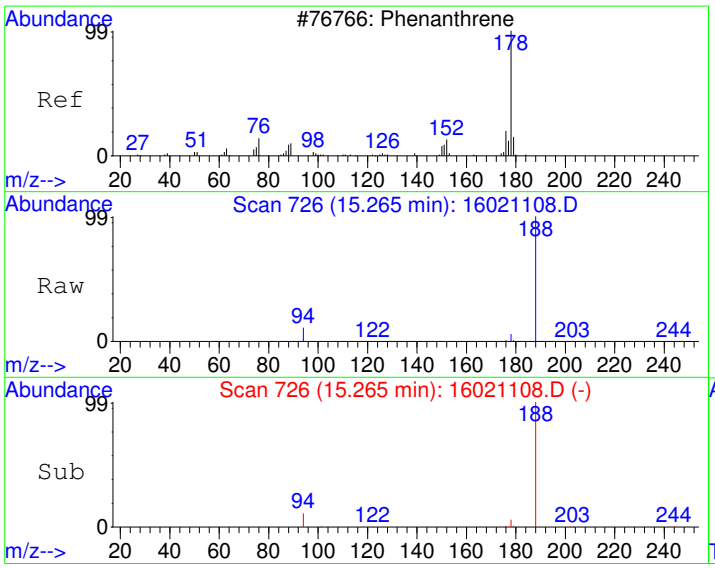


#9
Acenaphthene
Concen: 14.64 ug/kg
RT: 13.15 min Scan# 387
Delta R.T. -0.04 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:154 Resp: 6325

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.4	74.4	134.4#

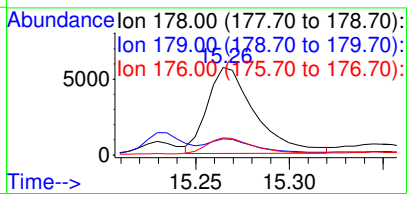


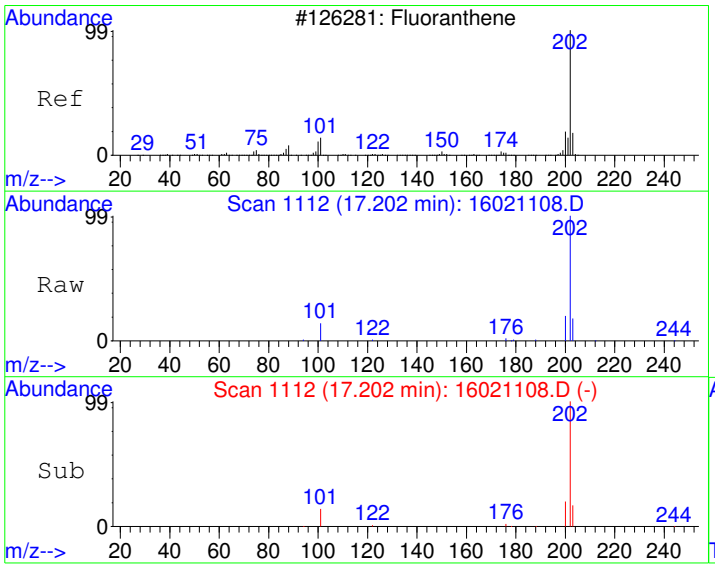


#12
Phenanthrene
Concen: 13.75 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:178 Resp: 10085

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	46.1
176	19.2	0.0	49.0

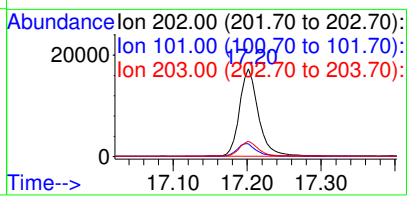


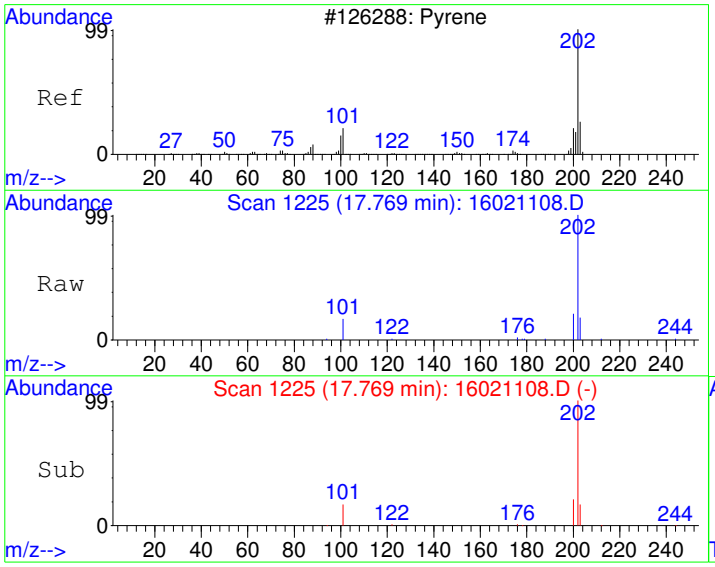


#14
Fluoranthene
Concen: 41.88 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.03 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:202 Resp: 30469

Ion	Ratio	Lower	Upper
202	100		
101	14.1	0.0	42.5
203	17.3	0.0	48.0

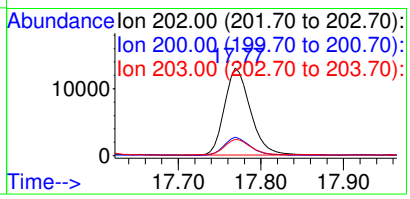


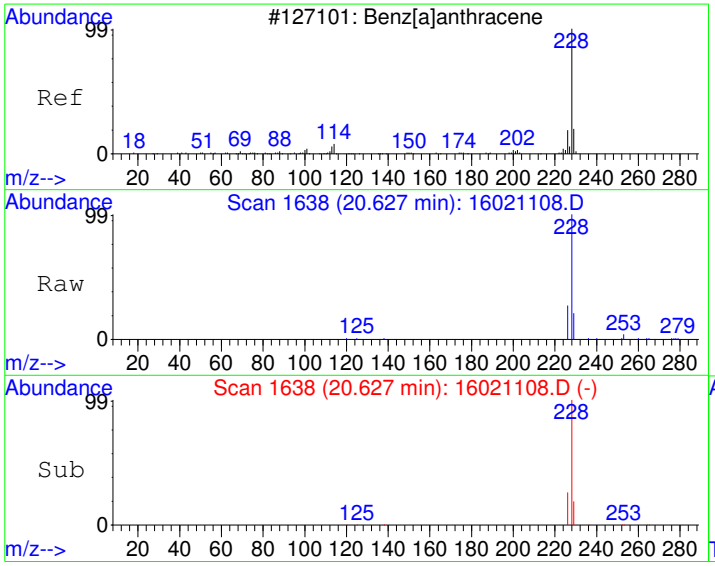


#15
Pyrene
Concen: 38.28 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:202 Resp: 28366

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	50.0
203	17.9	0.0	48.0

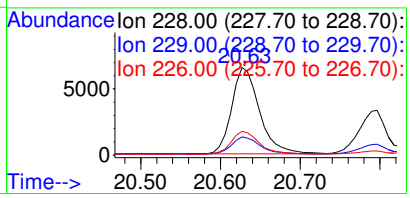


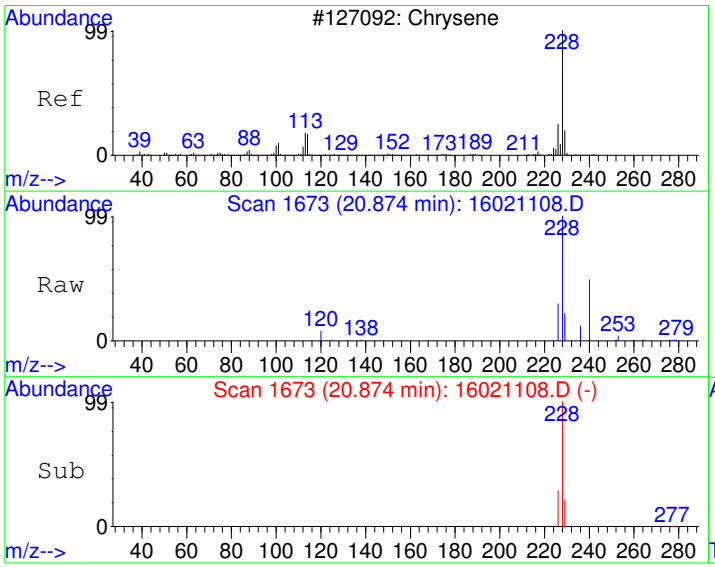


#18
Benzo[a]anthracene
Concen: 21.45 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:228 Resp: 15890

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.4	0.0	56.4

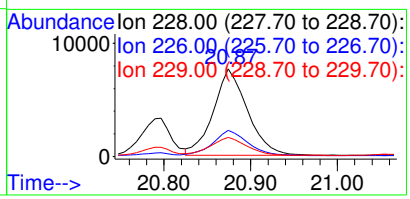


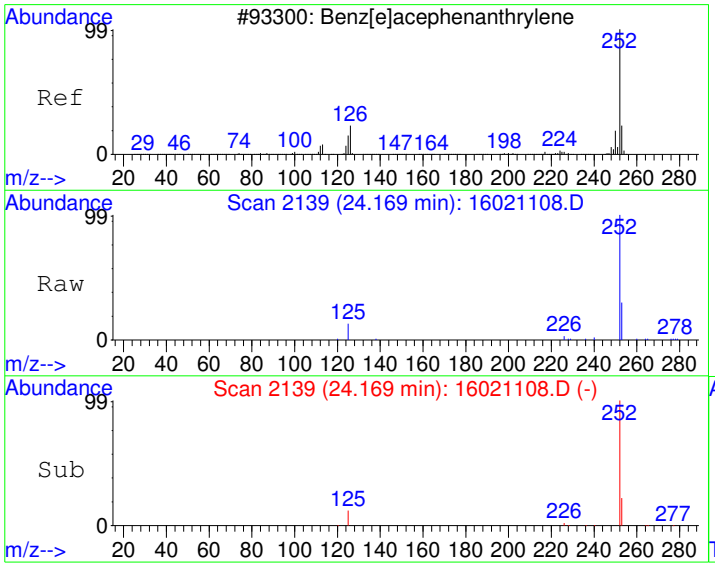


#19
Chrysene
Concen: 29.54 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:228 Resp: 20836

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.0	58.5
229	20.9	0.0	50.1

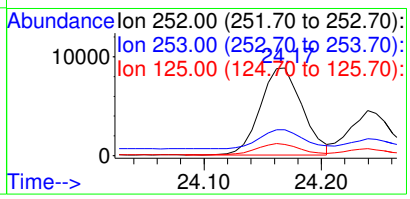


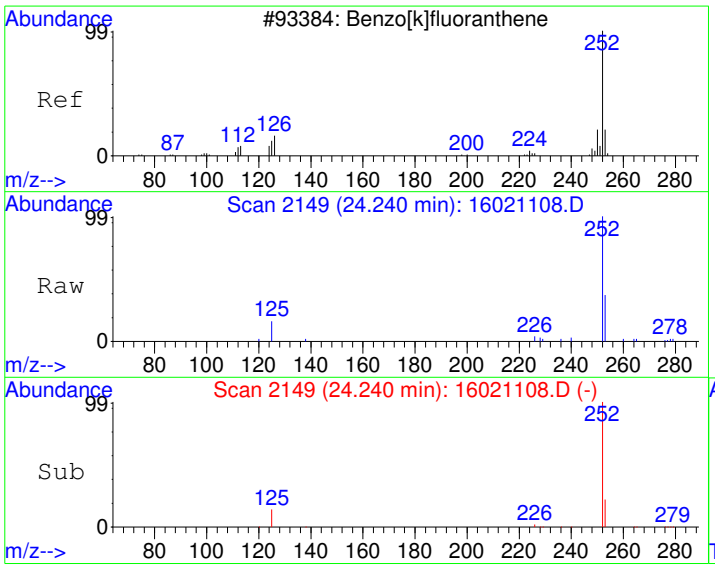


#21
Benzo[b]fluoranthene
Concen: 28.22 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:252 Resp: 21853

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	11.8	0.0	40.5

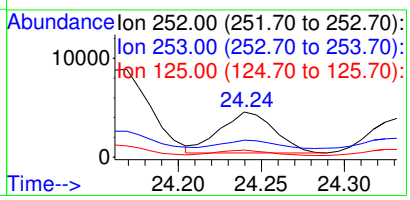


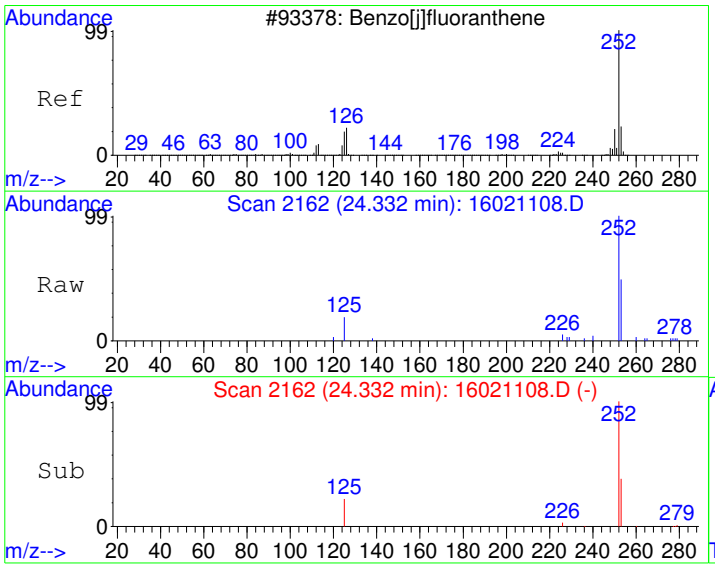


#22
Benzo[k]fluoranthene
Concen: 13.67 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:252 Resp: 9401

Ion	Ratio	Lower	Upper
252	100		
253	18.9	2.2	42.2
125	13.4	0.0	31.8

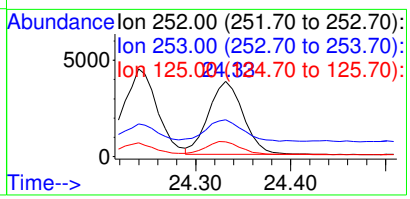


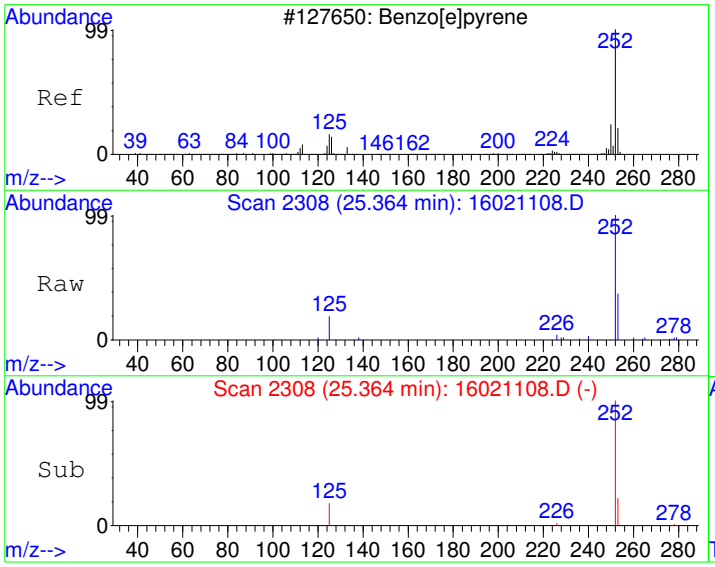


#23
Benzo(j)fluoranthene
Concen: 14.83 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:252 Resp: 9582

Ion	Ratio	Lower	Upper
252	100		
253	28.7	2.3	42.3
125	17.3	0.0	34.0

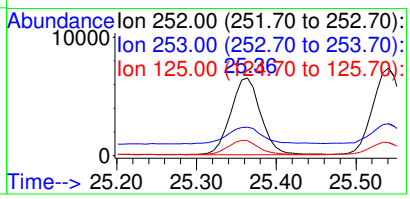


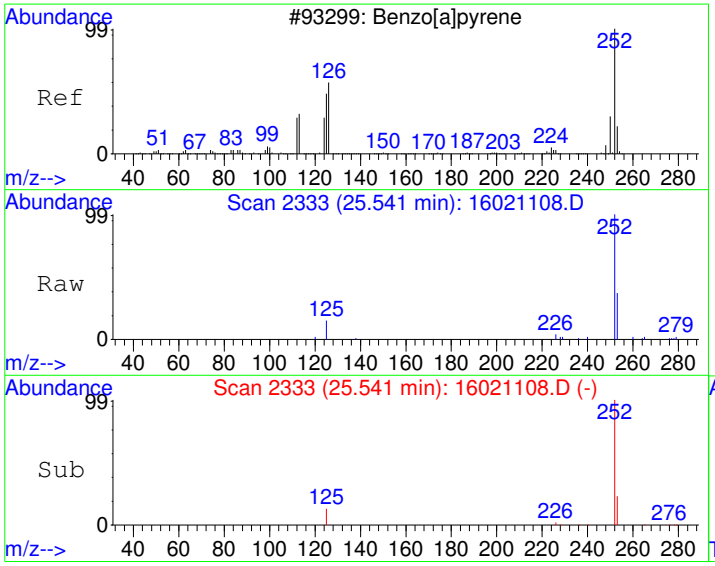


#24
Benzo[e]pyrene
Concen: 23.35 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:252 Resp: 16878

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	17.9	0.0	36.0

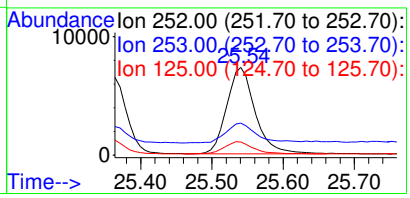


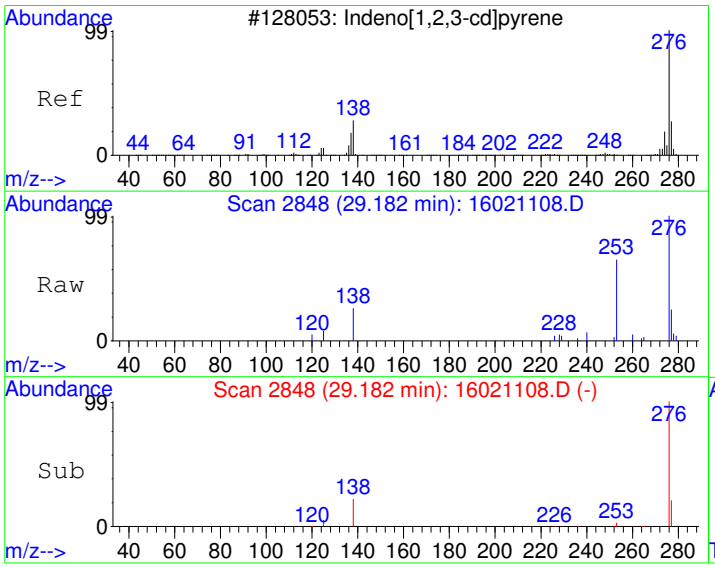


#25
Benzo[a]pyrene
Concen: 28.61 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:252 Resp: 20131

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.0	42.0
125	13.6	0.0	32.3

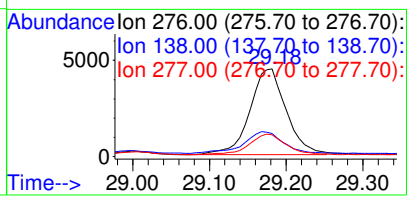


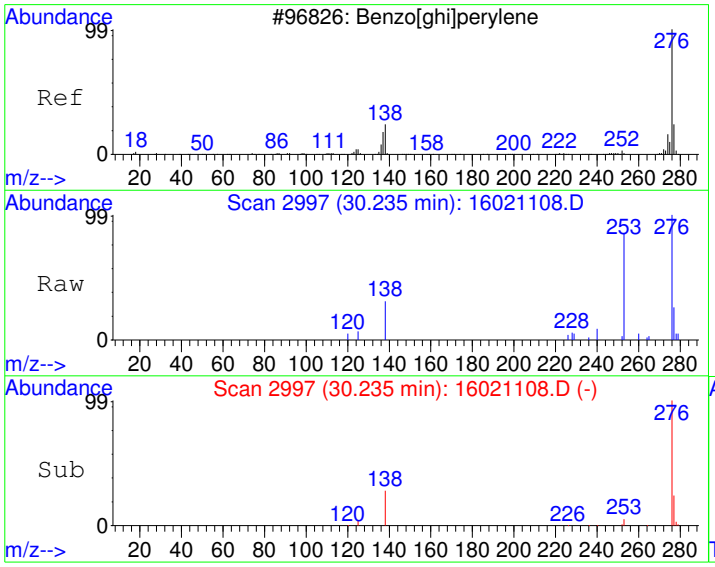


#27
Indeno[1,2,3-cd]pyrene
Concen: 18.61 ug/kg
RT: 29.18 min Scan# 2848
Delta R.T. 0.02 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:276 Resp: 14756

Ion	Ratio	Lower	Upper
276	100		
138	23.0	2.1	42.1
277	23.1	4.2	44.2

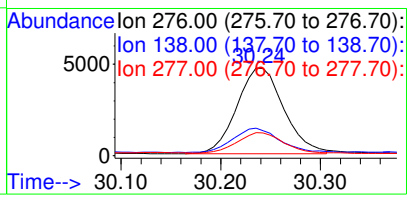




#28
Benzo[g,h,i]perylene
Concen: 23.06 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16021108.D
Acq: 11 Feb 2016 1:27 pm

Tgt Ion:276 Resp: 15344

Ion	Ratio	Lower	Upper
276	100		
138	28.3	3.9	43.9
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021109.D Vial: 9
Acq On : 11 Feb 2016 2:07 pm Operator:
Sample : 1601232-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2345231	4000.00 ug/kg	112
5) Acenaphthene-d10	13.15	164	1752445	4000.00 ug/kg	96
11) Phenanthrene-d10	15.23	188	3104639	4000.00 ug/kg	95
17) Chrysene-d12	20.80	240	3301463	4000.00 ug/kg	114
20) Perylene-d12	25.86	264	2955741	4000.00 ug/kg	128

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	39405	77.61 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#		
16) 4-Terphenyl-d14	17.66	244	42647	82.22 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.06%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6475	14.67 ug/kg#	10
12) Phenanthrene	15.26	178	10235	13.88 ug/kg	99
14) Fluoranthene	17.20	202	31678	43.33 ug/kg	97
15) Pyrene	17.77	202	29930	40.19 ug/kg	99
18) Benzo[a]anthracene	20.63	228	16898	22.20 ug/kg	98
19) Chrysene	20.88	228	22410	30.92 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	24023	30.48 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	10056	14.37 ug/kg	95
23) Benzo(j)fluoranthene	24.33	252	10629	16.16 ug/kg	89
24) Benzo[e]pyrene	25.36	252	18220	24.76 ug/kg	97
25) Benzo[a]pyrene	25.54	252	21943	30.64 ug/kg	98
26) Dibenz[a,h]anthracene	29.13	278	3507	5.29 ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.18	276	16229	20.11 ug/kg	97
28) Benzo[g,h,i]perylene	30.24	276	16871	24.91 ug/kg	97

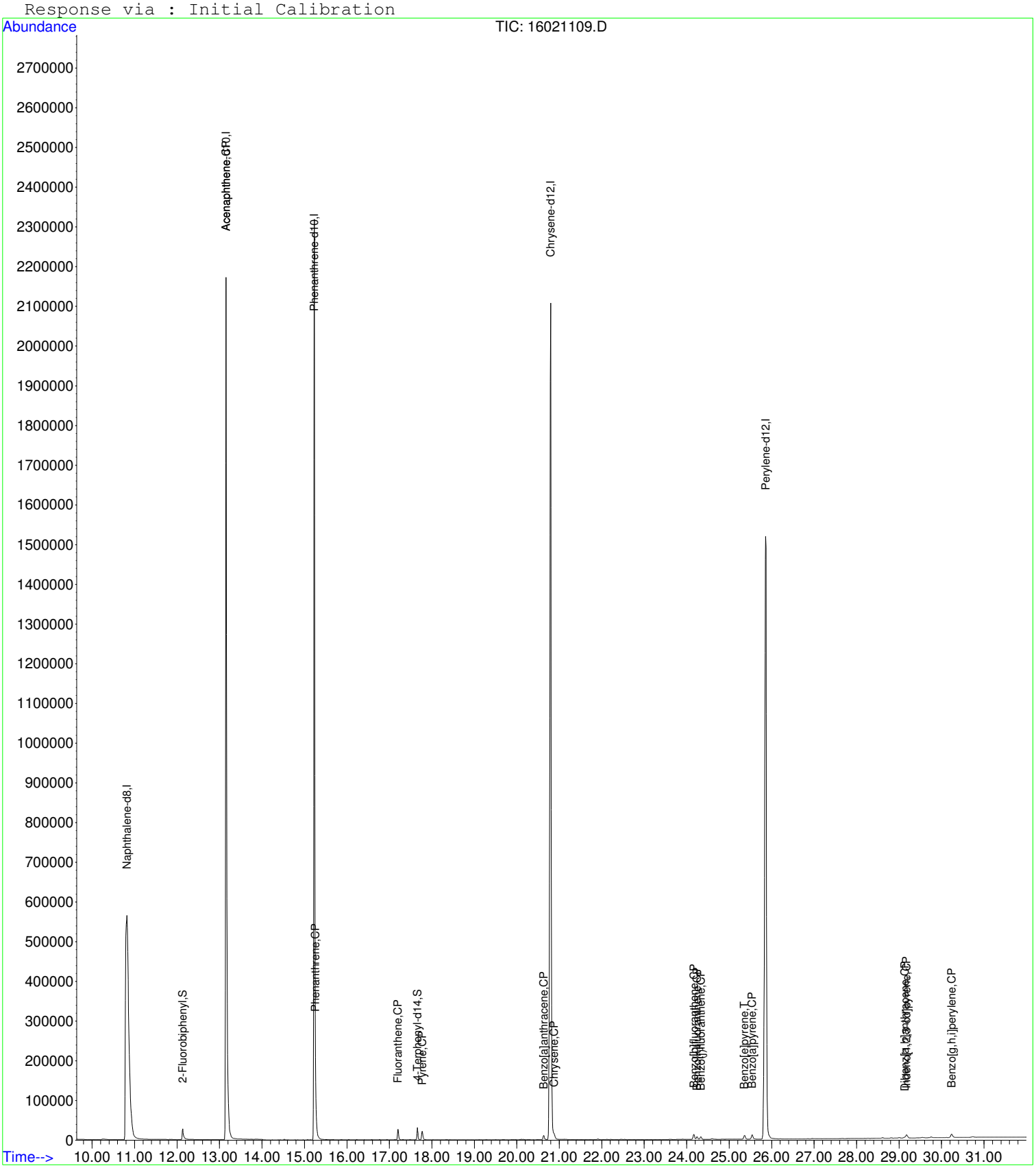
CONFIRMED
By Sherri Herschmann at 10:29:55 AM, 2/16/2016

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

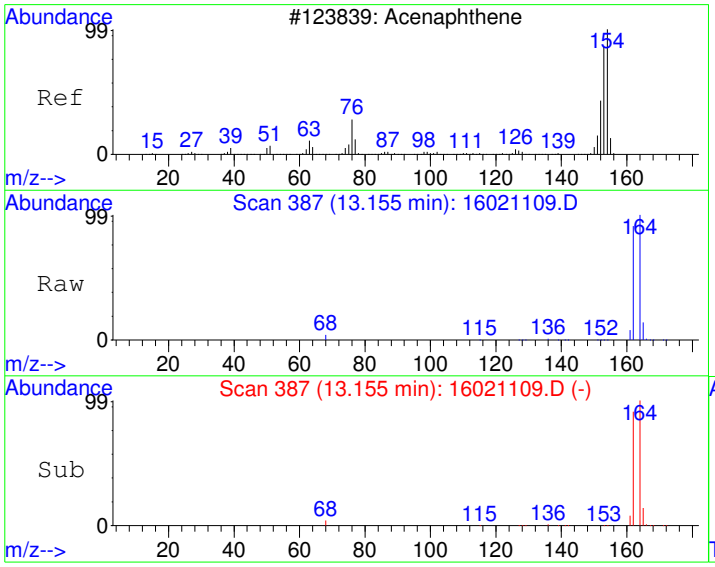
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021109.D Vial: 9
Acq On : 11 Feb 2016 2:07 pm Operator:
Sample : 1601232-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



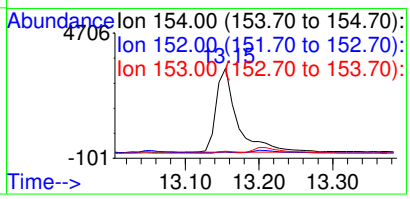
16021109.D PP160126.M Fri Feb 12 11:55:44 2016 Page 2

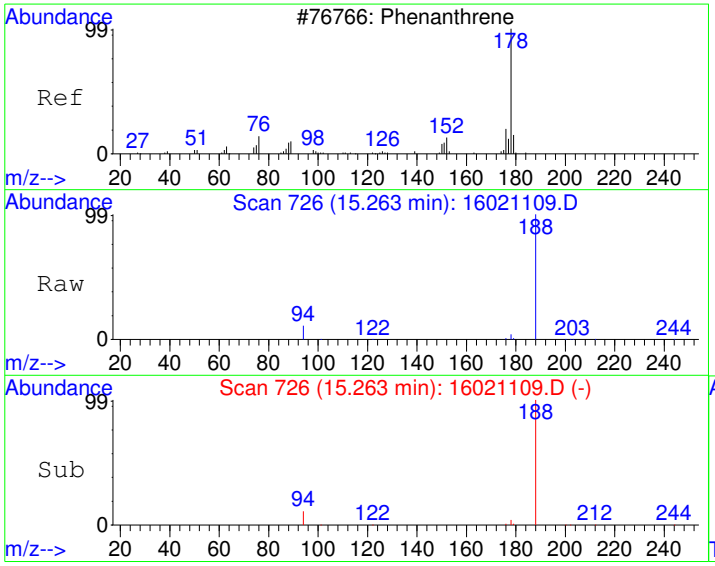


#9
Acenaphthene
Concen: 14.67 ug/kg
RT: 13.15 min Scan# 387
Delta R.T. -0.04 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:154 Resp: 6475

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.3	74.4	134.4#

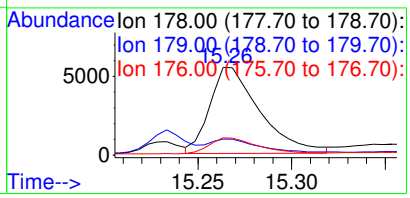


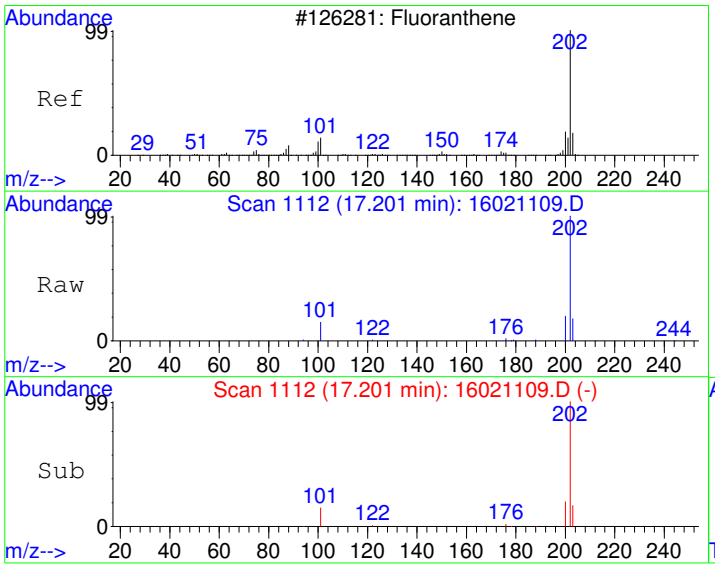


#12
Phenanthrene
Concen: 13.88 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:178 Resp: 10235

Ion	Ratio	Lower	Upper
178	100		
179	15.9	0.0	46.1
176	19.3	0.0	49.0

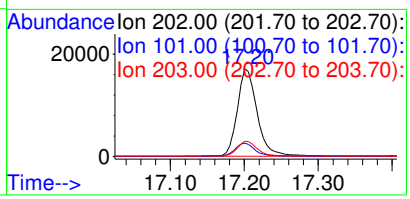


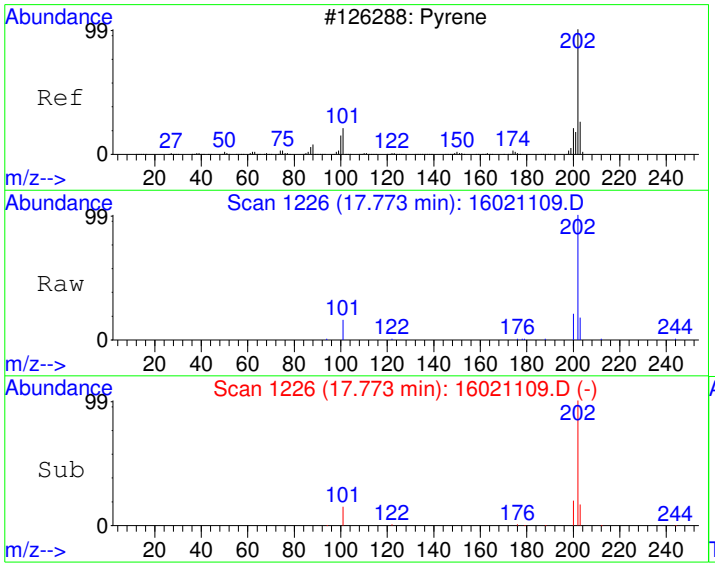


#14
Fluoranthene
Concen: 43.33 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.02 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:202 Resp: 31678

Ion	Ratio	Lower	Upper
202	100		
101	14.9	0.0	42.5
203	17.3	0.0	48.0

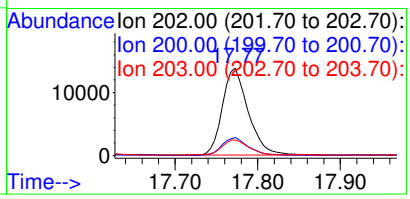


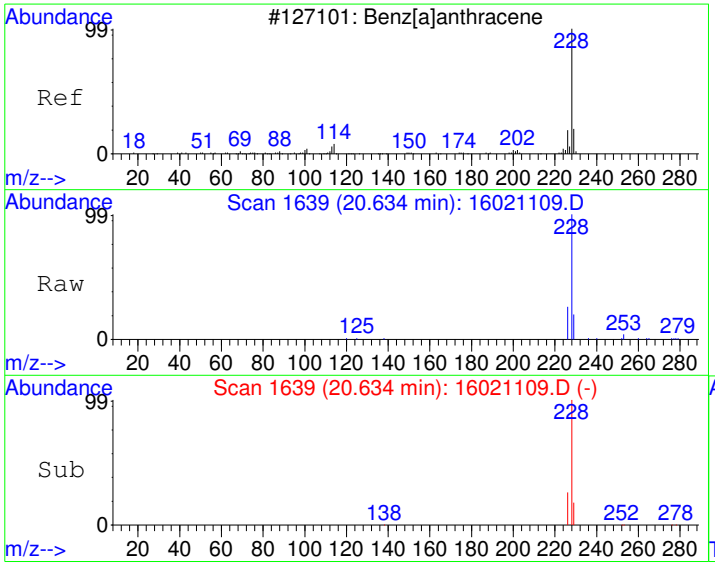


#15
Pyrene
Concen: 40.19 ug/kg
RT: 17.77 min Scan# 1226
Delta R.T. 0.02 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:202 Resp: 29930

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.4	0.0	48.0

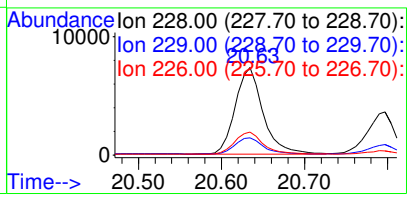


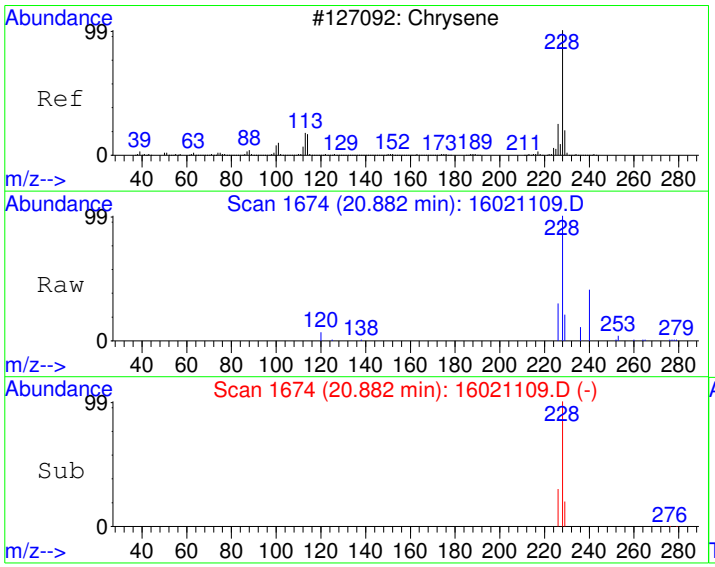


#18
Benzo[a]anthracene
Concen: 22.20 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:228 Resp: 16898

Ion	Ratio	Lower	Upper
228	100		
229	18.8	0.0	50.0
226	25.7	0.0	56.4

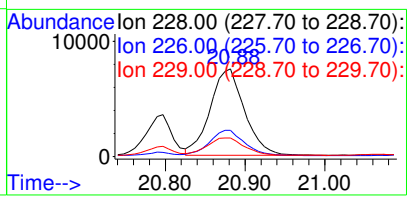


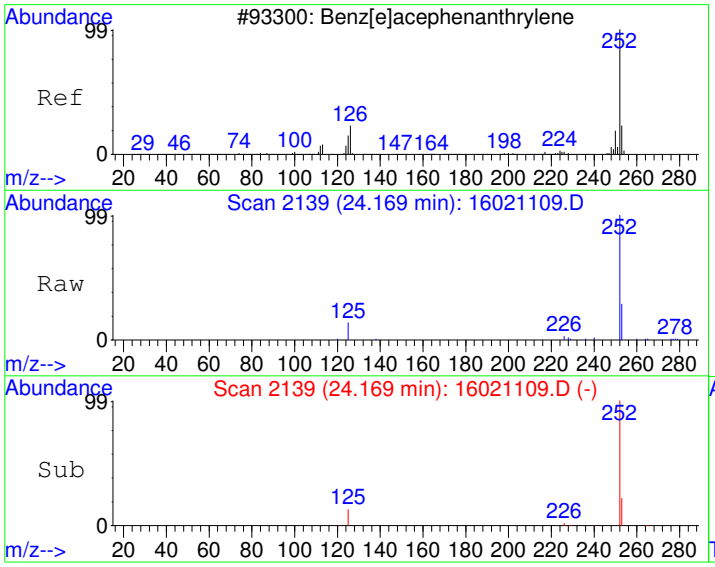


#19
Chrysene
Concen: 30.92 ug/kg
RT: 20.88 min Scan# 1674
Delta R.T. -0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:228 Resp: 22410

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	20.4	0.0	50.1

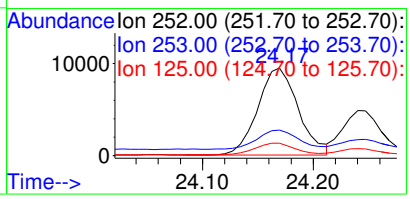


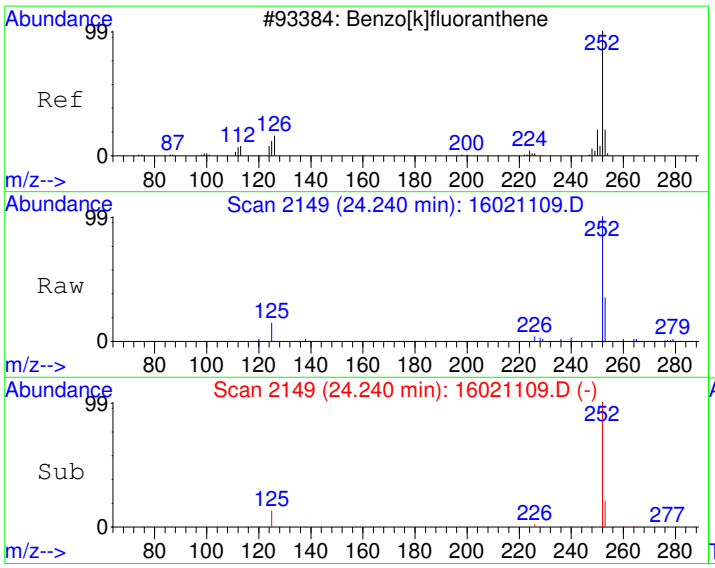


#21
Benzo[b]fluoranthene
Concen: 30.48 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:252 Resp: 24023

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	13.2	0.0	40.5

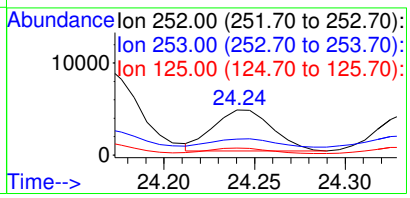


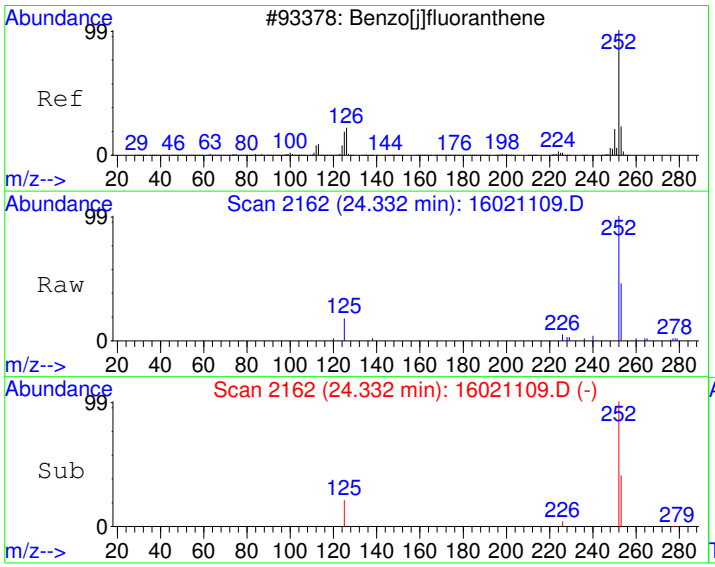


#22
Benzo[k]fluoranthene
Concen: 14.37 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:252 Resp: 10056

Ion	Ratio	Lower	Upper
252	100		
253	19.3	2.2	42.2
125	13.0	0.0	31.8

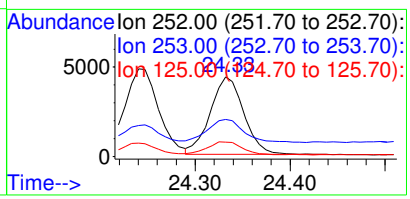


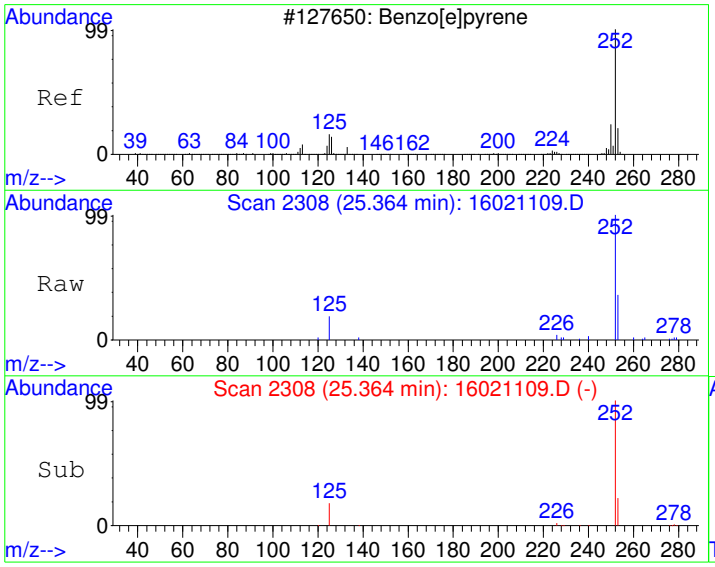


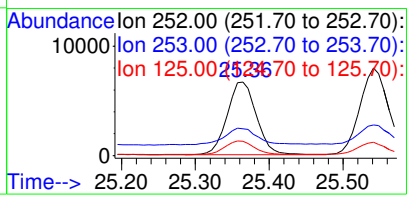
#23
Benzo(j)fluoranthene
Concen: 16.16 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:252 Resp: 10629

Ion	Ratio	Lower	Upper
252	100		
253	29.2	2.3	42.3
125	16.2	0.0	34.0



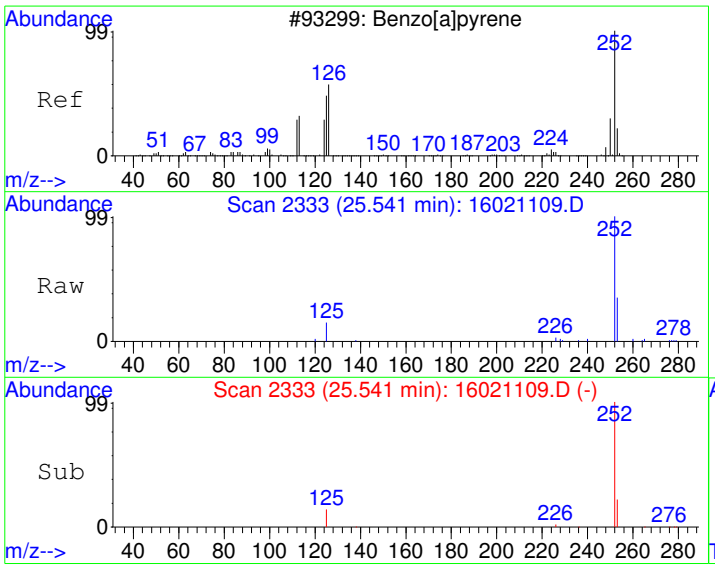


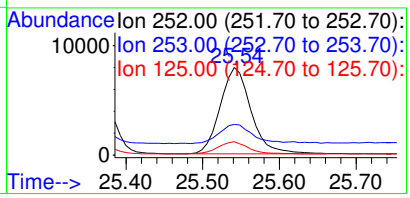


#24
Benzo[e]pyrene
Concen: 24.76 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:252 Resp: 18220

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.2	42.2
125	18.1	0.0	36.0

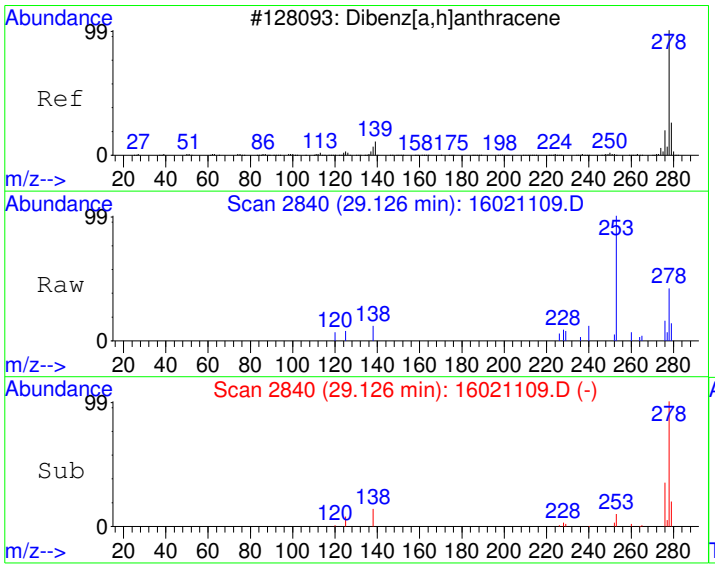


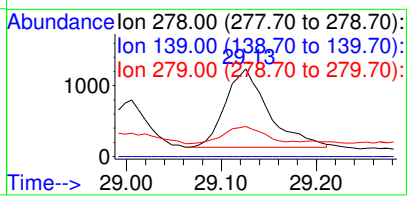


#25
Benzo[a]pyrene
Concen: 30.64 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:252 Resp: 21943

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.0	42.0
125	14.2	0.0	32.3

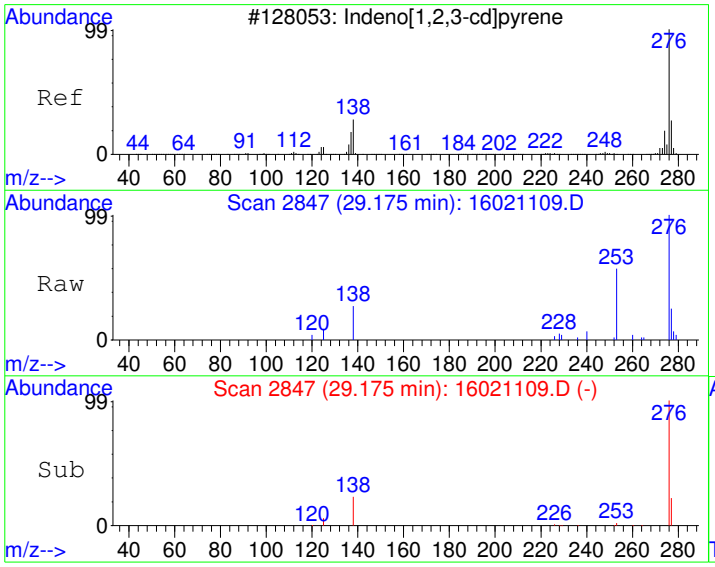




#26
Dibenz[a,h]anthracene
Concen: 5.29 ug/kg
RT: 29.13 min Scan# 2840
Delta R.T. 0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:278 Resp: 3507

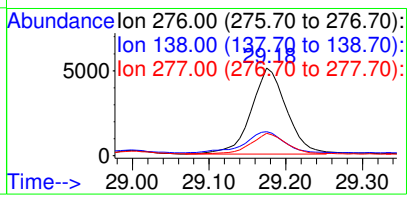
Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.0	3.8	43.8

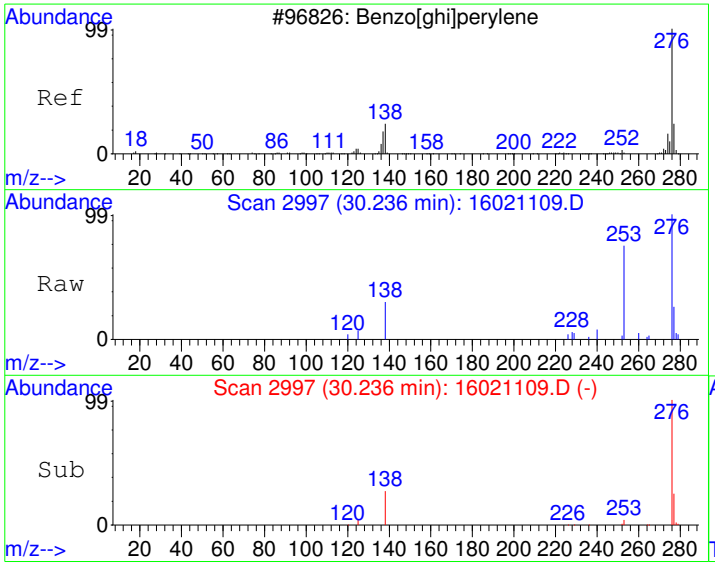


#27
Indeno[1,2,3-cd]pyrene
Concen: 20.11 ug/kg
RT: 29.18 min Scan# 2847
Delta R.T. 0.01 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:276 Resp: 16229

Ion	Ratio	Lower	Upper
276	100		
138	24.4	2.1	42.1
277	23.9	4.2	44.2

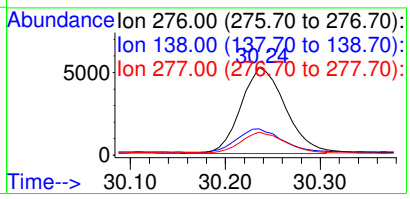




#28
Benzo[g,h,i]perylene
Concen: 24.91 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16021109.D
Acq: 11 Feb 2016 2:07 pm

Tgt Ion:276 Resp: 16871

Ion	Ratio	Lower	Upper
276	100		
138	27.2	3.9	43.9
277	24.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021110.D Vial: 10
Acq On : 11 Feb 2016 2:47 pm Operator:
Sample : 1601232-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2471309	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	1869537	4000.00 ug/kg	103
11) Phenanthrene-d10	15.23	188	3142310	4000.00 ug/kg	96
17) Chrysene-d12	20.80	240	3319548	4000.00 ug/kg	115
20) Perylene-d12	25.86	264	2974531	4000.00 ug/kg	129

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	41061	75.81 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.90%#		
16) 4-Terphenyl-d14	17.66	244	42835	81.60 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6639	14.10 ug/kg#	10
12) Phenanthrene	15.26	178	5688	7.62 ug/kg	98
14) Fluoranthene	17.20	202	16403	22.17 ug/kg	96
15) Pyrene	17.77	202	15117	20.06 ug/kg	99
18) Benzo[a]anthracene	20.63	228	8570	11.20 ug/kg	100
19) Chrysene	20.87	228	11395	15.64 ug/kg	97
21) Benzo[b]fluoranthene	24.17	252	11595	14.62 ug/kg	98
22) Benzo[k]fluoranthene	24.25	252	5040	7.15 ug/kg	93
23) Benzo(j)fluoranthene	24.33	252	5118	7.73 ug/kg	88
24) Benzo[e]pyrene	25.36	252	8991	12.14 ug/kg	97
25) Benzo[a]pyrene	25.54	252	10674	14.81 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.18	276	7749	9.54 ug/kg	97
28) Benzo[g,h,i]perylene	30.24	276	7945	11.66 ug/kg	96

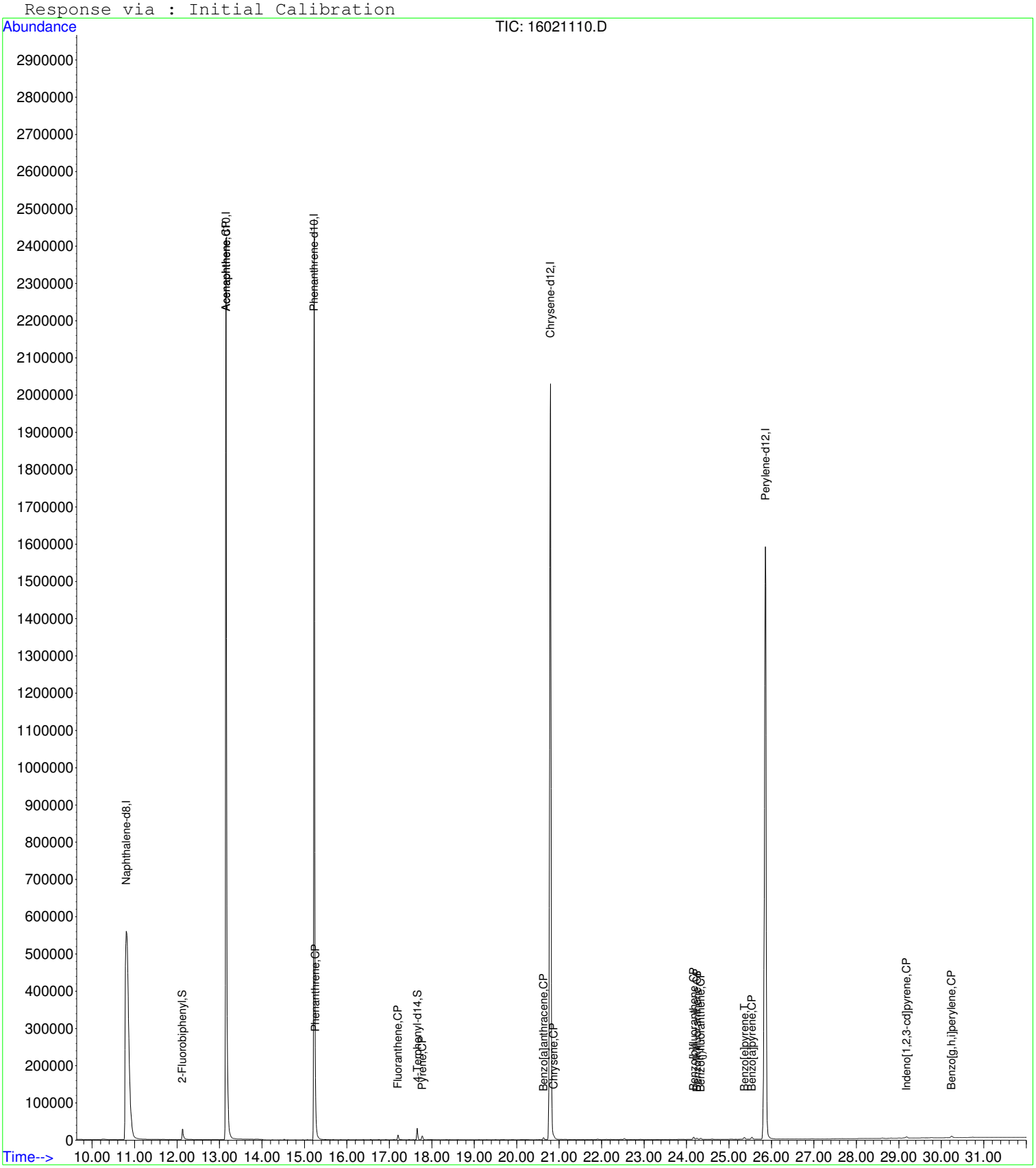
CONFIRMED
By Sherri Herschmann at 10:30:08 AM, 2/16/2016

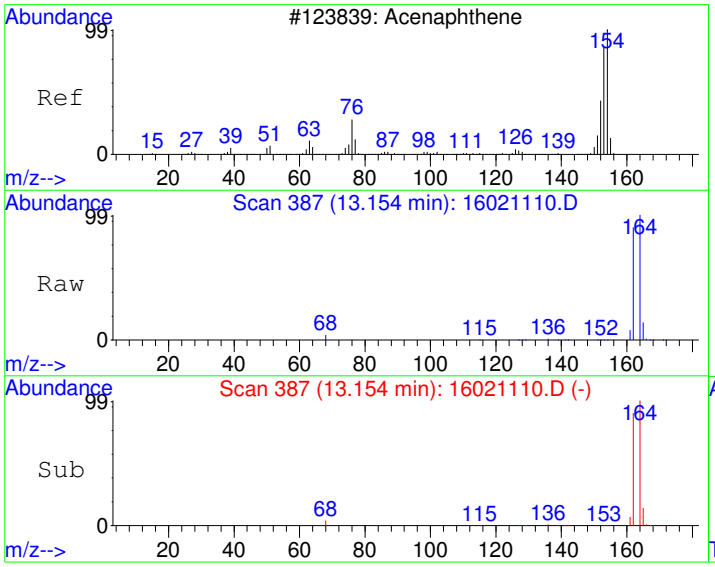
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021110.D Vial: 10
Acq On : 11 Feb 2016 2:47 pm Operator:
Sample : 1601232-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:55 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

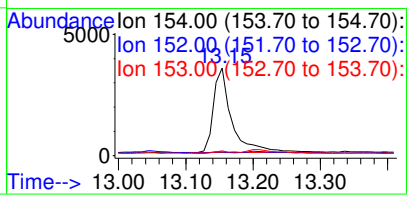


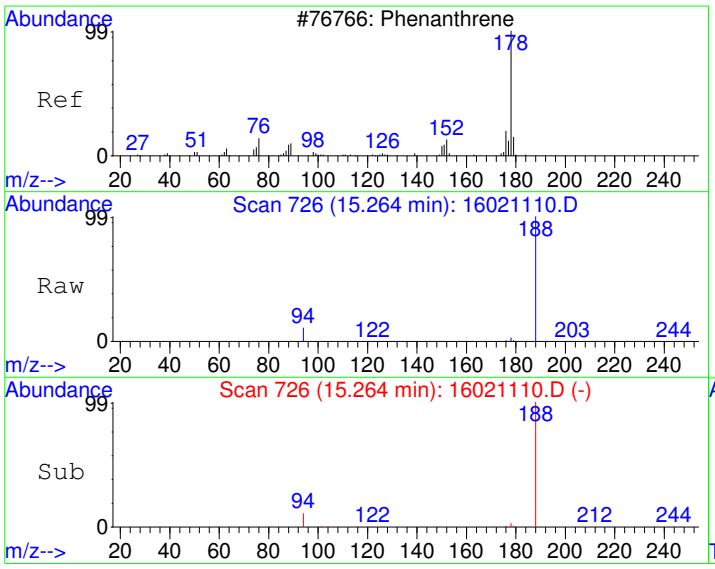


#9
Acenaphthene
Concen: 14.10 ug/kg
RT: 13.15 min Scan# 387
Delta R.T. -0.04 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:154 Resp: 6639

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.7	74.4	134.4#

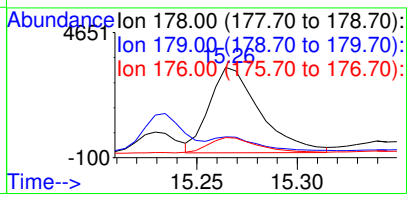


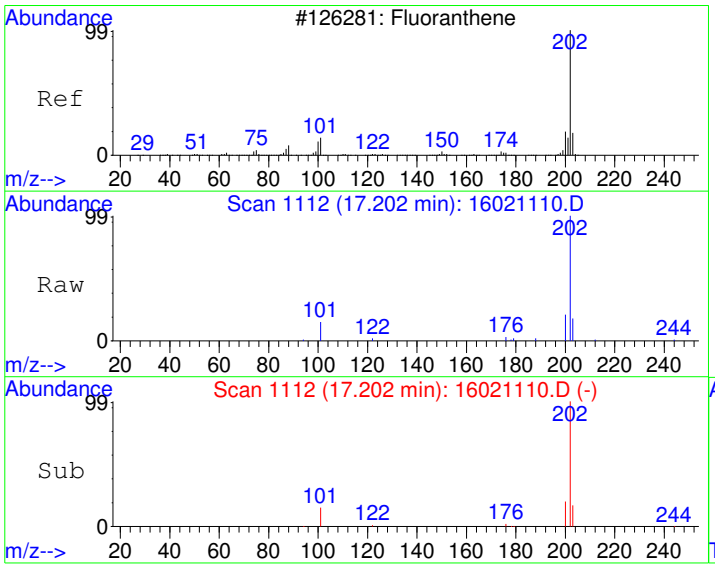


#12
Phenanthrene
Concen: 7.62 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:178 Resp: 5688

Ion	Ratio	Lower	Upper
178	100		
179	17.0	0.0	46.1
176	18.6	0.0	49.0

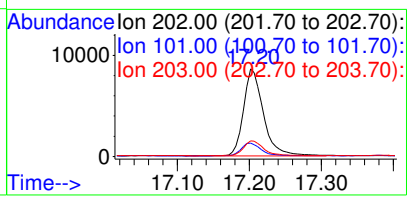


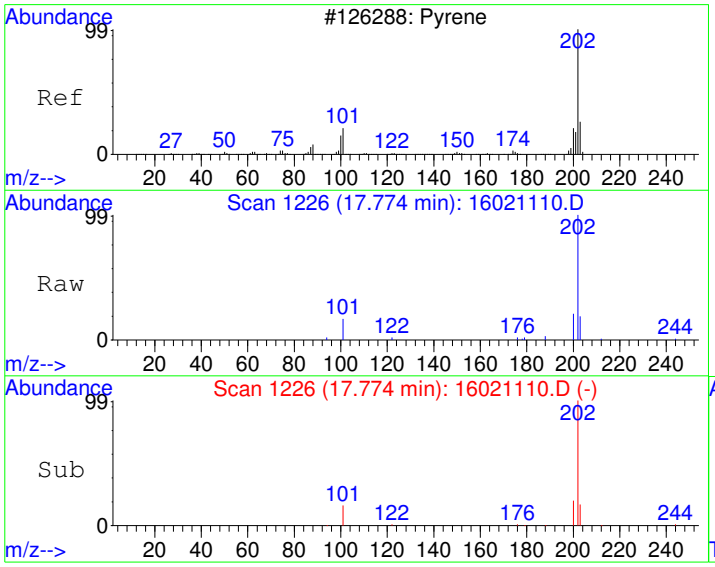


#14
Fluoranthene
Concen: 22.17 ug/kg
RT: 17.20 min Scan# 1112
Delta R.T. 0.03 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:202 Resp: 16403

Ion	Ratio	Lower	Upper
202	100		
101	14.7	0.0	42.5
203	17.1	0.0	48.0

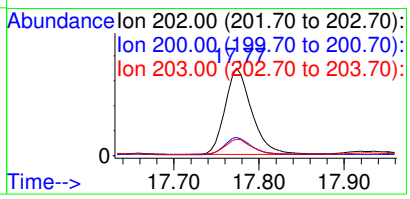


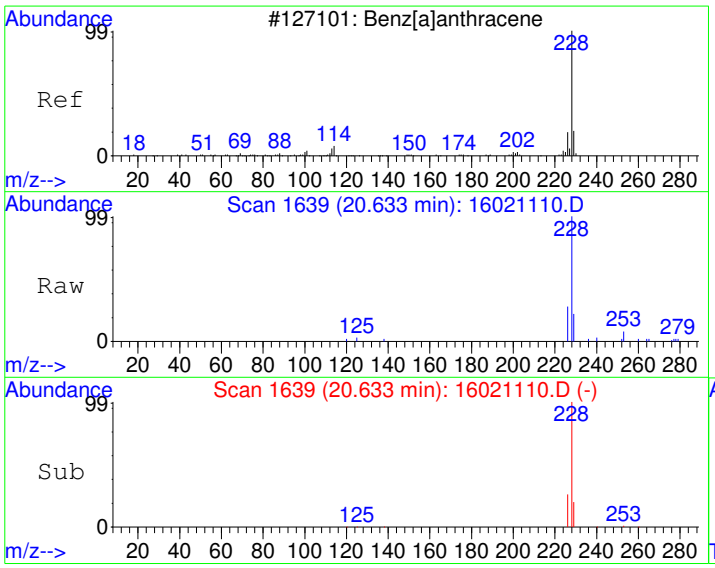


#15
Pyrene
Concen: 20.06 ug/kg
RT: 17.77 min Scan# 1226
Delta R.T. 0.03 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:202 Resp: 15117

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.5	0.0	48.0

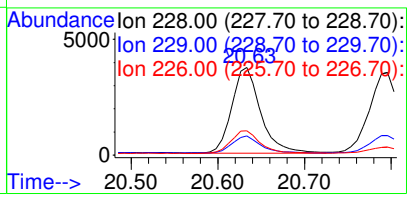


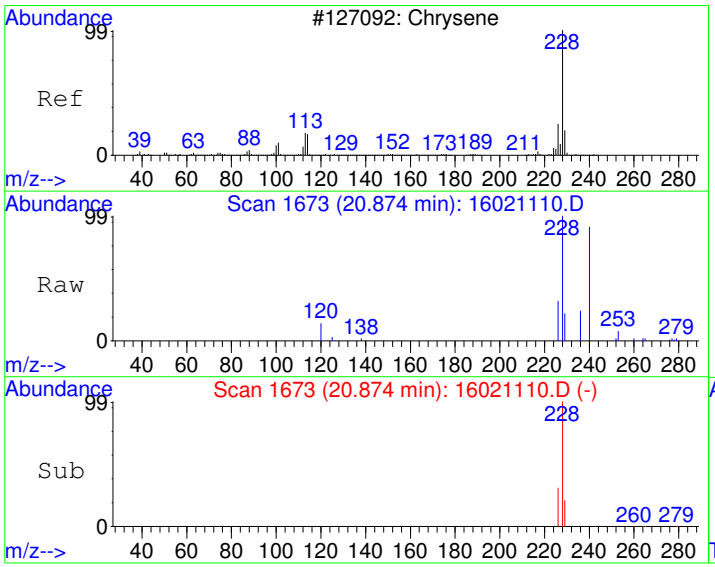


#18
Benzo[a]anthracene
Concen: 11.20 ug/kg
RT: 20.63 min Scan# 1639
Delta R.T. -0.02 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:228 Resp: 8570

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.0
226	26.4	0.0	56.4

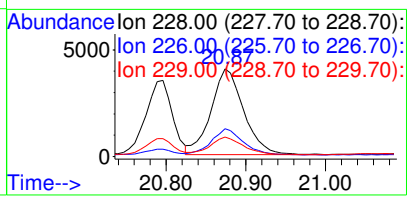


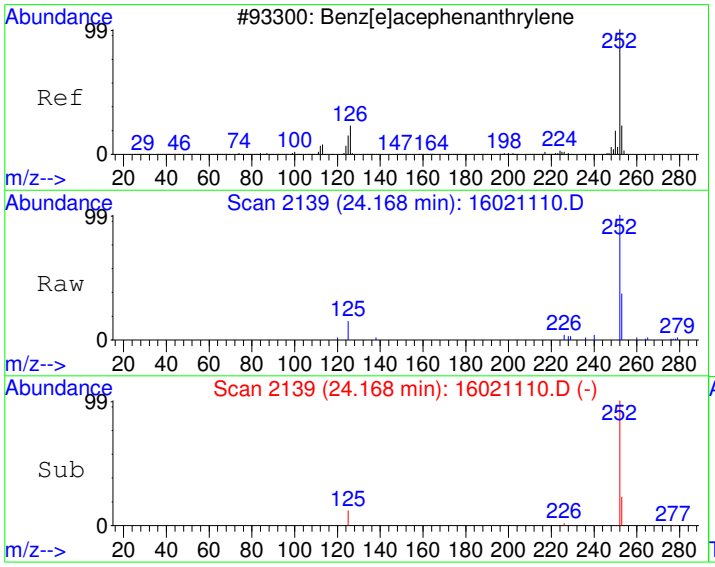


#19
Chrysene
Concen: 15.64 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:228 Resp: 11395

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	58.5
229	20.7	0.0	50.1

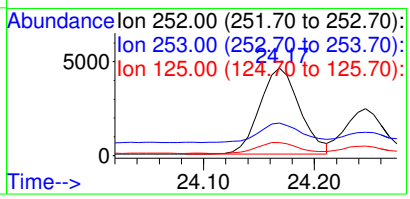


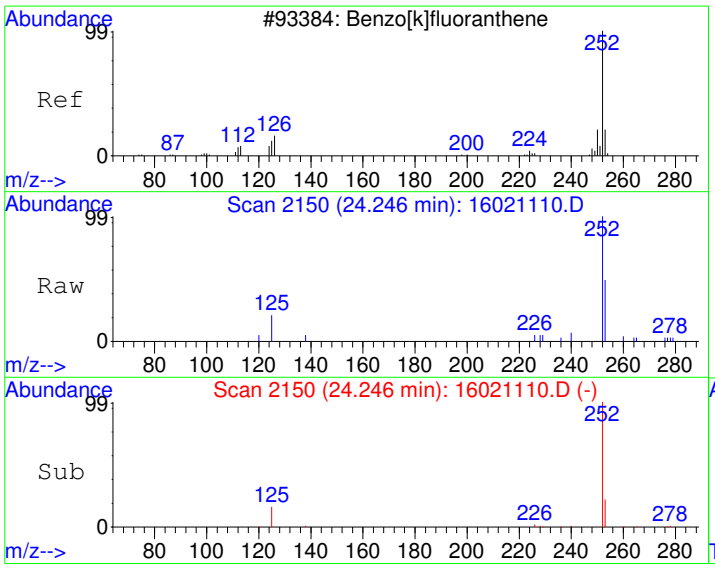


#21
Benzo[b]fluoranthene
Concen: 14.62 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:252 Resp: 11595

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	12.3	0.0	40.5

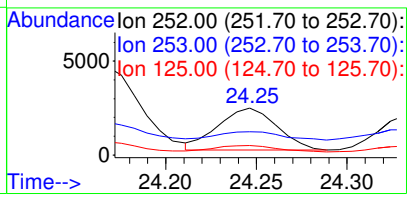


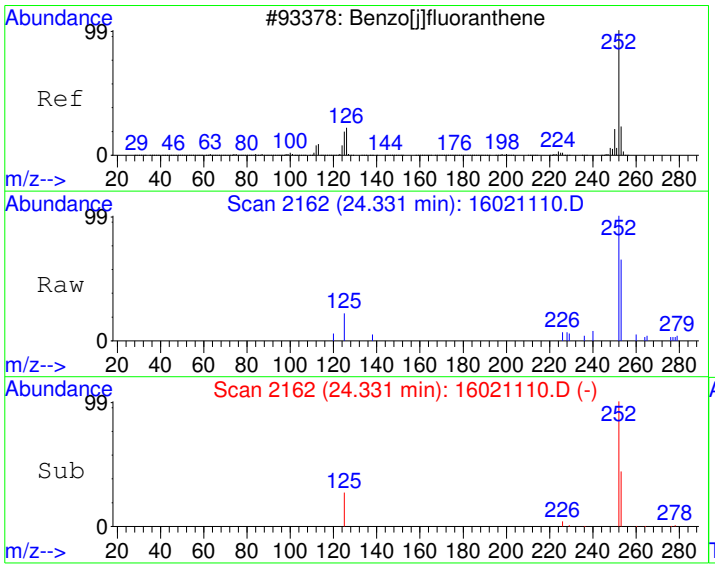


#22
Benzo[k]fluoranthene
Concen: 7.15 ug/kg
RT: 24.25 min Scan# 2150
Delta R.T. -0.01 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:252 Resp: 5040

Ion	Ratio	Lower	Upper
252	100		
253	19.5	2.2	42.2
125	15.3	0.0	31.8

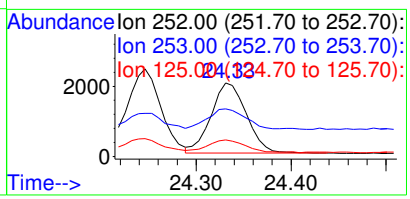


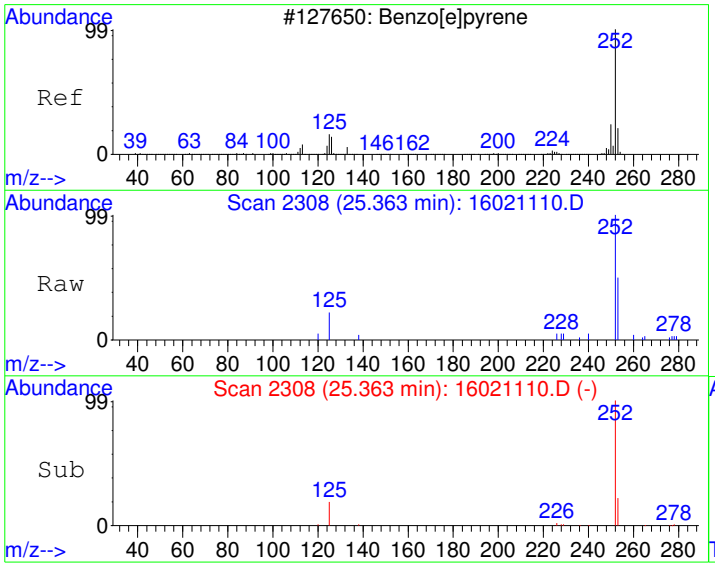


#23
Benzo(j)fluoranthene
Concen: 7.73 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.02 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:252 Resp: 5118

Ion	Ratio	Lower	Upper
252	100		
253	29.3	2.3	42.3
125	17.4	0.0	34.0

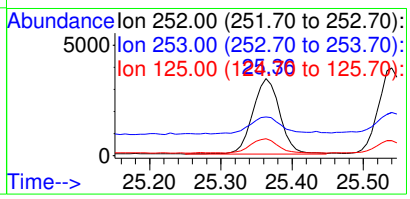


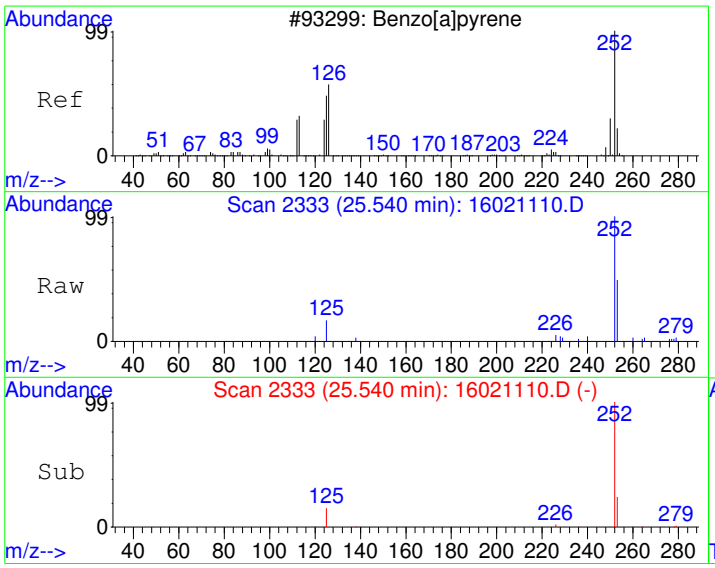


#24
Benzo[e]pyrene
Concen: 12.14 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:252 Resp: 8991

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.2	42.2
125	19.1	0.0	36.0

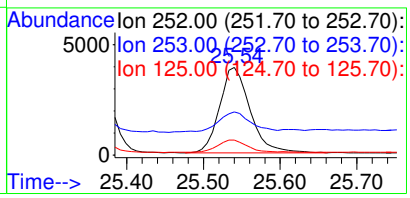


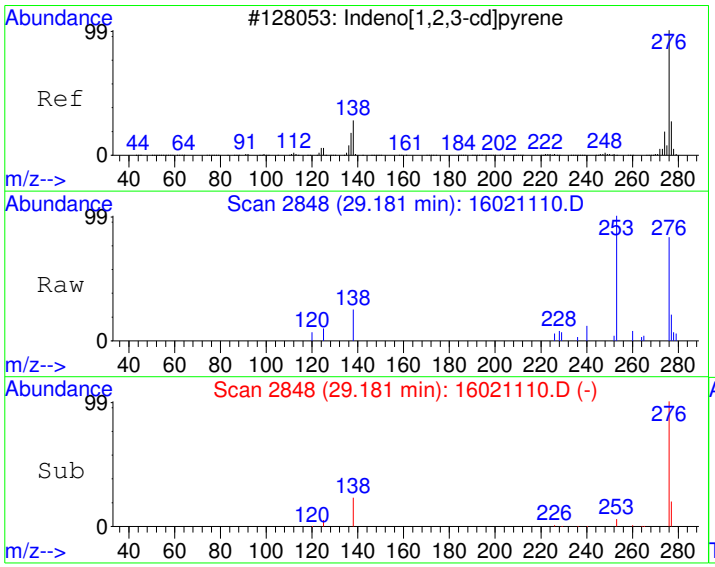


#25
Benzo[a]pyrene
Concen: 14.81 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:252 Resp: 10674

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.0	42.0
125	14.6	0.0	32.3

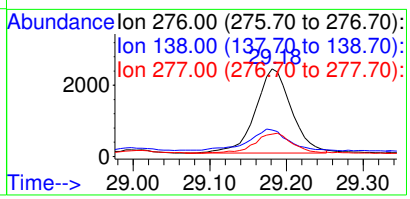


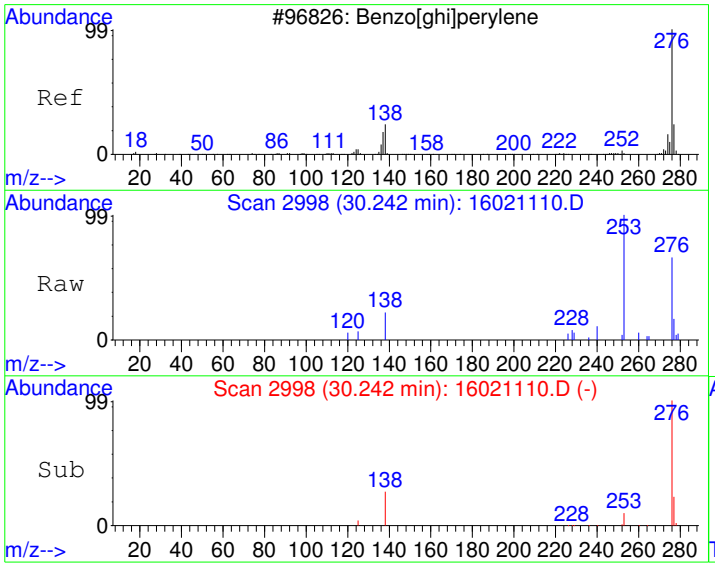


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.54 ug/kg
RT: 29.18 min Scan# 2848
Delta R.T. 0.02 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:276 Resp: 7749

Ion	Ratio	Lower	Upper
276	100		
138	23.9	2.1	42.1
277	22.8	4.2	44.2

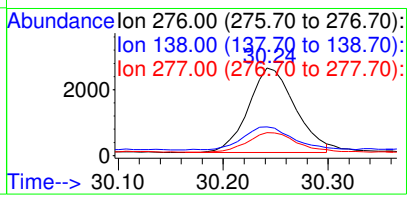




#28
Benzo[g,h,i]perylene
Concen: 11.66 ug/kg
RT: 30.24 min Scan# 2998
Delta R.T. 0.03 min
Lab File: 16021110.D
Acq: 11 Feb 2016 2:47 pm

Tgt Ion:276 Resp: 7945

Ion	Ratio	Lower	Upper
276	100		
138	27.0	3.9	43.9
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021111.D Vial: 11
Acq On : 11 Feb 2016 3:28 pm Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2404664	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1771017	4000.00 ug/kg	97
11) Phenanthrene-d10	15.23	188	3063493	4000.00 ug/kg	94
17) Chrysene-d12	20.79	240	3240033	4000.00 ug/kg	112
20) Perylene-d12	25.86	264	2928767	4000.00 ug/kg	127

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	39117	76.24 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.65	244	43339	84.68 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	

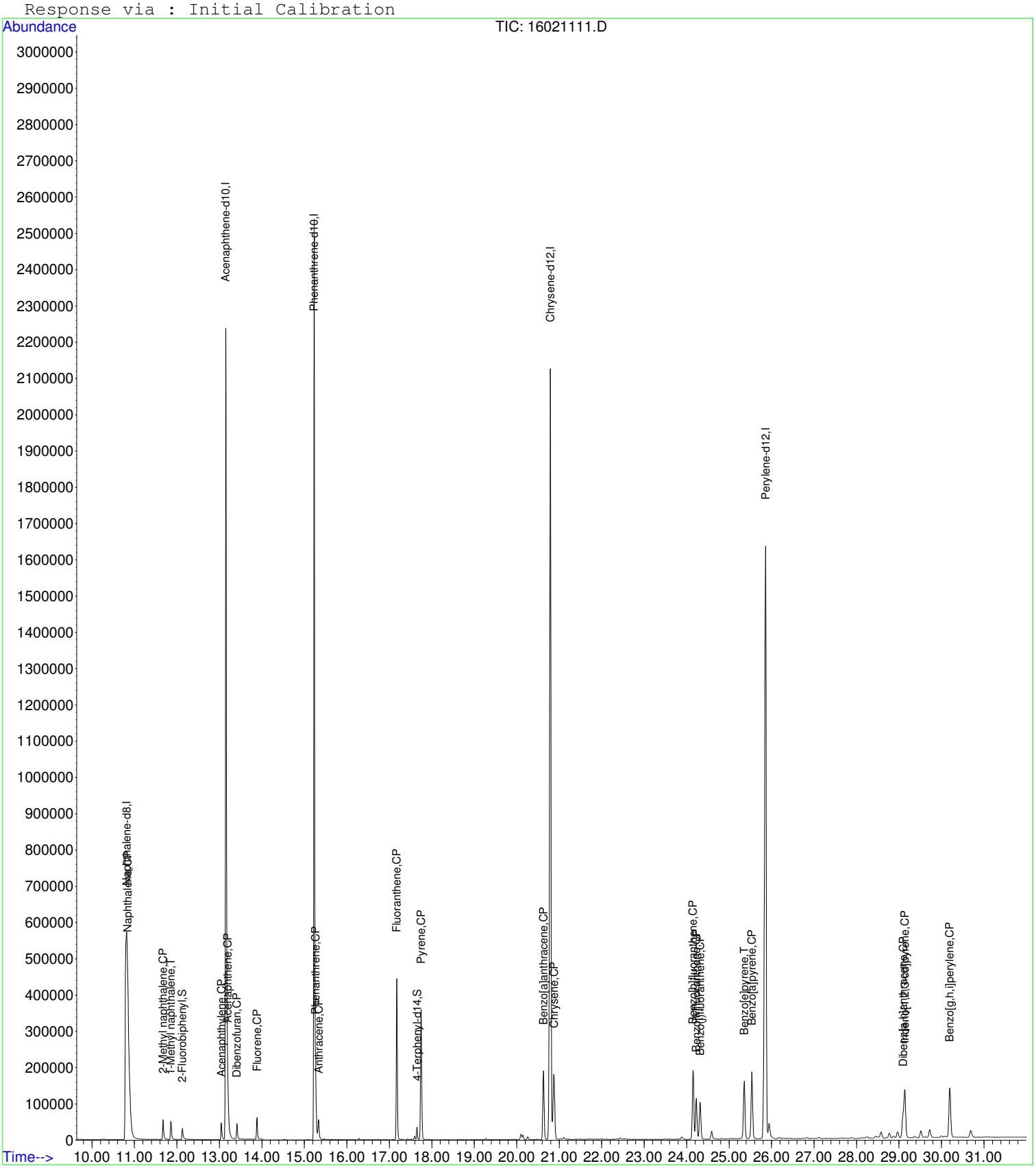
Target Compounds						Qvalue
2) Naphthalene	10.85	128	63323	105.25 ug/kg		100
3) 2-Methyl naphthalene	11.67	142	40986	86.52 ug/kg		100
4) 1-Methyl naphthalene	11.85	142	38280	85.63 ug/kg		92
6) Dibenzofuran	13.41	168	49033	85.19 ug/kg		98
8) Acenaphthylene	13.05	152	59357	80.61 ug/kg		98
9) Acenaphthene	13.20	154	39516	88.57 ug/kg		97
10) Fluorene	13.89	166	41977	79.75 ug/kg		97
12) Phenanthrene	15.27	178	180695	248.38 ug/kg		99
13) Anthracene	15.33	178	78676	110.53 ug/kg		99
14) Fluoranthene	17.18	202	456939	633.41 ug/kg		98
15) Pyrene	17.75	202	431755	587.60 ug/kg	HIGH	99
18) Benzo[a]anthracene	20.63	228	280950	376.07 ug/kg		100
19) Chrysene	20.88	228	329990	463.91 ug/kg		99
21) Benzo[b]fluoranthene	24.15	252	354488	453.98 ug/kg		97
22) Benzo[k]fluoranthene	24.23	252	176238	254.08 ug/kg		98
23) Benzo(j)fluoranthene	24.32	252	177405	272.27 ug/kg		89
24) Benzo[e]pyrene	25.36	252	278673	382.25 ug/kg		98
25) Benzo[a]pyrene	25.53	252	334257	471.05 ug/kg		98
26) Dibenz[a,h]anthracene	29.09	278	96217	146.58 ug/kg		99
27) Indeno[1,2,3-cd]pyrene	29.13	276	258859	323.69 ug/kg		95
28) Benzo[g,h,i]perylene	30.19	276	252541	376.36 ug/kg		96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021111.D Vial: 11
Acq On : 11 Feb 2016 3:28 pm Operator:
Sample : 1601232-06AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021112.D Vial: 12
Acq On : 11 Feb 2016 4:07 pm Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2469034	4000.00 ug/kg	118
5) Acenaphthene-d10	13.15	164	1875359	4000.00 ug/kg	103
11) Phenanthrene-d10	15.23	188	3181497	4000.00 ug/kg	97
17) Chrysene-d12	20.79	240	3380139	4000.00 ug/kg	117
20) Perylene-d12	25.86	264	3020425	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	40064	73.74 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	
16) 4-Terphenyl-d14	17.65	244	43551	81.94 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#	

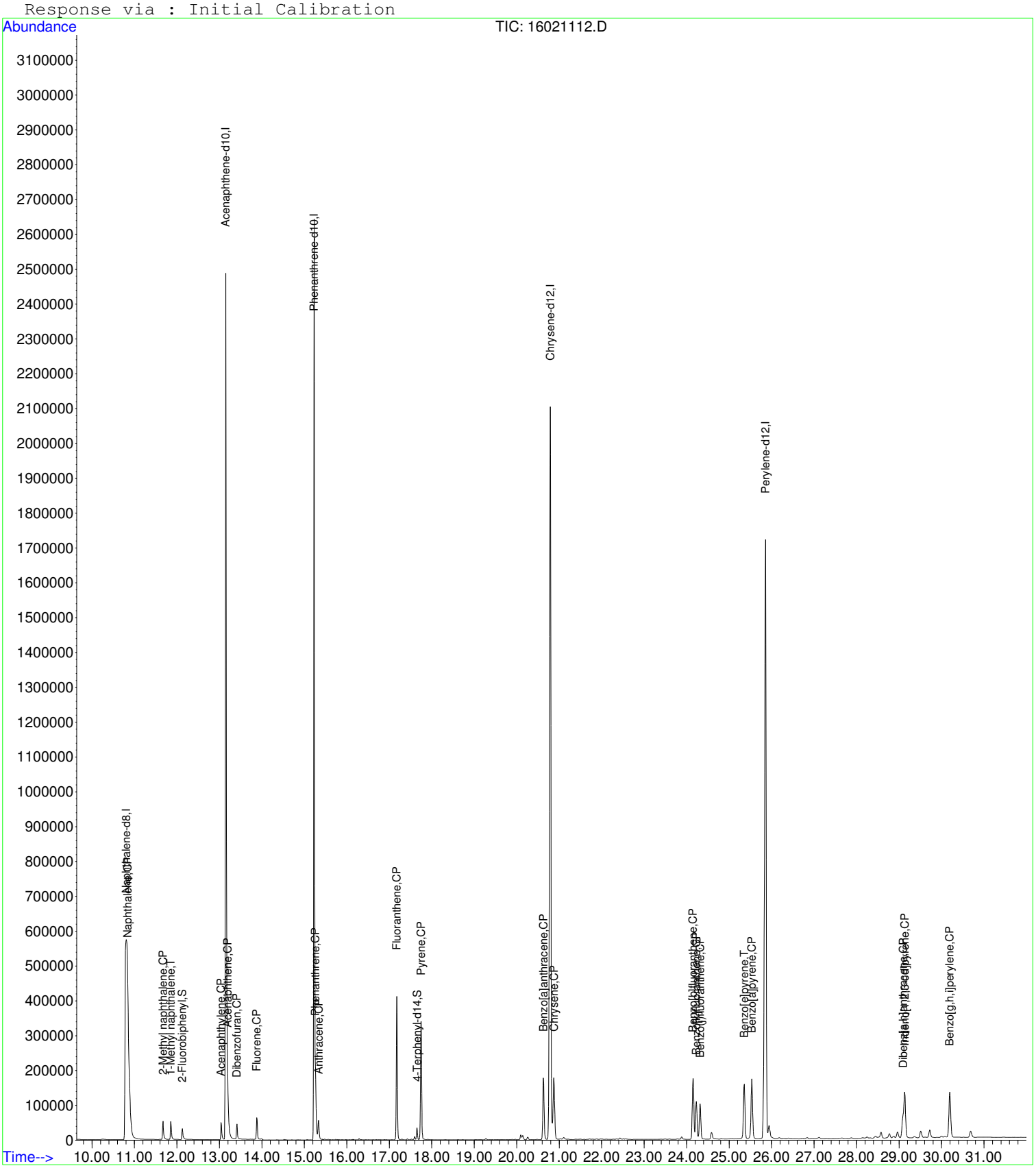
Target Compounds					Qvalue	
2) Naphthalene	10.85	128	63348	102.55 ug/kg	99	
3) 2-Methyl naphthalene	11.67	142	41138	84.58 ug/kg	99	
4) 1-Methyl naphthalene	11.85	142	38670	84.25 ug/kg	95	
6) Dibenzofuran	13.41	168	49881	81.84 ug/kg	100	
8) Acenaphthylene	13.04	152	60428	77.50 ug/kg	99	
9) Acenaphthene	13.20	154	39718	84.07 ug/kg	97	
10) Fluorene	13.88	166	42536	76.31 ug/kg	95	
12) Phenanthrene	15.26	178	169019	223.72 ug/kg	99	
13) Anthracene	15.33	178	75961	102.76 ug/kg	99	
14) Fluoranthene	17.18	202	429573	573.39 ug/kg	97	
15) Pyrene	17.75	202	401894	526.67 ug/kg	99	
18) Benzo[a]anthracene	20.63	228	261689	335.76 ug/kg	99	
19) Chrysene	20.87	228	309423	416.97 ug/kg	99	
21) Benzo[b]fluoranthene	24.15	252	333870	414.60 ug/kg	97	
22) Benzo[k]fluoranthene	24.23	252	166765	233.13 ug/kg	98	LOW
23) Benzo(j)fluoranthene	24.32	252	169197	251.80 ug/kg	89	
24) Benzo[e]pyrene	25.36	252	267830	356.23 ug/kg	98	
25) Benzo[a]pyrene	25.53	252	316898	433.03 ug/kg	99	
26) Dibenz[a,h]anthracene	29.09	278	94773	139.99 ug/kg	100	
27) Indeno[1,2,3-cd]pyrene	29.13	276	249817	302.90 ug/kg	97	
28) Benzo[g,h,i]perylene	30.19	276	244925	353.94 ug/kg	97	

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021112.D Vial: 12
Acq On : 11 Feb 2016 4:07 pm Operator:
Sample : 1601232-06AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2922066	4000.00 ug/kg	139
5) Acenaphthene-d10	13.14	164	1967800	4000.00 ug/kg	108
11) Phenanthrene-d10	15.22	188	3286089	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3028810	4000.00 ug/kg	105
20) Perylene-d12	25.86	264	2727466	4000.00 ug/kg	118

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1162523	2039.12 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.98%	
16) 4-Terphenyl-d14	17.64	244	1076226	1960.41 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	49.01%	

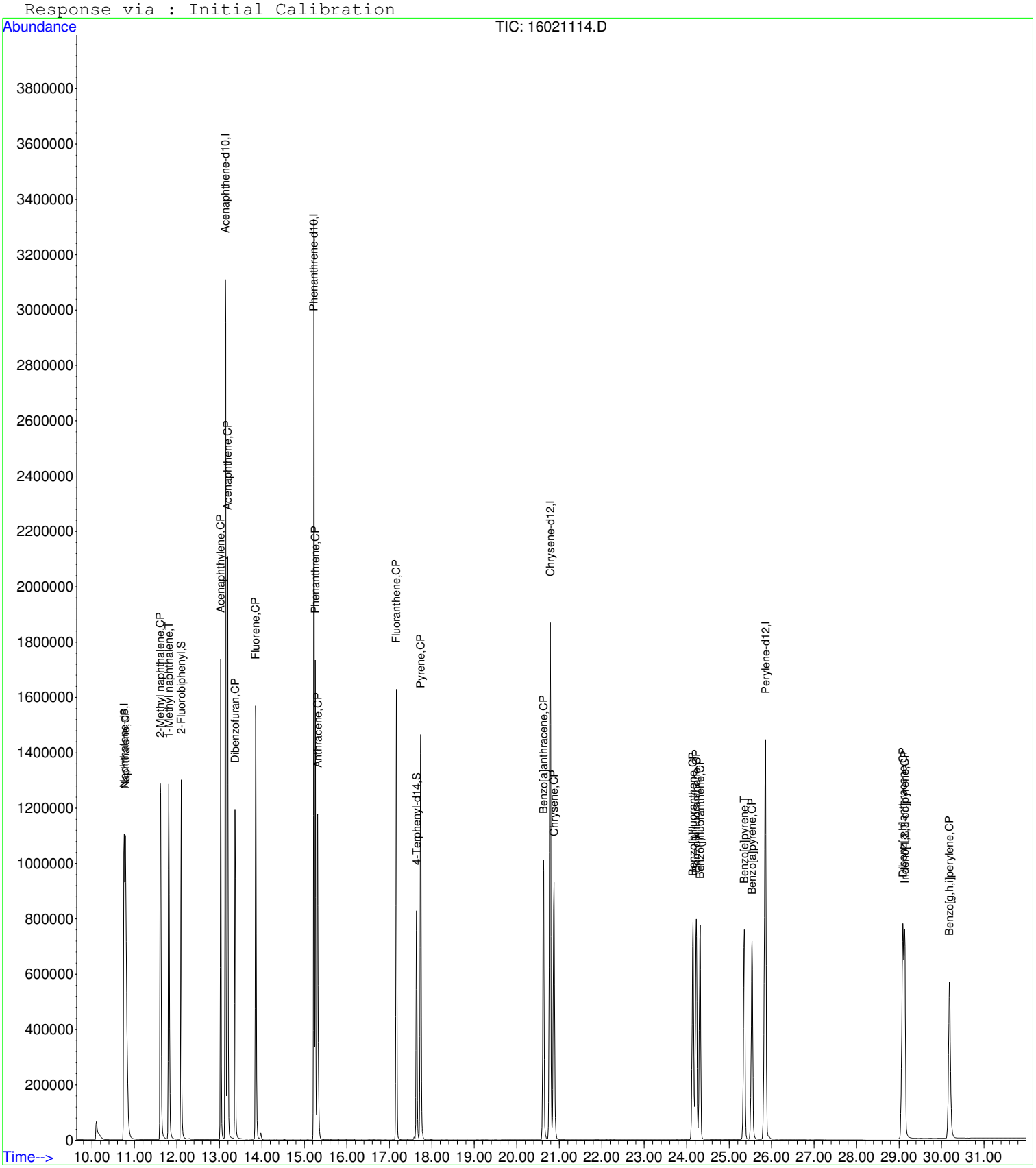
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1465742	2004.94 ug/kg	99
3) 2-Methyl naphthalene	11.62	142	1049949	1824.02 ug/kg	97
4) 1-Methyl naphthalene	11.81	142	965355	1777.07 ug/kg	96
6) Dibenzofuran	13.37	168	1236394	1933.38 ug/kg	99
8) Acenaphthylene	13.03	152	1609456	1967.11 ug/kg	99
9) Acenaphthene	13.19	154	960445	1937.37 ug/kg	96
10) Fluorene	13.86	166	1081178	1848.61 ug/kg	98
12) Phenanthrene	15.26	178	1492283	1912.33 ug/kg	99
13) Anthracene	15.31	178	1385549	1814.75 ug/kg	100
14) Fluoranthene	17.17	202	1568450	2026.92 ug/kg	97
15) Pyrene	17.74	202	1579047	2003.43 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1472388	2108.31 ug/kg	99
19) Chrysene	20.87	228	1403932	2111.34 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1458776	2006.07 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	1314930	2035.64 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1235458	2036.07 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1366771	2013.14 ug/kg	96
25) Benzo[a]pyrene	25.54	252	1344265	2034.21 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	1218909	1993.91 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1467404	1970.32 ug/kg	95
28) Benzo[g,h,i]perylene	30.19	276	1165330	1864.87 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 12 11:53 2016 Quant Results File: PP160126.RES

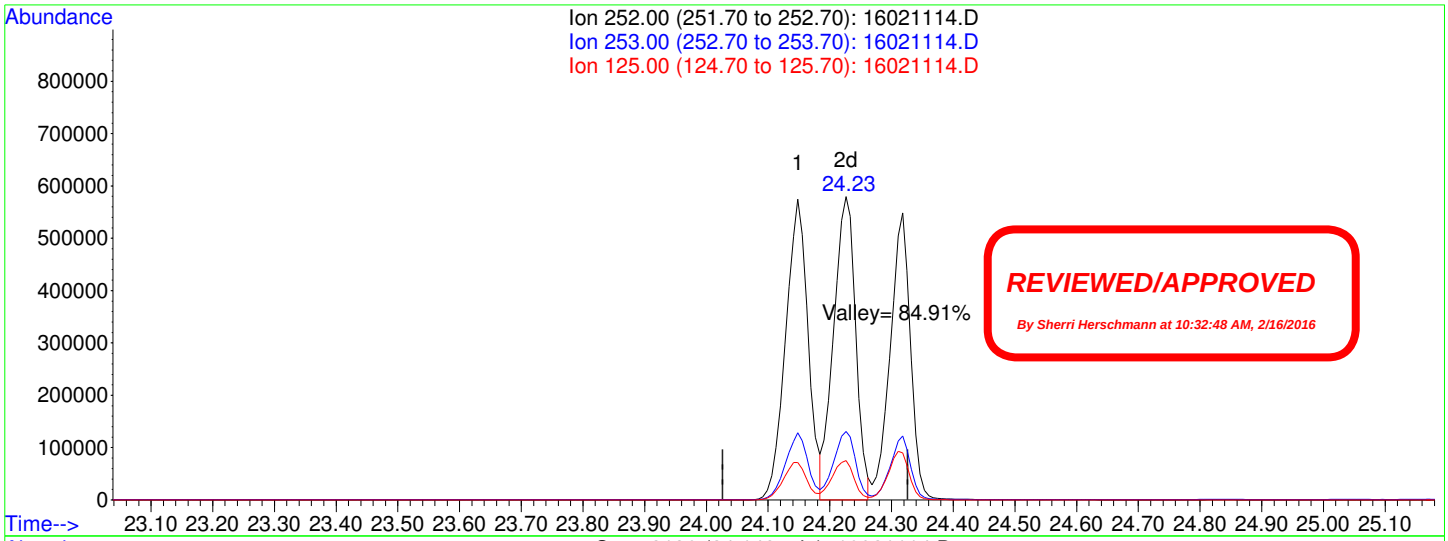
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

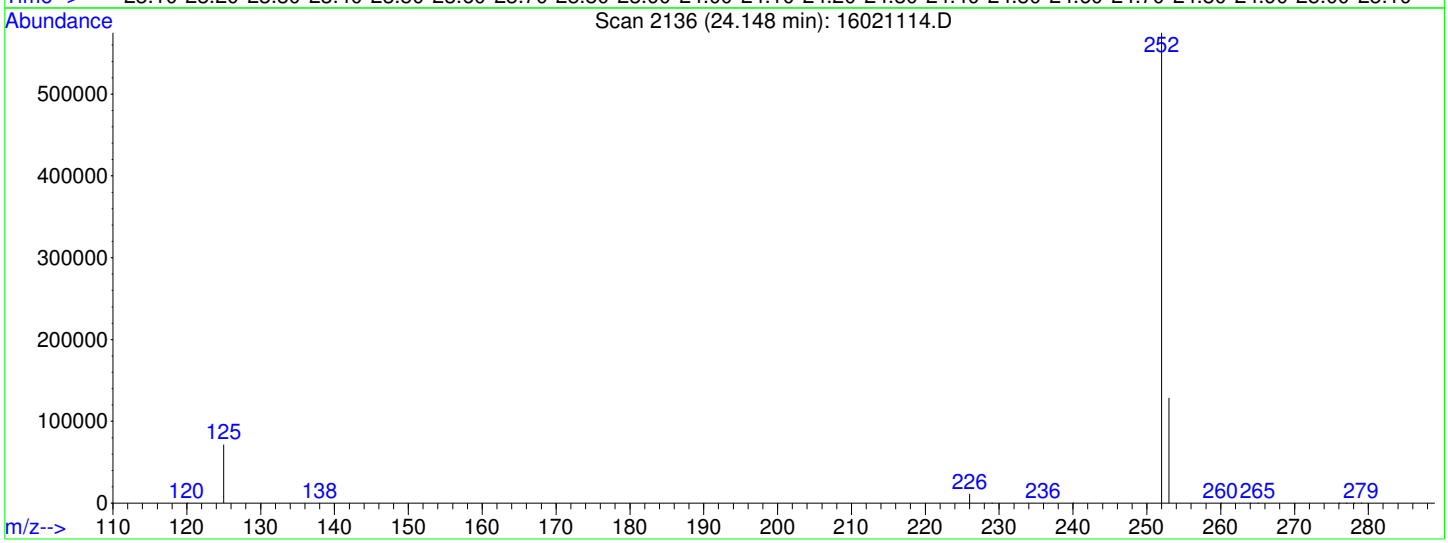


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160211\16021114.D Vial: 14
Acq On : 11 Feb 2016 5:24 pm Operator:
Sample : ICV2-160126 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 17:56 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration





TIC: 16021114.D

(21) Benzo[b]fluoranthene (CP)

24.15min 2006.07ug/kg

response 1458776

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.27
125.00	10.50	12.46
0.00	0.00	0.00

GCMS6_160210A
For

DHL Work Order
1601232

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_160210A
Batch Number(s): See Run Log.	SOP: ORGANICS-PAH-01
Matrix: See Run Log.	

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	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	
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)	X Accept data
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

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

All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.

Analyst: Karyn Lane Date: REVIEWED/APPROVED 2/11/2016

Second-Level Review: Date: By Sherri Herschmann at 11:18:49 AM, 2/16/2016 02/16/2016

DHL Analytical, Inc.

Run ID: GCMS6_160210A **Run No.:** 84109

Analytical Run Date: 2/10/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160210	1	PAH_LL_SDOD1	TUNE	R84109	2/10/2016 8:52:00 AM		
ICV-160210	1	PAH_LL_SDOD1	ICV	R84109	2/10/2016 9:28:00 AM		
MB-73554	1	PAH_LL_SDOD1	MBLK	73554	2/10/2016 10:38:00 AM		
LCS-73554	1	PAH_LL_SDOD1	LCS	73554	2/10/2016 11:18:00 AM		
1601232-17A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:59:00 AM		All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.
1601232-18A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 12:39:00 PM		
1601232-19A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 1:19:00 PM		
1601232-20A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 1:59:00 PM		
1601232-21A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 2:40:00 PM		
1601232-22A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 3:20:00 PM		
1601232-23A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 4:01:00 PM		
1601232-24A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 4:40:00 PM		
1601232-25A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 5:21:00 PM		
1601232-26A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 6:01:00 PM		
1601232-27A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 6:41:00 PM		
1601247-01A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 7:22:00 PM		
1601247-02A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 8:02:00 PM		
DFTPP2-160210	1	PAH_LL_SDOD1	TUNE	R84109	2/10/2016 8:40:00 PM		
ICV2-160210	1	PAH_LL_SDOD1	ICV	R84109	2/10/2016 9:17:00 PM		
SB-160210	1	PAH_LL_SDOD1	SBLK	73554	2/10/2016 10:38:00 PM		
1601247-03A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:18:00 PM		
1601247-04A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:58:00 PM		
1601247-05A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 12:38:00 AM		
1601247-06A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 1:19:00 AM		
1601247-07A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 1:59:00 AM		
1601247-08A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 2:40:00 AM		
1601247-09A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 3:20:00 AM		
1601247-04AMS	10	PAH_LL_SDOD1	MS	73554	2/11/2016 4:01:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

REVIEWED/APPROVED

By Sherri Herschmann at 11:18:54 AM, 2/16/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160210A** **Run No.:** 84109

1601247-04AMSD	10	PAH_LL_SDOD1	MSD	73554	2/11/2016 4:41:00 AM		
CCV1-160210	1	PAH_LL_SDOD1	CCV	R84109	2/11/2016 5:20:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160210.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160210\
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	16021001	DFTPPPAH	DFTPP-160210
2	Sample	2	16021002	PP160126	ICV-160210
3	Sample	3	16021003	PP160126	MB-73554
4	Sample	4	16021004	PP160126	LCS-73554
5	Sample	5	16021005	PP160126	1601232-17A
6	Sample	6	16021006	PP160126	1601232-18A
7	Sample	7	16021007	PP160126	1601232-19A
8	Sample	8	16021008	PP160126	1601232-20A
9	Sample	9	16021009	PP160126	1601232-21A
10	Sample	10	16021010	PP160126	1601232-22A
11	Sample	11	16021011	PP160126	1601232-23A
12	Sample	12	16021012	PP160126	1601232-24A
13	Sample	13	16021013	PP160126	1601232-25A
14	Sample	14	16021014	PP160126	1601232-26A
15	Sample	15	16021015	PP160126	1601232-27A
16	Sample	16	16021016	PP160126	1601247-01A
17	Sample	17	16021017	PP160126	1601247-02A
18	Sample	18	16021018	DFTPPPAH	DFTPP2-160210
19	Sample	19	16021019	PP160126	ICV2-160210
20	Sample	20	16021020	PP160126	SB-160210
21	Sample	21	16021021	PP160126	SB-160210
22	Sample	22	16021022	PP160126	1601247-03A
23	Sample	23	16021023	PP160126	1601247-04A
24	Sample	24	16021024	PP160126	1601247-05A
25	Sample	25	16021025	PP160126	1601247-06A
26	Sample	26	16021026	PP160126	1601247-07A
27	Sample	27	16021027	PP160126	1601247-08A
28	Sample	28	16021028	PP160126	1601247-09A
29	Sample	29	16021029	PP160126	1601247-04AMS
30	Sample	30	16021030	PP160126	1601247-04AMSD
31	Sample	31	16021031	PP160126	CCV1-160210

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-01A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample. Needed two days to dry. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601232-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	Sieved sample will be in 2-oz glass jar					
1601232-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-06A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-07A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-08A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
	/					
1601232-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-16A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-17A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-18A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-21A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample Processed 1/30/15					
1601232-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-27A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/30/2016 2:19:55 PM**
Digestion: **Start: 1/28/2016 5:00:00 PM / Stop: 2/3/2016 3:00:00 PM**
Prep End Date: **2/3/2016 3:01:10 PM**

Prep Batch **73414** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601247-01A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15 The preparation for PAH & metals must wait til sieve completed.					
1601247-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15 Sieved sample will be in 2-oz glass jar					
1601247-03A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-04A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 2/3/15					
1601247-05A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-06A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-07A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-08A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-09A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-10A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-11A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 2/3/15					
1601247-12A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-14A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/30/2016 2:19:55 PM**
Digestion: **Start: 1/28/2016 5:00:00 PM / Stop: 2/3/2016 3:00:00 PM**
Prep End Date: **2/3/2016 3:01:10 PM**

Prep Batch **73414** Prep Code: **ISM250_PREP** Technician: **Mike Brown** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601247-15A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-16A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-17A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-18A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-19A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-20A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-21A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-22A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/6/2016 9:42:27 AM**
Digestion:
Prep End Date: **2/6/2016 2:42:48 PM**

Prep Batch **73554** Prep Code: **3550_PAHDOD** Technician: **Karyn Lane**

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 #
1601232-17A	Soil		10.21	10	0.979	1 of 1
1601232-18A	Soil		10.48	10	0.954	1 of 1
1601232-19A	Soil		10.28	10	0.973	1 of 1
1601232-20A	Soil		10.29	10	0.972	1 of 1
1601232-21A	Soil		10.12	10	0.988	1 of 1
1601232-22A	Soil		10.69	10	0.935	1 of 1
1601232-23A	Soil		10.25	10	0.976	1 of 1
1601232-24A	Soil		10.29	10	0.972	1 of 1
1601232-25A	Soil		10.1	10	0.990	1 of 1
1601232-26A	Soil		10.23	10	0.978	1 of 1
1601232-27A	Soil		10.47	10	0.955	1 of 1
1601247-01A	Soil		10.18	10	0.982	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601247-02A	Soil		9.62	10	1.040	1 of 1
Sieved sample will be in 2-oz glass jar						
1601247-03A	Soil		10.38	10	0.963	1 of 1
1601247-04A	Soil		10.21	10	0.979	1 of 1
1601247-04AMS	Soil		10.08	10	0.992	of
1601247-04AMSD	Soil		10.12	10	0.988	of
1601247-05A	Soil		10.27	10	0.974	1 of 1
1601247-06A	Soil		10.01	10	0.999	1 of 1
1601247-07A	Soil		10.16	10	0.984	1 of 1
1601247-08A	Soil		10.23	10	0.978	1 of 1
1601247-09A	Soil		10.36	10	0.965	1 of 1
LCS-73554	Soil		10	10	1.000	of
MB-73554	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

REVIEWED/APPROVED

By Sherri Herschmann at 11:19:57 AM, 2/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/6/2016 9:42:27 AM**
Digestion:
Prep End Date:

Prep Batch **73554** Prep Code: **3550_PAHDOD** Technician: **Karyn Lane** 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 #		
1601232-17A	Soil		10.21	10	1.000	1	of	1
1601232-18A	Soil		10.48	10	1.000	1	of	1
1601232-19A	Soil		10.28	10	1.000	1	of	1
1601232-20A	Soil		10.29	10	1.000	1	of	1
1601232-21A	Soil		10.12	10	1.000	1	of	1
1601232-22A	Soil		10.69	10	1.000	1	of	1
1601232-23A	Soil		10.25	10	1.000	1	of	1
1601232-24A	Soil		10.29	10	1.000	1	of	1
1601232-25A	Soil		10.10	10	1.000	1	of	1
1601232-26A	Soil		10.23	10	1.000	1	of	1
1601232-27A	Soil		10.47	10	1.000	1	of	1
1601247-01A	Soil		10.18	10	1.000	1	of	1
The preparation for PAH & metals must wait til sieve completed.								
1601247-02A	Soil		~~10~~ 9.62	10	1.000	1	of	1
Sieved sample will be in 2-oz glass jar								
1601247-03A	Soil		10.38	10	1.000	1	of	1
1601247-04A	Soil		10.21	10	1.000	1	of	1
1601247-04AMS	Soil		10.08	10	1.000		of	
1601247-04AMSD	Soil		10.12	10	1.000		of	
1601247-05A	Soil		10.27	10	1.000	1	of	1
1601247-06A	Soil		10.01	10	1.000	1	of	1
1601247-07A	Soil		10.16	10	1.000	1	of	1
1601247-08A	Soil		10.23	10	1.000	1	of	1
1601247-09A	Soil		10.30	10	1.000	1	of	1
LCS-73554	Soil		10	10	1.000		of	
MB-73554	Soil		10	10	1.000		of	

filter paper broke during drain – refiltered to remove salt

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

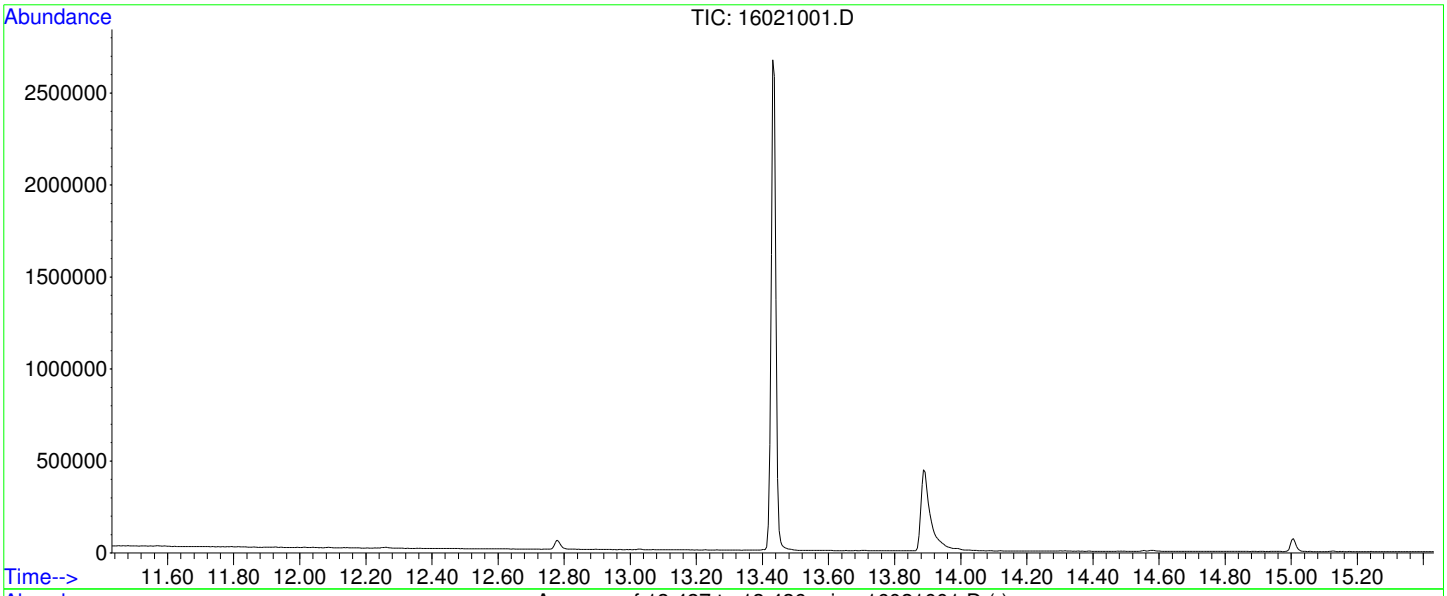
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

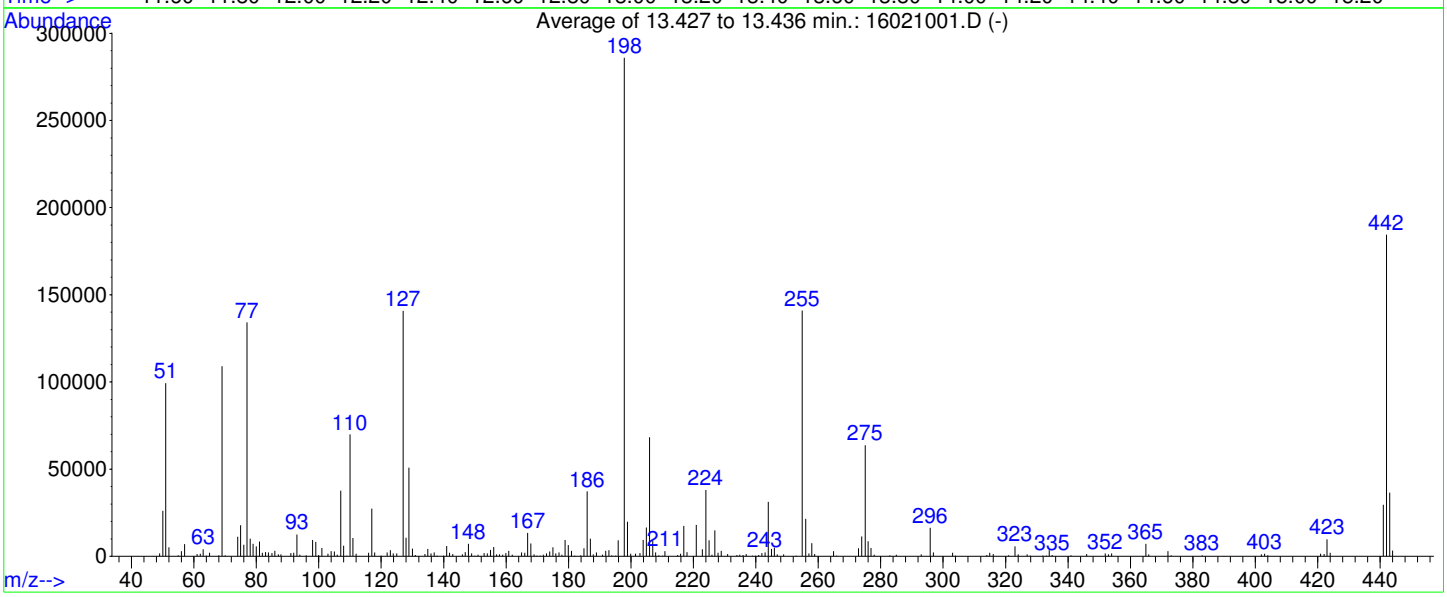
REVIEWED/APPROVED
By Sherri Herschmann at 11:19:53 AM, 2/16/2016

2.16.16

DFTPP

Data File : C:\HPCHEM\1\DATA\160210\16021001.D Vial: 1
Acq On : 10 Feb 2016 8:52 am Operator:
Sample : DFTPP-160210 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 1560, 1561, 1562; Background Corrected with Scan 1554

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.7	99301	PASS
68	69	0.00	2	0.5	533	PASS
69	198	0.00	100	38.1	109003	PASS
70	69	0.00	2	0.6	619	PASS
127	198	10	80	49.2	140773	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	286016	PASS
199	198	5	9	6.9	19801	PASS
275	198	10	60	22.3	63643	PASS
365	198	1	200	2.5	7096	PASS
441	442	0.01	24	16.1	29630	PASS
442	198	50	400	64.5	184544	PASS
443	442	15	24	19.8	36479	PASS

REVIEWED/APPROVED

By Sherri Herschmann at 11:20:17 AM, 2/16/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021002.D Vial: 2
Acq On : 10 Feb 2016 9:28 am Operator:
Sample : ICV-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	3018630	4000.00 ug/kg	144
5) Acenaphthene-d10	13.14	164	2298252	4000.00 ug/kg	126
11) Phenanthrene-d10	15.22	188	3695743	4000.00 ug/kg	113
17) Chrysene-d12	20.78	240	3766068	4000.00 ug/kg	130
20) Perylene-d12	25.85	264	3301045	4000.00 ug/kg	143

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	1461283	2194.62 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.87%	
16) 4-Terphenyl-d14	17.63	244	1439480	2331.45 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	58.29%	

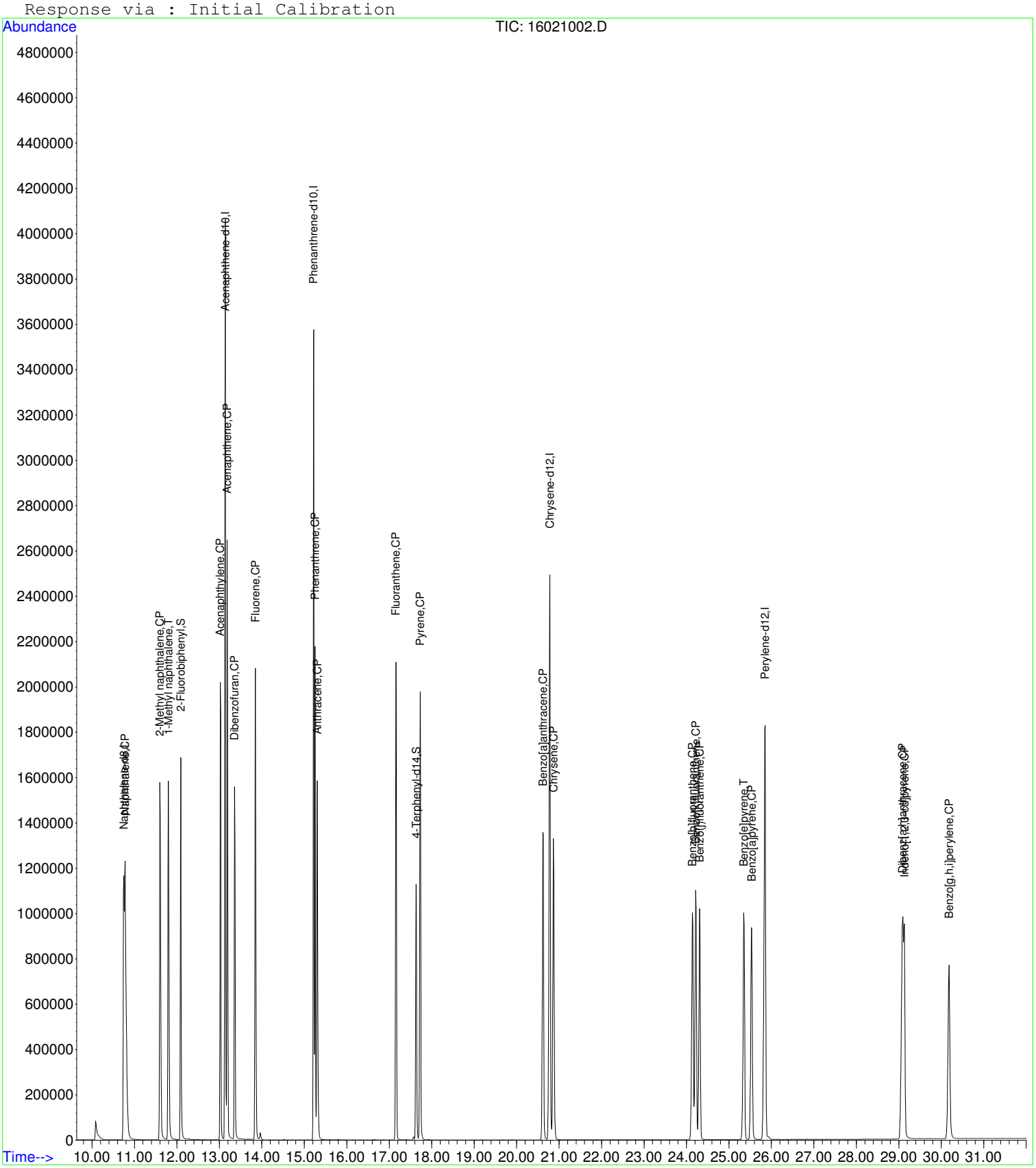
Target Compounds					Qvalue
2) Naphthalene	10.78	128	1654211	2190.35 ug/kg	99
3) 2-Methyl naphthalene	11.60	142	1251068	2103.89 ug/kg	98
4) 1-Methyl naphthalene	11.80	142	1151088	2051.19 ug/kg	97
6) Dibenzofuran	13.36	168	1597248	2138.53 ug/kg	100
8) Acenaphthylene	13.02	152	2015208	2108.89 ug/kg	99
9) Acenaphthene	13.18	154	1227295	2119.69 ug/kg	96
10) Fluorene	13.85	166	1367453	2001.90 ug/kg	98
12) Phenanthrene	15.25	178	1862538	2122.24 ug/kg	98
13) Anthracene	15.30	178	1776293	2068.65 ug/kg	100
14) Fluoranthene	17.16	202	2052379	2358.31 ug/kg	97
15) Pyrene	17.73	202	2089615	2357.35 ug/kg	99
18) Benzo[a]anthracene	20.62	228	1933594	2226.70 ug/kg	99
19) Chrysene	20.87	228	1857598	2246.72 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	1892990	2150.87 ug/kg	97
22) Benzo[k]fluoranthene	24.22	252	1827585	2337.68 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	1629924	2219.42 ug/kg	97
24) Benzo[e]pyrene	25.35	252	1764417	2147.28 ug/kg	97
25) Benzo[a]pyrene	25.53	252	1766186	2208.29 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	1597769	2159.52 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1910556	2119.61 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	1516373	2005.00 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021002.D Vial: 2
Acq On : 10 Feb 2016 9:28 am Operator:
Sample : ICV-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

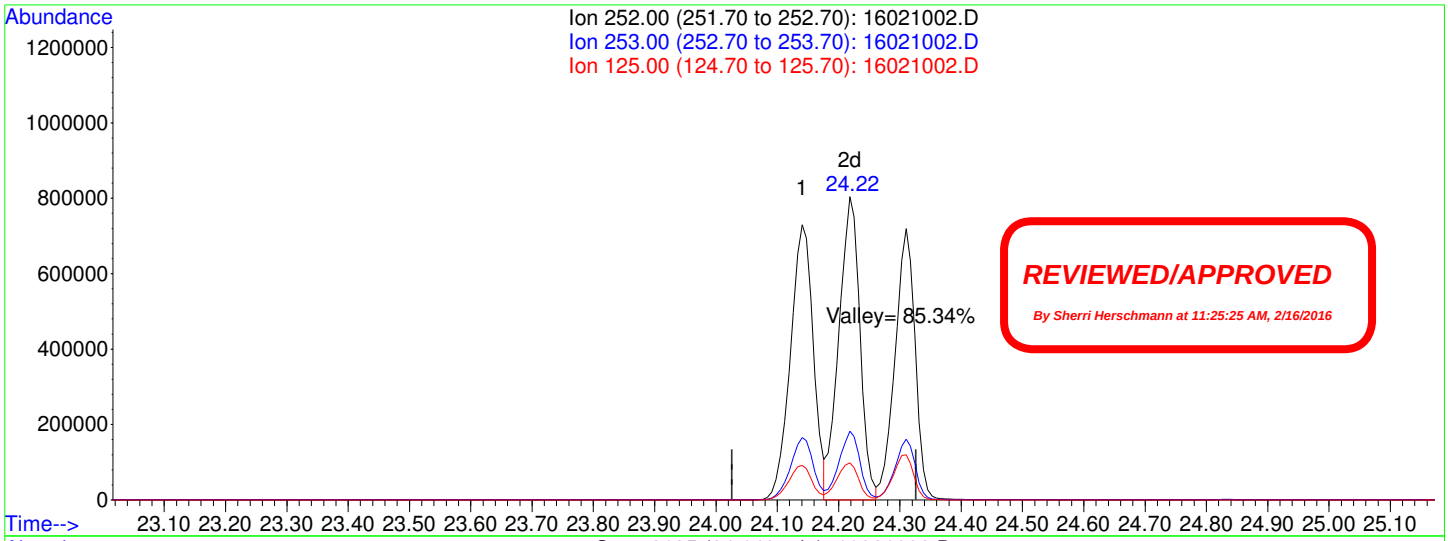
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

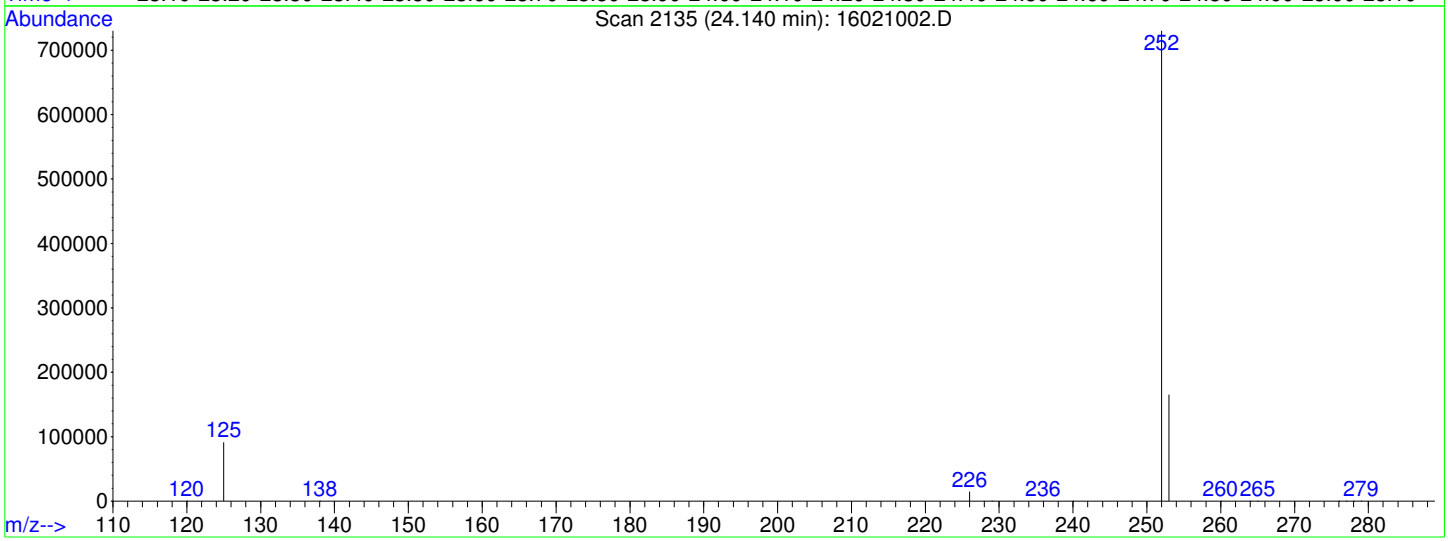


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160210\16021002.D          Vial: 2
Acq On    : 10 Feb 2016   9:28 am                   Operator:
Sample    : ICV-160210                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 10:00 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration
```





TIC: 16021002.D

(21) Benzo[b]fluoranthene (CP)

24.14min 2150.87ug/kg

response 1892990

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.55
125.00	10.50	12.53
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021003.D Vial: 3
Acq On : 10 Feb 2016 10:38 am Operator:
Sample : MB-73554 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2336626	4000.00 ug/kg	111
5) Acenaphthene-d10	13.15	164	1825833	4000.00 ug/kg	100
11) Phenanthrene-d10	15.22	188	3217245	4000.00 ug/kg	98
17) Chrysene-d12	20.78	240	3309290	4000.00 ug/kg	115
20) Perylene-d12	25.85	264	2832370	4000.00 ug/kg	123

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	434617	821.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.54%#		
16) 4-Terphenyl-d14	17.64	244	529794	985.70 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.64%#		

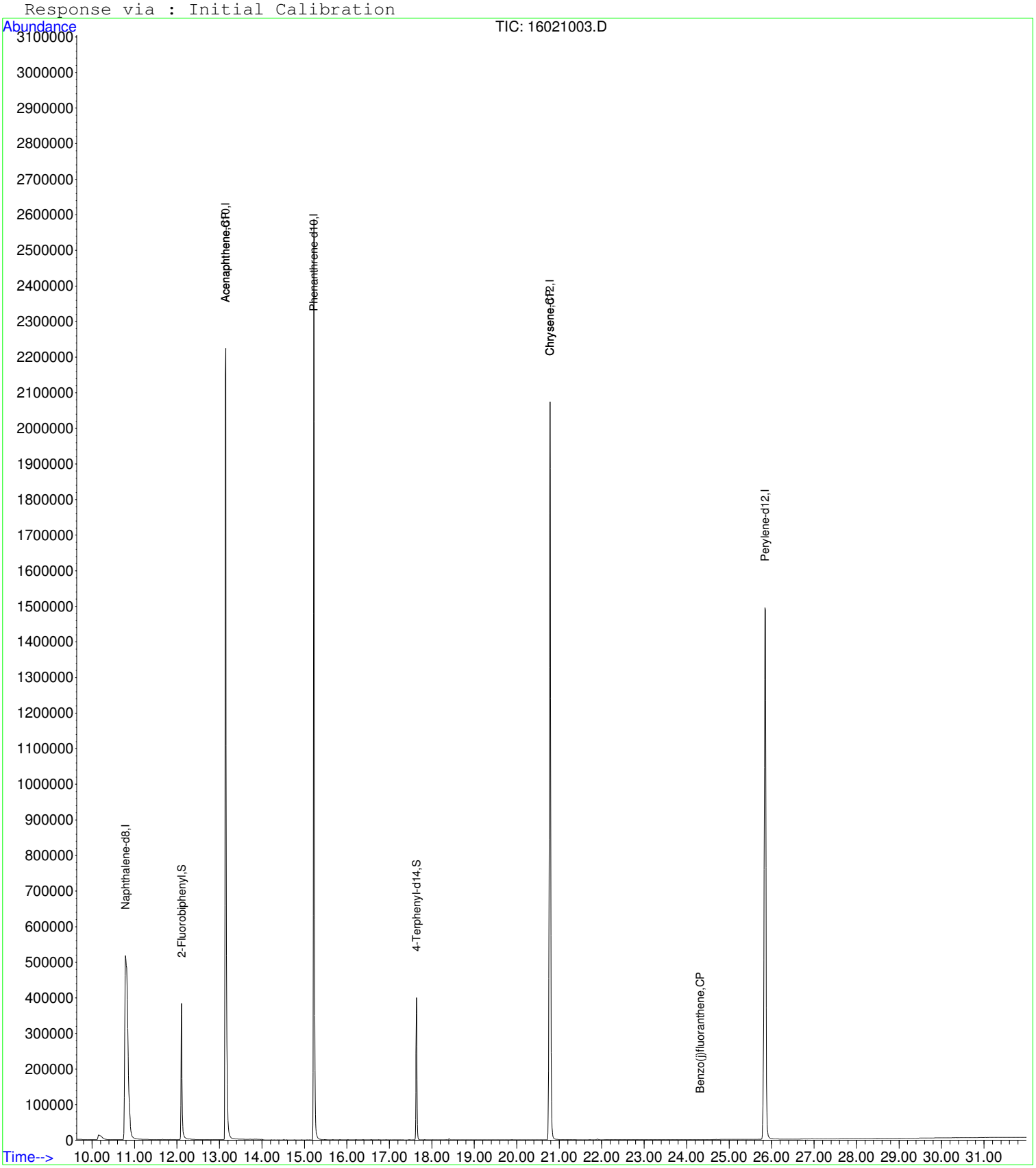
Target Compounds					Qvalue
9) Acenaphthene	13.14	154	6578	14.30 ug/kg#	10
19) Chrysene	20.78	228	7646	10.52 ug/kg	76
23) Benzo(j)fluoranthene	24.33	252	89	0.14 ug/kg#	58

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021003.D Vial: 3
Acq On : 10 Feb 2016 10:38 am Operator:
Sample : MB-73554 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021004.D Vial: 4
Acq On : 10 Feb 2016 11:18 am Operator:
Sample : LCS-73554 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2427663	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1741984	4000.00 ug/kg	96
11) Phenanthrene-d10	15.22	188	3084006	4000.00 ug/kg	94
17) Chrysene-d12	20.78	240	3728984	4000.00 ug/kg	129
20) Perylene-d12	25.85	264	3207417	4000.00 ug/kg	139

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	446309	884.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.11%#		
16) 4-Terphenyl-d14	17.64	244	549665	1066.86 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.67%#		

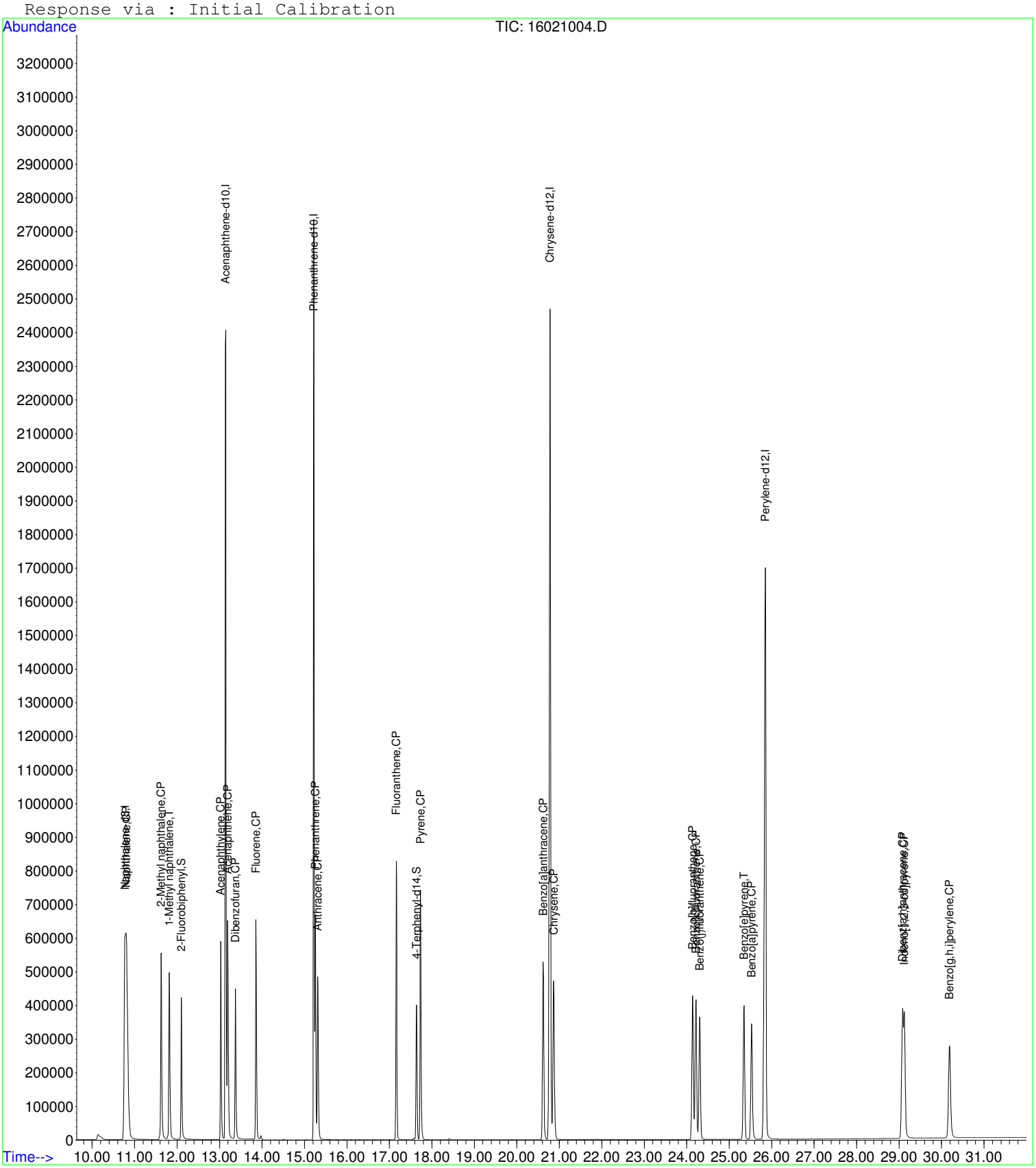
Target Compounds					Qvalue
2) Naphthalene	10.81	128	542781	893.65 ug/kg	100
3) 2-Methyl naphthalene	11.62	142	412800	863.18 ug/kg	99
4) 1-Methyl naphthalene	11.81	142	376685	834.64 ug/kg	94
6) Dibenzofuran	13.37	168	498184	880.01 ug/kg	99
8) Acenaphthylene	13.03	152	632650	873.47 ug/kg	99
9) Acenaphthene	13.19	154	368499	839.68 ug/kg	96
10) Fluorene	13.86	166	429534	829.63 ug/kg	97
12) Phenanthrene	15.25	178	643639	878.86 ug/kg	99
13) Anthracene	15.31	178	603152	841.75 ug/kg	99
14) Fluoranthene	17.16	202	819321	1128.19 ug/kg	98
15) Pyrene	17.73	202	843487	1140.31 ug/kg	99
18) Benzo[a]anthracene	20.62	228	770564	896.19 ug/kg	100
19) Chrysene	20.87	228	744404	909.29 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	763277	892.57 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	724339	953.55 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	637121	892.87 ug/kg	98
24) Benzo[e]pyrene	25.35	252	698450	874.82 ug/kg	98
25) Benzo[a]pyrene	25.53	252	630231	810.99 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	620190	862.71 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	739397	844.25 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	601441	818.46 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021004.D Vial: 4
Acq On : 10 Feb 2016 11:18 am Operator:
Sample : LCS-73554 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021005.D Vial: 5
Acq On : 10 Feb 2016 11:59 am Operator:
Sample : 1601232-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2502892	4000.00 ug/kg	119
5) Acenaphthene-d10	13.15	164	1902656	4000.00 ug/kg	104
11) Phenanthrene-d10	15.22	188	3256727	4000.00 ug/kg	100
17) Chrysene-d12	20.78	240	3450442	4000.00 ug/kg	119
20) Perylene-d12	25.85	264	3030434	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	42988	77.98 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.95%#		
16) 4-Terphenyl-d14	17.65	244	44362	81.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6943	14.48 ug/kg#	10
12) Phenanthrene	15.26	178	5511	7.13 ug/kg	97
14) Fluoranthene	17.20	202	15681	20.45 ug/kg	98
15) Pyrene	17.76	202	14595	18.68 ug/kg	100
18) Benzo[a]anthracene	20.62	228	8505	10.69 ug/kg	98
19) Chrysene	20.87	228	11091	14.64 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	11551	14.30 ug/kg	97
22) Benzo[k]fluoranthene	24.23	252	5173	7.21 ug/kg	96
23) Benzo(j)fluoranthene	24.32	252	5173	7.67 ug/kg	90
24) Benzo[e]pyrene	25.35	252	8796	11.66 ug/kg	97
25) Benzo[a]pyrene	25.53	252	10705	14.58 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.16	276	7877	9.52 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	7971	11.48 ug/kg	98

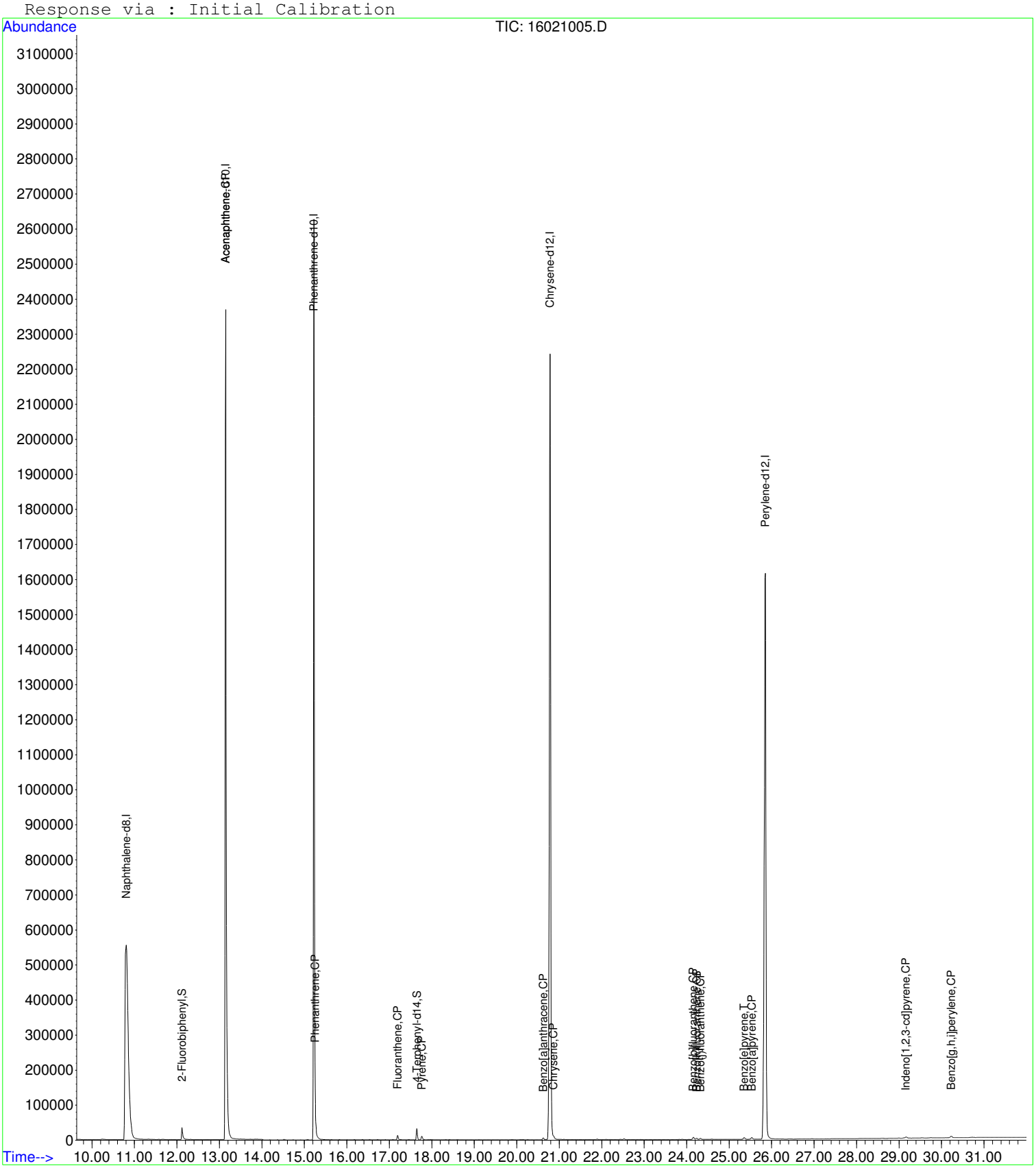
CONFIRMED
By Sherri Herschmann at 11:25:56 AM, 2/16/2016

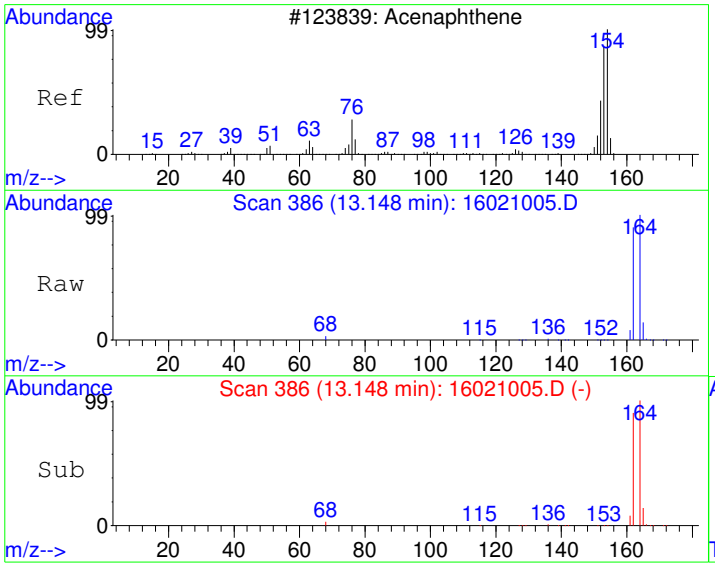
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021005.D Vial: 5
Acq On : 10 Feb 2016 11:59 am Operator:
Sample : 1601232-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

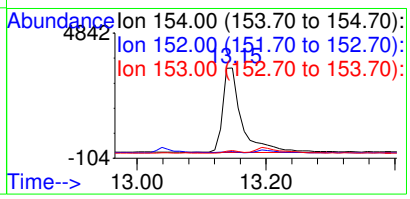


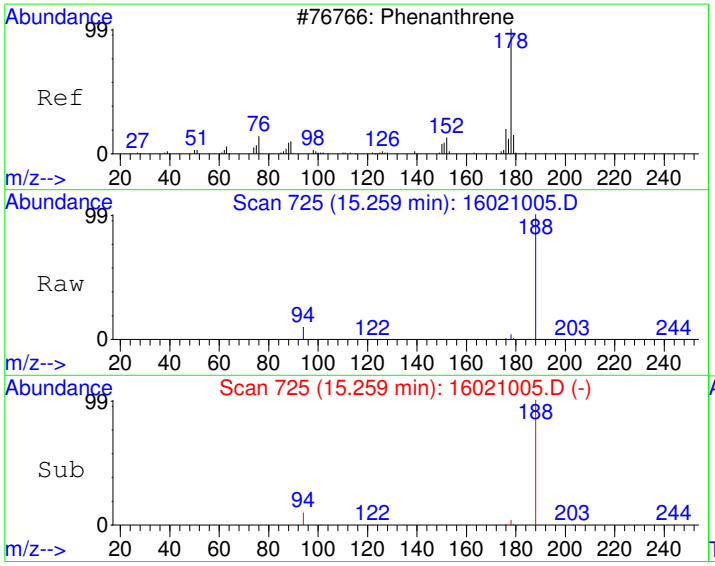


#9
Acenaphthene
Concen: 14.48 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:154 Resp: 6943

Ion	Ratio	Lower	Upper
154	100		
152	1.5	18.7	78.7#
153	2.8	74.4	134.4#

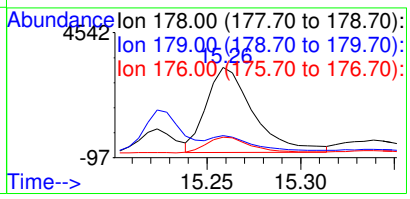


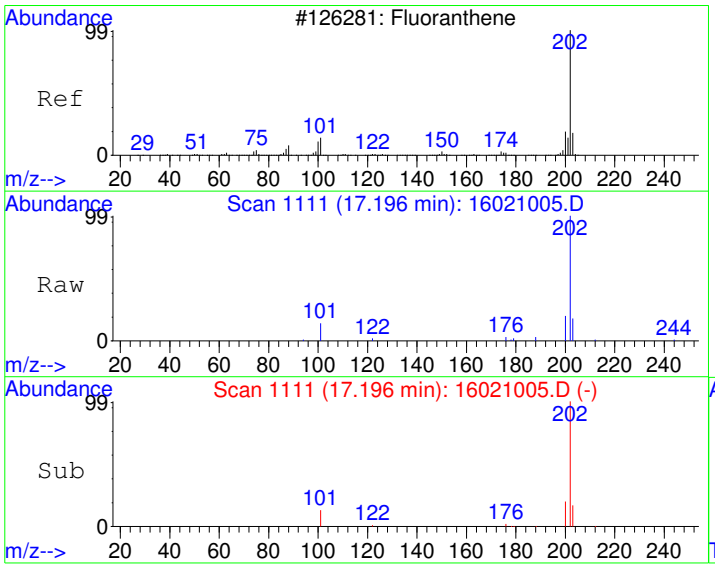


#12
Phenanthrene
Concen: 7.13 ug/kg
RT: 15.26 min Scan# 725
Delta R.T. -0.01 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:178 Resp: 5511

Ion	Ratio	Lower	Upper
178	100		
179	18.4	0.0	46.1
176	18.9	0.0	49.0

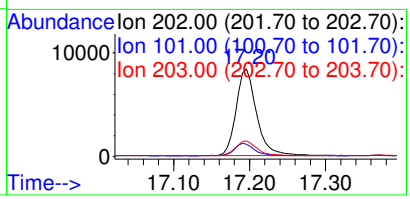


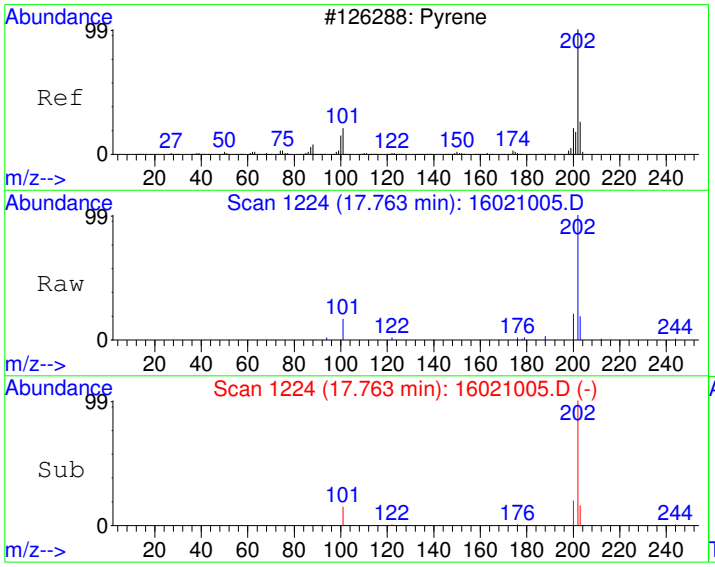


#14
Fluoranthene
Concen: 20.45 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:202 Resp: 15681

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	42.5
203	17.1	0.0	48.0

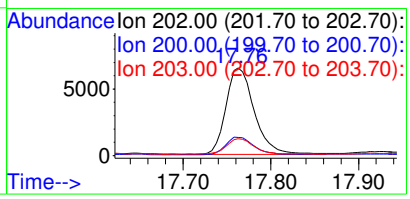


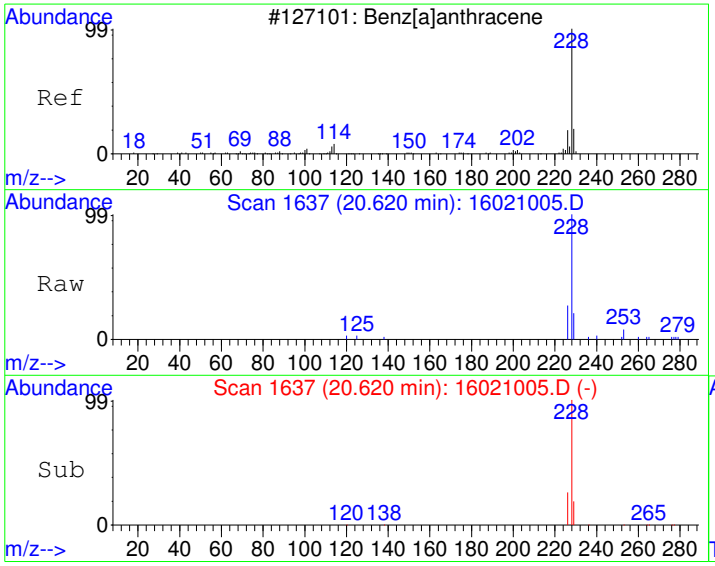


#15
Pyrene
Concen: 18.68 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.01 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:202 Resp: 14595

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.8	0.0	48.0

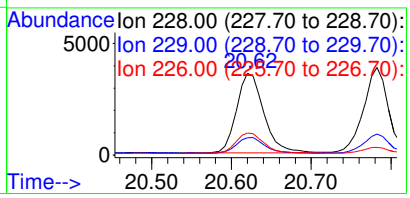


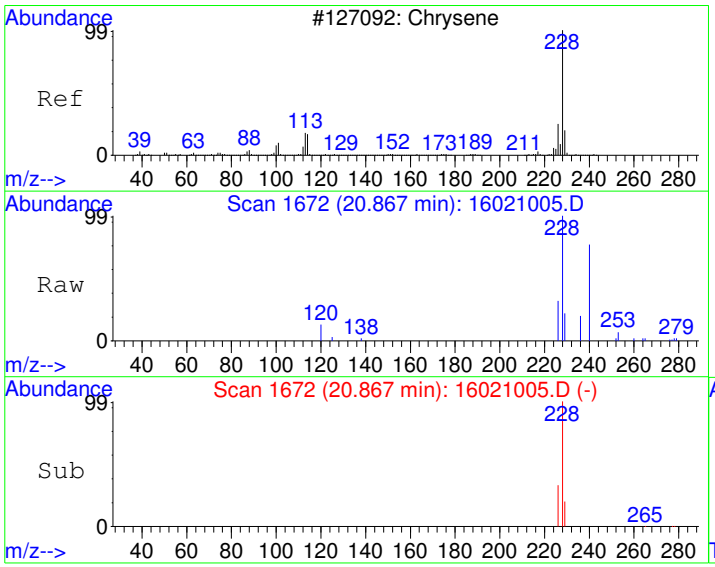


#18
Benzo[a]anthracene
Concen: 10.69 ug/kg
RT: 20.62 min Scan# 1637
Delta R.T. -0.03 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:228 Resp: 8505

Ion	Ratio	Lower	Upper
228	100		
229	19.1	0.0	50.0
226	25.3	0.0	56.4

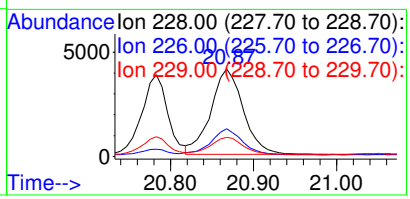


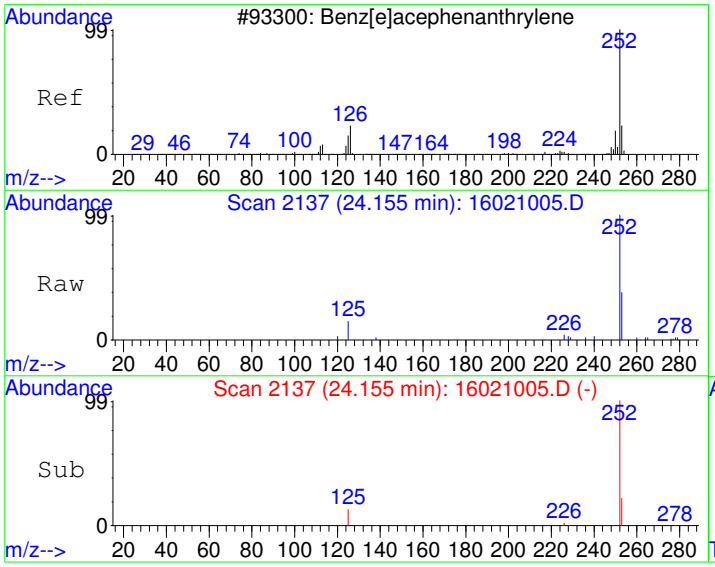


#19
Chrysene
Concen: 14.64 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:228 Resp: 11091

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	58.5
229	20.2	0.0	50.1

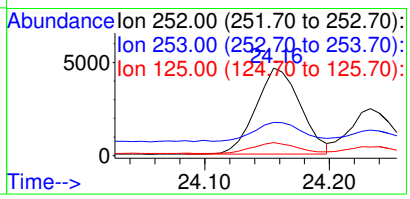


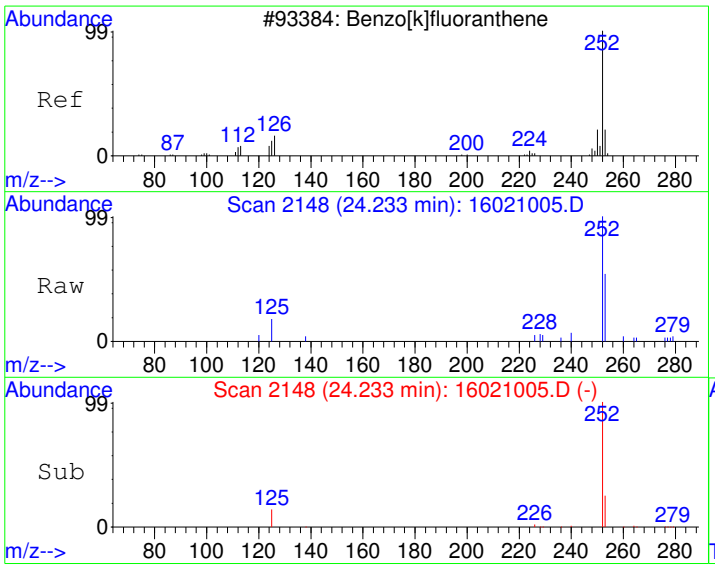


#21
Benzo[b]fluoranthene
Concen: 14.30 ug/kg
RT: 24.16 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:252 Resp: 11551

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	52.0
125	12.4	0.0	40.5

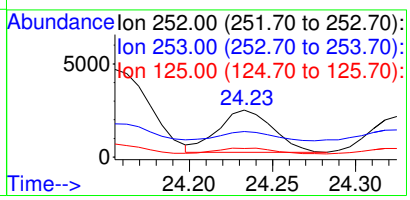


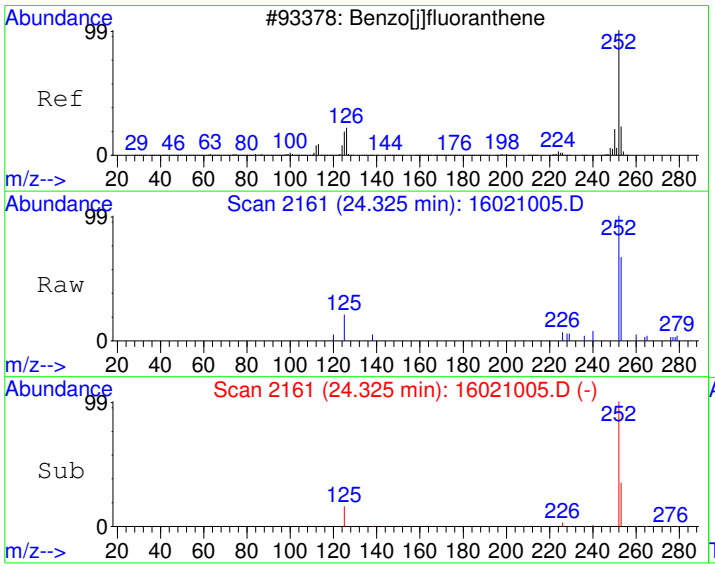


#22
Benzo[k]fluoranthene
Concen: 7.21 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:252 Resp: 5173

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	12.5	0.0	31.8

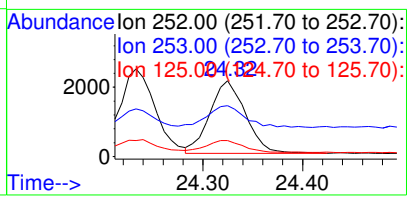


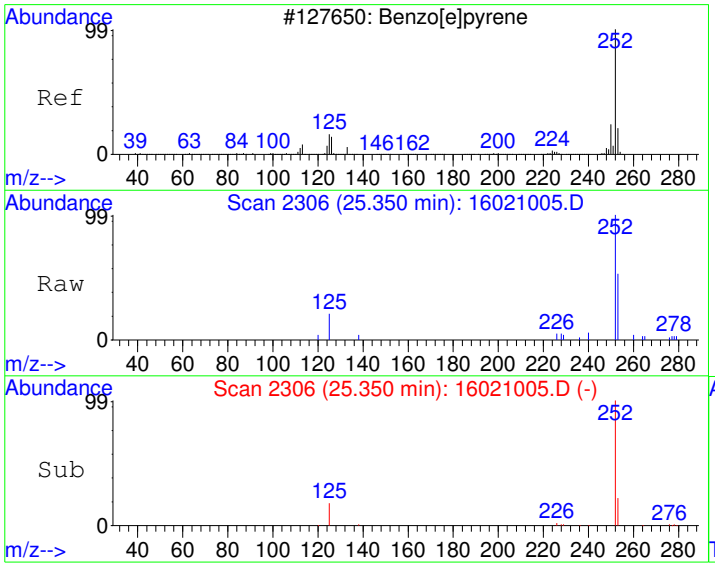


#23
Benzo(j)fluoranthene
Concen: 7.67 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:252 Resp: 5173

Ion	Ratio	Lower	Upper
252	100		
253	28.6	2.3	42.3
125	16.2	0.0	34.0

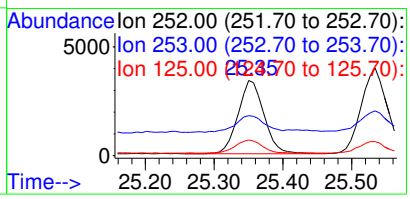


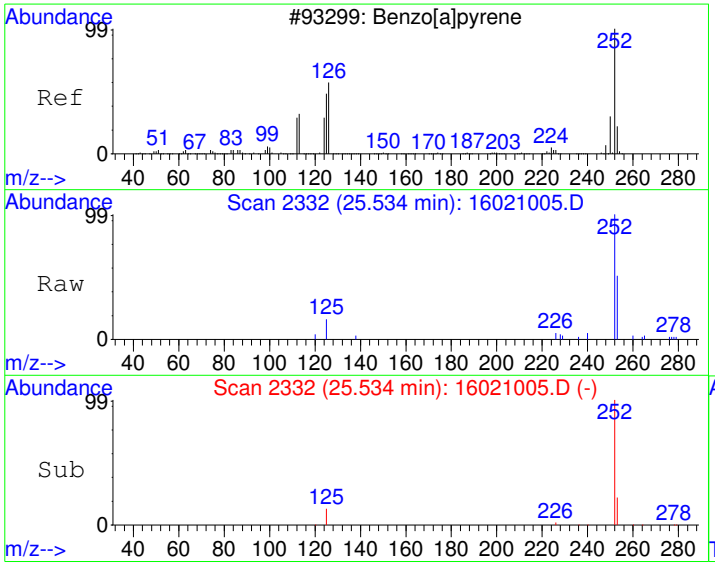


#24
Benzo[e]pyrene
Concen: 11.66 ug/kg
RT: 25.35 min Scan# 2306
Delta R.T. -0.04 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:252 Resp: 8796

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.2	42.2
125	18.0	0.0	36.0

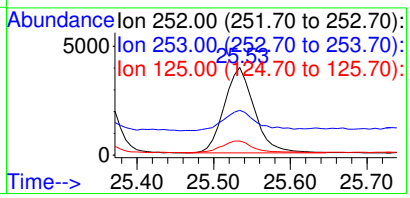


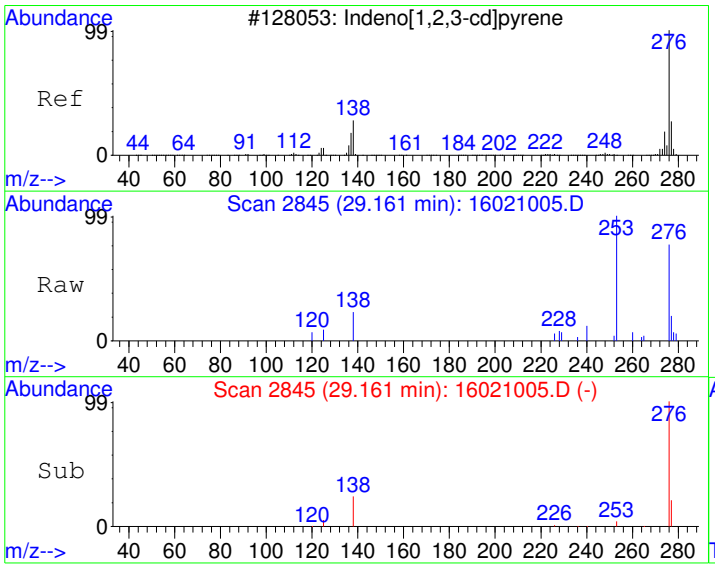


#25
Benzo[a]pyrene
Concen: 14.58 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:252 Resp: 10705

Ion	Ratio	Lower	Upper
252	100		
253	23.5	2.0	42.0
125	13.4	0.0	32.3

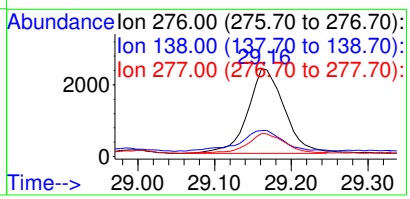


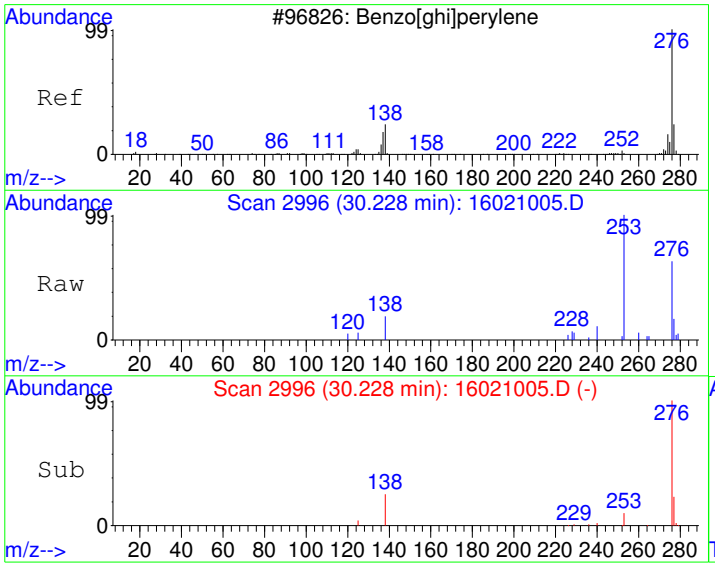


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.52 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:276 Resp: 7877

Ion	Ratio	Lower	Upper
276	100		
138	24.2	2.1	42.1
277	23.2	4.2	44.2

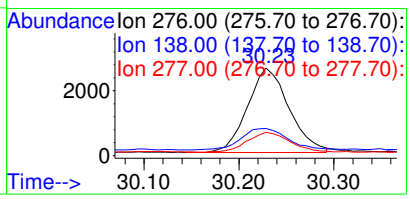




#28
Benzo[g,h,i]perylene
Concen: 11.48 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021005.D
Acq: 10 Feb 2016 11:59 am

Tgt Ion:276 Resp: 7971

Ion	Ratio	Lower	Upper
276	100		
138	25.2	3.9	43.9
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021006.D Vial: 6
Acq On : 10 Feb 2016 12:39 pm Operator:
Sample : 1601232-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2553574	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	1965325	4000.00 ug/kg	108
11) Phenanthrene-d10	15.22	188	3352059	4000.00 ug/kg	103
17) Chrysene-d12	20.79	240	3558410	4000.00 ug/kg	123
20) Perylene-d12	25.85	264	3149834	4000.00 ug/kg	136

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	42910	75.36 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#	
16) 4-Terphenyl-d14	17.65	244	45104	80.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7136	14.41 ug/kg#	10
12) Phenanthrene	15.26	178	5124	6.44 ug/kg	97
14) Fluoranthene	17.20	202	14762	18.70 ug/kg	98
15) Pyrene	17.77	202	13567	16.87 ug/kg	99
18) Benzo[a]anthracene	20.63	228	7722	9.41 ug/kg	99
19) Chrysene	20.87	228	10287	13.17 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	10841	12.91 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	4602	6.17 ug/kg	92
23) Benzo(j)fluoranthene	24.32	252	4750	6.78 ug/kg	91
24) Benzo[e]pyrene	25.36	252	8142	10.38 ug/kg	97
25) Benzo[a]pyrene	25.53	252	9687	12.69 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.17	276	7182	8.35 ug/kg	98
28) Benzo[g,h,i]perylene	30.24	276	7314	10.14 ug/kg	96

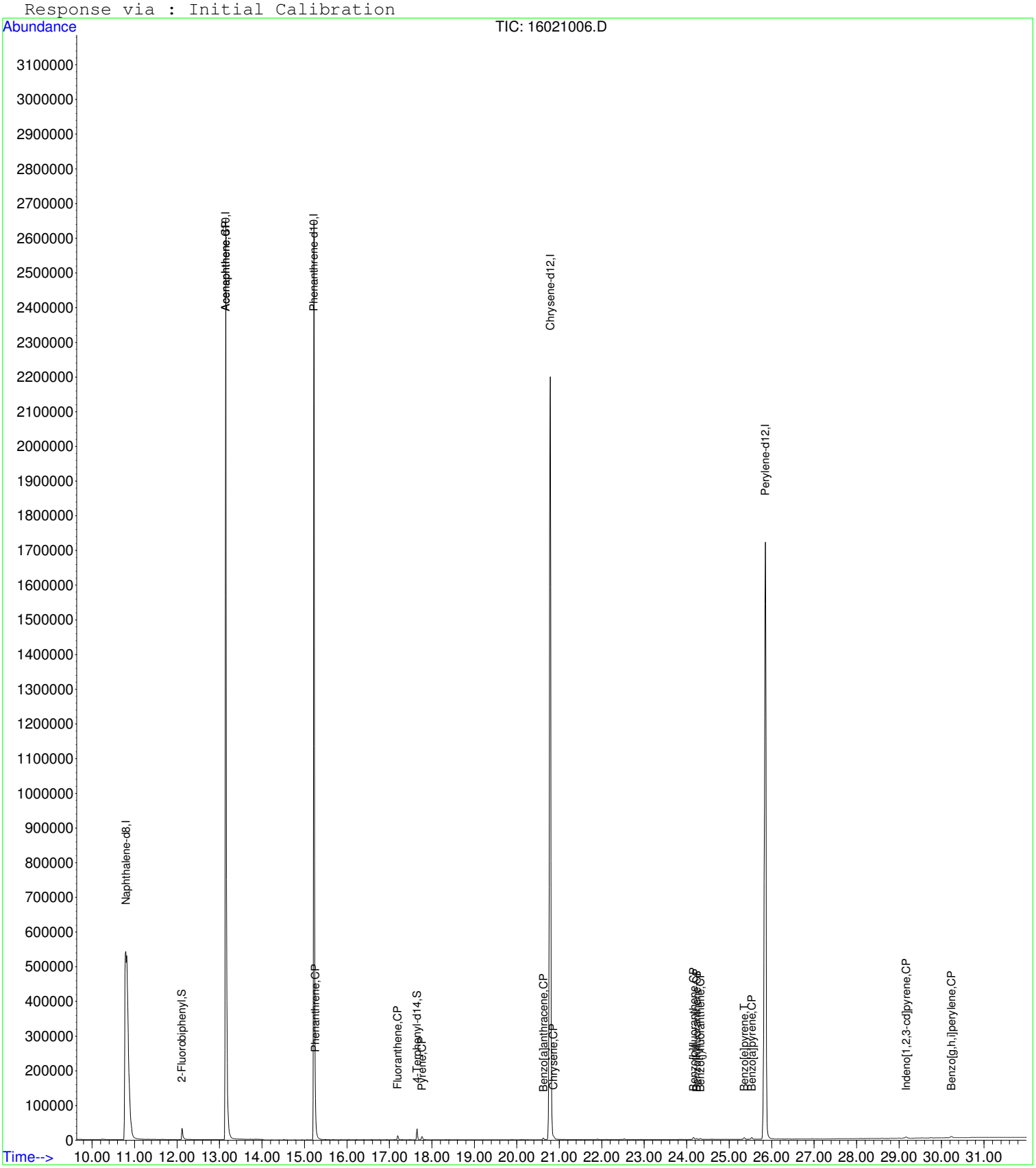
CONFIRMED
By Sherri Herschmann at 11:26:32 AM, 2/16/2016

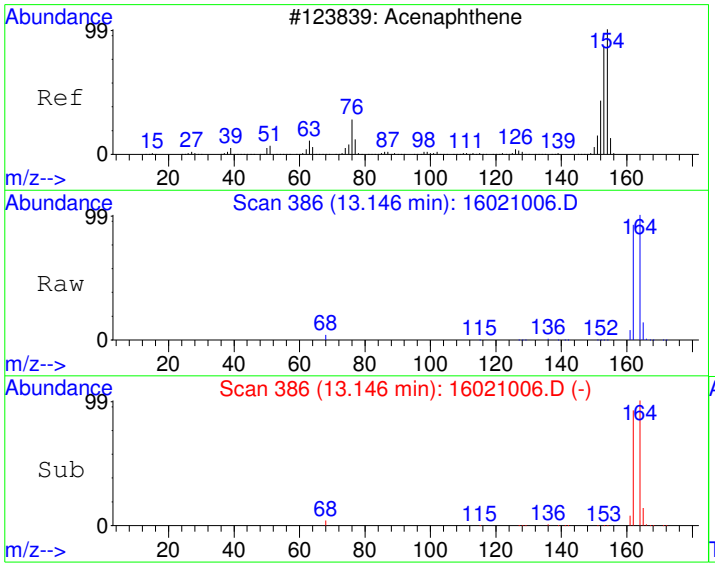
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021006.D Vial: 6
Acq On : 10 Feb 2016 12:39 pm Operator:
Sample : 1601232-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

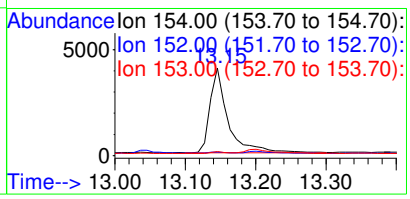


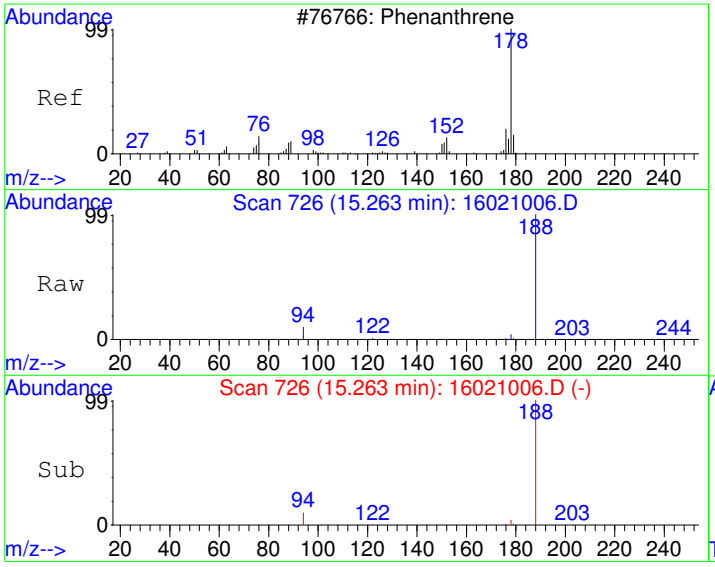


#9
Acenaphthene
Concen: 14.41 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:154 Resp: 7136

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.4	74.4	134.4#

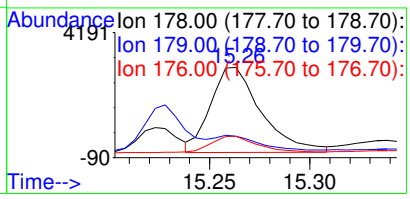


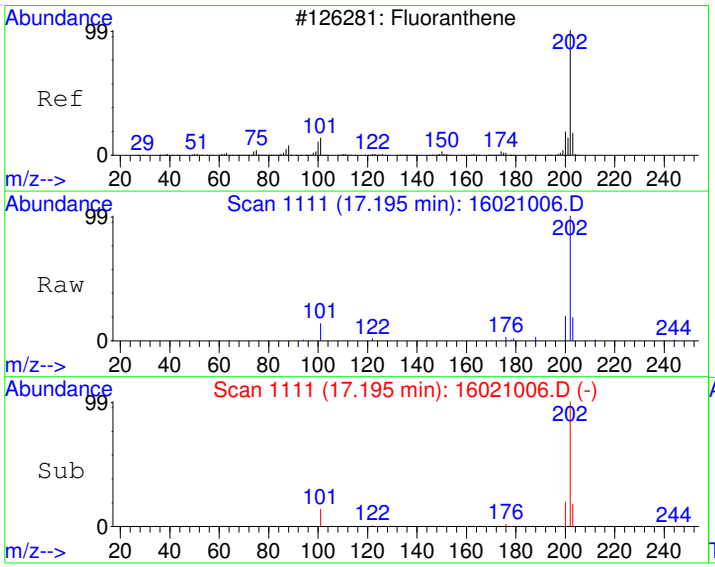


#12
Phenanthrene
Concen: 6.44 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:178 Resp: 5124

Ion	Ratio	Lower	Upper
178	100		
179	17.7	0.0	46.1
176	20.1	0.0	49.0

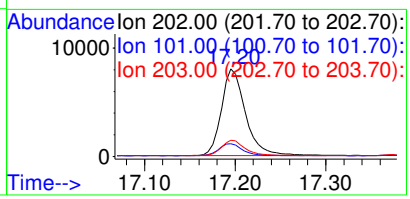


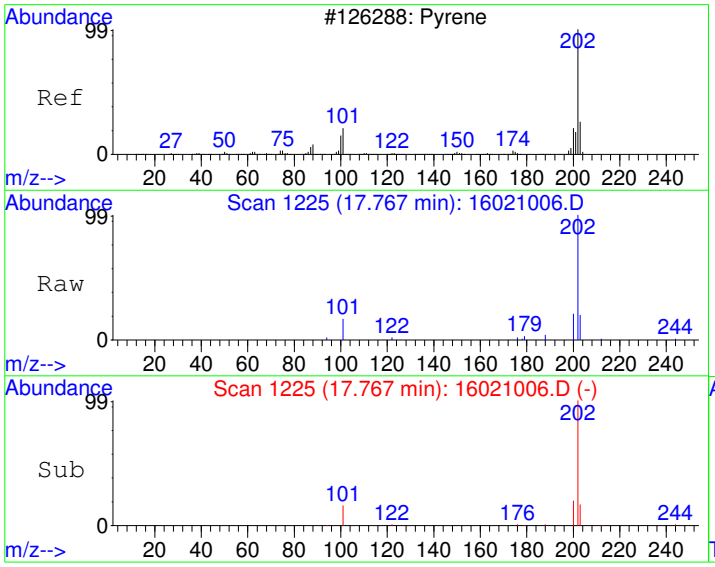


#14
Fluoranthene
Concen: 18.70 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:202 Resp: 14762

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	17.7	0.0	48.0

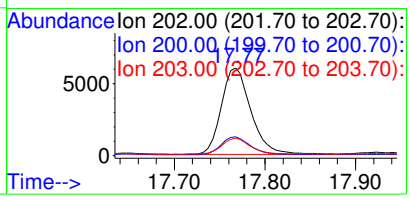


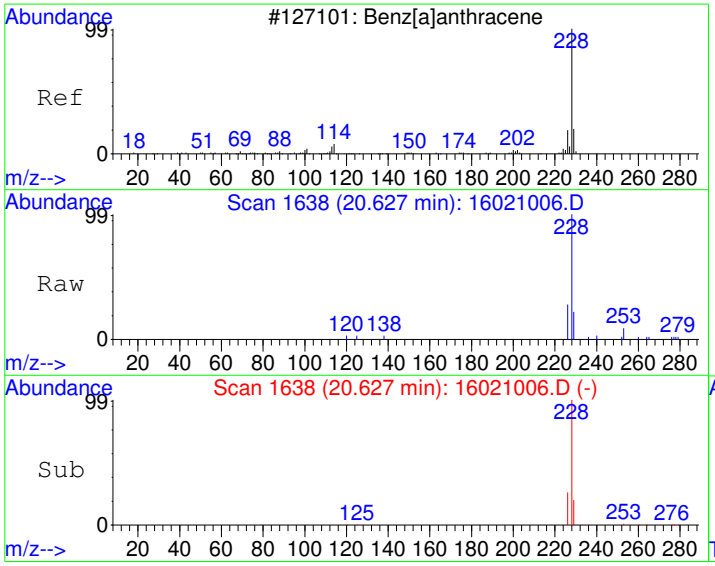


#15
Pyrene
Concen: 16.87 ug/kg
RT: 17.77 min Scan# 1225
Delta R.T. 0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:202 Resp: 13567

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.5	0.0	48.0

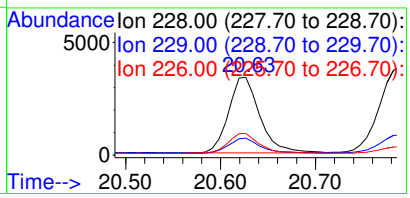


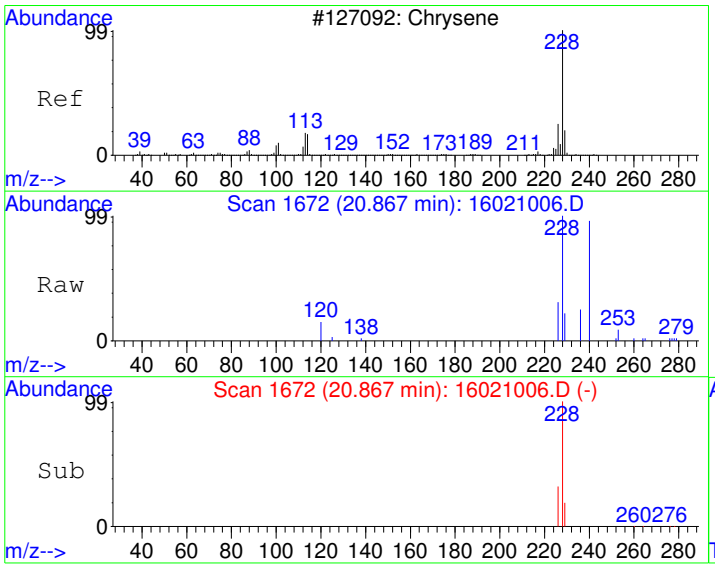


#18
Benzo[a]anthracene
Concen: 9.41 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:228 Resp: 7722

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.0
226	26.9	0.0	56.4

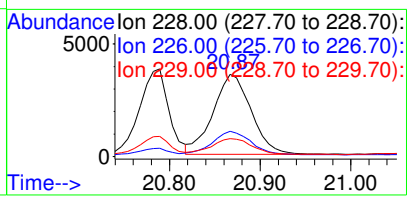


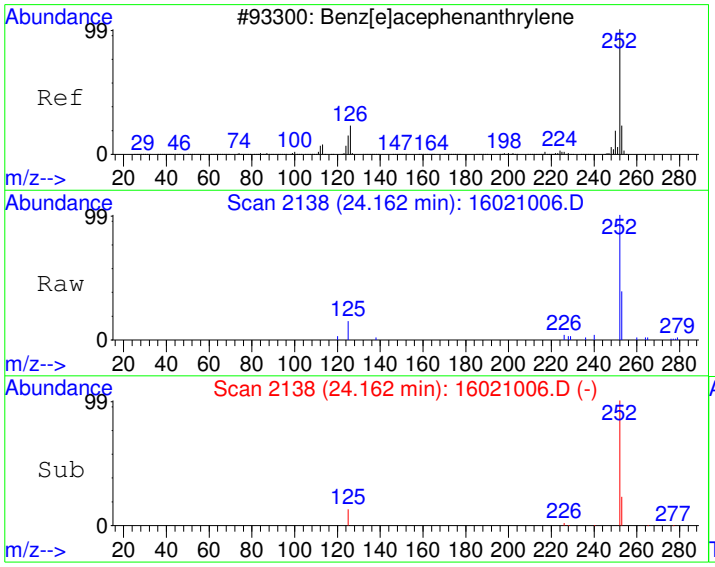


#19
Chrysene
Concen: 13.17 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:228 Resp: 10287

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.5	0.0	50.1

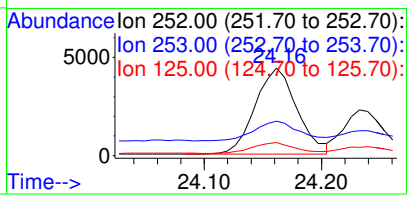


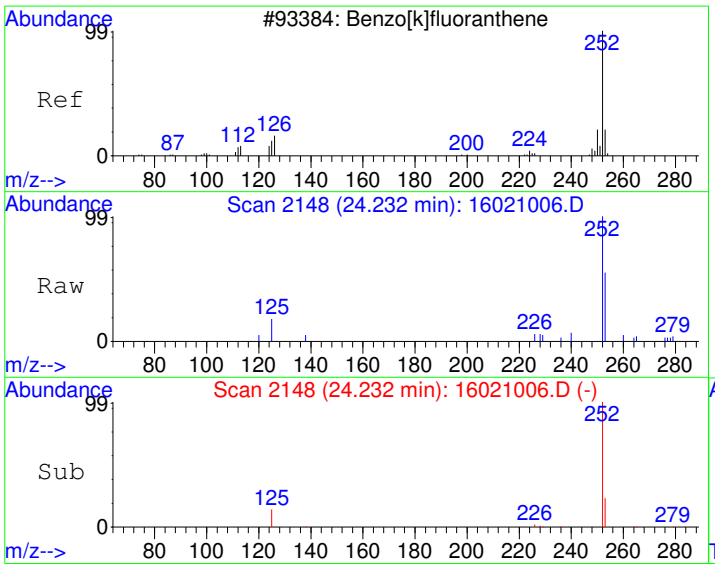


#21
Benzo[b]fluoranthene
Concen: 12.91 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:252 Resp: 10841

Ion	Ratio	Lower	Upper
252	100		
253	22.2	0.0	52.0
125	12.5	0.0	40.5

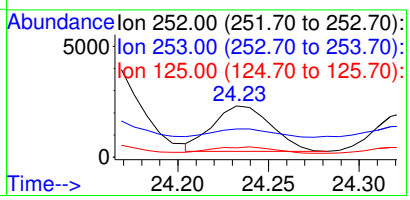


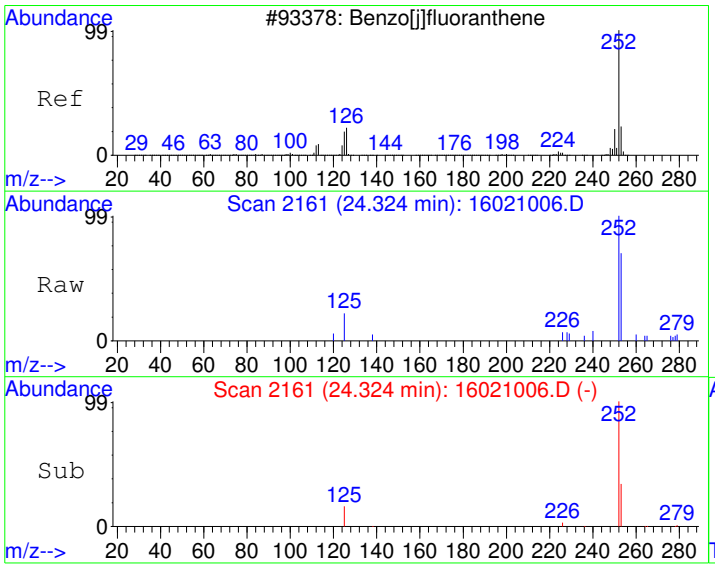


#22
Benzo[k]fluoranthene
Concen: 6.17 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:252 Resp: 4602

Ion	Ratio	Lower	Upper
252	100		
253	16.9	2.2	42.2
125	12.3	0.0	31.8

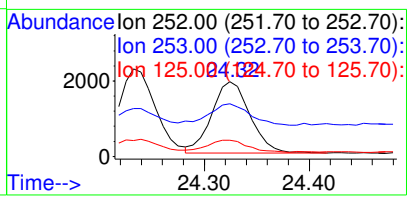


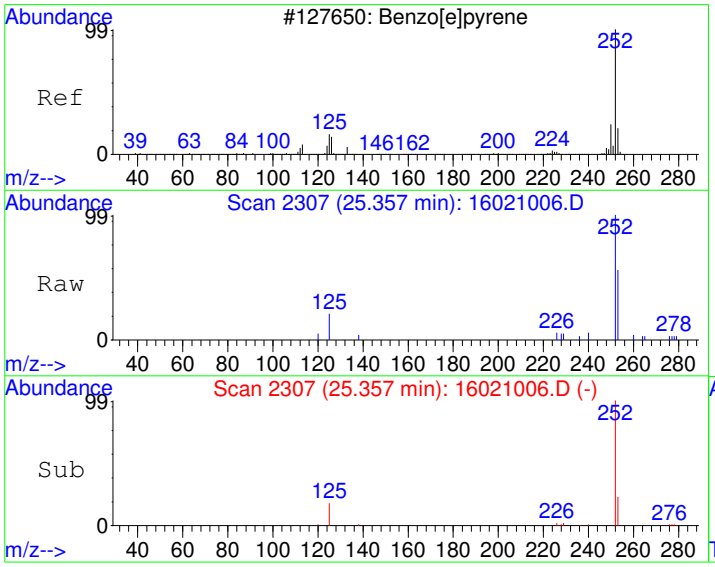


#23
Benzo(j)fluoranthene
Concen: 6.78 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:252 Resp: 4750

Ion	Ratio	Lower	Upper
252	100		
253	27.9	2.3	42.3
125	16.2	0.0	34.0

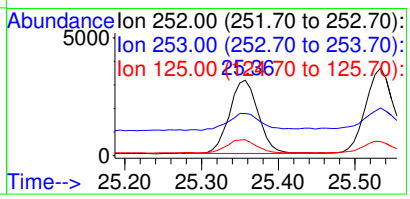


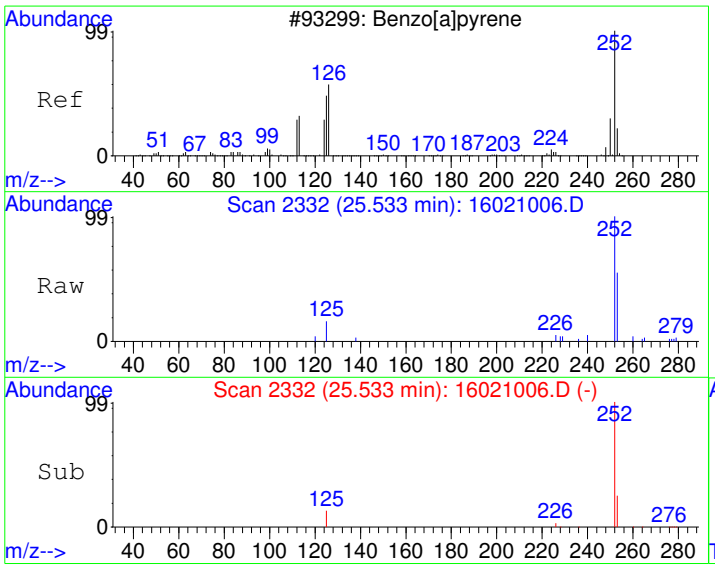


#24
Benzo[e]pyrene
Concen: 10.38 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:252 Resp: 8142

Ion	Ratio	Lower	Upper
252	100		
253	23.5	2.2	42.2
125	17.8	0.0	36.0

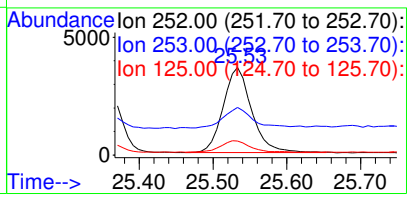


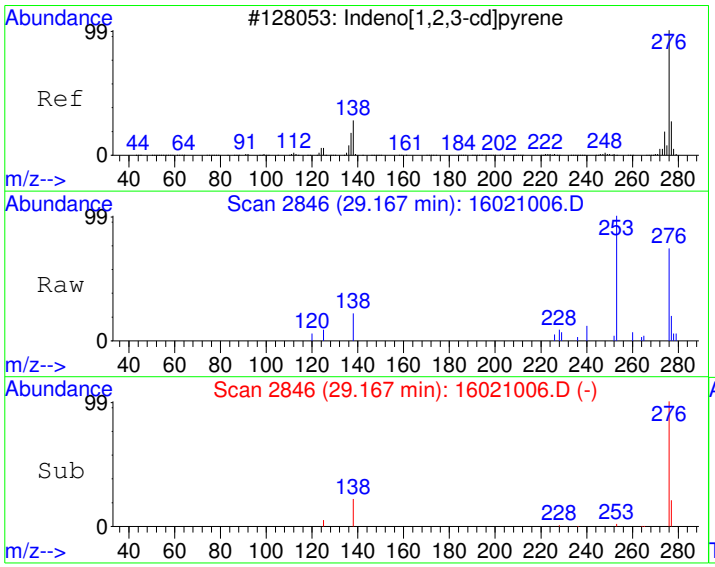


#25
Benzo[a]pyrene
Concen: 12.69 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:252 Resp: 9687

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.0	42.0
125	13.1	0.0	32.3

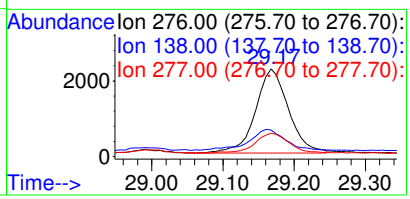


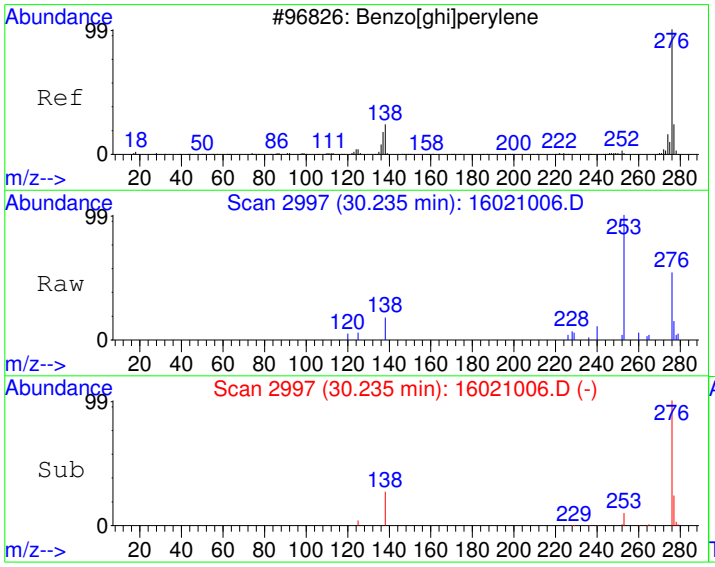


#27
Indeno[1,2,3-cd]pyrene
Concen: 8.35 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:276 Resp: 7182

Ion	Ratio	Lower	Upper
276	100		
138	23.6	2.1	42.1
277	23.3	4.2	44.2

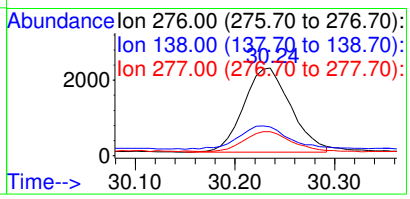




#28
Benzo[g,h,i]perylene
Concen: 10.14 ug/kg
RT: 30.24 min Scan# 2997
Delta R.T. 0.02 min
Lab File: 16021006.D
Acq: 10 Feb 2016 12:39 pm

Tgt Ion:276 Resp: 7314

Ion	Ratio	Lower	Upper
276	100		
138	26.9	3.9	43.9
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021007.D Vial: 7
Acq On : 10 Feb 2016 1:19 pm Operator:
Sample : 1601232-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2418980	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1901002	4000.00 ug/kg	104
11) Phenanthrene-d10	15.22	188	3246244	4000.00 ug/kg	99
17) Chrysene-d12	20.79	240	3501812	4000.00 ug/kg	121
20) Perylene-d12	25.85	264	3069918	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44740	81.23 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#	
16) 4-Terphenyl-d14	17.65	244	45967	84.76 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7304	15.25 ug/kg#	10
12) Phenanthrene	15.26	178	18588	24.11 ug/kg	99
14) Fluoranthene	17.19	202	59830	78.27 ug/kg	98
15) Pyrene	17.75	202	55846	71.72 ug/kg	99
18) Benzo[a]anthracene	20.63	228	32812	40.64 ug/kg	99
19) Chrysene	20.87	228	43316	56.34 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	46141	56.37 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	19433	26.73 ug/kg	97
23) Benzo(j)fluoranthene	24.32	252	20415	29.89 ug/kg	90
24) Benzo[e]pyrene	25.36	252	36577	47.87 ug/kg	99
25) Benzo[a]pyrene	25.53	252	42144	56.66 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	6888	10.01 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.15	276	31688	37.80 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	32946	46.84 ug/kg	96

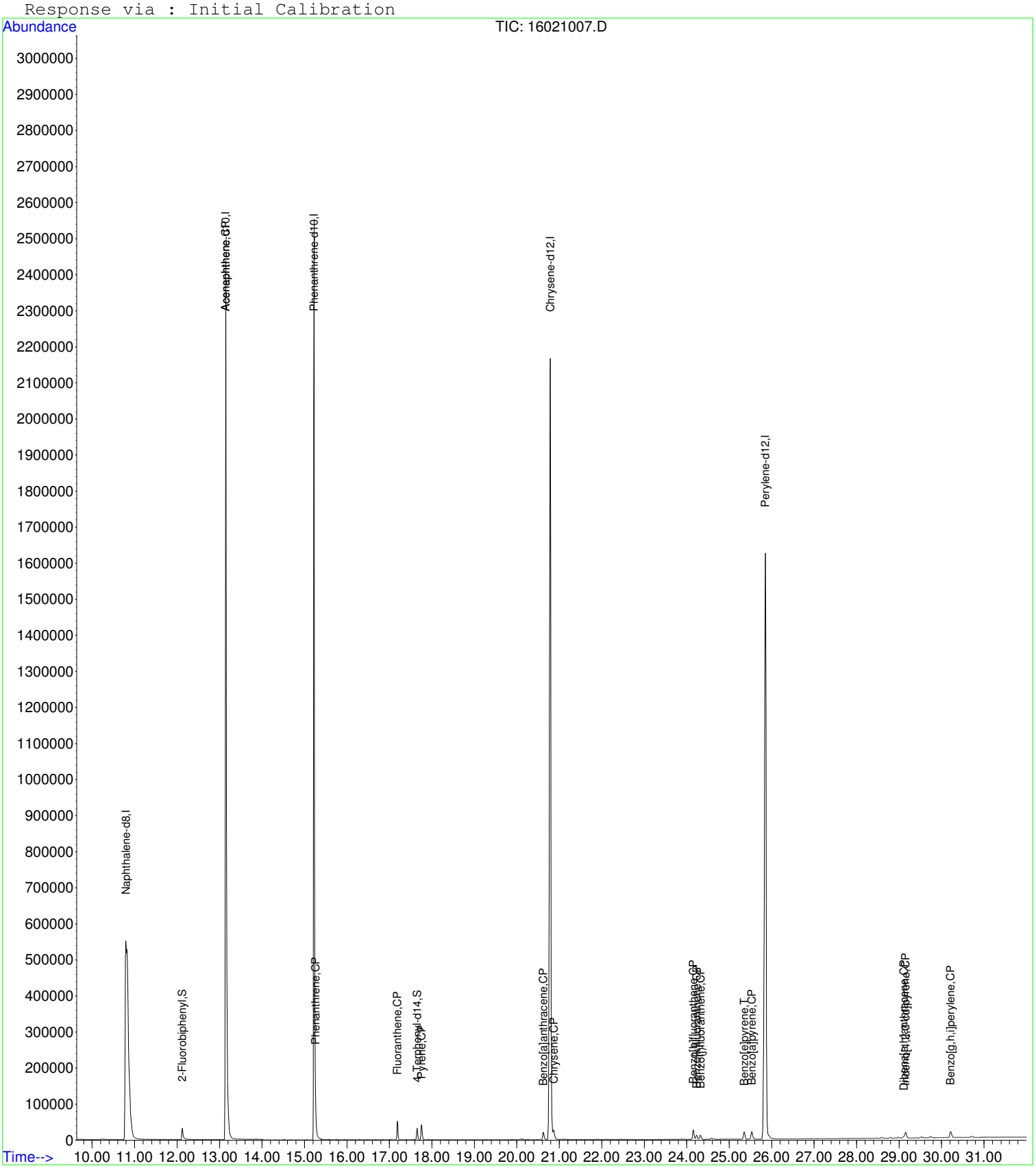
CONFIRMED
By Sherri Herschmann at 11:27:40 AM, 2/16/2016

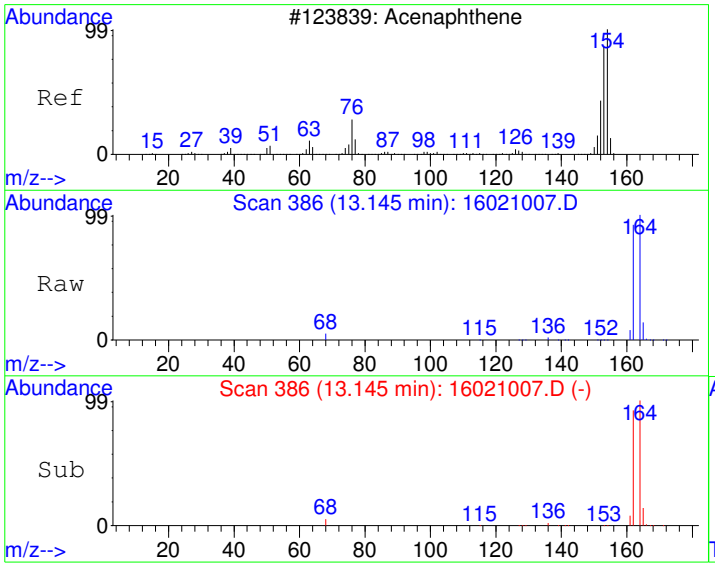
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021007.D Vial: 7
Acq On : 10 Feb 2016 1:19 pm Operator:
Sample : 1601232-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

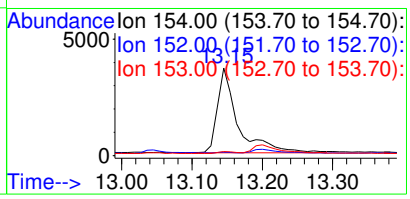


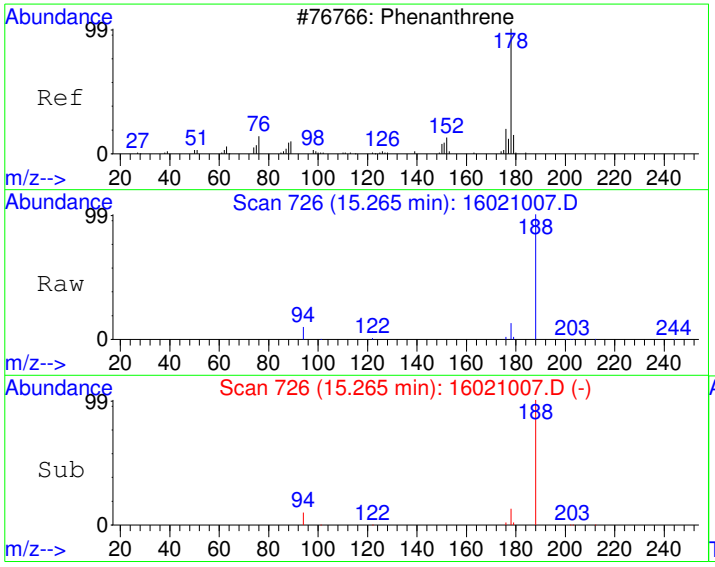


#9
Acenaphthene
Concen: 15.25 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:154 Resp: 7304

Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.7	78.7#
153	2.4	74.4	134.4#

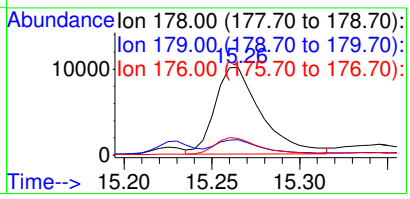


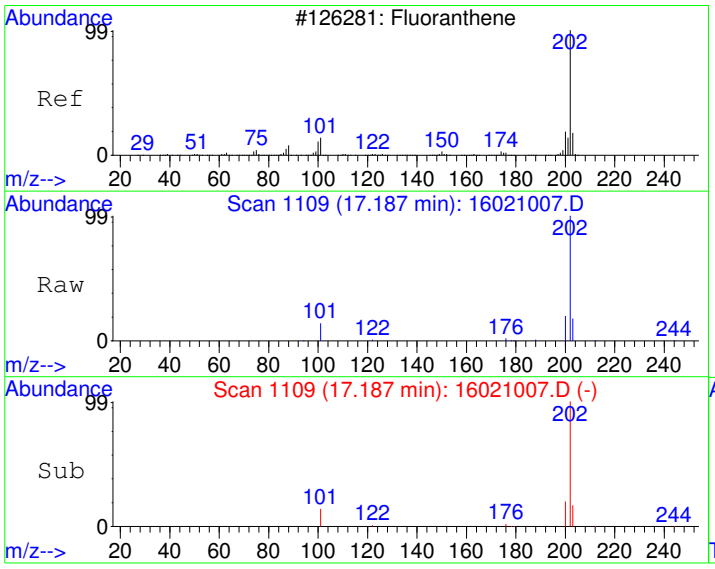


#12
Phenanthrene
Concen: 24.11 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:178 Resp: 18588

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	46.1
176	19.2	0.0	49.0

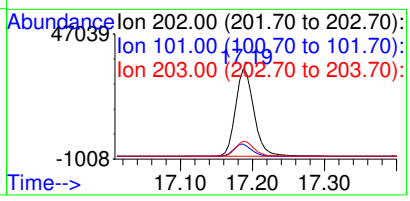


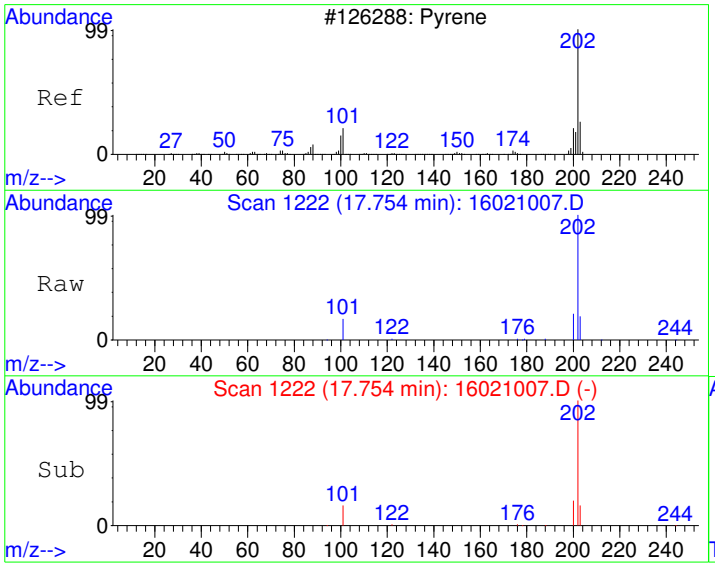


#14
Fluoranthene
Concen: 78.27 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:202 Resp: 59830

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	42.5
203	17.4	0.0	48.0

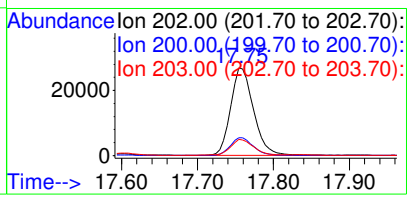


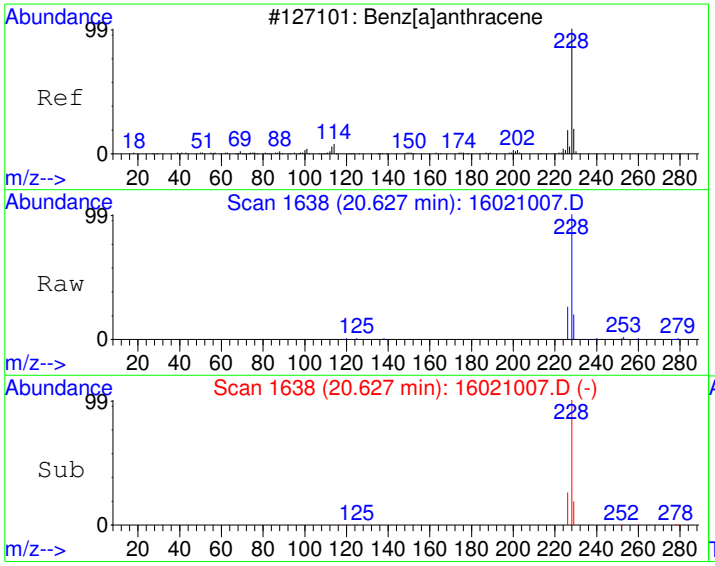


#15
Pyrene
Concen: 71.72 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.01 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:202 Resp: 55846

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	18.3	0.0	48.0

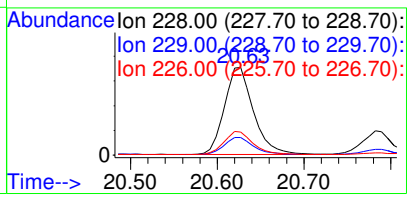


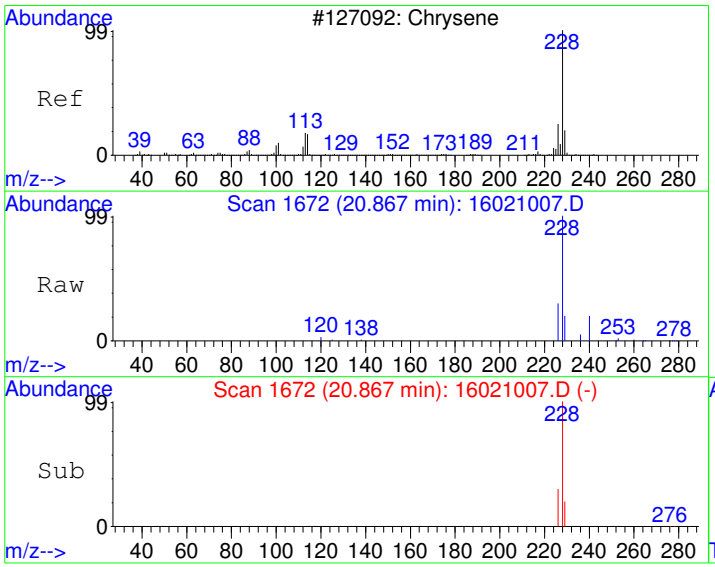


#18
Benzo[a]anthracene
Concen: 40.64 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:228 Resp: 32812

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	25.9	0.0	56.4

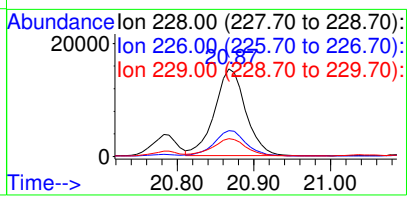


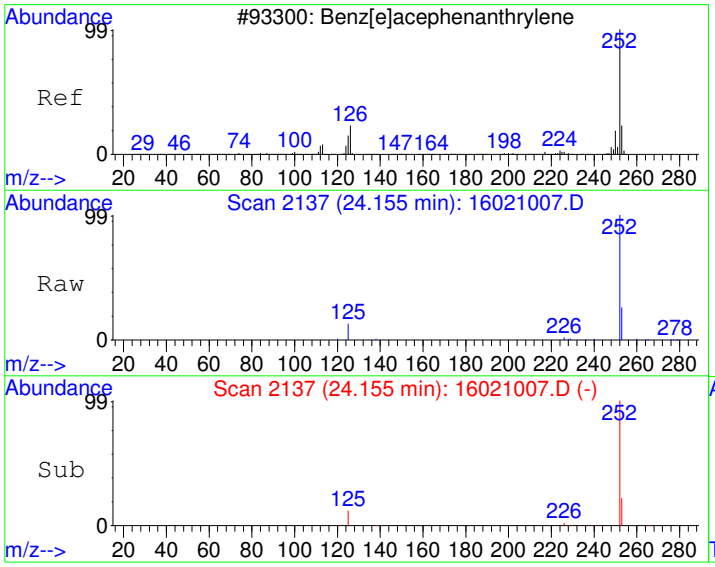


#19
Chrysene
Concen: 56.34 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:228 Resp: 43316

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.5
229	19.9	0.0	50.1

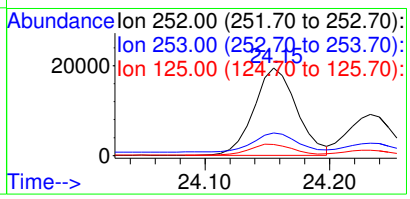


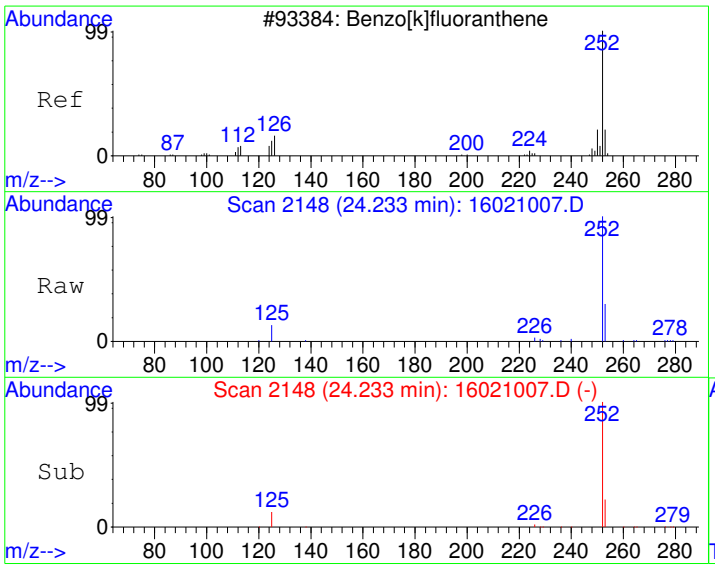


#21
Benzo[b]fluoranthene
Concen: 56.37 ug/kg
RT: 24.15 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:252 Resp: 46141

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	12.4	0.0	40.5

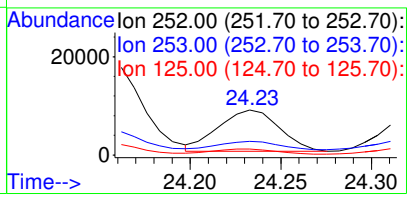


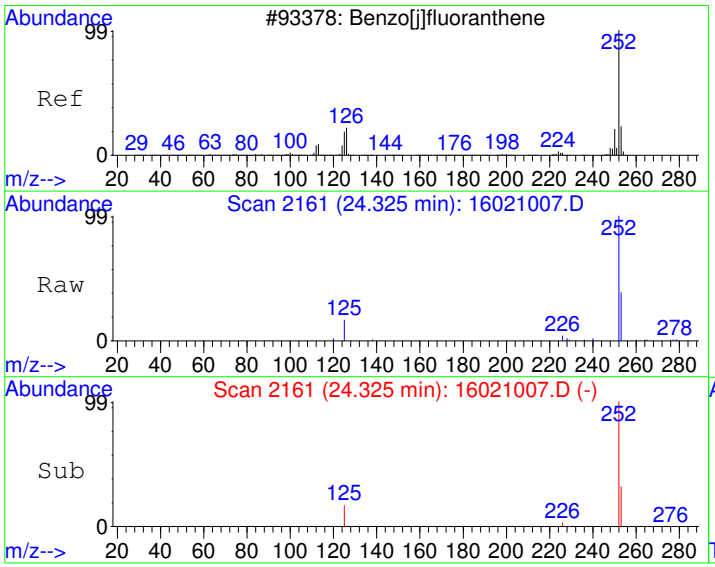


#22
Benzo[k]fluoranthene
Concen: 26.73 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:252 Resp: 19433

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.2	42.2
125	11.9	0.0	31.8

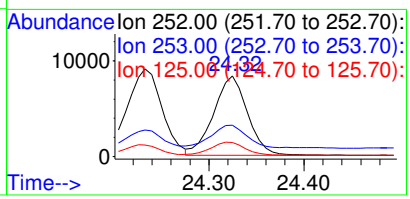


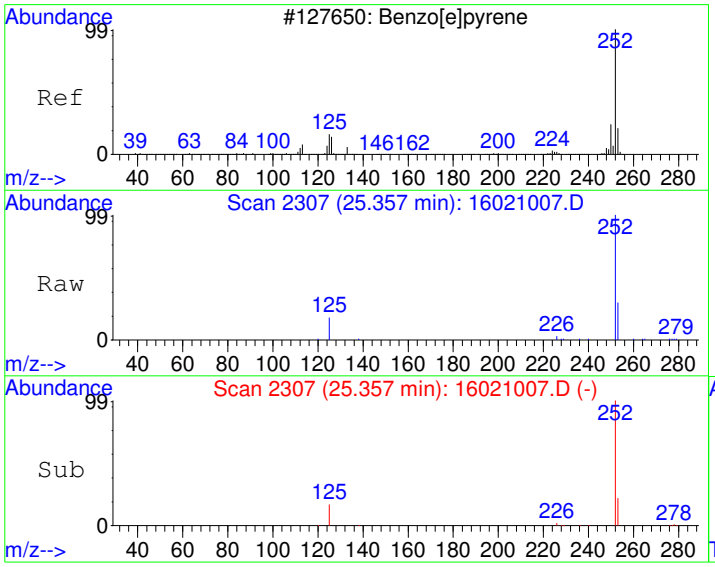


#23
Benzo(j)fluoranthene
Concen: 29.89 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:252 Resp: 20415

Ion	Ratio	Lower	Upper
252	100		
253	28.7	2.3	42.3
125	16.2	0.0	34.0

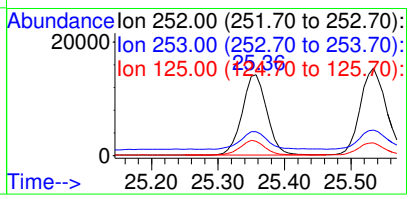


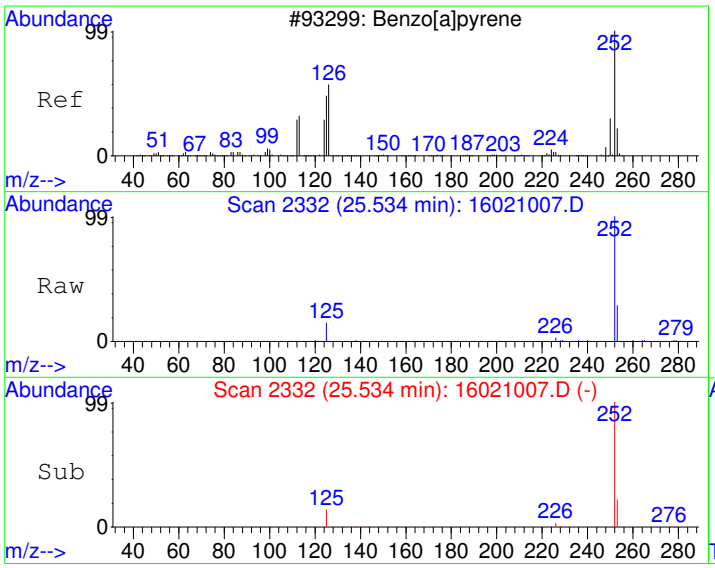


#24
Benzo[e]pyrene
Concen: 47.87 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:252 Resp: 36577

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	17.1	0.0	36.0

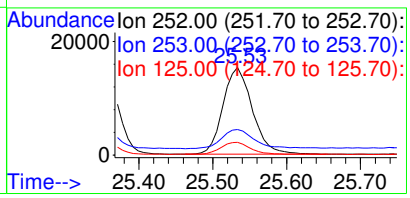


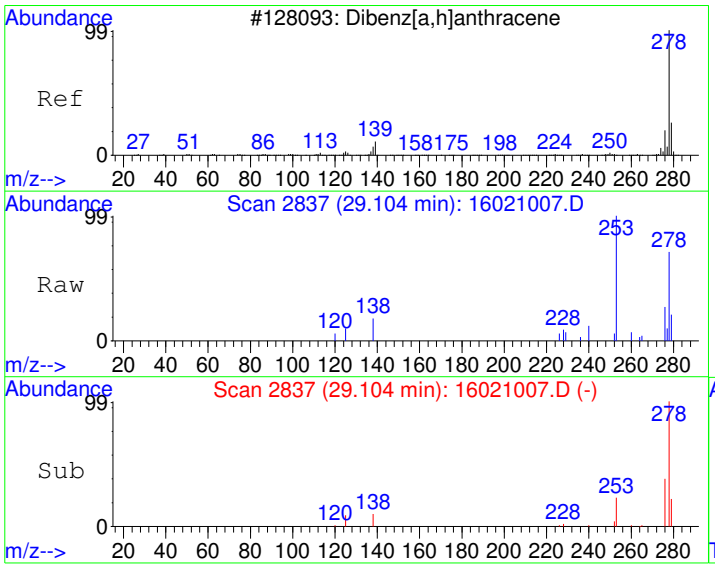


#25
Benzo[a]pyrene
Concen: 56.66 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:252 Resp: 42144

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.0	42.0
125	13.8	0.0	32.3

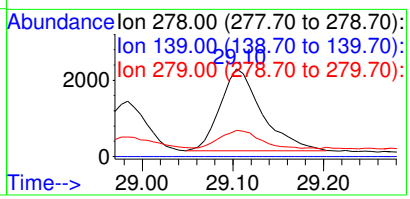


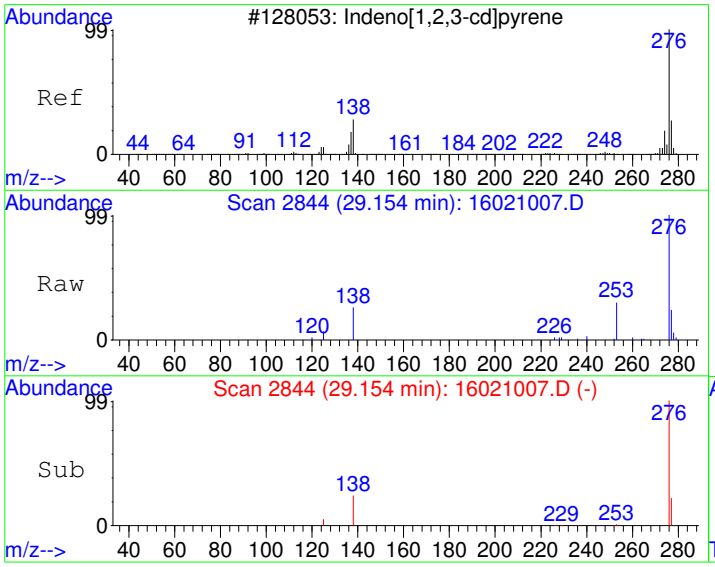


#26
Dibenz[a,h]anthracene
Concen: 10.01 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:278 Resp: 6888

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.2	3.8	43.8

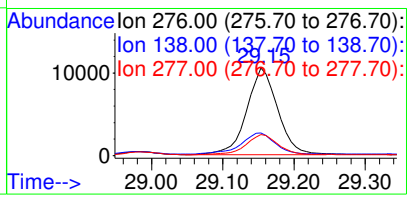


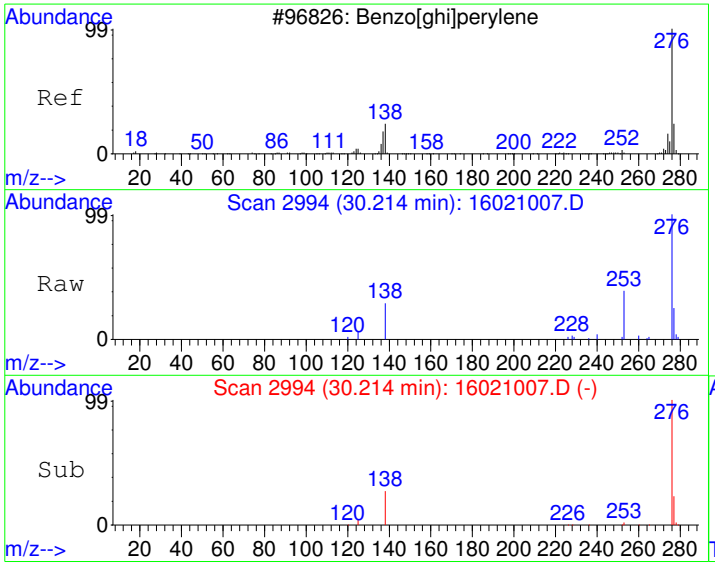


#27
Indeno[1,2,3-cd]pyrene
Concen: 37.80 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:276 Resp: 31688

Ion	Ratio	Lower	Upper
276	100		
138	24.3	2.1	42.1
277	23.4	4.2	44.2

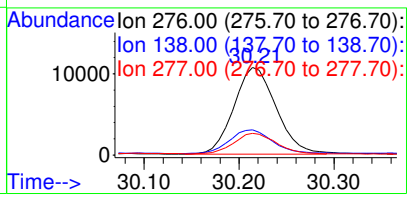




#28
Benzo[g,h,i]perylene
Concen: 46.84 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16021007.D
Acq: 10 Feb 2016 1:19 pm

Tgt Ion:276 Resp: 32946

Ion	Ratio	Lower	Upper
276	100		
138	27.4	3.9	43.9
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021008.D Vial: 8
Acq On : 10 Feb 2016 1:59 pm Operator:
Sample : 1601232-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2372889	4000.00 ug/kg	113
5) Acenaphthene-d10	13.15	164	1842572	4000.00 ug/kg	101
11) Phenanthrene-d10	15.22	188	3147385	4000.00 ug/kg	96
17) Chrysene-d12	20.79	240	3352514	4000.00 ug/kg	116
20) Perylene-d12	25.86	264	3028385	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44197	82.79 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	
16) 4-Terphenyl-d14	17.65	244	47453	90.25 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.26%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7202	15.51 ug/kg#	10
12) Phenanthrene	15.26	178	21466	28.72 ug/kg	99
14) Fluoranthene	17.19	202	68964	93.05 ug/kg	98
15) Pyrene	17.75	202	64742	85.76 ug/kg	99
18) Benzo[a]anthracene	20.63	228	36893	47.73 ug/kg	100
19) Chrysene	20.87	228	48895	66.43 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	51876	64.25 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	21556	30.05 ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	22767	33.79 ug/kg	89
24) Benzo[e]pyrene	25.36	252	39817	52.82 ug/kg	99
25) Benzo[a]pyrene	25.53	252	47174	64.29 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	7653	11.27 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.15	276	35056	42.39 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	36951	53.26 ug/kg	96

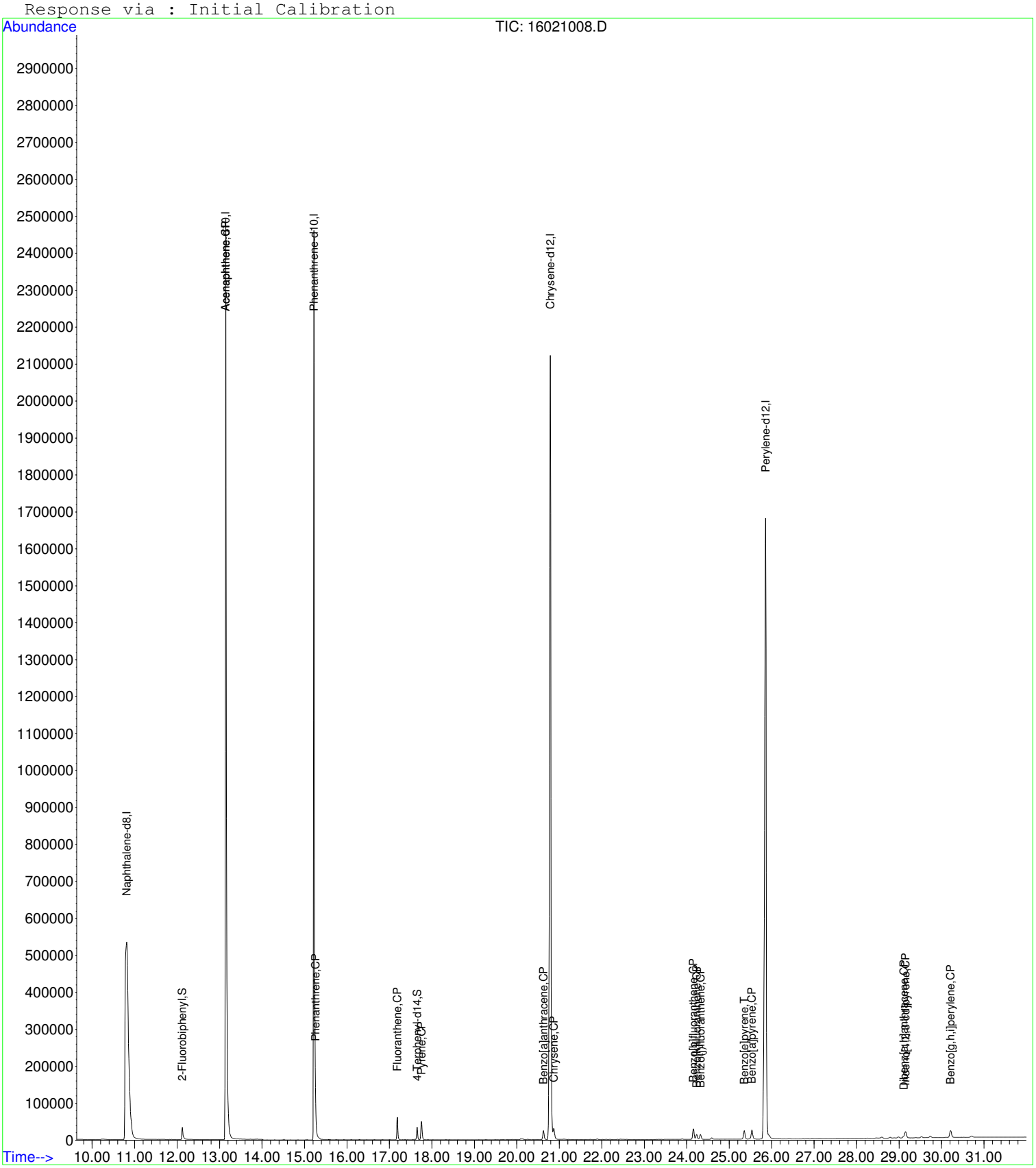
CONFIRMED
By Sherri Herschmann at 11:28:10 AM, 2/16/2016

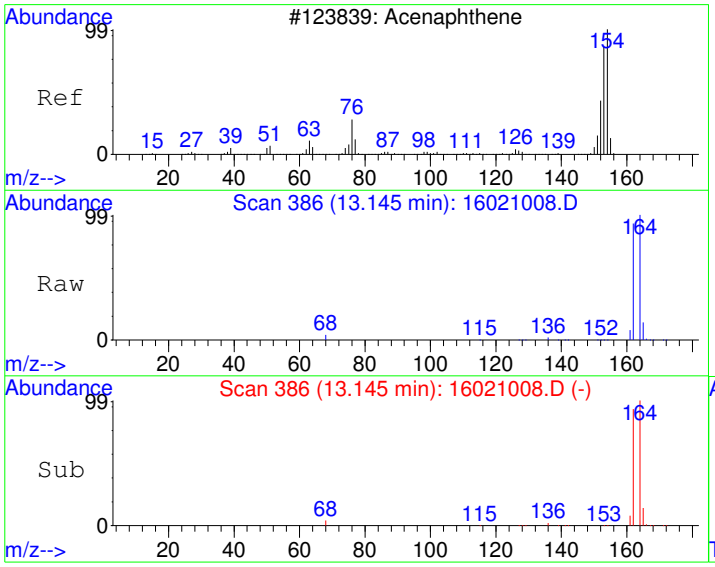
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021008.D Vial: 8
Acq On : 10 Feb 2016 1:59 pm Operator:
Sample : 1601232-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

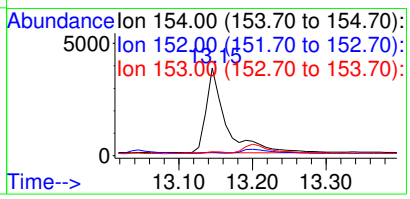


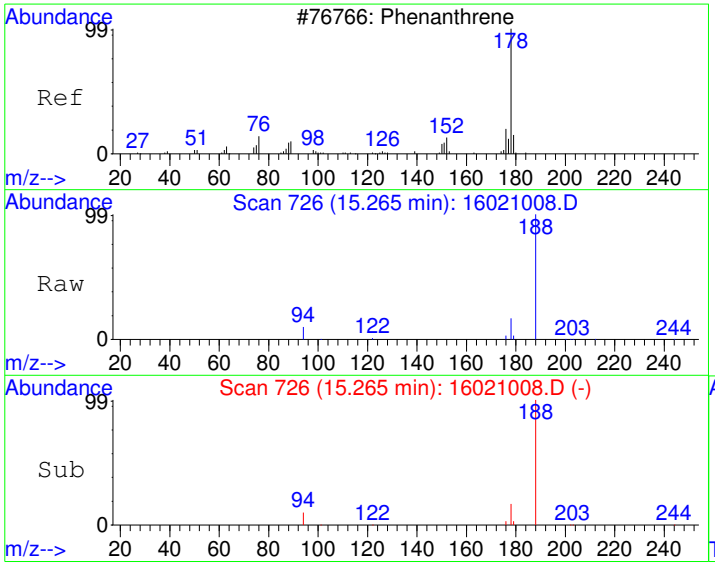


#9
Acenaphthene
Concen: 15.51 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:154 Resp: 7202

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.7	78.7#
153	2.1	74.4	134.4#

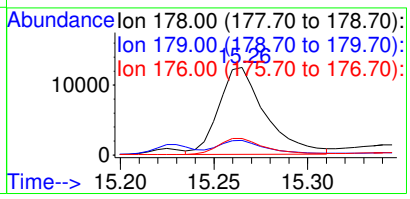


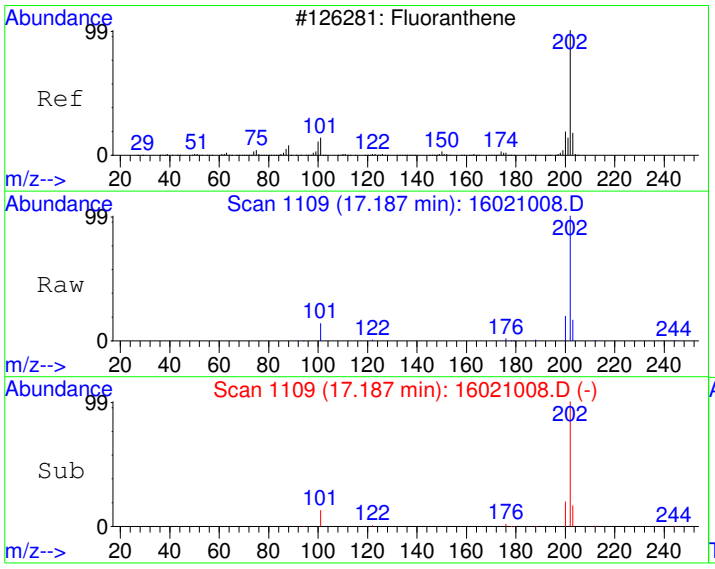


#12
Phenanthrene
Concen: 28.72 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:178 Resp: 21466

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.1
176	19.1	0.0	49.0

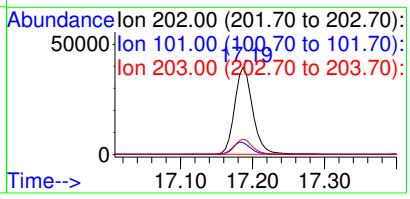


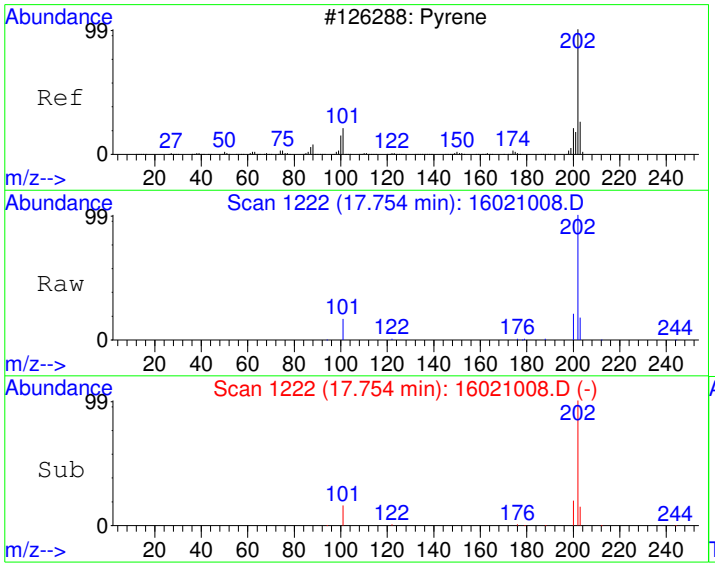


#14
Fluoranthene
Concen: 93.05 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:202 Resp: 68964

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	42.5
203	17.1	0.0	48.0

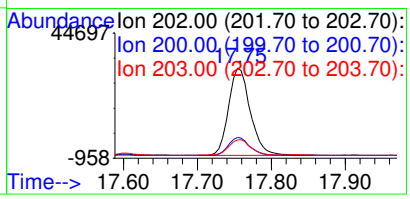


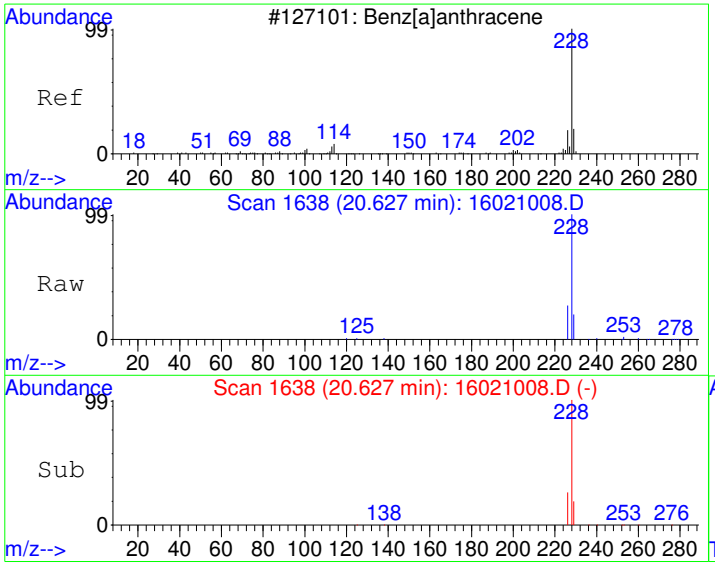


#15
Pyrene
Concen: 85.76 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.01 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:202 Resp: 64742

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	17.8	0.0	48.0

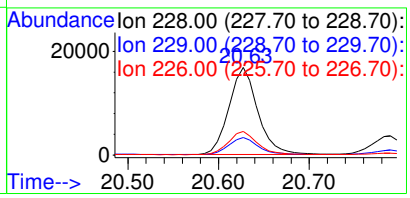


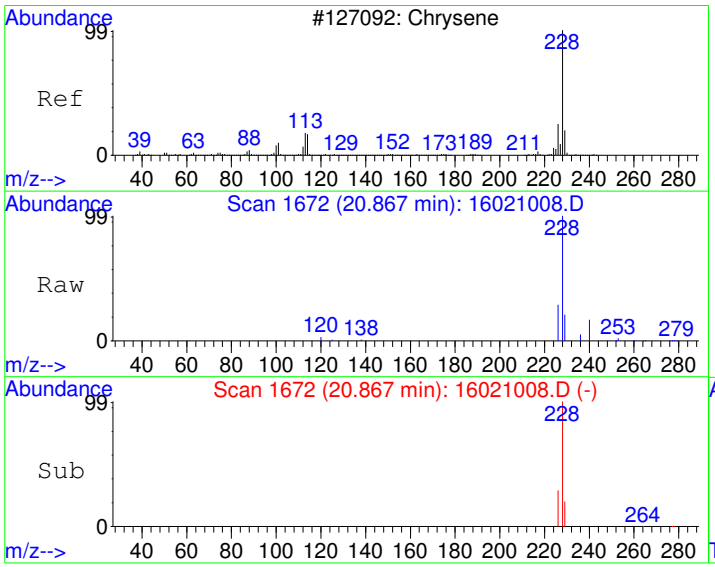


#18
Benzo[a]anthracene
Concen: 47.73 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:228 Resp: 36893

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.5	0.0	56.4

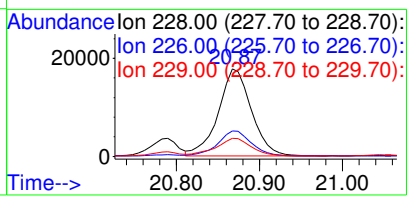


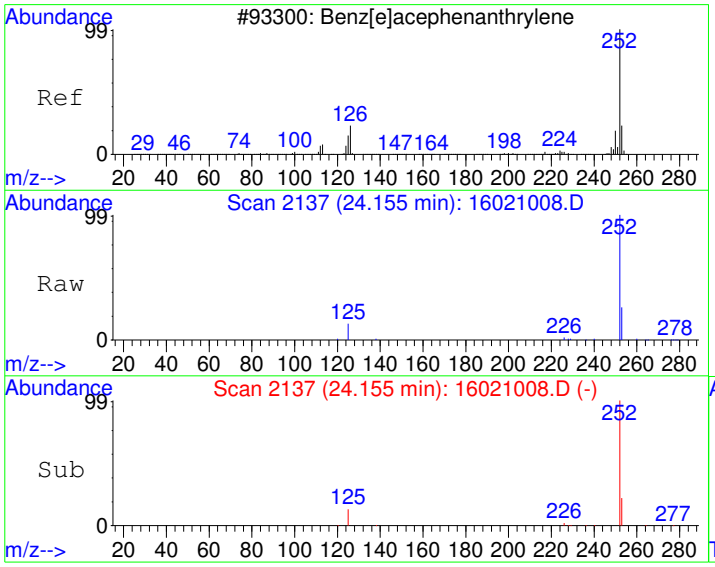


#19
Chrysene
Concen: 66.43 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:228 Resp: 48895

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.5
229	20.5	0.0	50.1

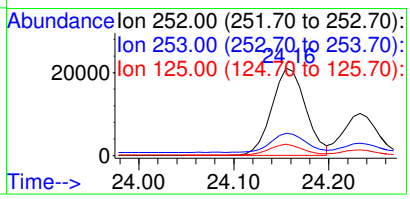


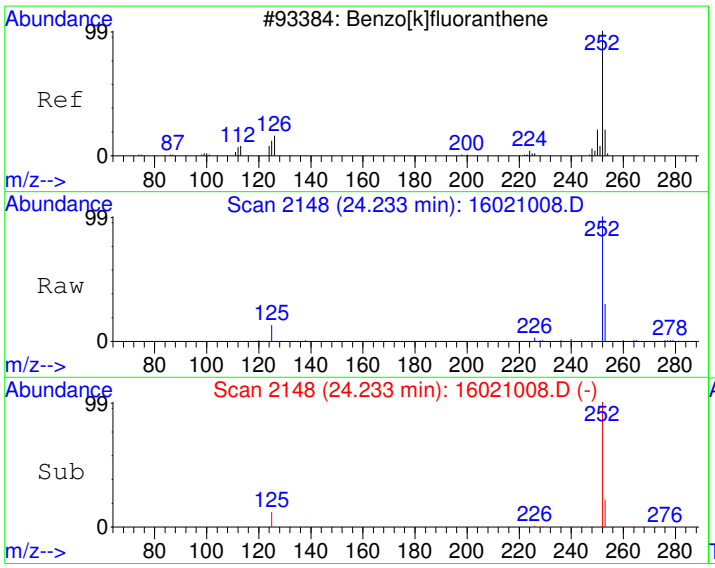


#21
Benzo[b]fluoranthene
Concen: 64.25 ug/kg
RT: 24.16 min Scan# 2137
Delta R.T. -0.02 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:252 Resp: 51876

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	52.0
125	12.5	0.0	40.5

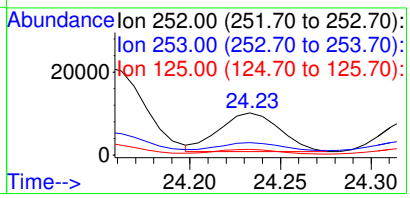


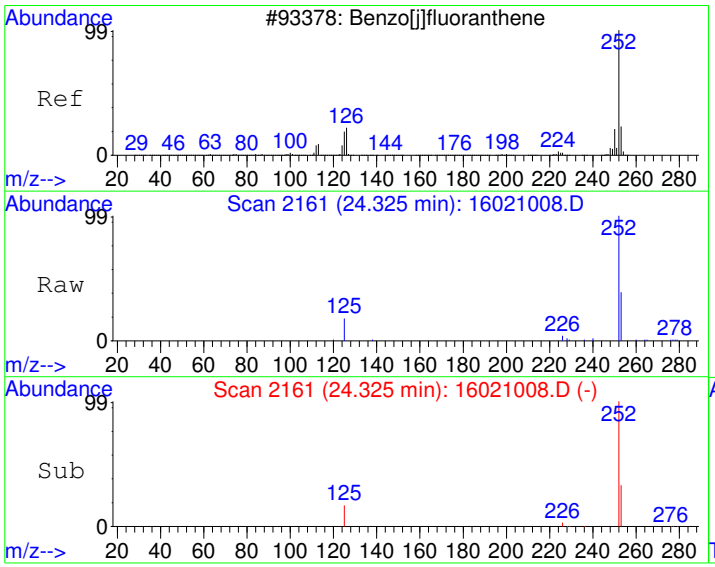


#22
Benzo[k]fluoranthene
Concen: 30.05 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:252 Resp: 21556

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	12.4	0.0	31.8

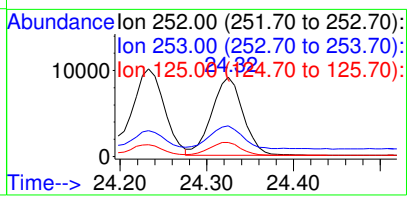


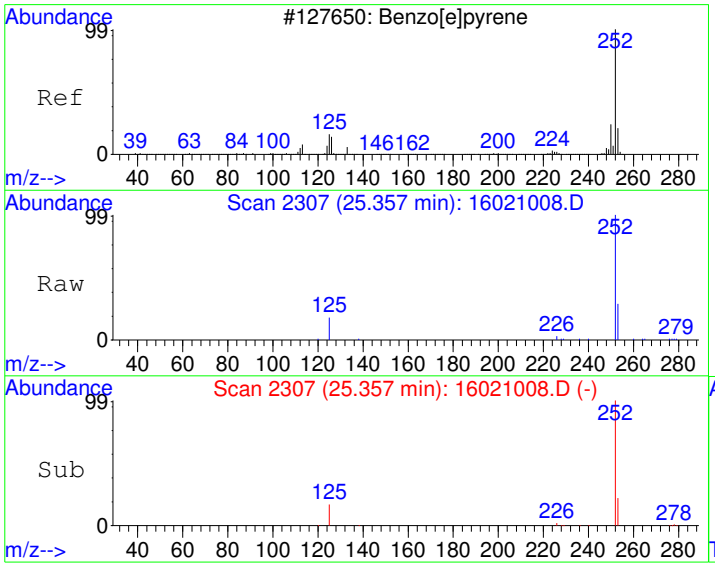


#23
Benzo(j)fluoranthene
Concen: 33.79 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:252 Resp: 22767

Ion	Ratio	Lower	Upper
252	100		
253	29.2	2.3	42.3
125	16.3	0.0	34.0

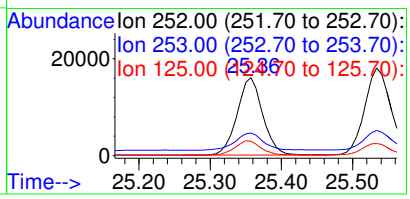


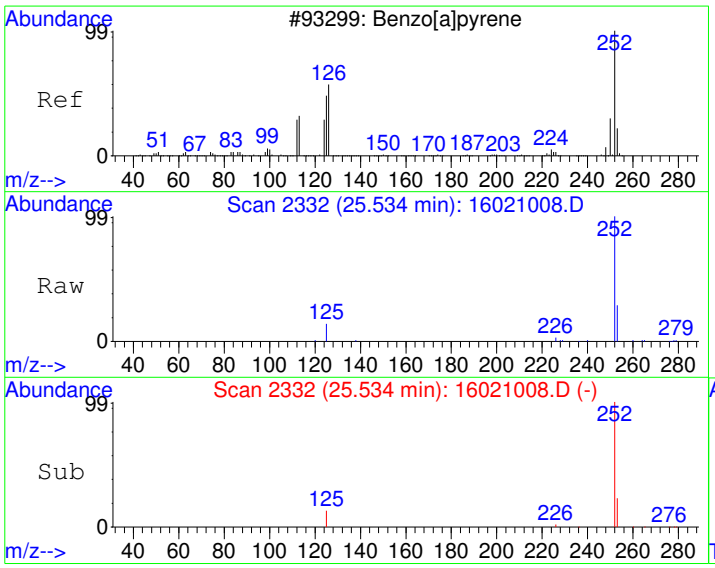


#24
Benzo[e]pyrene
Concen: 52.82 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:252 Resp: 39817

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	17.4	0.0	36.0

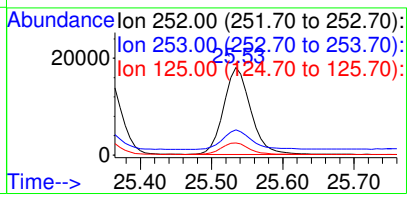


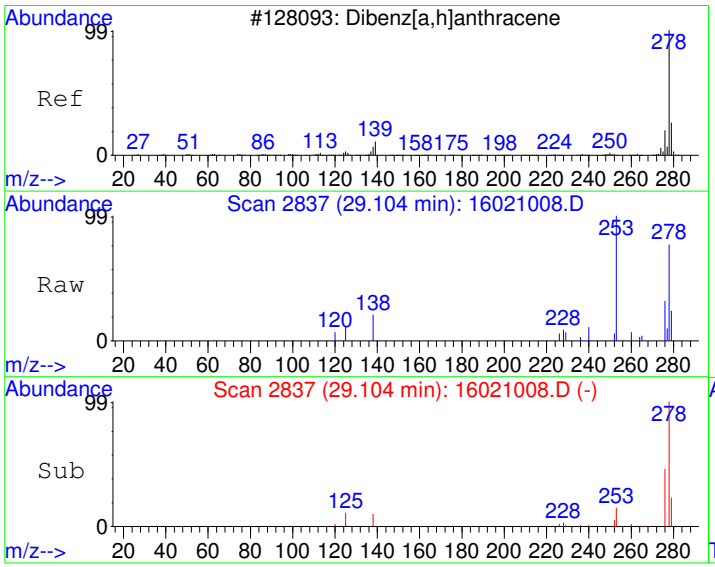


#25
Benzo[a]pyrene
Concen: 64.29 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:252 Resp: 47174

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.0	42.0
125	13.3	0.0	32.3

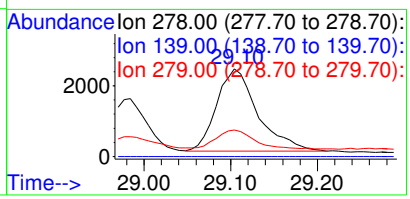


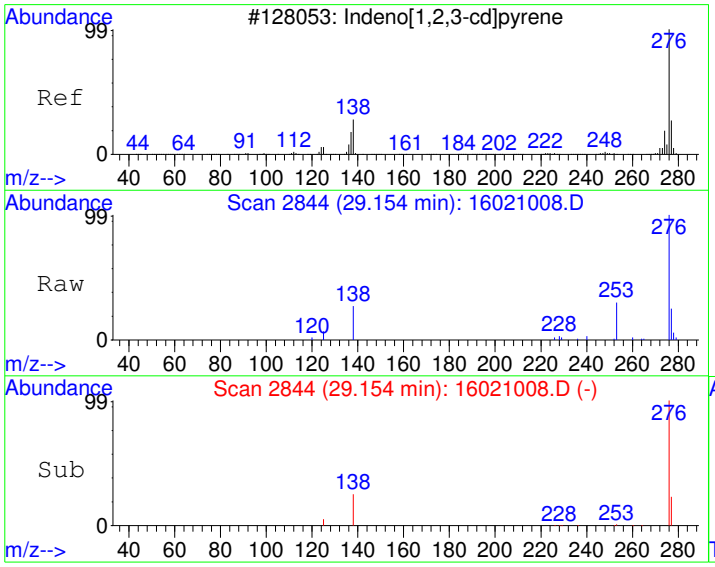


#26
Dibenz[a,h]anthracene
Concen: 11.27 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:278 Resp: 7653

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.9	3.8	43.8

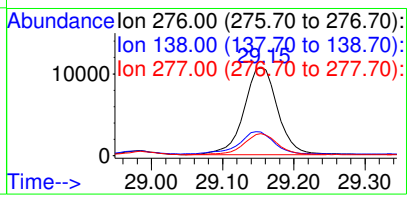


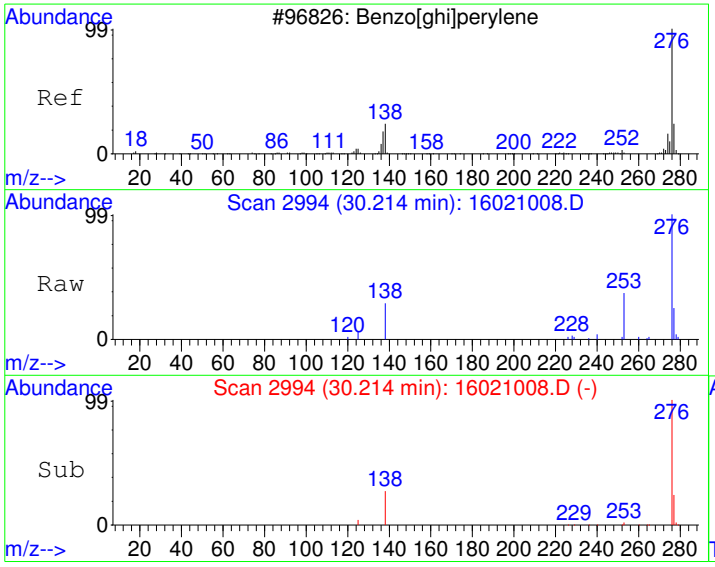


#27
Indeno[1,2,3-cd]pyrene
Concen: 42.39 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:276 Resp: 35056

Ion	Ratio	Lower	Upper
276	100		
138	25.1	2.1	42.1
277	24.2	4.2	44.2

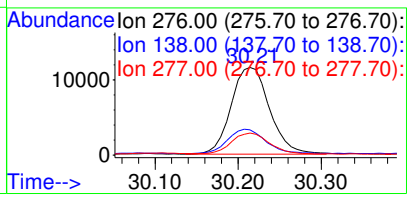




#28
Benzo[g,h,i]perylene
Concen: 53.26 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. -0.00 min
Lab File: 16021008.D
Acq: 10 Feb 2016 1:59 pm

Tgt Ion:276 Resp: 36951

Ion	Ratio	Lower	Upper
276	100		
138	27.4	3.9	43.9
277	24.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021009.D Vial: 9
Acq On : 10 Feb 2016 2:40 pm Operator:
Sample : 1601232-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2453954	4000.00 ug/kg	117
5) Acenaphthene-d10	13.15	164	1922302	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3270173	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3388419	4000.00 ug/kg	117
20) Perylene-d12	25.86	264	3007506	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	45174	81.11 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#	
16) 4-Terphenyl-d14	17.65	244	45994	84.19 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7216	14.90 ug/kg#	10
12) Phenanthrene	15.26	178	19134	24.64 ug/kg	99
14) Fluoranthene	17.19	202	60474	78.53 ug/kg	99
15) Pyrene	17.76	202	56378	71.88 ug/kg	99
18) Benzo[a]anthracene	20.63	228	32719	41.88 ug/kg	99
19) Chrysene	20.87	228	43366	58.30 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	45878	57.22 ug/kg	99
22) Benzo[k]fluoranthene	24.23	252	19952	28.01 ug/kg	97
23) Benzo(j)fluoranthene	24.32	252	20075	30.00 ug/kg	86
24) Benzo[e]pyrene	25.36	252	36030	48.13 ug/kg	98
25) Benzo[a]pyrene	25.53	252	41903	57.51 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	6758	10.03 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.16	276	31218	38.01 ug/kg	99
28) Benzo[g,h,i]perylene	30.22	276	32690	47.44 ug/kg	99

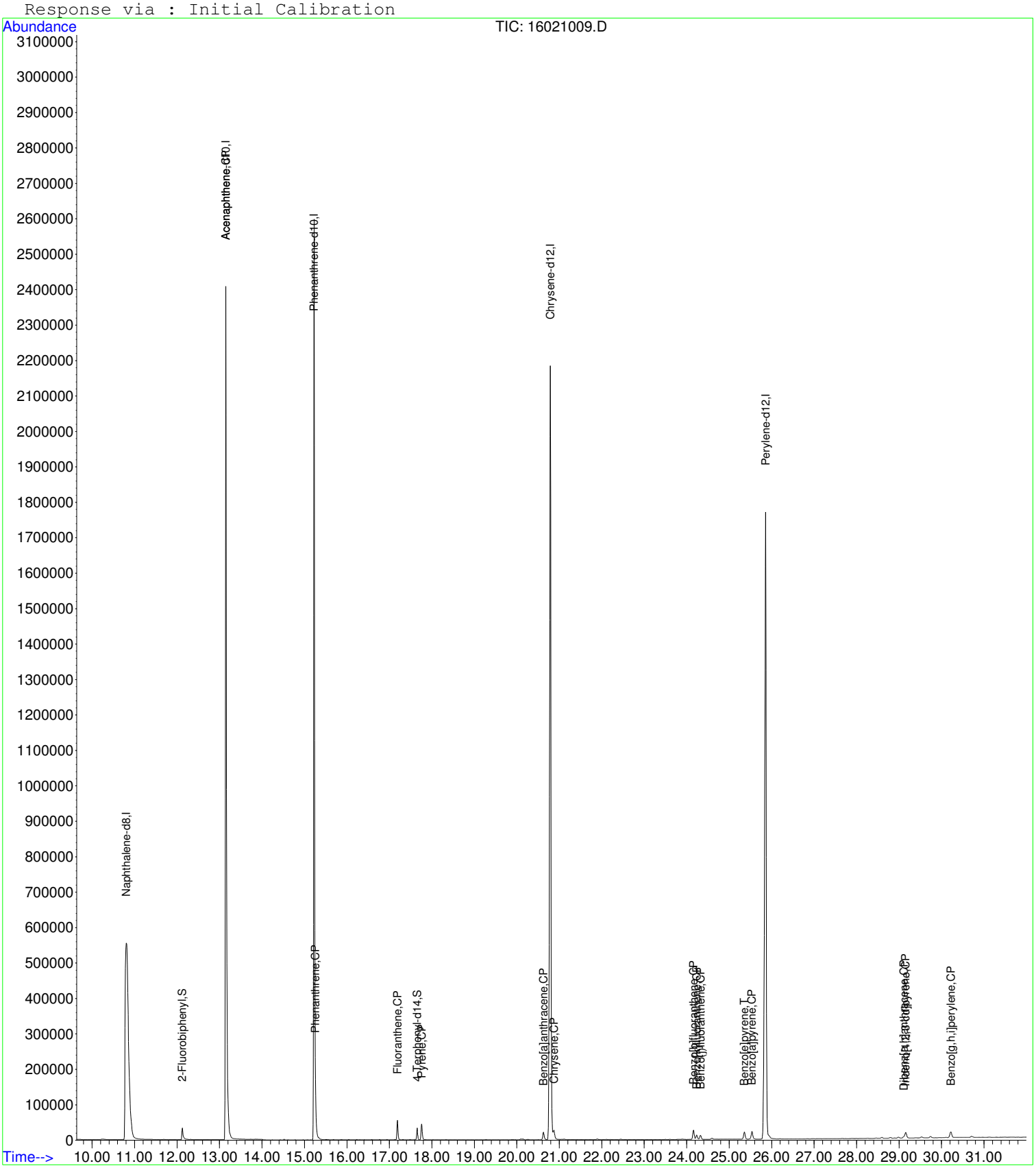
CONFIRMED
By Sherri Herschmann at 11:28:33 AM, 2/16/2016

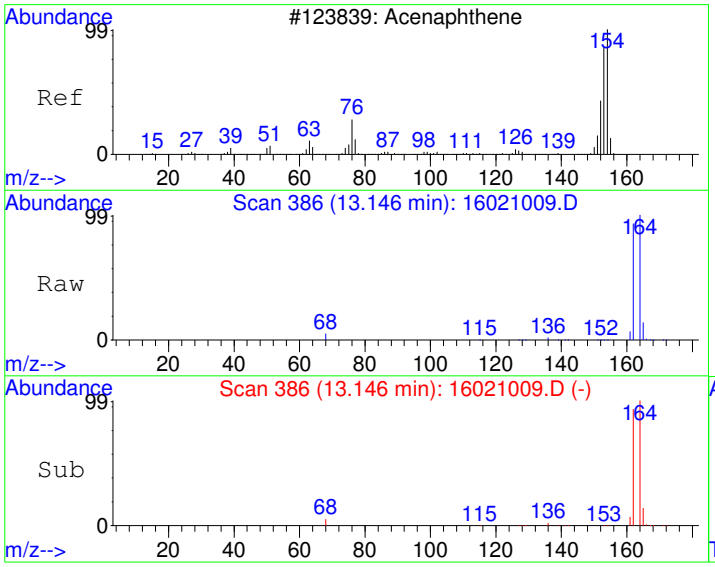
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021009.D Vial: 9
Acq On : 10 Feb 2016 2:40 pm Operator:
Sample : 1601232-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:51 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

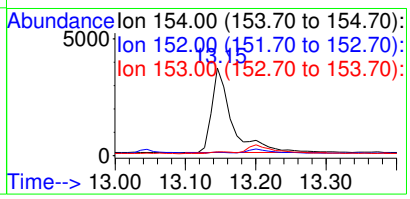


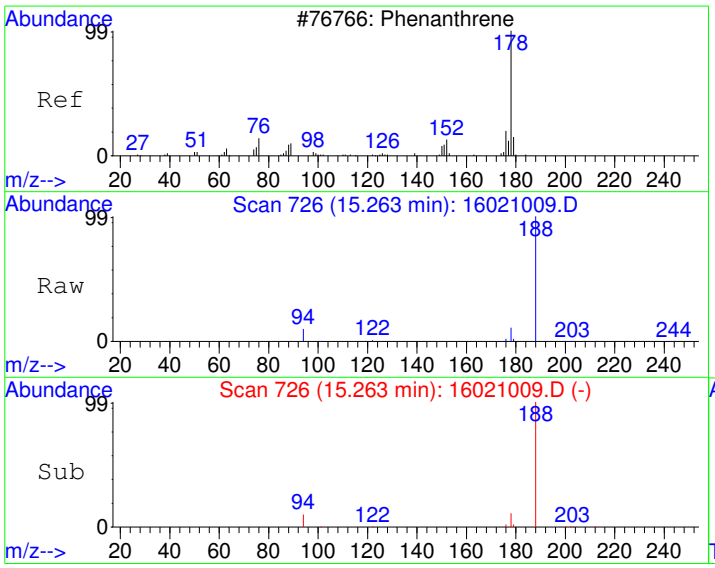


#9
Acenaphthene
Concen: 14.90 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:154 Resp: 7216

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.0	74.4	134.4#

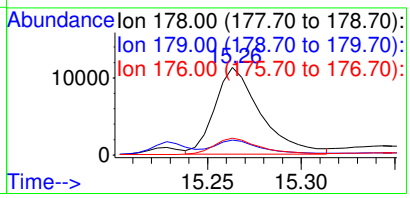


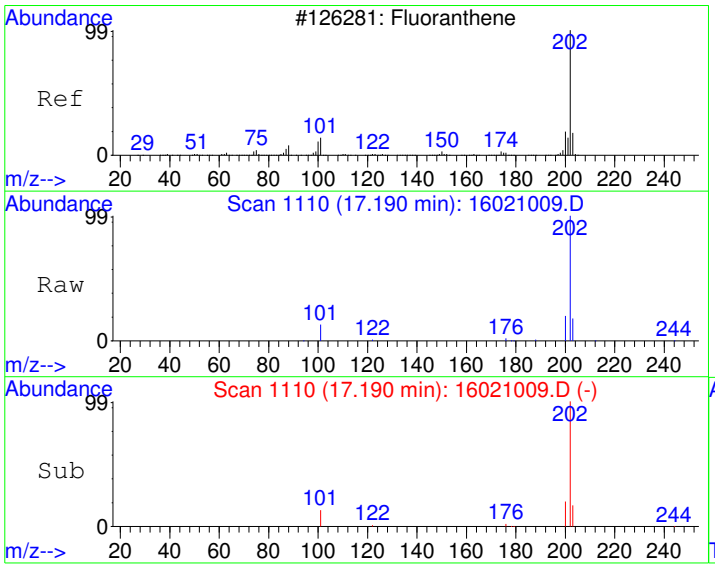


#12
Phenanthrene
Concen: 24.64 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:178 Resp: 19134

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.1
176	19.4	0.0	49.0

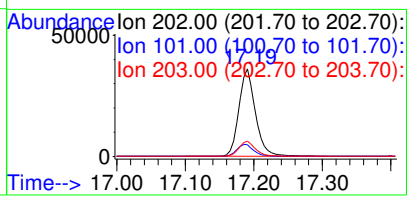


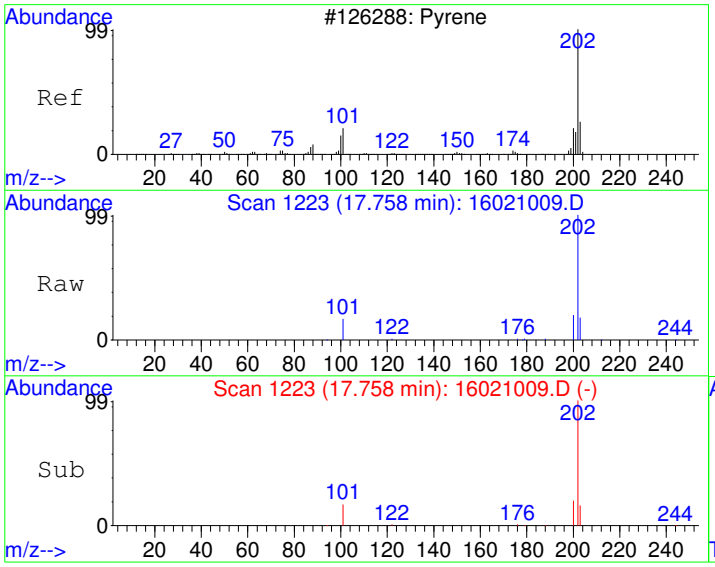


#14
Fluoranthene
Concen: 78.53 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.01 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:202 Resp: 60474

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	17.5	0.0	48.0

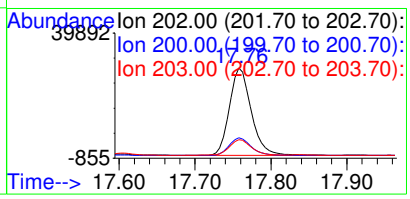


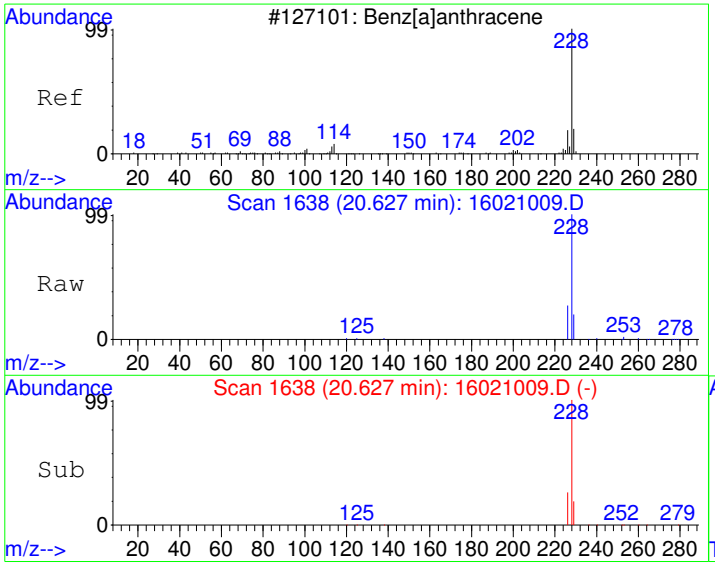


#15
Pyrene
Concen: 71.88 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:202 Resp: 56378

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.8	0.0	48.0

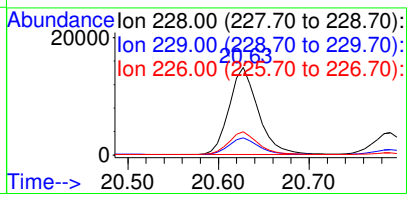


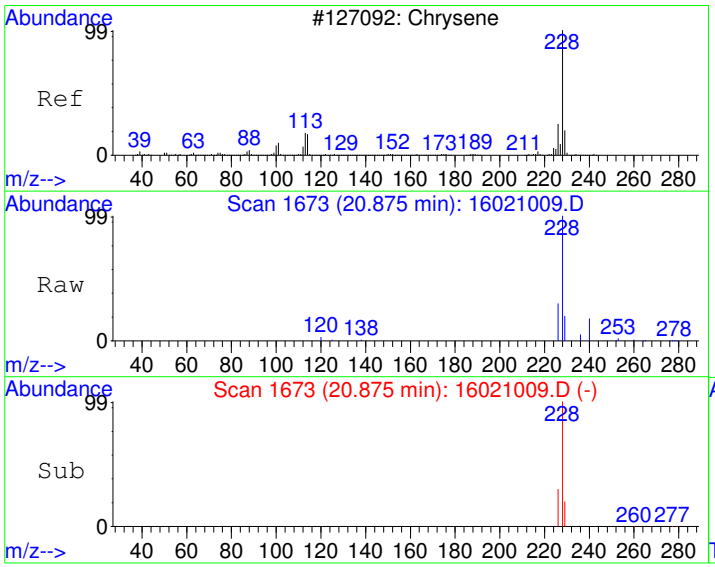


#18
Benzo[a]anthracene
Concen: 41.88 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:228 Resp: 32719

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	50.0
226	26.4	0.0	56.4

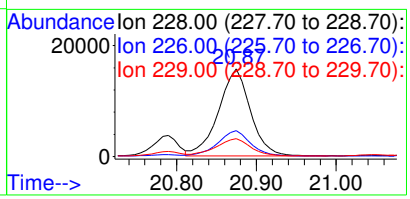


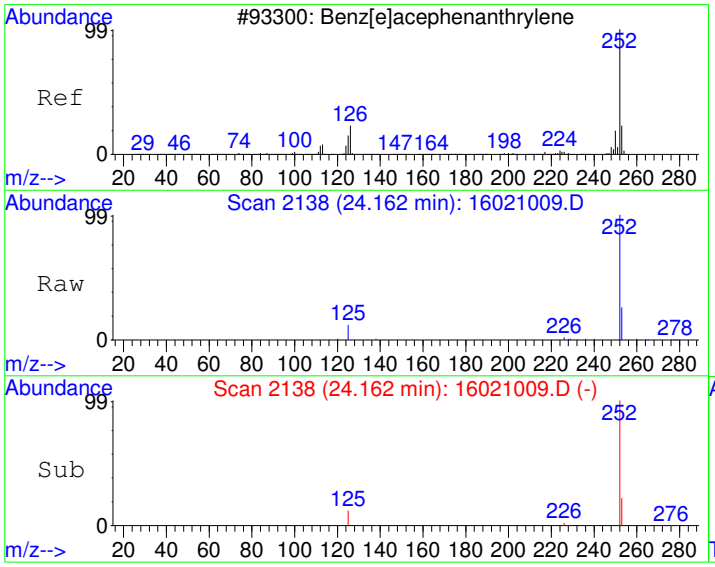


#19
Chrysene
Concen: 58.30 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:228 Resp: 43366

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	58.5
229	19.9	0.0	50.1

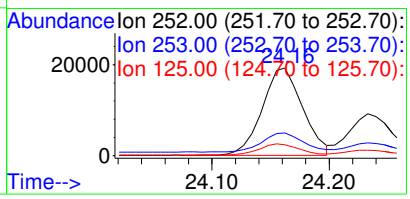


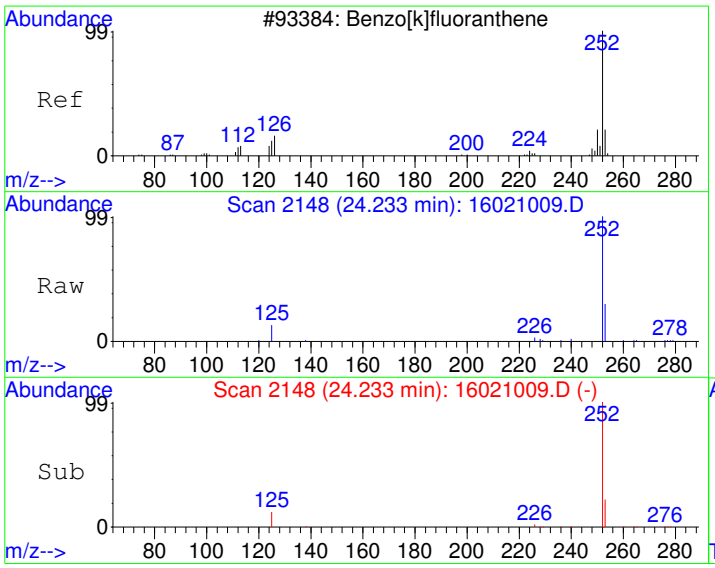


#21
Benzo[b]fluoranthene
Concen: 57.22 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:252 Resp: 45878

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	11.9	0.0	40.5

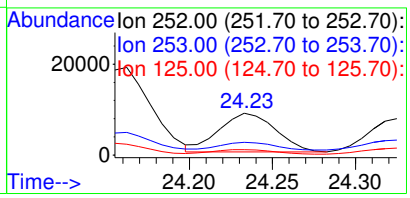


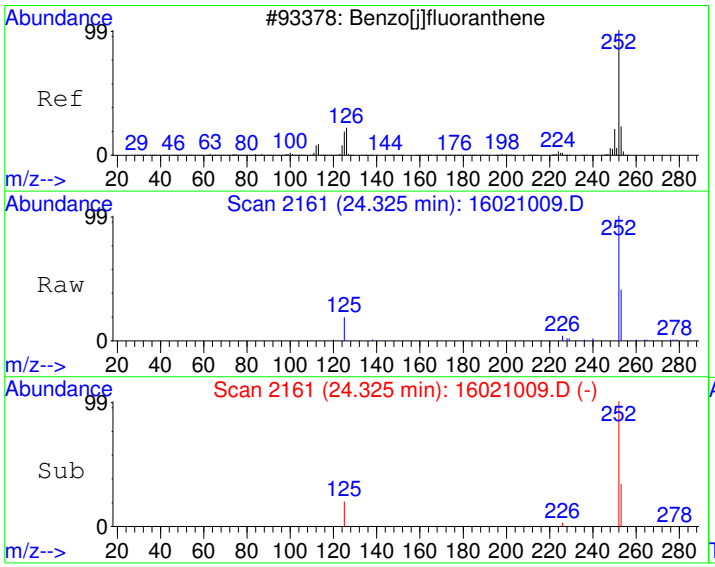


#22
Benzo[k]fluoranthene
Concen: 28.01 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:252 Resp: 19952

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.2	42.2
125	11.7	0.0	31.8

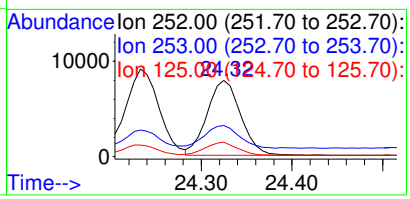


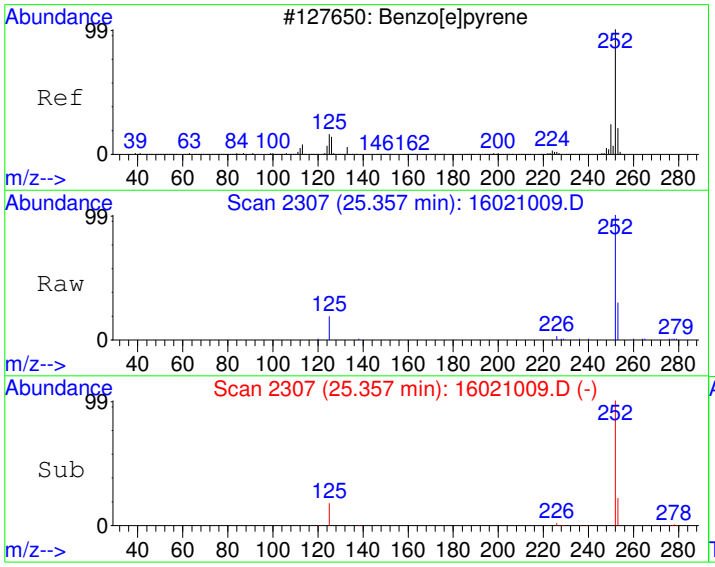


#23
Benzo(j)fluoranthene
Concen: 30.00 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:252 Resp: 20075

Ion	Ratio	Lower	Upper
252	100		
253	30.7	2.3	42.3
125	17.4	0.0	34.0

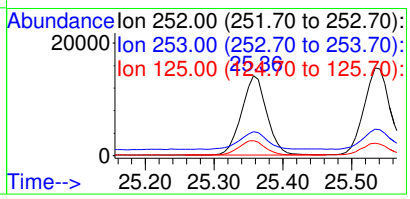


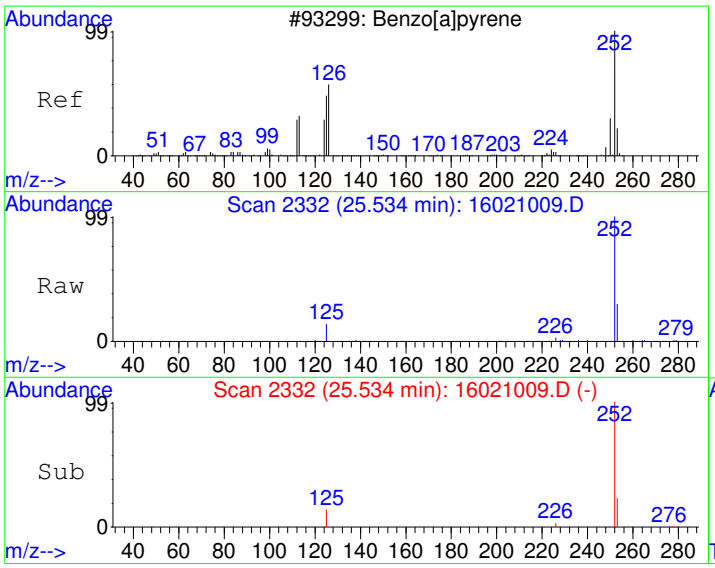


#24
Benzo[e]pyrene
Concen: 48.13 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:252 Resp: 36030

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	17.9	0.0	36.0

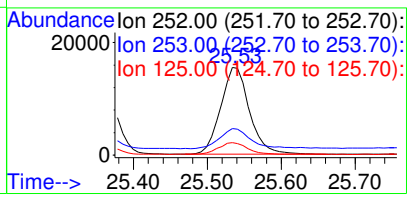


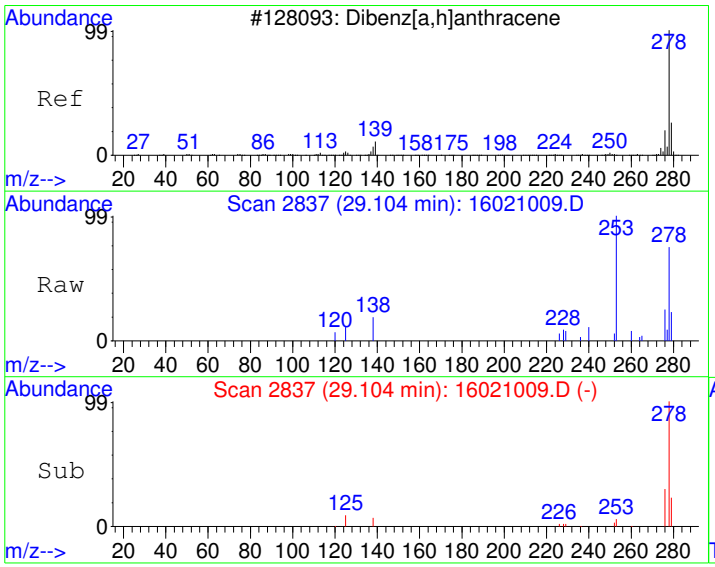


#25
Benzo[a]pyrene
Concen: 57.51 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:252 Resp: 41903

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.0	42.0
125	13.6	0.0	32.3

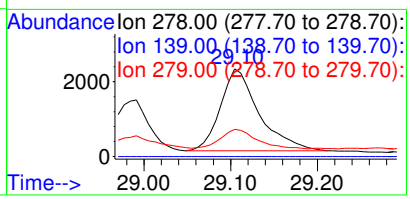


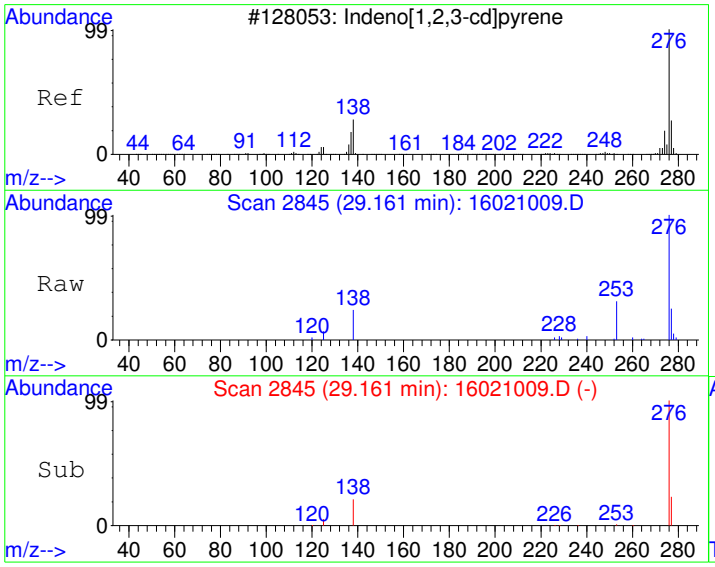


#26
Dibenz[a,h]anthracene
Concen: 10.03 ug/kg
RT: 29.10 min Scan# 2837
Delta R.T. -0.01 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:278 Resp: 6758

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.3	3.8	43.8

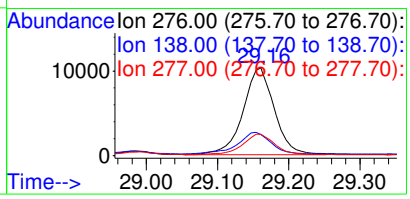


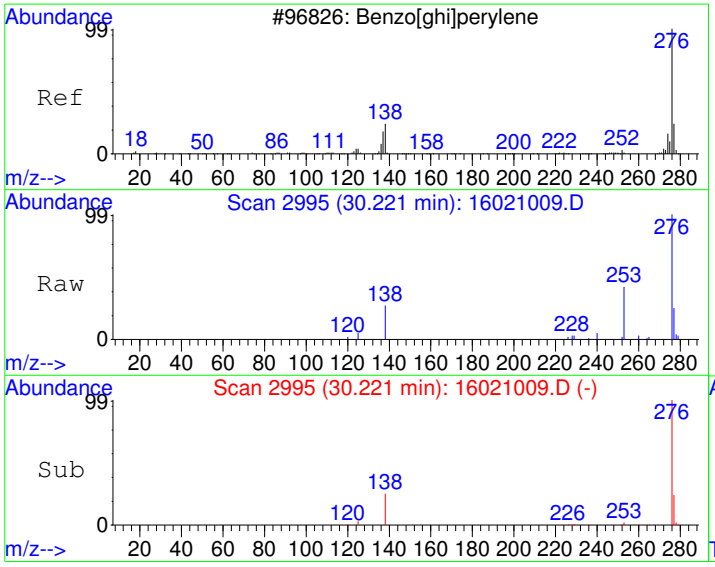


#27
Indeno[1,2,3-cd]pyrene
Concen: 38.01 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:276 Resp: 31218

Ion	Ratio	Lower	Upper
276	100		
138	22.4	2.1	42.1
277	23.8	4.2	44.2

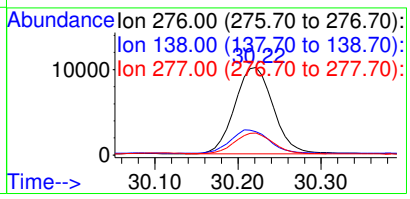




#28
Benzo[g,h,i]perylene
Concen: 47.44 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16021009.D
Acq: 10 Feb 2016 2:40 pm

Tgt Ion:276 Resp: 32690

Ion	Ratio	Lower	Upper
276	100		
138	25.1	3.9	43.9
277	24.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021010.D Vial: 10
Acq On : 10 Feb 2016 3:20 pm Operator:
Sample : 1601232-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2440018	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1885903	4000.00 ug/kg	104
11) Phenanthrene-d10	15.23	188	3268368	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3406106	4000.00 ug/kg	118
20) Perylene-d12	25.86	264	3034529	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	42544	77.86 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.95%#		
16) 4-Terphenyl-d14	17.65	244	45903	84.07 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.10%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6895	14.51 ug/kg#	10
12) Phenanthrene	15.26	178	12473	16.07 ug/kg	98
14) Fluoranthene	17.19	202	37914	49.26 ug/kg	98
15) Pyrene	17.76	202	35253	44.97 ug/kg	100
18) Benzo[a]anthracene	20.63	228	20393	25.97 ug/kg	100
19) Chrysene	20.87	228	26747	35.77 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	29081	35.94 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	12029	16.74 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	12505	18.52 ug/kg	85
24) Benzo[e]pyrene	25.36	252	22137	29.31 ug/kg	97
25) Benzo[a]pyrene	25.54	252	25973	35.33 ug/kg	100
26) Dibenz[a,h]anthracene	29.11	278	4227	6.21 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.16	276	19217	23.19 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	20544	29.55 ug/kg	97

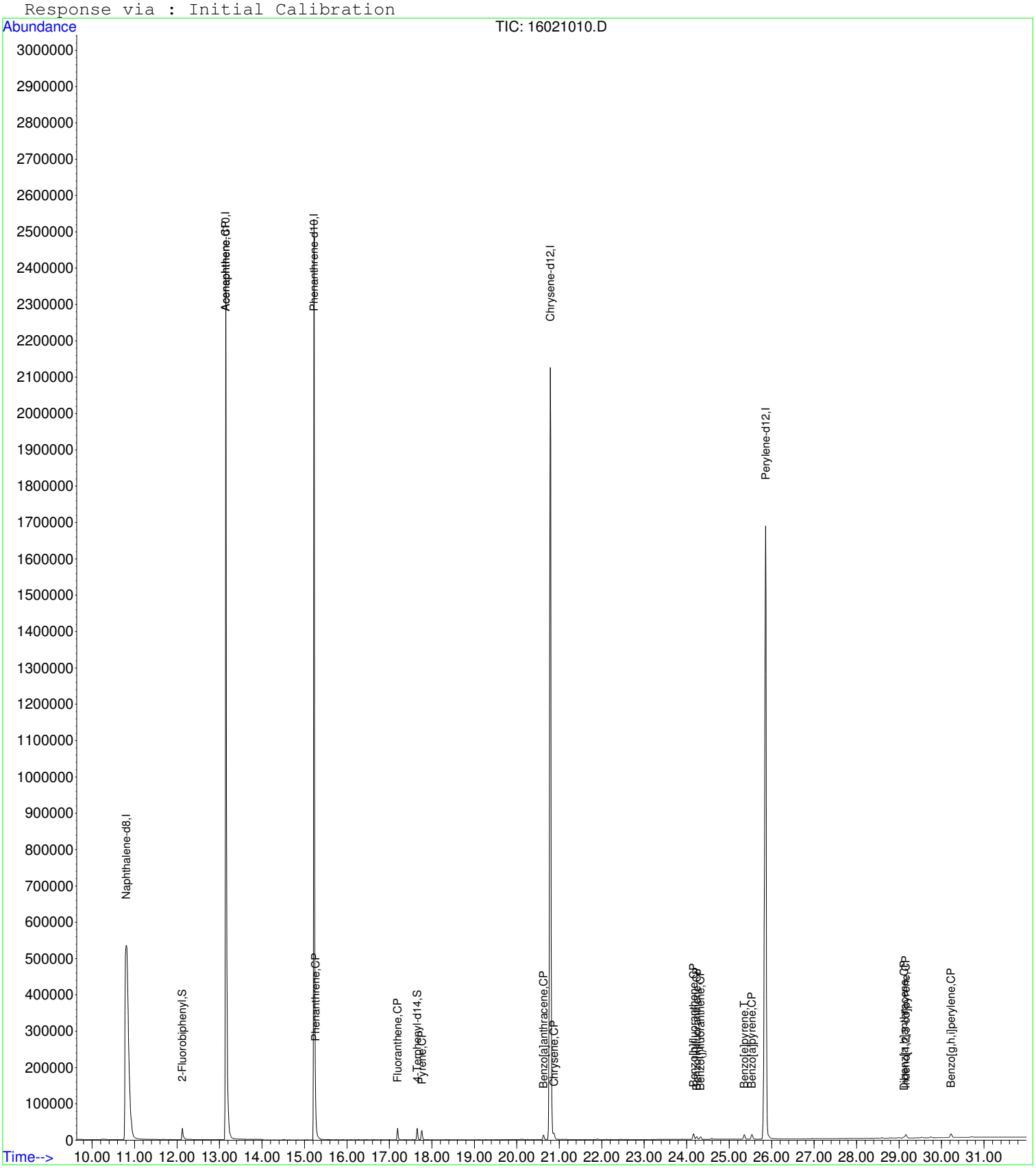
CONFIRMED
By Sherri Herschmann at 11:29:13 AM, 2/16/2016

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

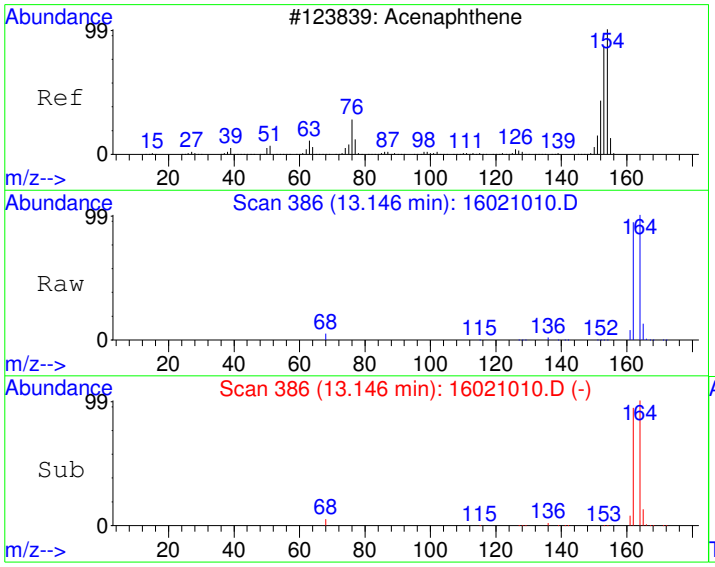
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021010.D Vial: 10
Acq On : 10 Feb 2016 3:20 pm Operator:
Sample : 1601232-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



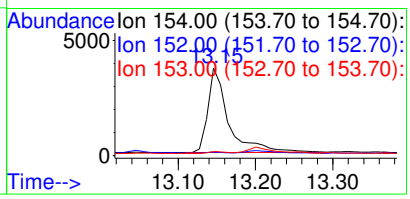
16021010.D PP160126.M Thu Feb 11 08:52:08 2016 Page 2

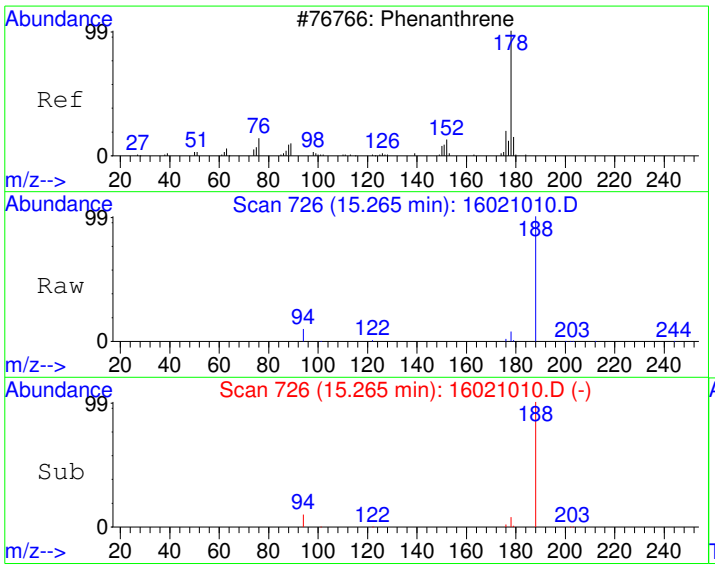


#9
Acenaphthene
Concen: 14.51 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:154 Resp: 6895

Ion	Ratio	Lower	Upper
154	100		
152	1.3	18.7	78.7#
153	2.4	74.4	134.4#

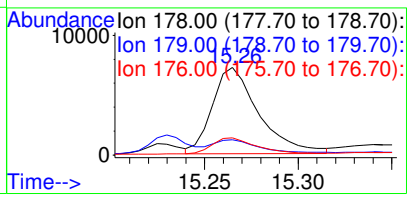


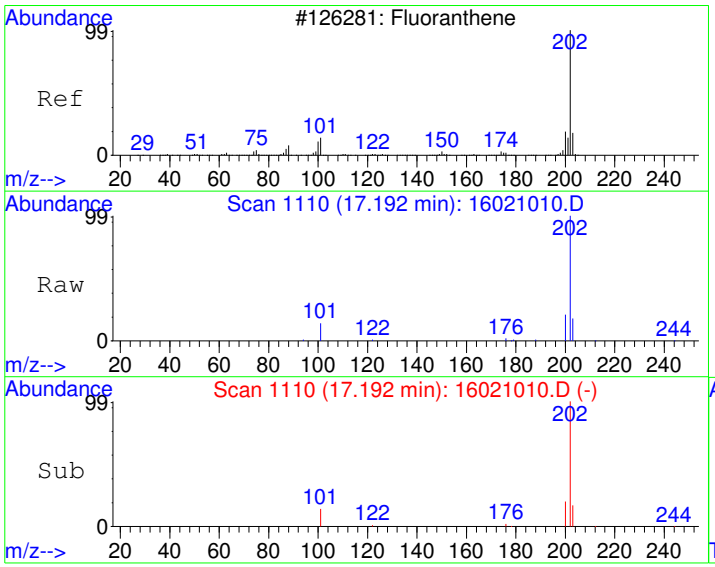


#12
Phenanthrene
Concen: 16.07 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:178 Resp: 12473

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	46.1
176	19.8	0.0	49.0

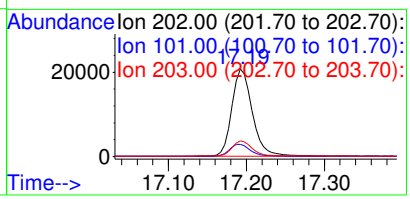


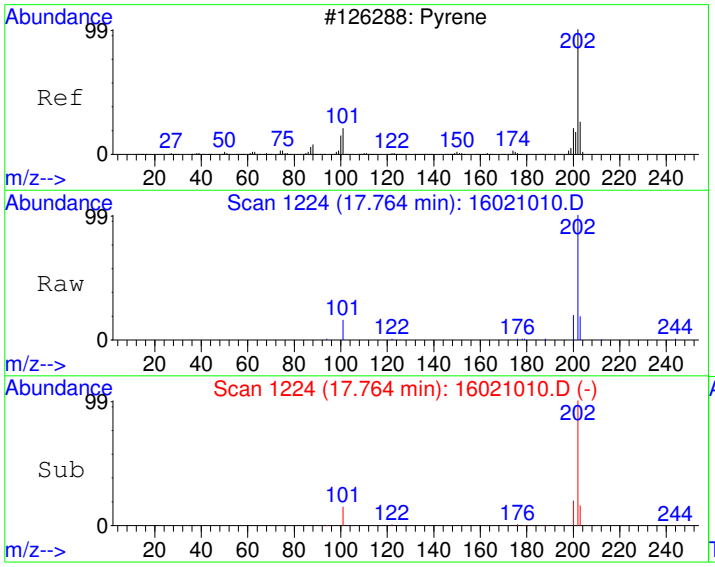


#14
Fluoranthene
Concen: 49.26 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:202 Resp: 37914

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	42.5
203	17.5	0.0	48.0

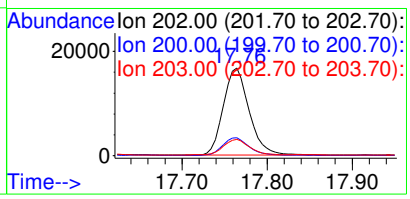


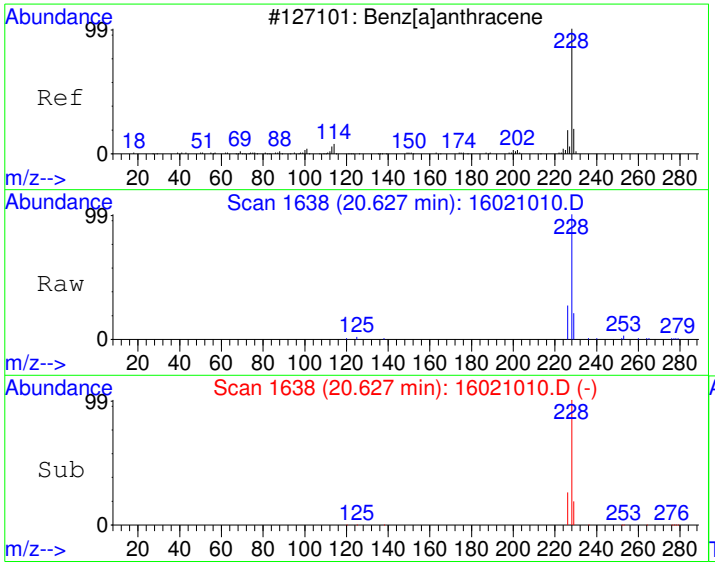


#15
Pyrene
Concen: 44.97 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:202 Resp: 35253

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	18.0	0.0	48.0

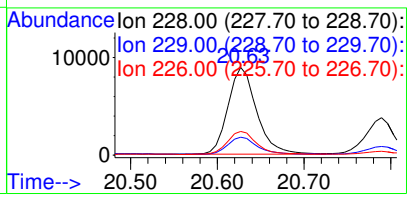


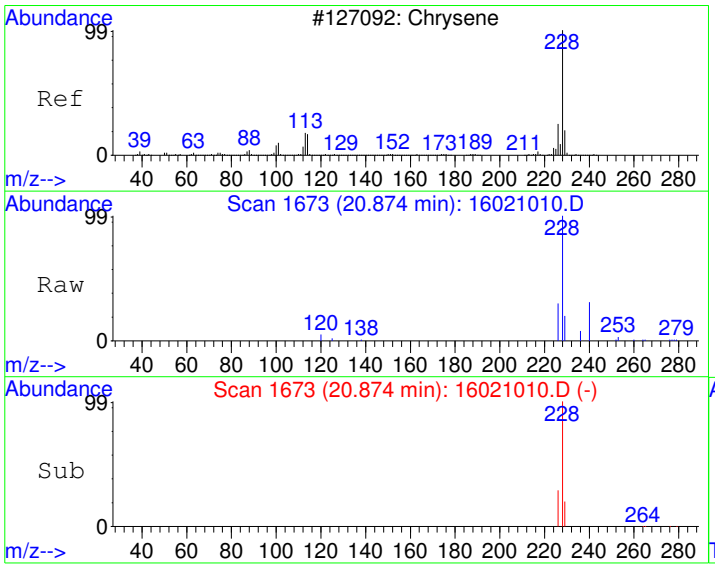


#18
Benzo[a]anthracene
Concen: 25.97 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:228 Resp: 20393

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.0
226	26.6	0.0	56.4

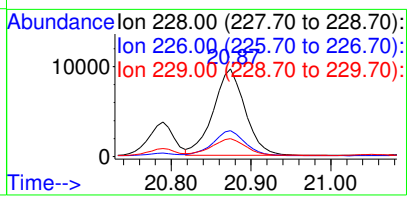


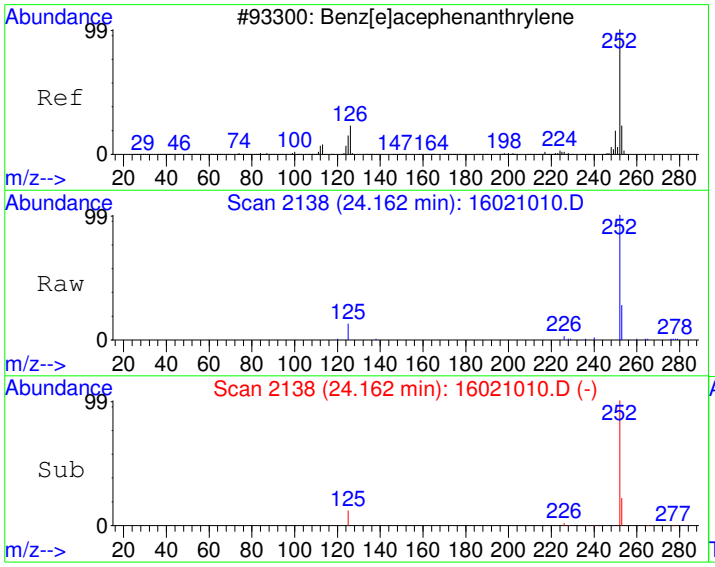


#19
Chrysene
Concen: 35.77 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:228 Resp: 26747

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.5
229	19.7	0.0	50.1

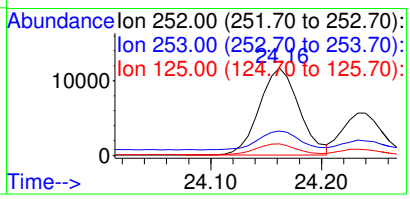


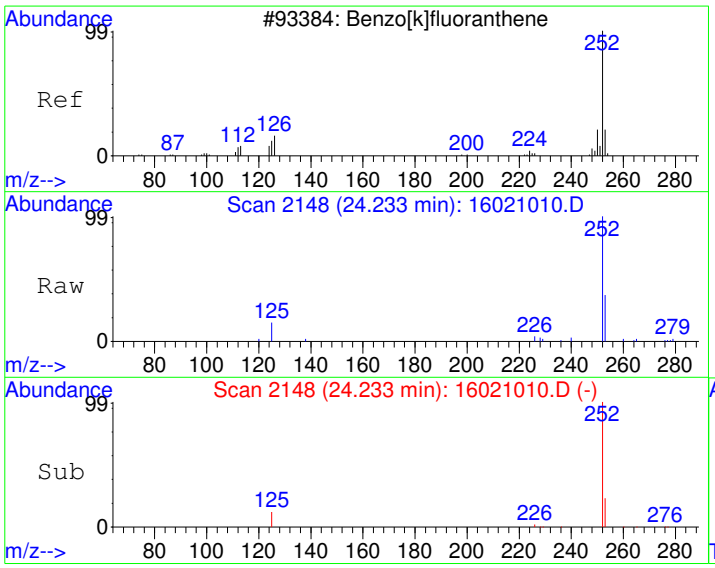


#21
Benzo[b]fluoranthene
Concen: 35.94 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:252 Resp: 29081

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.0
125	12.3	0.0	40.5

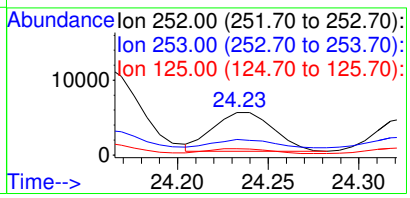


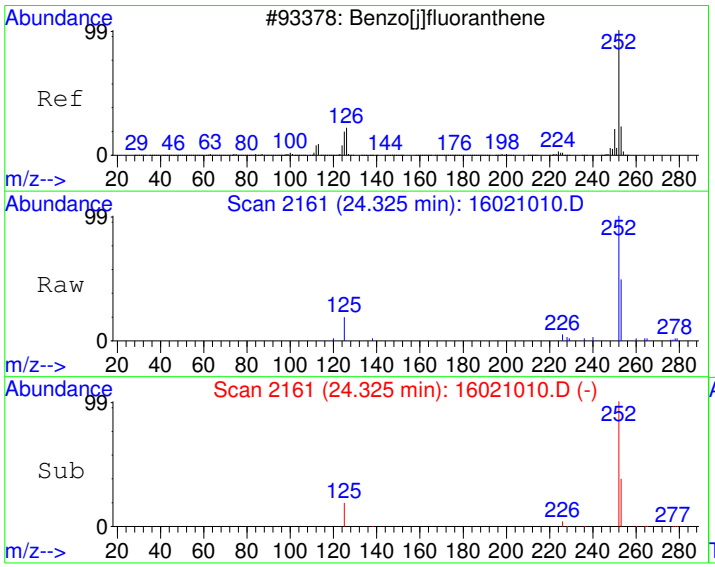


#22
Benzo[k]fluoranthene
Concen: 16.74 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:252 Resp: 12029

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.2	42.2
125	12.2	0.0	31.8

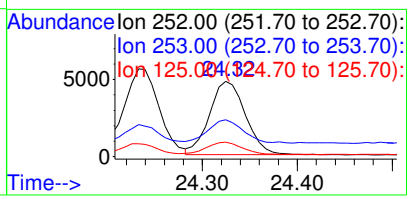


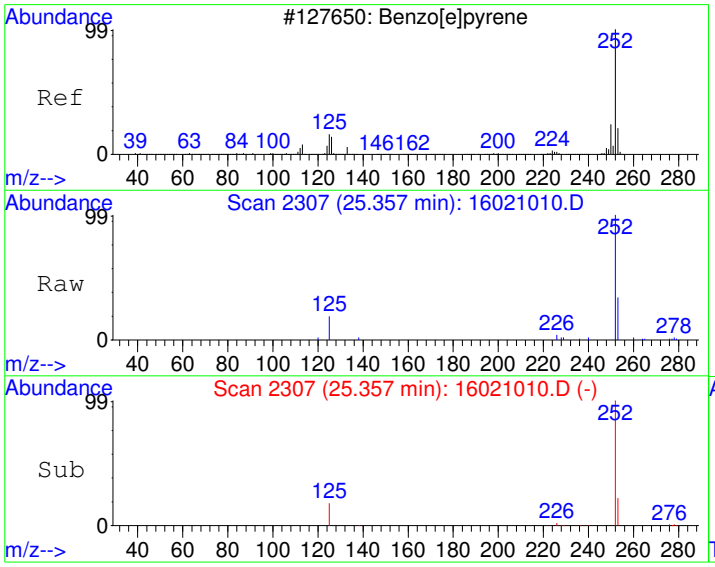


#23
Benzo(j)fluoranthene
Concen: 18.52 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:252 Resp: 12505

Ion	Ratio	Lower	Upper
252	100		
253	31.5	2.3	42.3
125	16.9	0.0	34.0

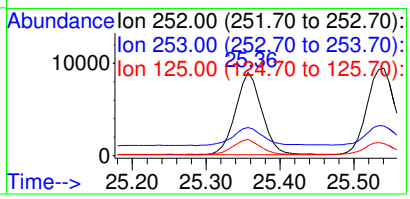


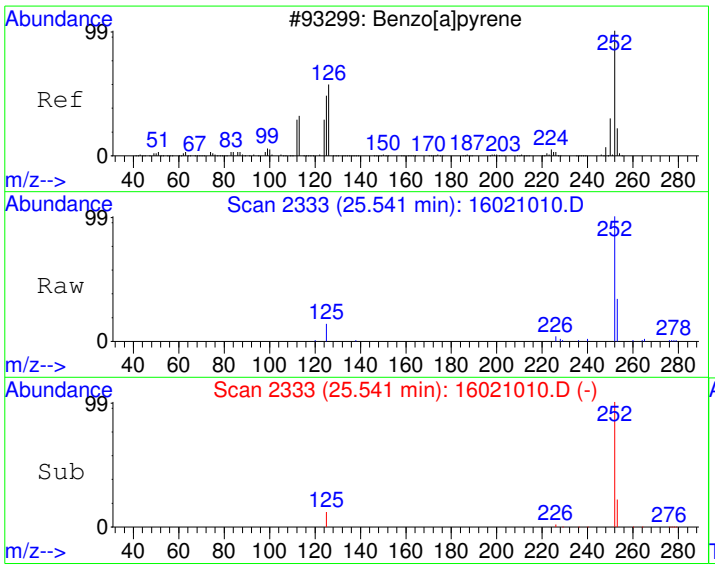


#24
Benzo[e]pyrene
Concen: 29.31 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:252 Resp: 22137

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	18.1	0.0	36.0

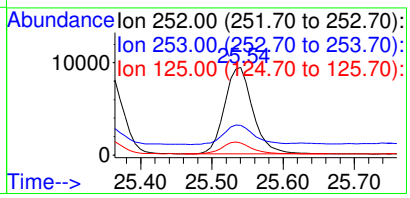


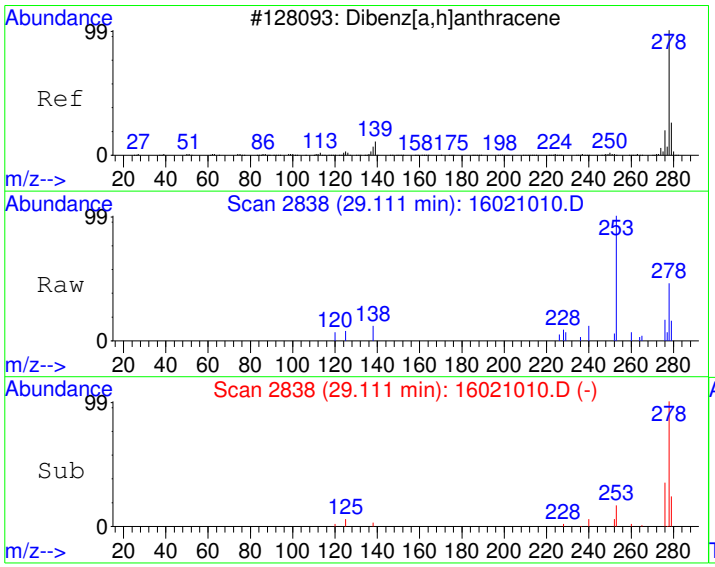


#25
Benzo[a]pyrene
Concen: 35.33 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:252 Resp: 25973

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	12.6	0.0	32.3

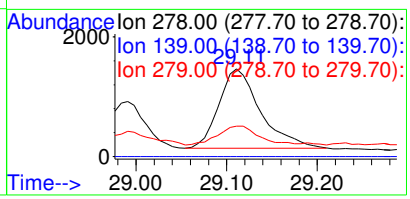


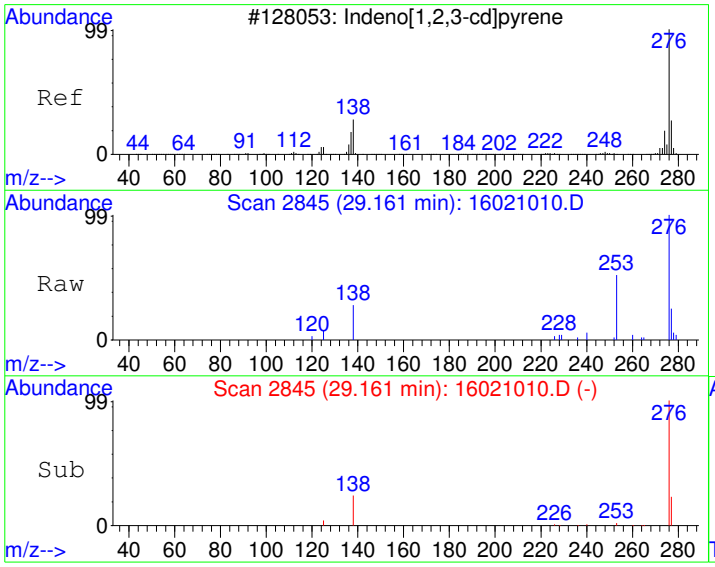


#26
Dibenz[a,h]anthracene
Concen: 6.21 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:278 Resp: 4227

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.7	3.8	43.8

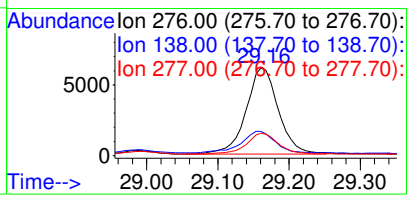


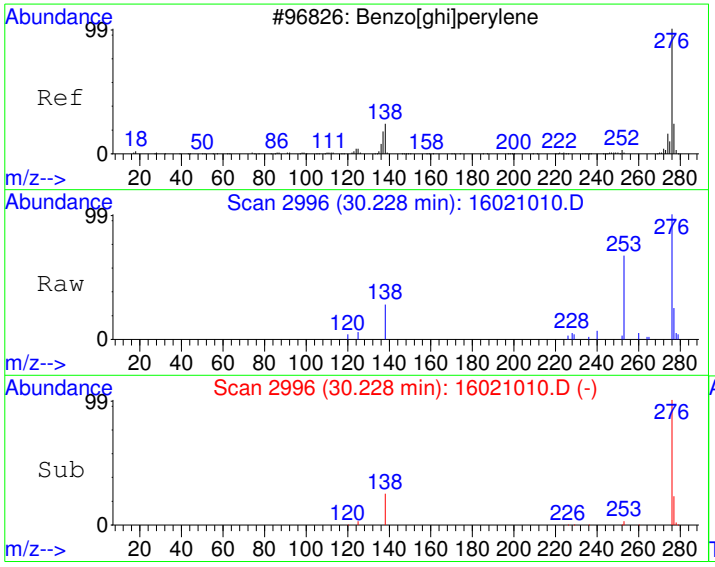


#27
Indeno[1,2,3-cd]pyrene
Concen: 23.19 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:276 Resp: 19217

Ion	Ratio	Lower	Upper
276	100		
138	24.8	2.1	42.1
277	24.2	4.2	44.2

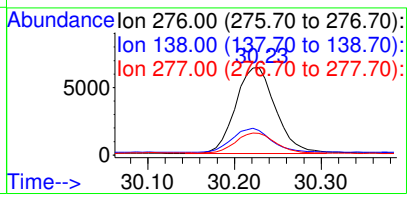




#28
Benzo[g,h,i]perylene
Concen: 29.55 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021010.D
Acq: 10 Feb 2016 3:20 pm

Tgt Ion:276 Resp: 20544

Ion	Ratio	Lower	Upper
276	100		
138	25.5	3.9	43.9
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021011.D Vial: 11
Acq On : 10 Feb 2016 4:01 pm Operator:
Sample : 1601232-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2425658	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1925736	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3302025	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3457420	4000.00 ug/kg	120
20) Perylene-d12	25.86	264	3026519	4000.00 ug/kg	131

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	44505	79.77 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#		
16) 4-Terphenyl-d14	17.65	244	45830	83.08 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.08%#		

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7046	14.52 ug/kg#	10
12) Phenanthrene	15.26	178	13031	16.62 ug/kg	99
14) Fluoranthene	17.20	202	38196	49.12 ug/kg	99
15) Pyrene	17.76	202	35668	45.04 ug/kg	100
18) Benzo[a]anthracene	20.63	228	20568	25.80 ug/kg	99
19) Chrysene	20.87	228	27521	36.26 ug/kg	100
21) Benzo[b]fluoranthene	24.16	252	28599	35.44 ug/kg	97
22) Benzo[k]fluoranthene	24.23	252	12269	17.12 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	12538	18.62 ug/kg	91
24) Benzo[e]pyrene	25.36	252	22574	29.96 ug/kg	96
25) Benzo[a]pyrene	25.54	252	25879	35.29 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	4134	6.09 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.16	276	19389	23.46 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	20315	29.30 ug/kg	98

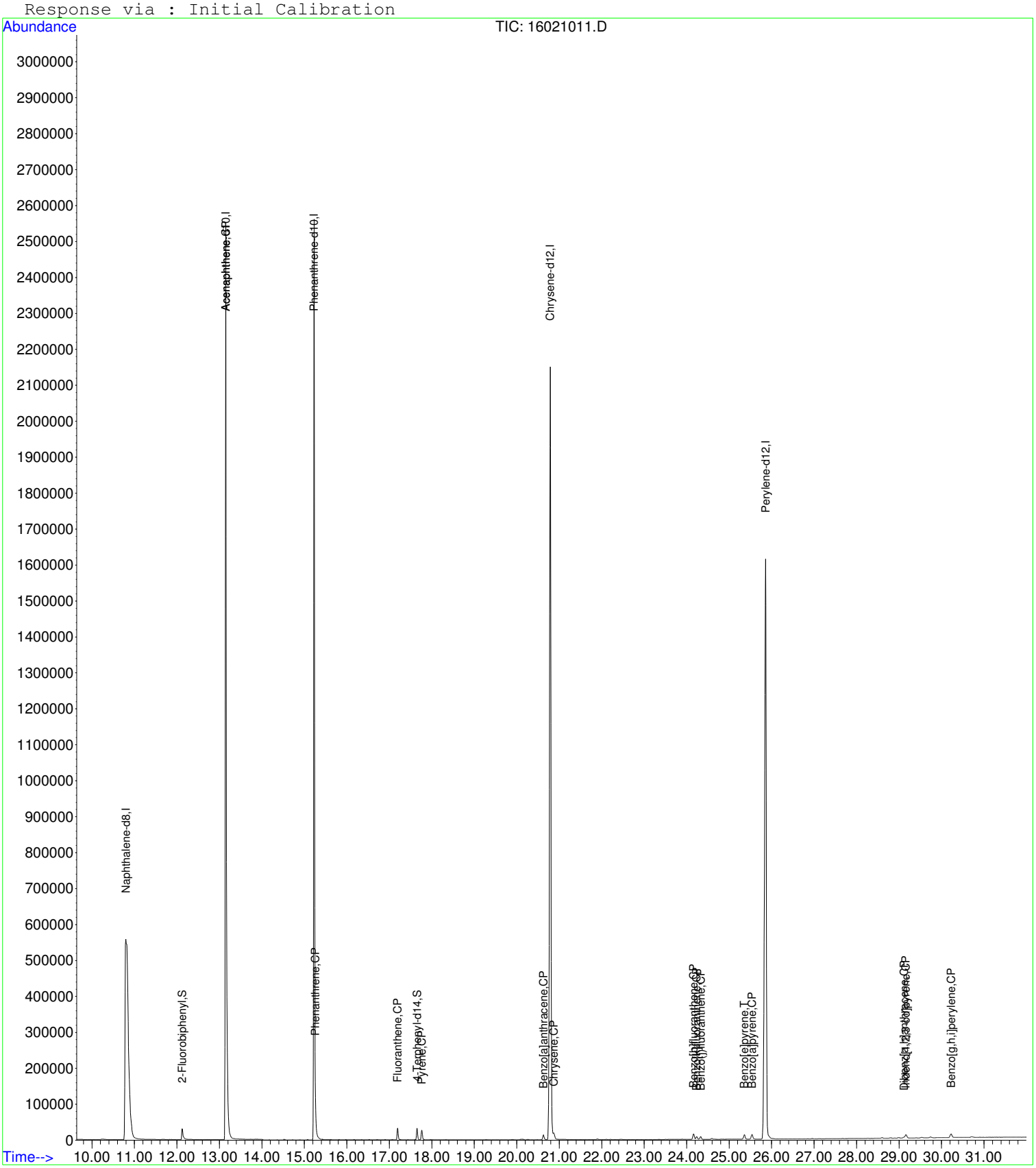
CONFIRMED
By Sherri Herschmann at 11:29:50 AM, 2/16/2016

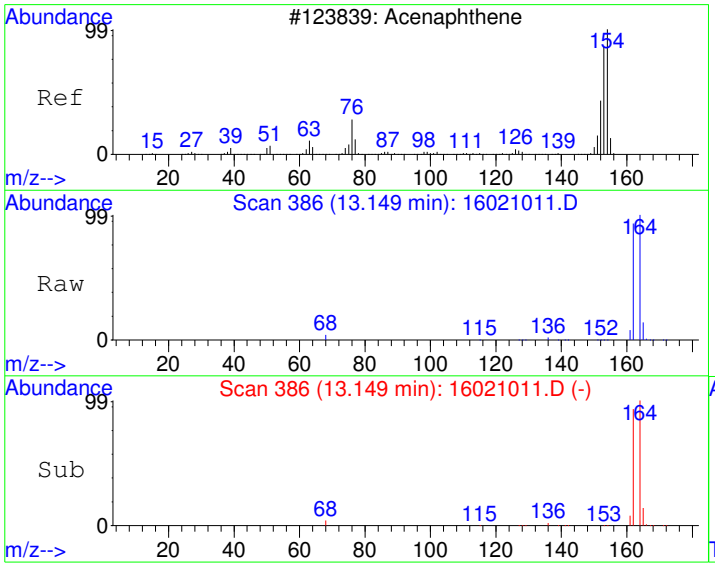
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021011.D Vial: 11
Acq On : 10 Feb 2016 4:01 pm Operator:
Sample : 1601232-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

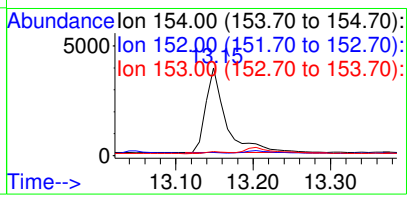


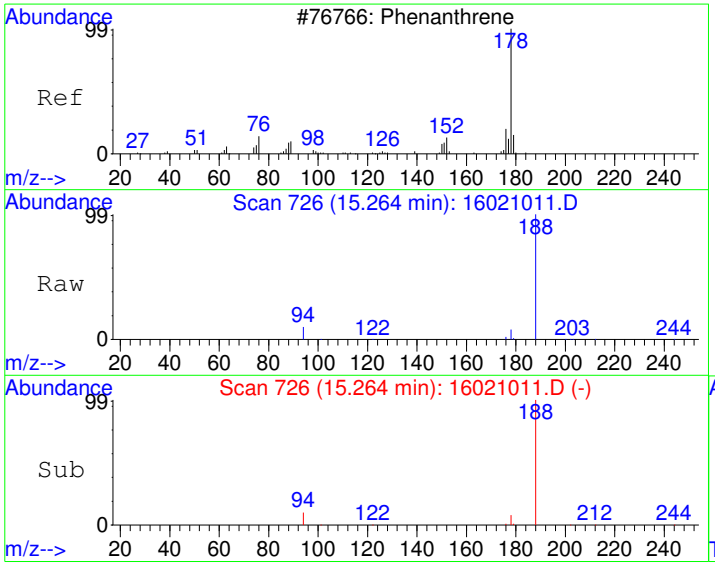


#9
Acenaphthene
Concen: 14.52 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:154 Resp: 7046

Ion	Ratio	Lower	Upper
154	100		
152	1.1	18.7	78.7#
153	2.5	74.4	134.4#

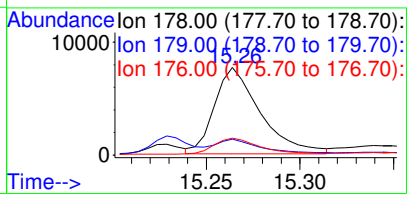


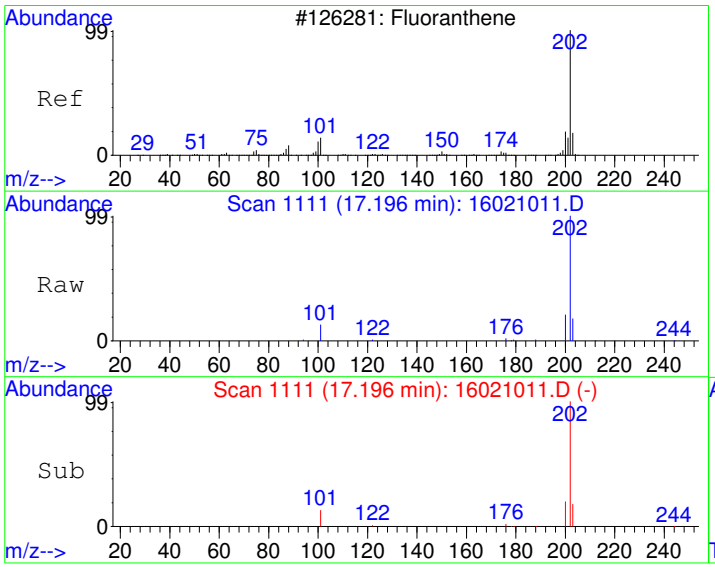


#12
Phenanthrene
Concen: 16.62 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:178 Resp: 13031

Ion	Ratio	Lower	Upper
178	100		
179	16.3	0.0	46.1
176	19.3	0.0	49.0

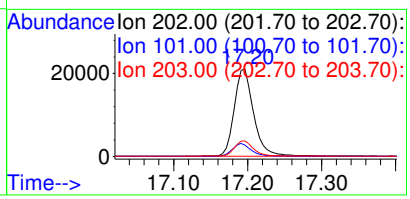


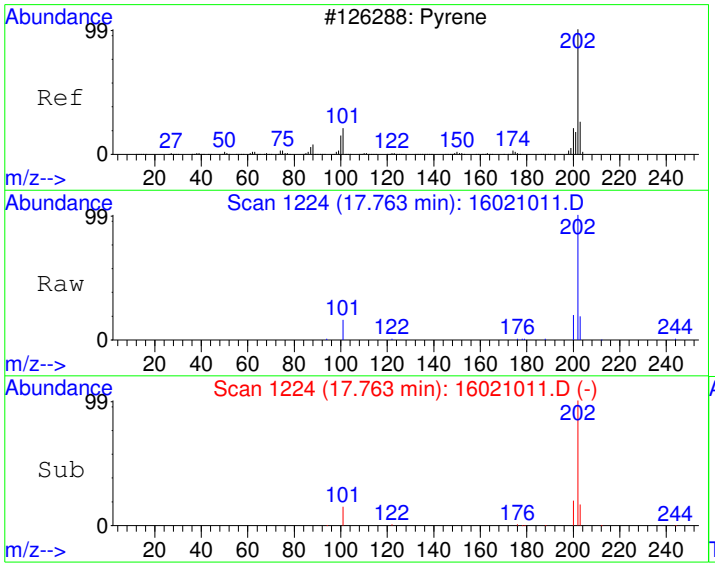


#14
Fluoranthene
Concen: 49.12 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:202 Resp: 38196

Ion	Ratio	Lower	Upper
202	100		
101	12.7	0.0	42.5
203	17.6	0.0	48.0

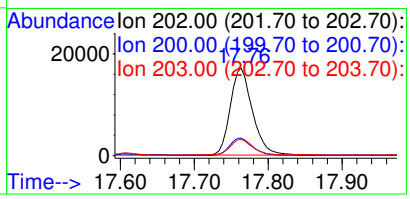


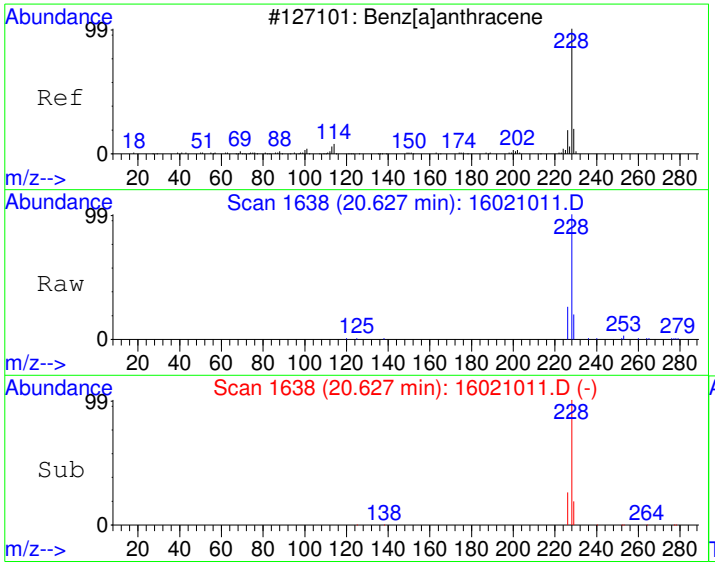


#15
Pyrene
Concen: 45.04 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:202 Resp: 35668

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	18.3	0.0	48.0

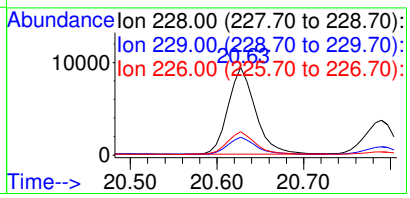


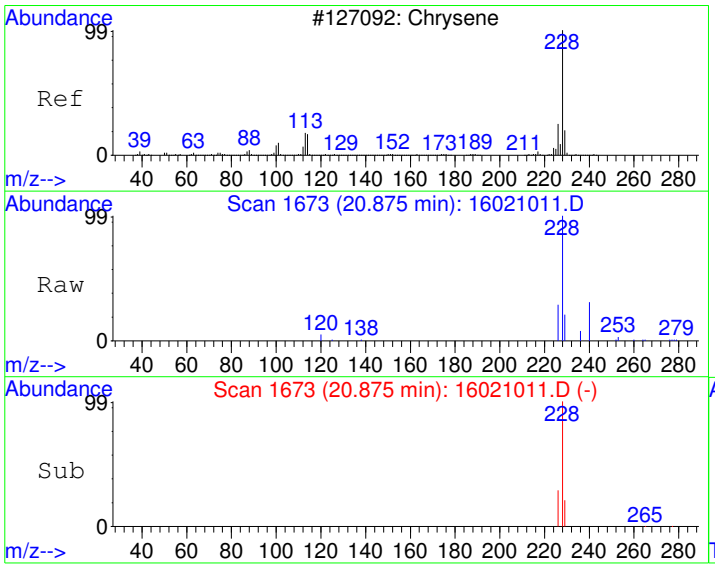


#18
Benzo[a]anthracene
Concen: 25.80 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:228 Resp: 20568

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	25.9	0.0	56.4

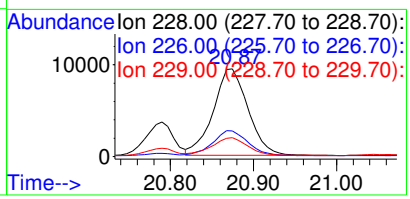


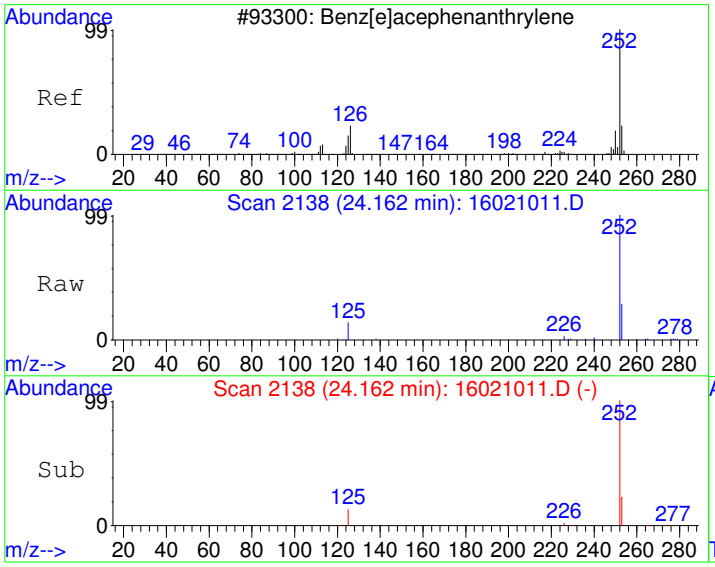


#19
Chrysene
Concen: 36.26 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:228 Resp: 27521

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.5
229	20.6	0.0	50.1

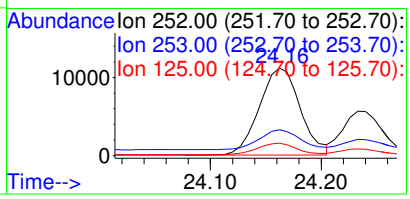


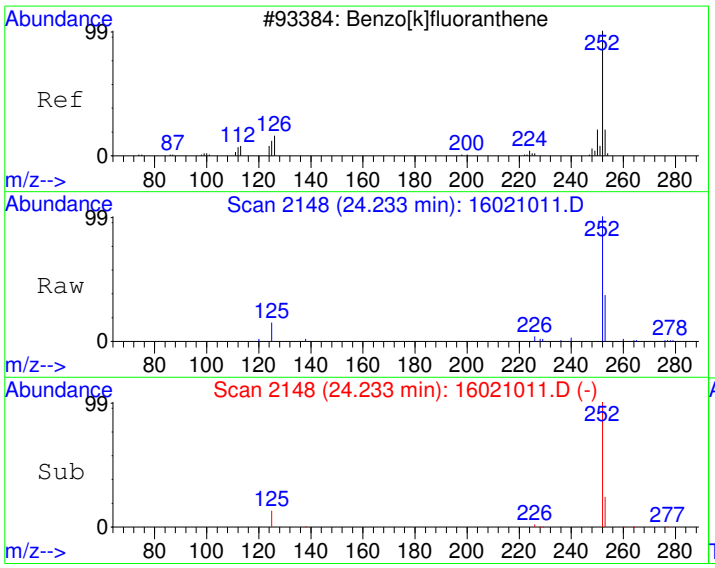


#21
Benzo[b]fluoranthene
Concen: 35.44 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:252 Resp: 28599

Ion	Ratio	Lower	Upper
252	100		
253	22.7	0.0	52.0
125	13.1	0.0	40.5

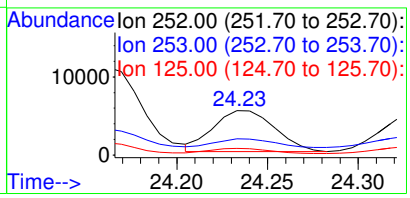


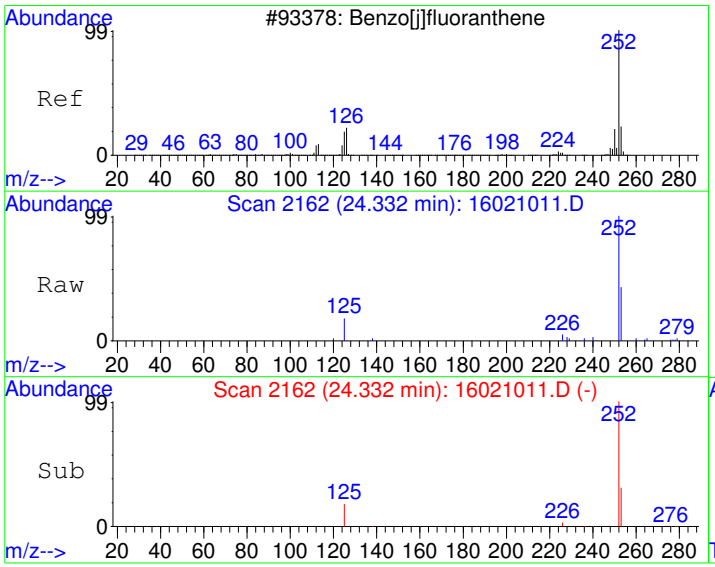


#22
Benzo[k]fluoranthene
Concen: 17.12 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:252 Resp: 12269

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	12.5	0.0	31.8

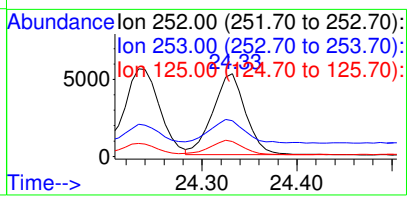


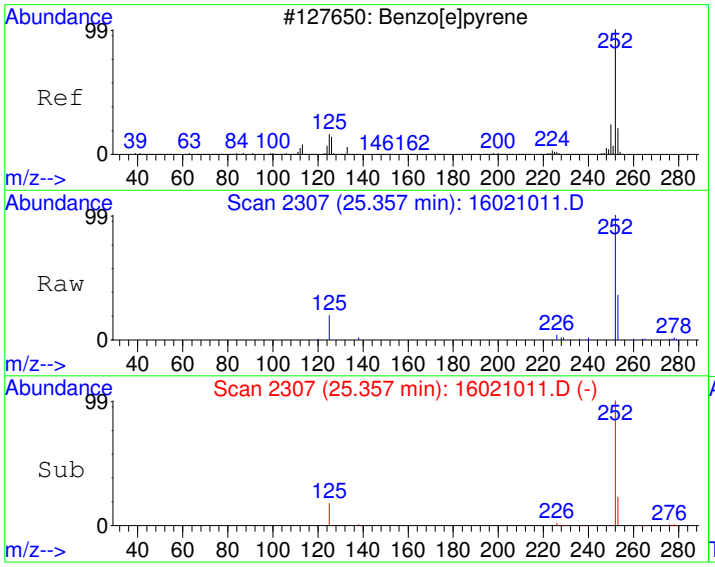


#23
Benzo(j)fluoranthene
Concen: 18.62 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:252 Resp: 12538

Ion	Ratio	Lower	Upper
252	100		
253	27.8	2.3	42.3
125	16.1	0.0	34.0

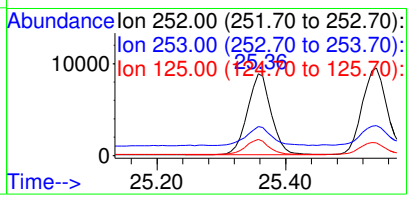


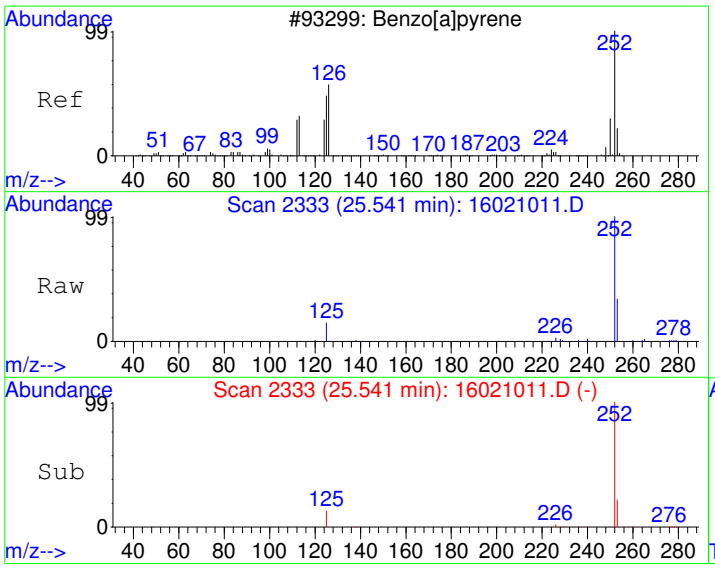


#24
Benzo[e]pyrene
Concen: 29.96 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:252 Resp: 22574

Ion	Ratio	Lower	Upper
252	100		
253	23.3	2.2	42.2
125	18.4	0.0	36.0

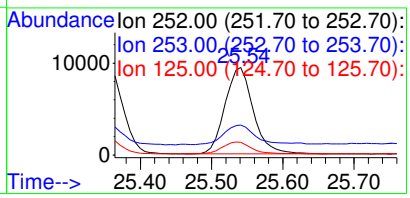


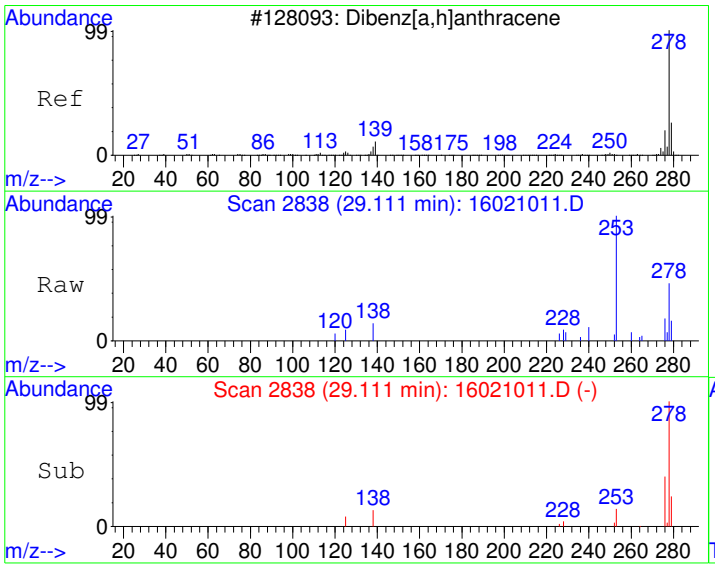


#25
Benzo[a]pyrene
Concen: 35.29 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:252 Resp: 25879

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	13.4	0.0	32.3

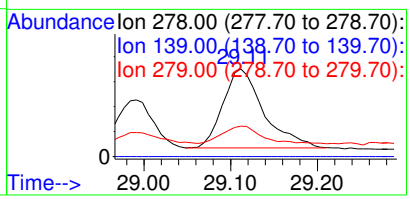


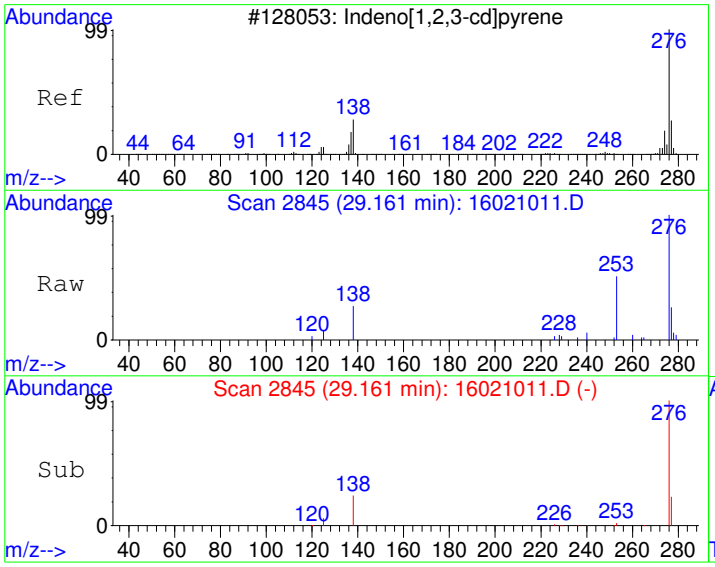


#26
Dibenz[a,h]anthracene
Concen: 6.09 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:278 Resp: 4134

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.5	3.8	43.8

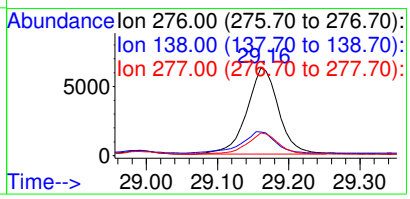


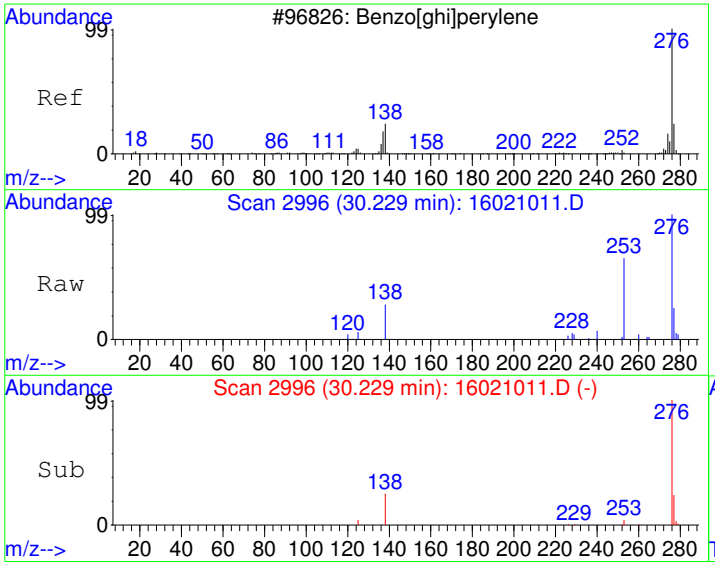


#27
Indeno[1,2,3-cd]pyrene
Concen: 23.46 ug/kg
RT: 29.16 min Scan# 2845
Delta R.T. -0.00 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:276 Resp: 19389

Ion	Ratio	Lower	Upper
276	100		
138	24.4	2.1	42.1
277	24.6	4.2	44.2

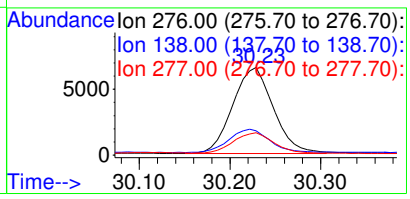




#28
Benzo[g,h,i]perylene
Concen: 29.30 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021011.D
Acq: 10 Feb 2016 4:01 pm

Tgt Ion:276 Resp: 20315

Ion	Ratio	Lower	Upper
276	100		
138	25.0	3.9	43.9
277	23.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021012.D Vial: 12
Acq On : 10 Feb 2016 4:40 pm Operator:
Sample : 1601232-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2580595	4000.00 ug/kg	123
5) Acenaphthene-d10	13.15	164	2015167	4000.00 ug/kg	111
11) Phenanthrene-d10	15.22	188	3398232	4000.00 ug/kg	104
17) Chrysene-d12	20.79	240	3152451	4000.00 ug/kg	109
20) Perylene-d12	25.86	264	2878935	4000.00 ug/kg	125

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	43934	75.25 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#	
16) 4-Terphenyl-d14	17.65	244	45097	79.44 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7314	14.41 ug/kg#	10
12) Phenanthrene	15.26	178	7920	9.81 ug/kg	99
14) Fluoranthene	17.19	202	24472	30.58 ug/kg	98
15) Pyrene	17.75	202	22101	27.12 ug/kg	99
18) Benzo[a]anthracene	20.63	228	12016	16.53 ug/kg	99
19) Chrysene	20.87	228	15353	22.18 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	16030	20.88 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	6900	10.12 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	7120	11.12 ug/kg	86
24) Benzo[e]pyrene	25.36	252	12598	17.58 ug/kg	98
25) Benzo[a]pyrene	25.53	252	15122	21.68 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.17	276	11268	14.33 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	11915	18.06 ug/kg	97

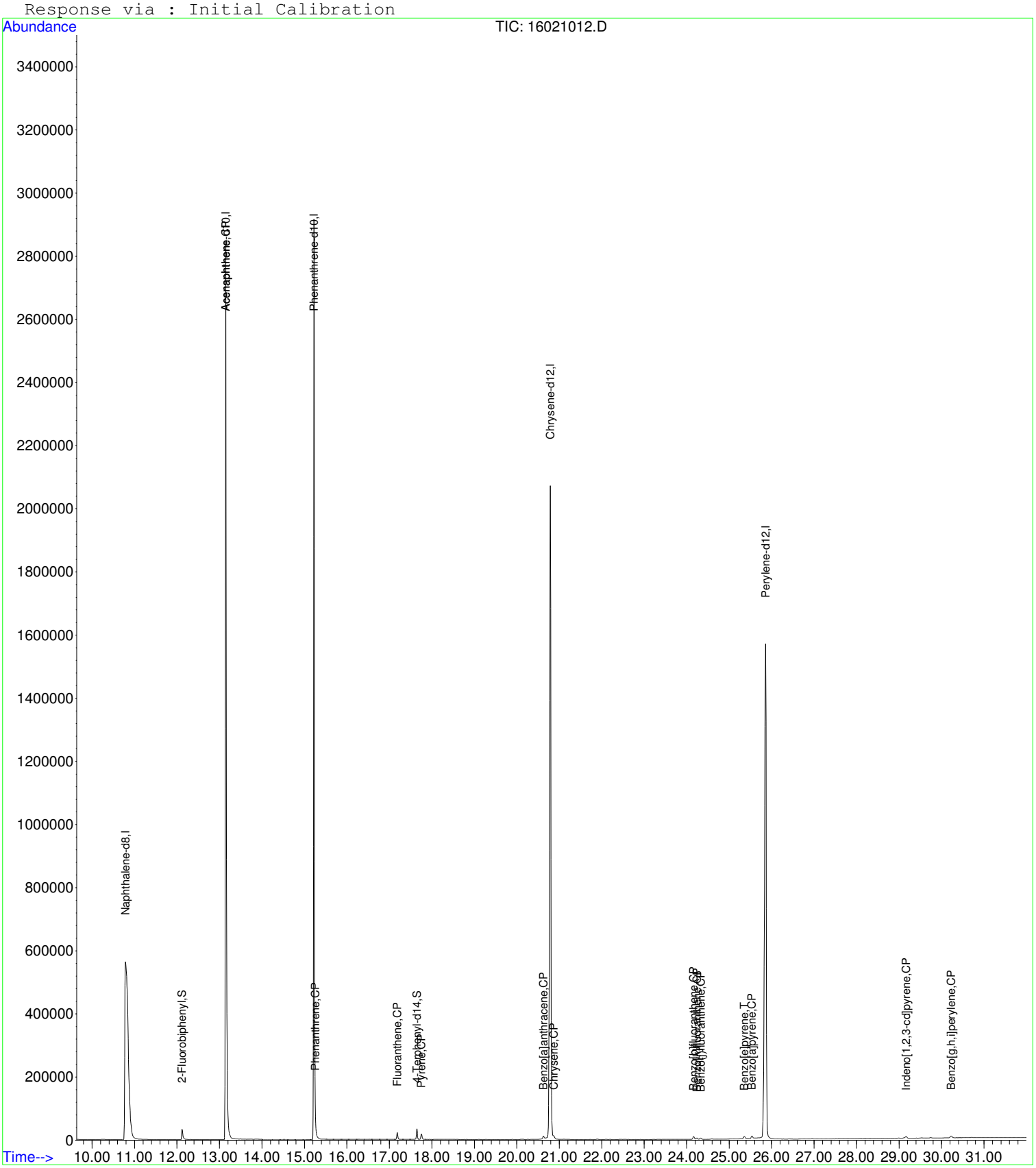
CONFIRMED
By Sherri Herschmann at 11:30:21 AM, 2/16/2016

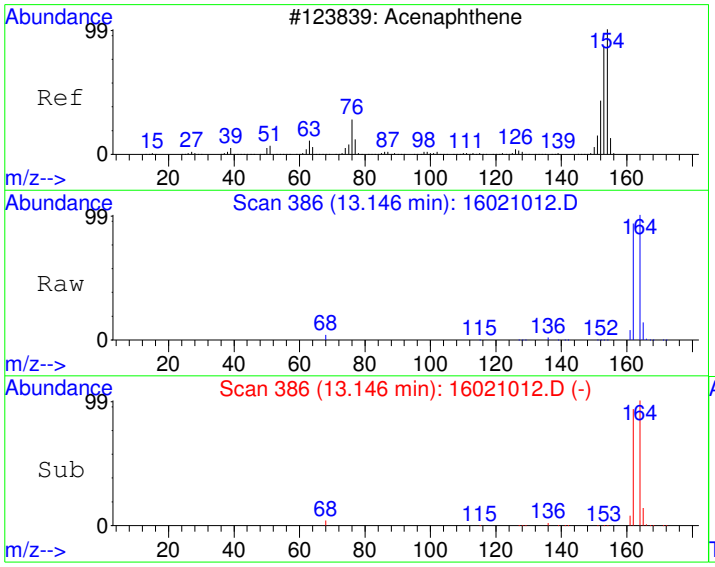
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021012.D Vial: 12
Acq On : 10 Feb 2016 4:40 pm Operator:
Sample : 1601232-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

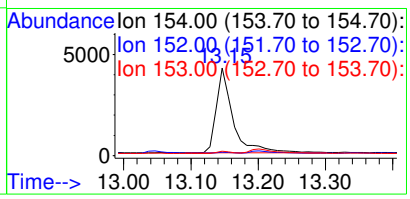


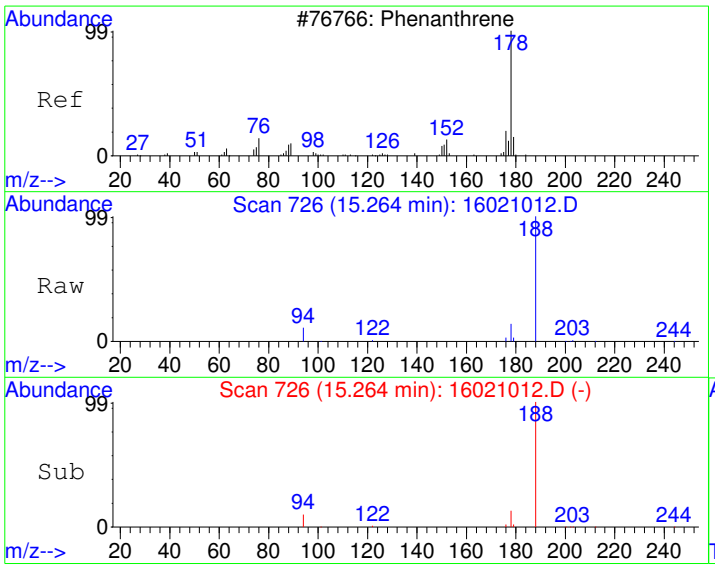


#9
Acenaphthene
Concen: 14.41 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:154 Resp: 7314

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.7	74.4	134.4#

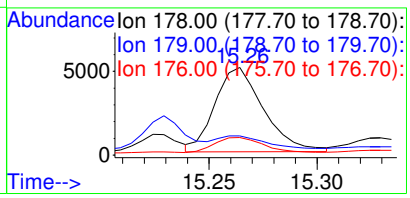


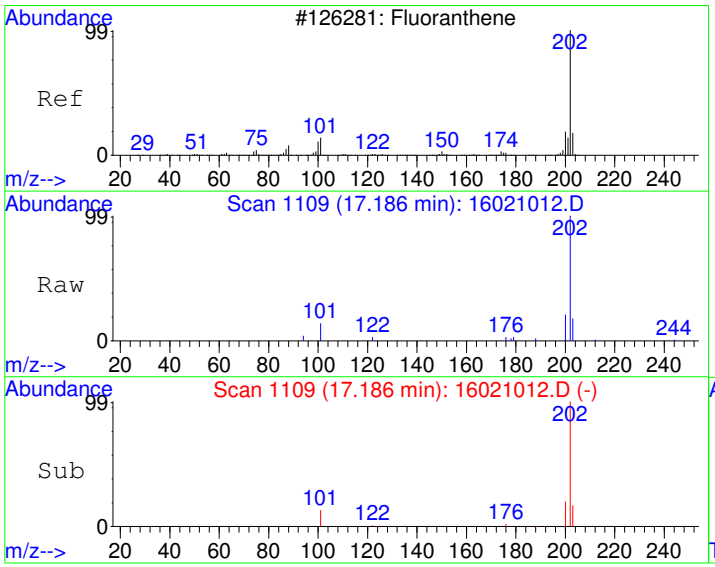


#12
Phenanthrene
Concen: 9.81 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:178 Resp: 7920

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	46.1
176	18.6	0.0	49.0

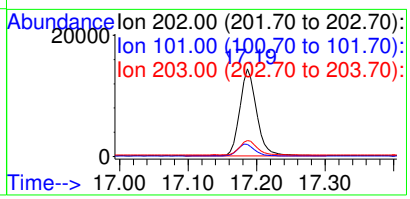


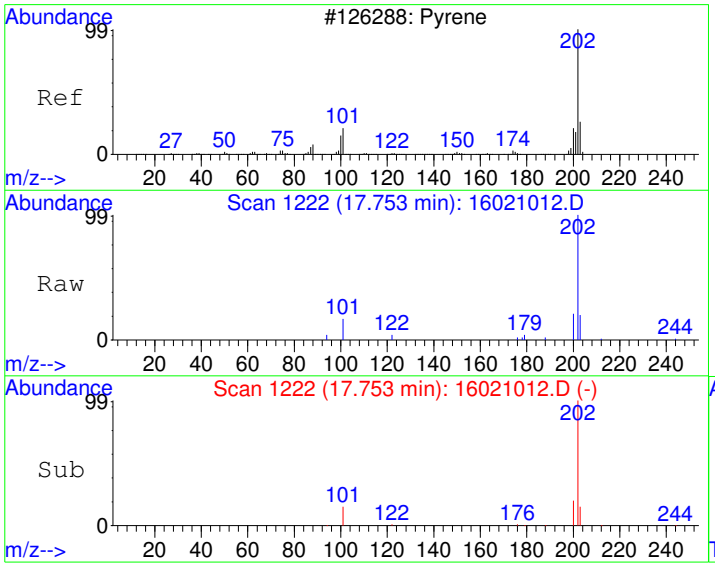


#14
Fluoranthene
Concen: 30.58 ug/kg
RT: 17.19 min Scan# 1109
Delta R.T. 0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:202 Resp: 24472

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	42.5
203	16.8	0.0	48.0

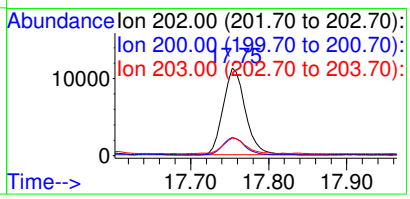


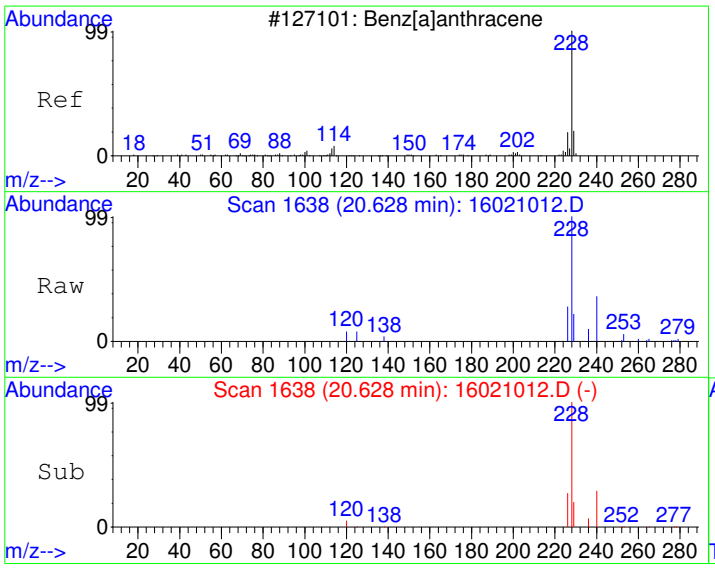


#15
Pyrene
Concen: 27.12 ug/kg
RT: 17.75 min Scan# 1222
Delta R.T. 0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:202 Resp: 22101

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	17.9	0.0	48.0

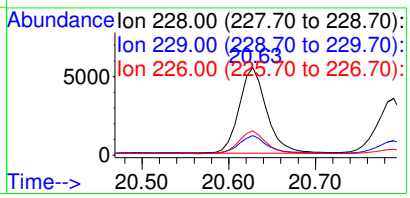


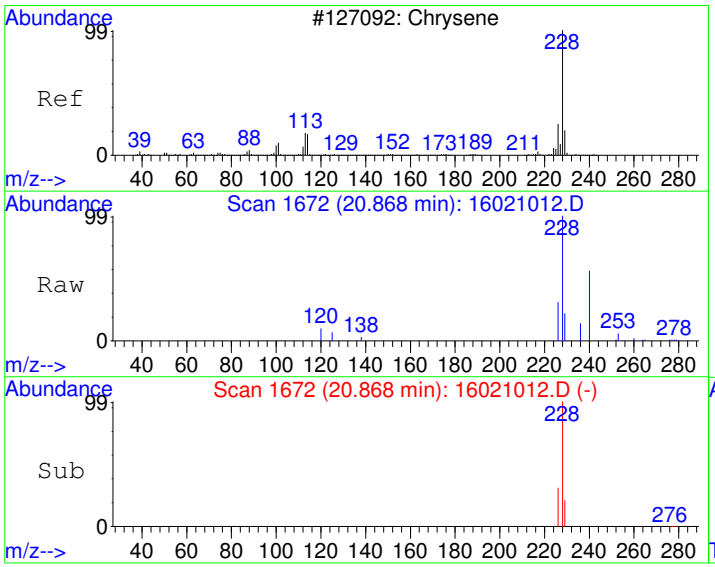


#18
Benzo[a]anthracene
Concen: 16.53 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:228 Resp: 12016

Ion	Ratio	Lower	Upper
228	100		
229	20.2	0.0	50.0
226	26.8	0.0	56.4

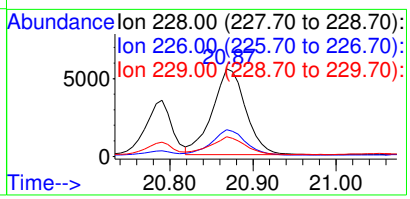


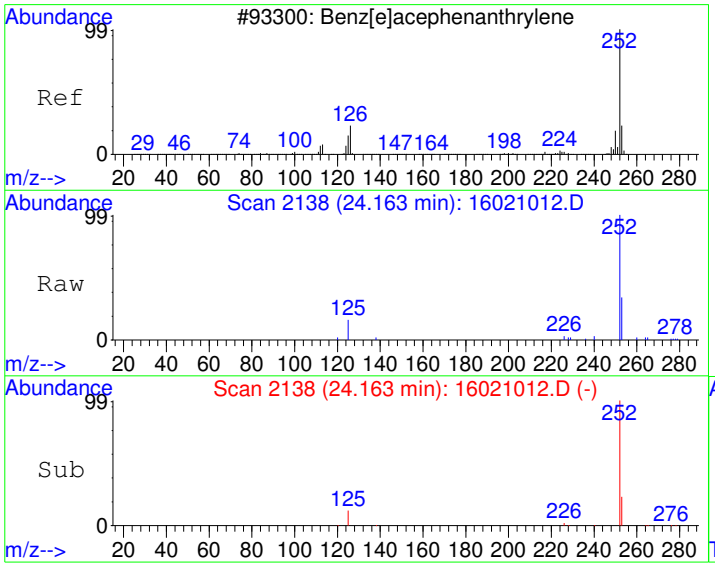


#19
Chrysene
Concen: 22.18 ug/kg
RT: 20.87 min Scan# 1672
Delta R.T. -0.03 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:228 Resp: 15353

Ion	Ratio	Lower	Upper
228	100		
226	29.7	0.0	58.5
229	20.7	0.0	50.1

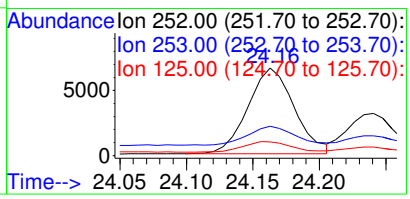


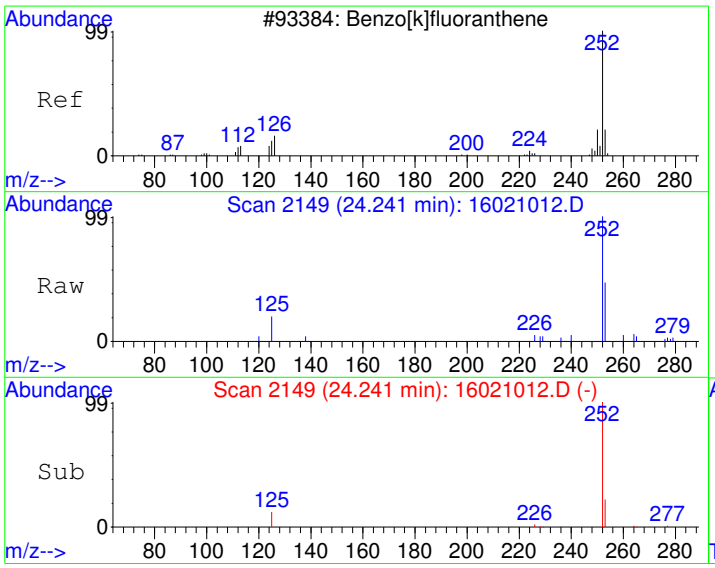


#21
Benzo[b]fluoranthene
Concen: 20.88 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:252 Resp: 16030

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	12.1	0.0	40.5

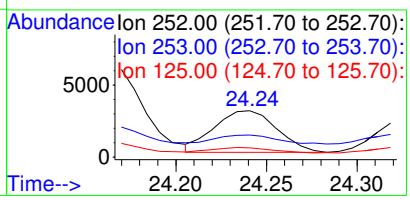


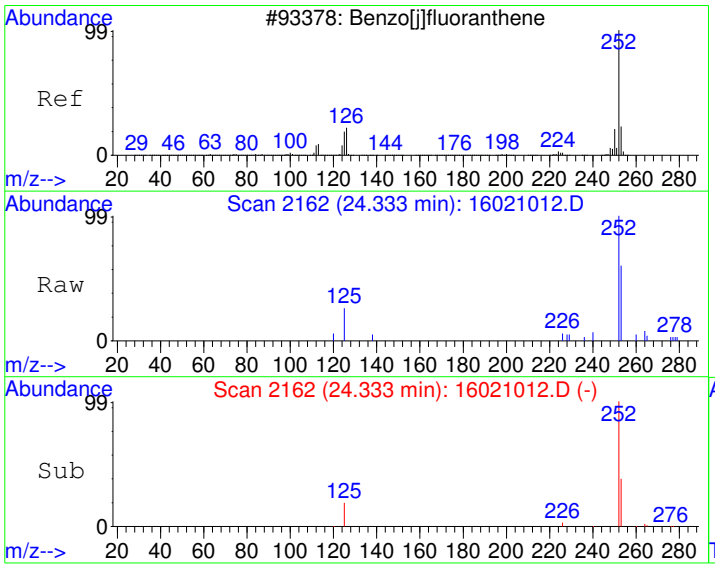


#22
Benzo[k]fluoranthene
Concen: 10.12 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:252 Resp: 6900

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.2	42.2
125	11.7	0.0	31.8

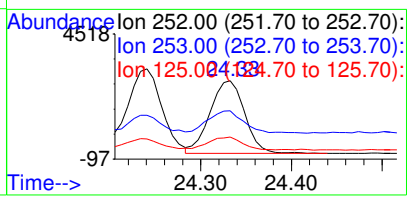


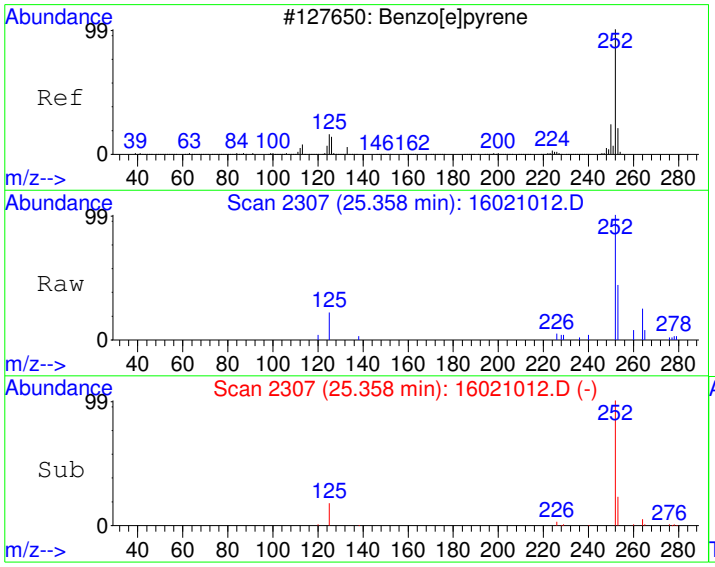


#23
Benzo(j)fluoranthene
Concen: 11.12 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:252 Resp: 7120

Ion	Ratio	Lower	Upper
252	100		
253	30.2	2.3	42.3
125	17.6	0.0	34.0

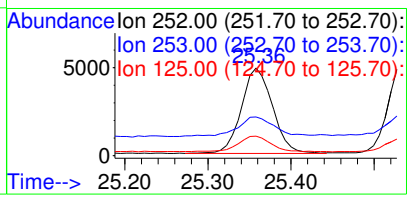


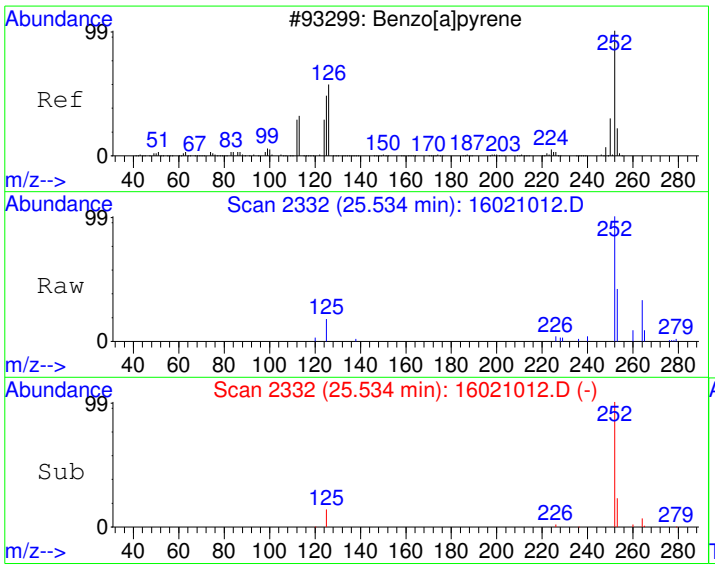


#24
Benzo[e]pyrene
Concen: 17.58 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.03 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:252 Resp: 12598

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	18.0	0.0	36.0

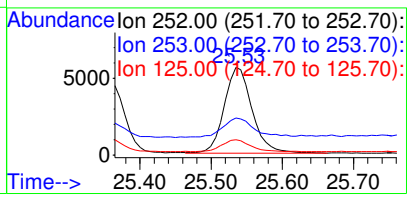


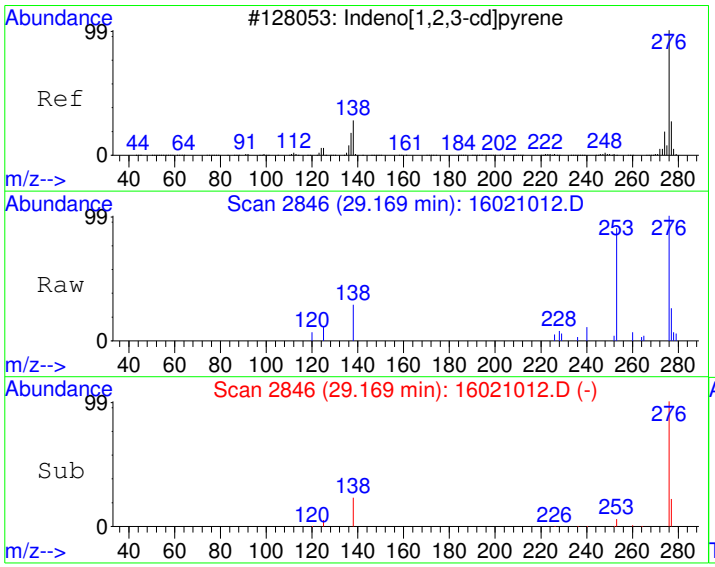


#25
Benzo[a]pyrene
Concen: 21.68 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.03 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:252 Resp: 15122

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.0	42.0
125	13.8	0.0	32.3

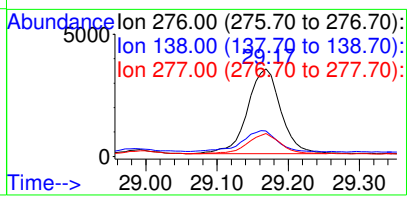


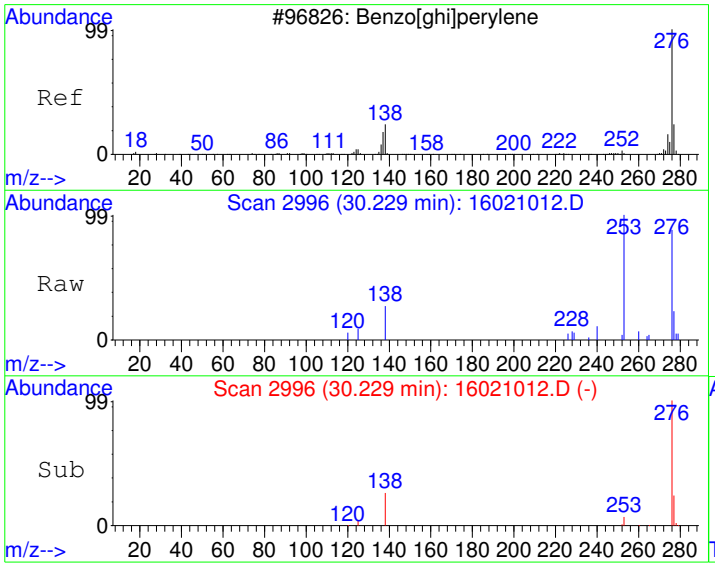


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.33 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:276 Resp: 11268

Ion	Ratio	Lower	Upper
276	100		
138	24.3	2.1	42.1
277	23.8	4.2	44.2

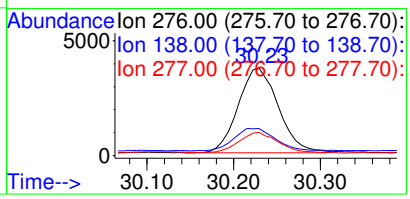




#28
Benzo[g,h,i]perylene
Concen: 18.06 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021012.D
Acq: 10 Feb 2016 4:40 pm

Tgt Ion:276 Resp: 11915

Ion	Ratio	Lower	Upper
276	100		
138	26.0	3.9	43.9
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021013.D Vial: 13
Acq On : 10 Feb 2016 5:21 pm Operator:
Sample : 1601232-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2488837	4000.00 ug/kg	119
5) Acenaphthene-d10	13.15	164	1934585	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3325417	4000.00 ug/kg	102
17) Chrysene-d12	20.79	240	3549790	4000.00 ug/kg	123
20) Perylene-d12	25.86	264	3127671	4000.00 ug/kg	135

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	44290	79.02 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#	
16) 4-Terphenyl-d14	17.65	244	46399	83.52 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7242	14.86 ug/kg#	10
12) Phenanthrene	15.26	178	14037	17.78 ug/kg	99
14) Fluoranthene	17.19	202	43843	55.99 ug/kg	98
15) Pyrene	17.76	202	41354	51.85 ug/kg	99
18) Benzo[a]anthracene	20.63	228	24226	29.60 ug/kg	99
19) Chrysene	20.87	228	32513	41.72 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	35603	42.70 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	14941	20.17 ug/kg	96
23) Benzo(j)fluoranthene	24.32	252	15502	22.28 ug/kg	87
24) Benzo[e]pyrene	25.36	252	27436	35.24 ug/kg	97
25) Benzo[a]pyrene	25.54	252	31798	41.96 ug/kg	98
26) Dibenz[a,h]anthracene	29.11	278	5203	7.42 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.17	276	24101	28.22 ug/kg	99
28) Benzo[g,h,i]perylene	30.22	276	25830	36.05 ug/kg	98

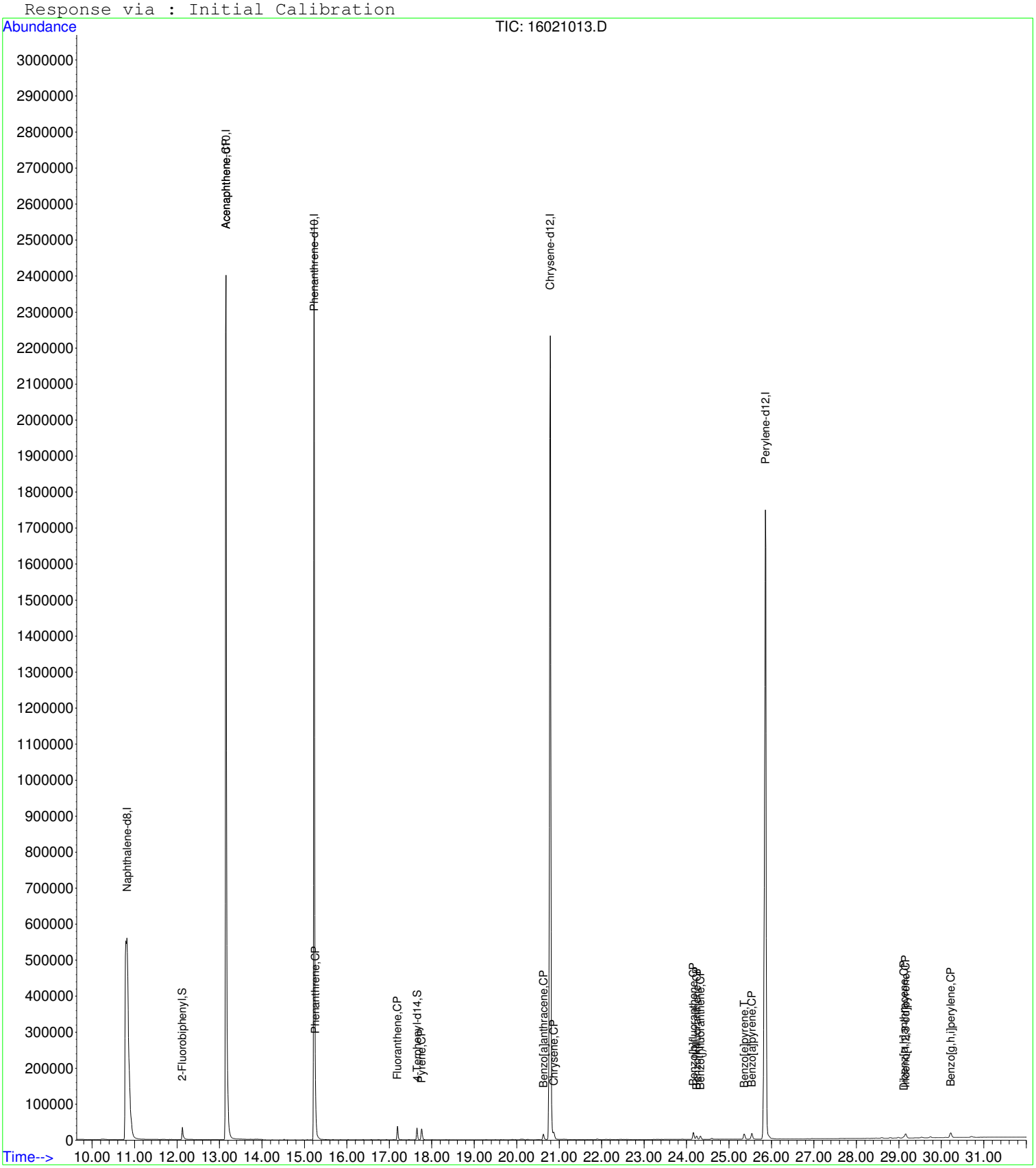
CONFIRMED
By Sherri Herschmann at 11:30:45 AM, 2/16/2016

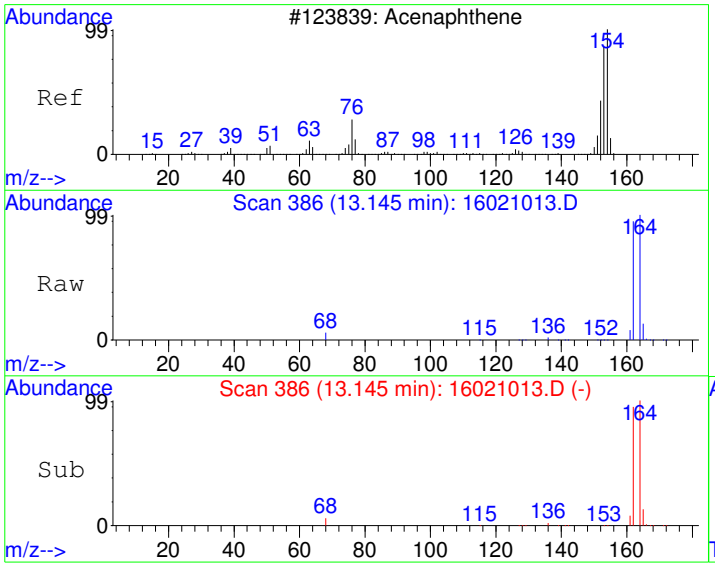
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021013.D Vial: 13
Acq On : 10 Feb 2016 5:21 pm Operator:
Sample : 1601232-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

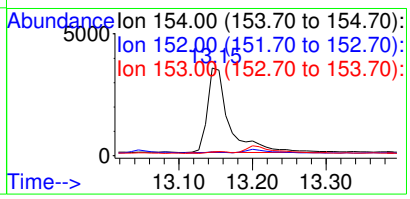


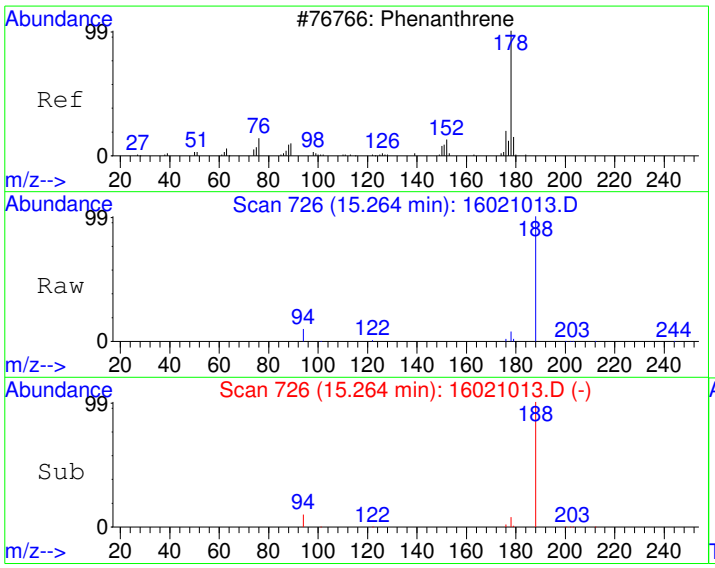


#9
Acenaphthene
Concen: 14.86 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:154 Resp: 7242

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	1.9	74.4	134.4#

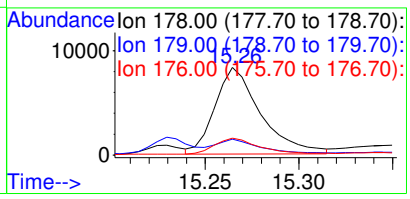


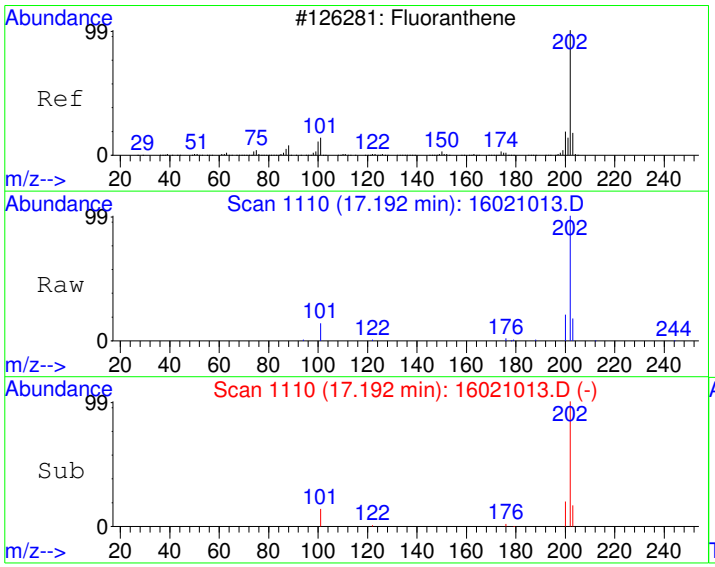


#12
Phenanthrene
Concen: 17.78 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:178 Resp: 14037

Ion	Ratio	Lower	Upper
178	100		
179	16.6	0.0	46.1
176	19.6	0.0	49.0

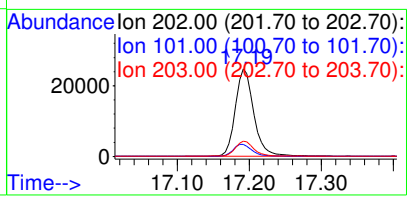


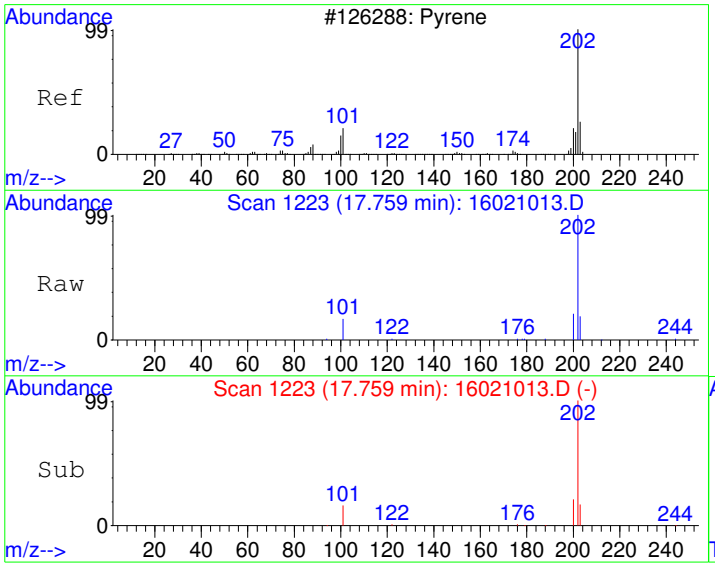


#14
Fluoranthene
Concen: 55.99 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:202 Resp: 43843

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	42.5
203	17.3	0.0	48.0

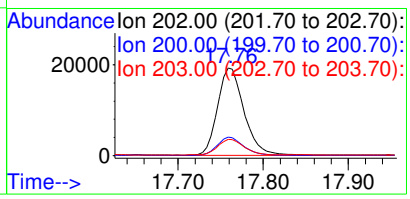


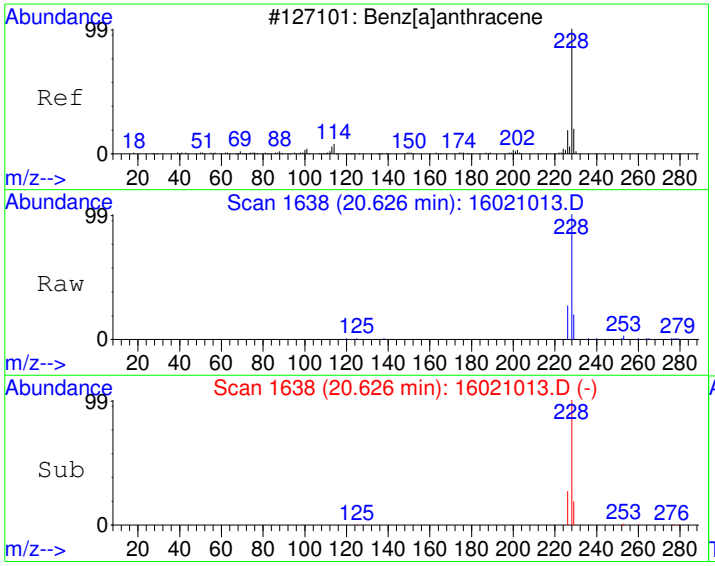


#15
Pyrene
Concen: 51.85 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:202 Resp: 41354

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	50.0
203	18.2	0.0	48.0

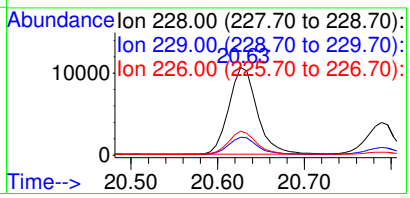


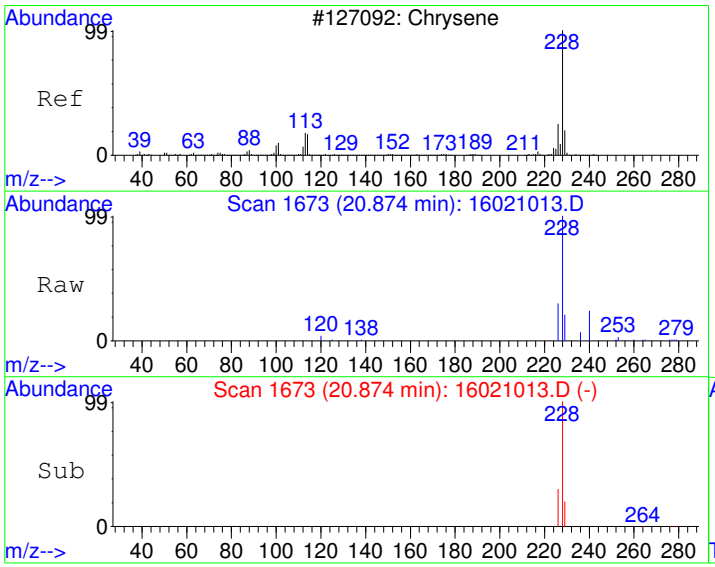


#18
Benzo[a]anthracene
Concen: 29.60 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:228 Resp: 24226

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.0
226	26.7	0.0	56.4

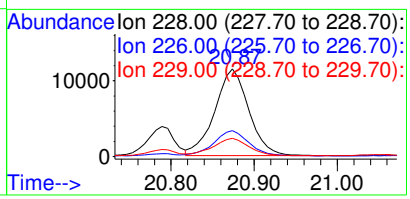


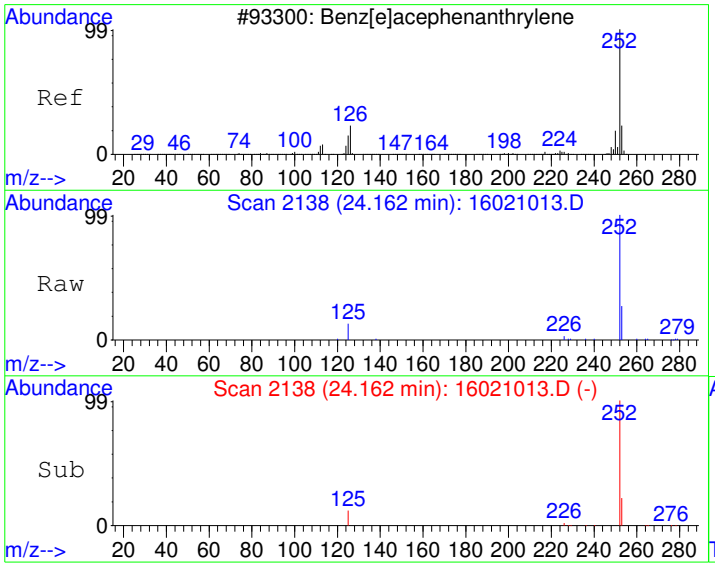


#19
Chrysene
Concen: 41.72 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:228 Resp: 32513

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.5
229	20.1	0.0	50.1

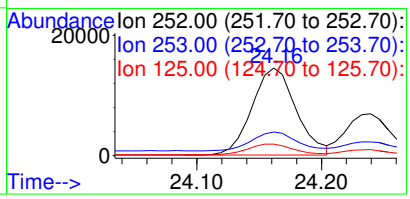


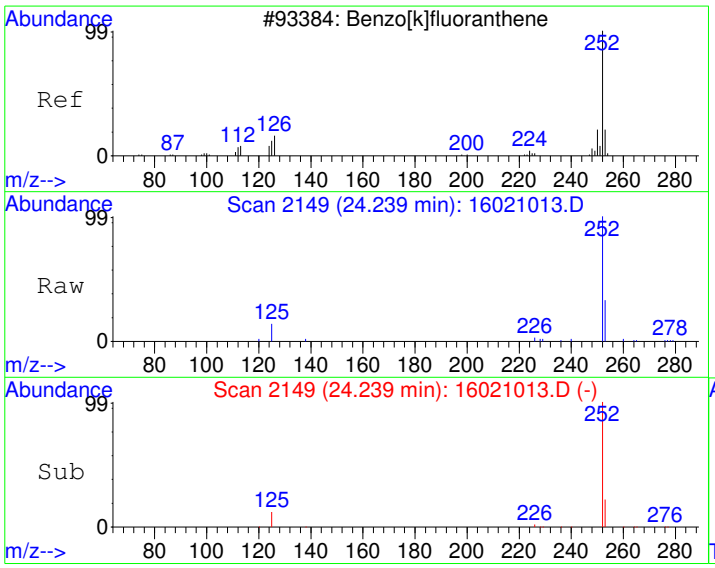


#21
Benzo[b]fluoranthene
Concen: 42.70 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:252 Resp: 35603

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.0
125	12.1	0.0	40.5

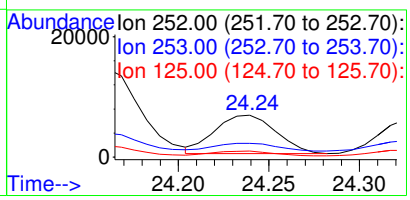


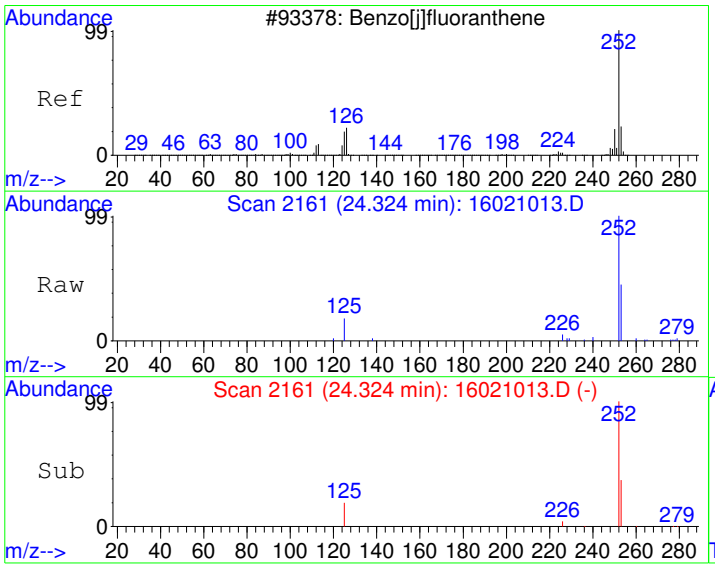


#22
Benzo[k]fluoranthene
Concen: 20.17 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:252 Resp: 14941

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.2	42.2
125	12.3	0.0	31.8

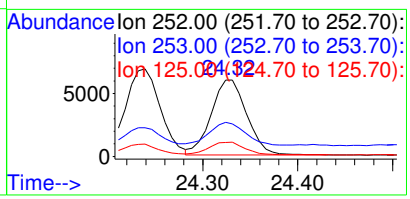


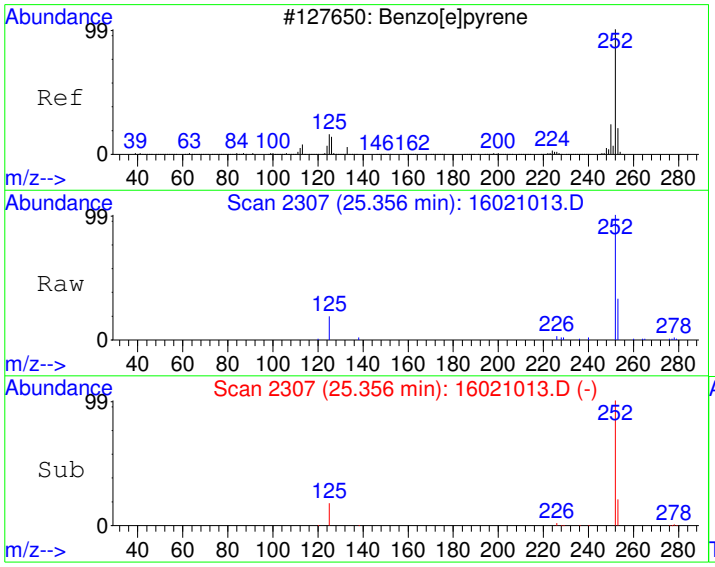


#23
Benzo(j)fluoranthene
Concen: 22.28 ug/kg
RT: 24.32 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:252 Resp: 15502

Ion	Ratio	Lower	Upper
252	100		
253	30.3	2.3	42.3
125	16.5	0.0	34.0

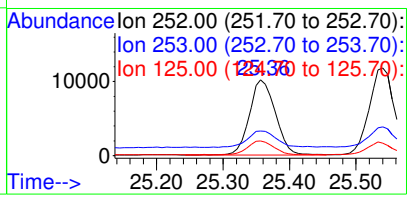


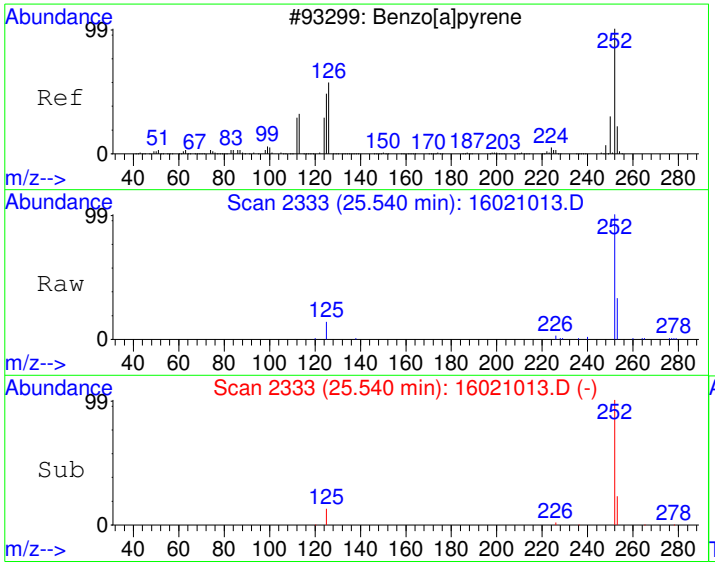


#24
Benzo[e]pyrene
Concen: 35.24 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:252 Resp: 27436

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	18.0	0.0	36.0

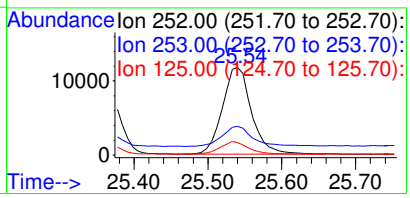


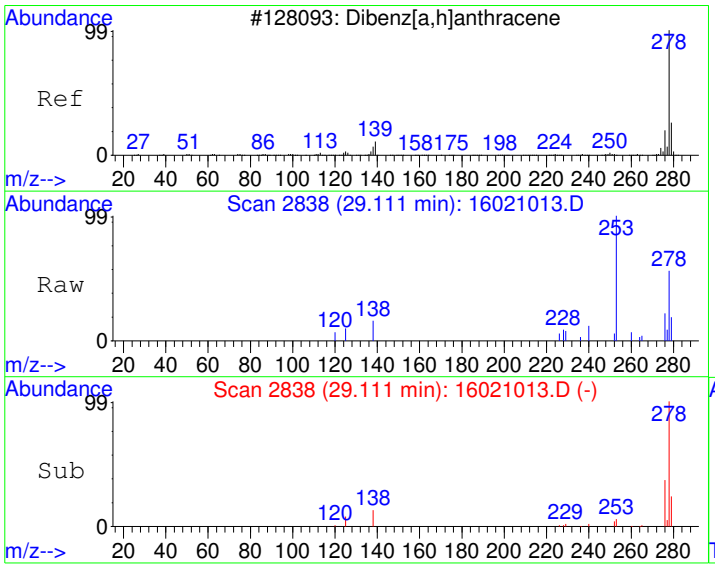


#25
Benzo[a]pyrene
Concen: 41.96 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:252 Resp: 31798

Ion	Ratio	Lower	Upper
252	100		
253	23.2	2.0	42.0
125	13.2	0.0	32.3

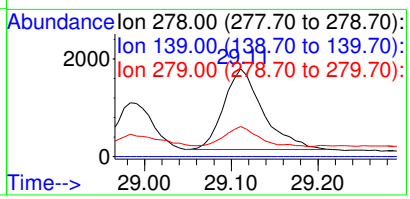


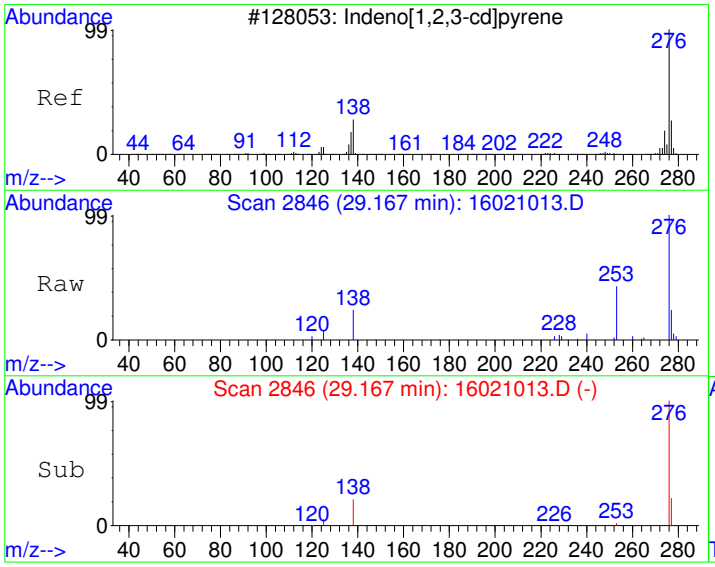


#26
Dibenz[a,h]anthracene
Concen: 7.42 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:278 Resp: 5203

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.1	3.8	43.8

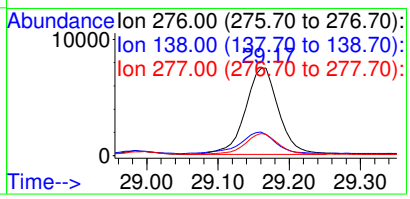


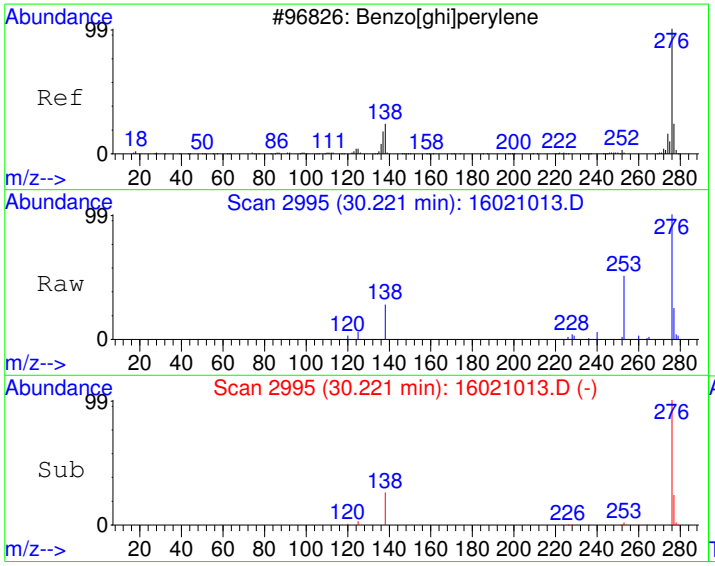


#27
Indeno[1,2,3-cd]pyrene
Concen: 28.22 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:276 Resp: 24101

Ion	Ratio	Lower	Upper
276	100		
138	21.9	2.1	42.1
277	23.3	4.2	44.2

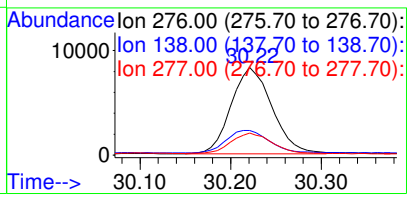




#28
Benzo[g,h,i]perylene
Concen: 36.05 ug/kg
RT: 30.22 min Scan# 2995
Delta R.T. 0.01 min
Lab File: 16021013.D
Acq: 10 Feb 2016 5:21 pm

Tgt Ion:276 Resp: 25830

Ion	Ratio	Lower	Upper
276	100		
138	25.9	3.9	43.9
277	23.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021014.D Vial: 14
Acq On : 10 Feb 2016 6:01 pm Operator:
Sample : 1601232-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2418685	4000.00 ug/kg	115
5) Acenaphthene-d10	13.15	164	1895799	4000.00 ug/kg	104
11) Phenanthrene-d10	15.23	188	3300836	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3497662	4000.00 ug/kg	121
20) Perylene-d12	25.86	264	3055491	4000.00 ug/kg	132

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	42985	78.26 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	
16) 4-Terphenyl-d14	17.65	244	46998	85.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6923	14.50 ug/kg#	10
12) Phenanthrene	15.26	178	7725	9.86 ug/kg	99
14) Fluoranthene	17.20	202	23330	30.01 ug/kg	98
15) Pyrene	17.76	202	21757	27.48 ug/kg	98
18) Benzo[a]anthracene	20.63	228	12328	15.29 ug/kg	99
19) Chrysene	20.87	228	16442	21.41 ug/kg	99
21) Benzo[b]fluoranthene	24.17	252	17542	21.53 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	7479	10.34 ug/kg	99
23) Benzo(j)fluoranthene	24.33	252	7730	11.37 ug/kg	89
24) Benzo[e]pyrene	25.36	252	13454	17.69 ug/kg	97
25) Benzo[a]pyrene	25.54	252	16013	21.63 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.17	276	11976	14.35 ug/kg	97
28) Benzo[g,h,i]perylene	30.23	276	12434	17.76 ug/kg	97

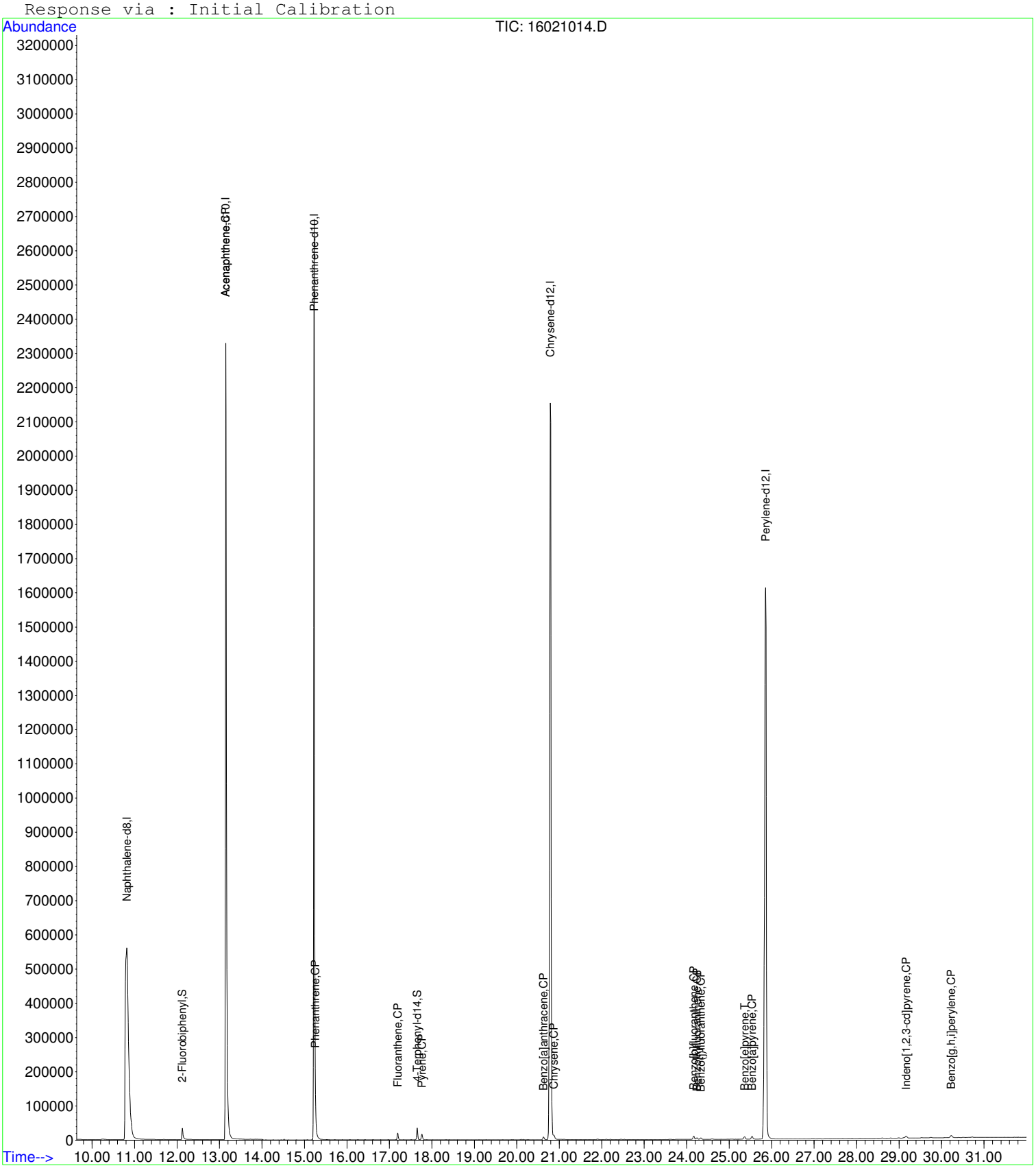
CONFIRMED
By Sherri Herschmann at 11:31:12 AM, 2/16/2016

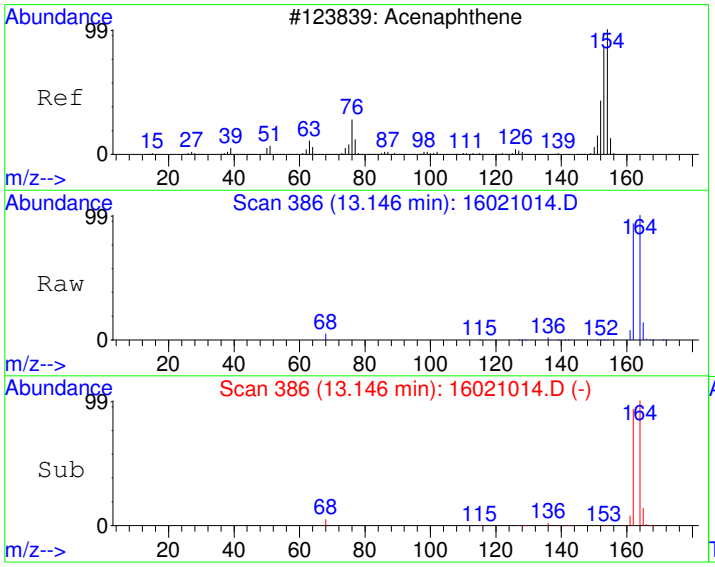
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021014.D Vial: 14
Acq On : 10 Feb 2016 6:01 pm Operator:
Sample : 1601232-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

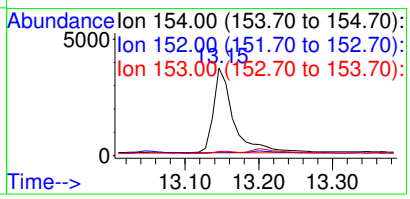


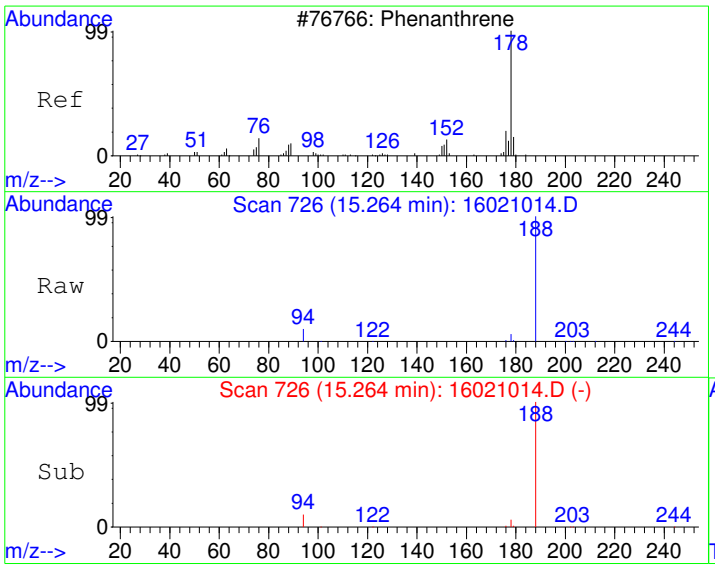


#9
Acenaphthene
Concen: 14.50 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:154 Resp: 6923

Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.7	78.7#
153	2.2	74.4	134.4#

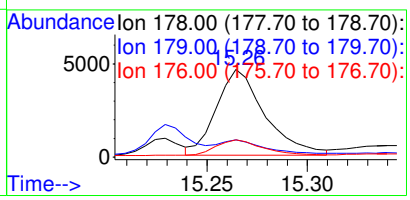


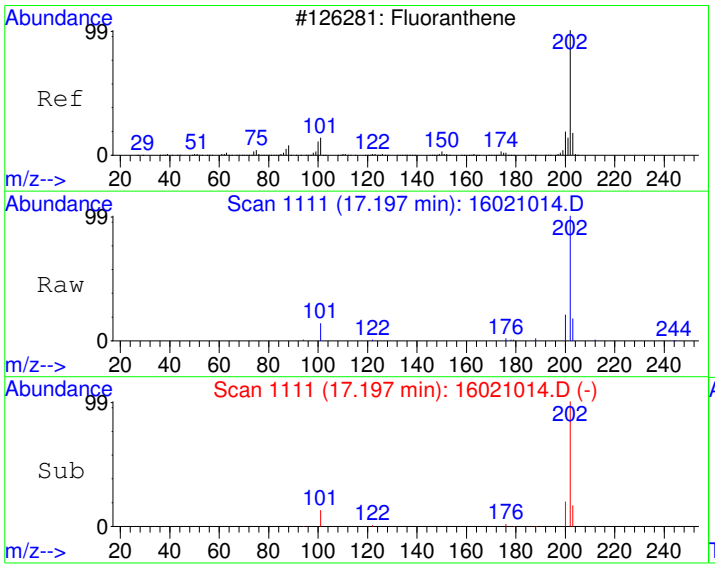


#12
Phenanthrene
Concen: 9.86 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:178 Resp: 7725

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	46.1
176	19.1	0.0	49.0

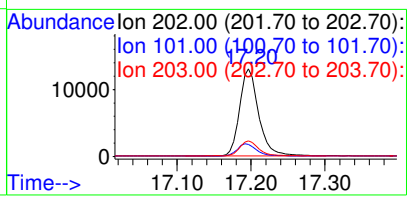


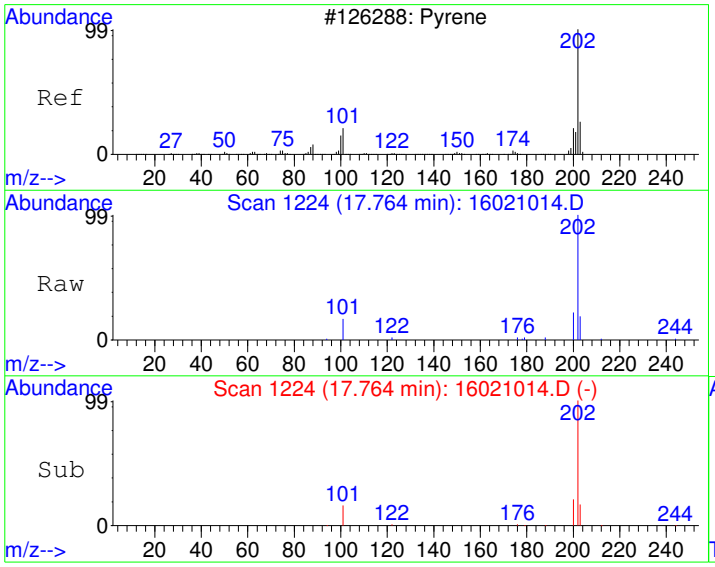


#14
Fluoranthene
Concen: 30.01 ug/kg
RT: 17.20 min Scan# 1111
Delta R.T. 0.02 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:202 Resp: 23330

Ion	Ratio	Lower	Upper
202	100		
101	13.4	0.0	42.5
203	17.4	0.0	48.0

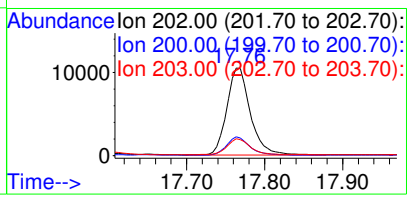


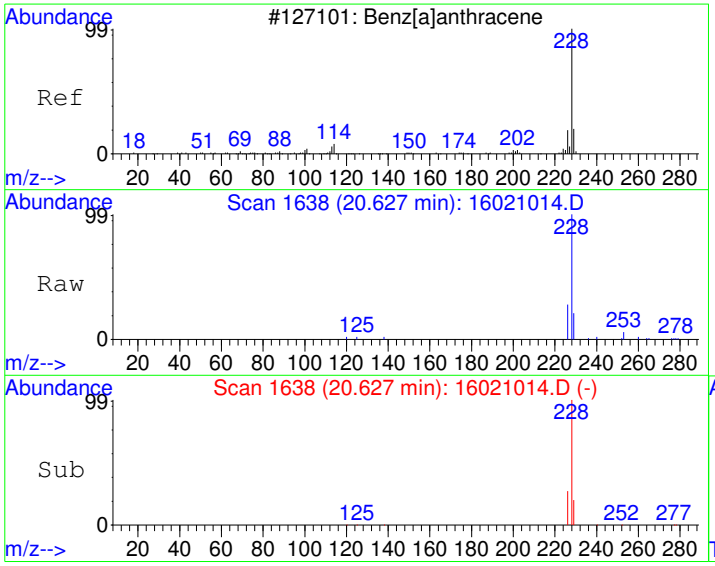


#15
Pyrene
Concen: 27.48 ug/kg
RT: 17.76 min Scan# 1224
Delta R.T. 0.02 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:202 Resp: 21757

Ion	Ratio	Lower	Upper
202	100		
200	21.1	0.0	50.0
203	18.5	0.0	48.0

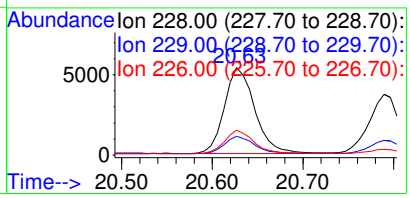


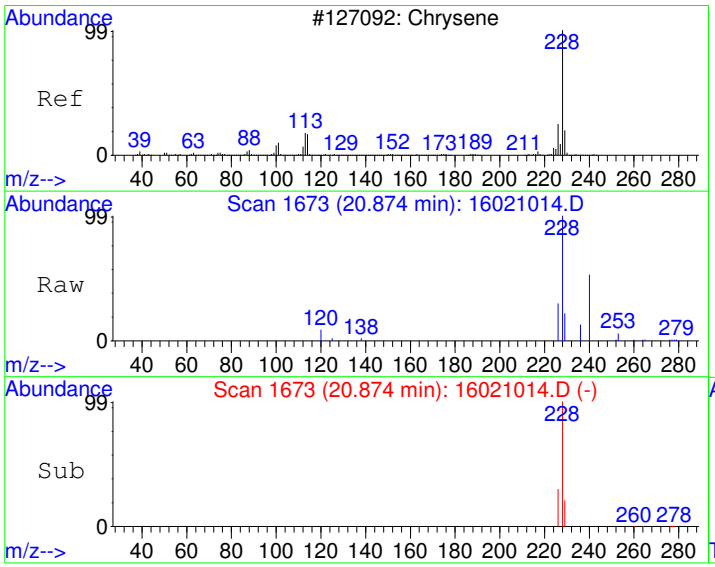


#18
Benzo[a]anthracene
Concen: 15.29 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:228 Resp: 12328

Ion	Ratio	Lower	Upper
228	100		
229	20.1	0.0	50.0
226	27.5	0.0	56.4

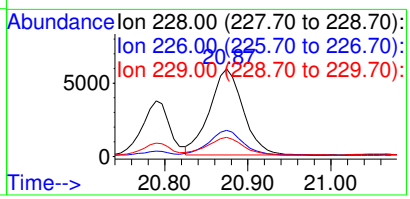


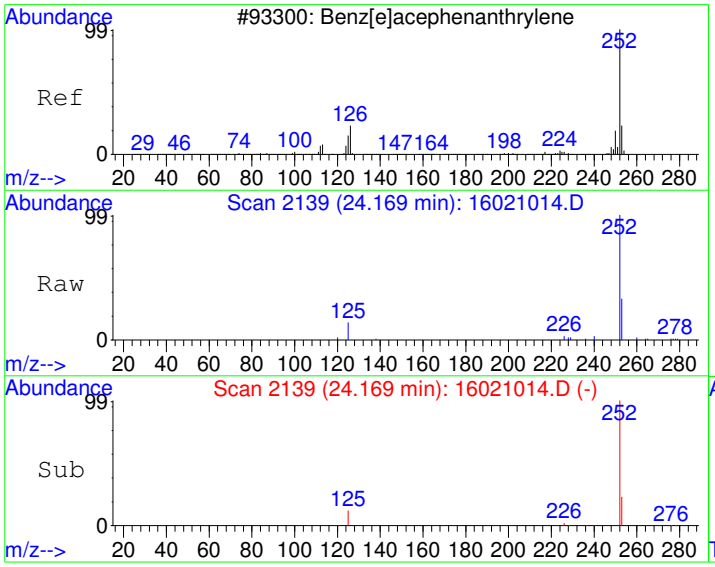


#19
Chrysene
Concen: 21.41 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:228 Resp: 16442

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.5
229	20.7	0.0	50.1

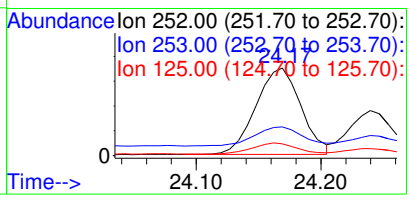


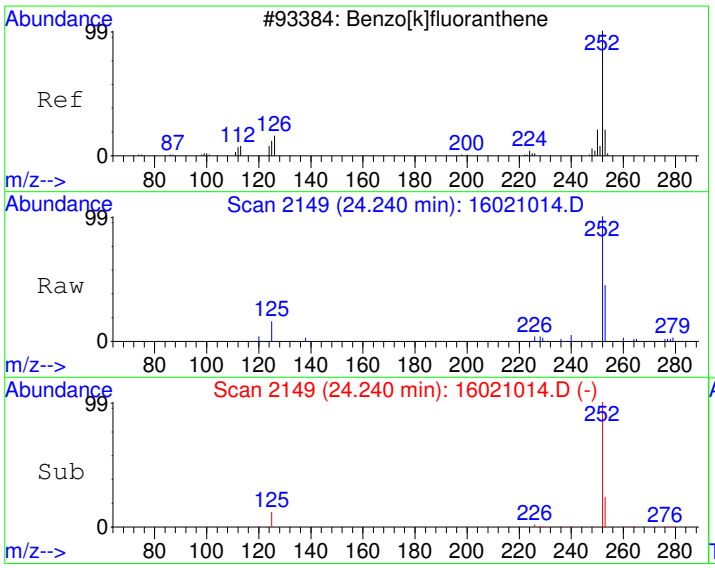


#21
Benzo[b]fluoranthene
Concen: 21.53 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:252 Resp: 17542

Ion	Ratio	Lower	Upper
252	100		
253	22.2	0.0	52.0
125	11.8	0.0	40.5

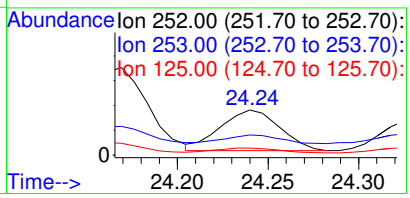


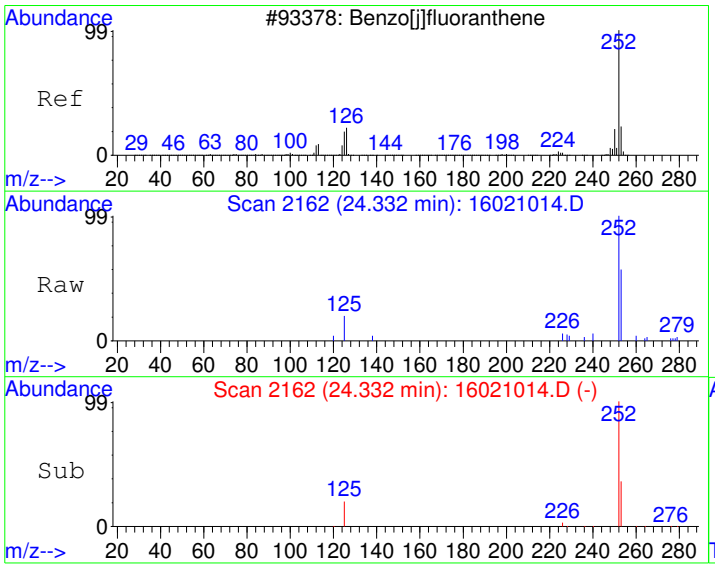


#22
Benzo[k]fluoranthene
Concen: 10.34 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:252 Resp: 7479

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	12.2	0.0	31.8

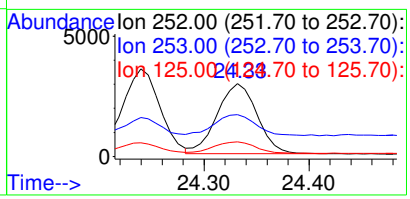


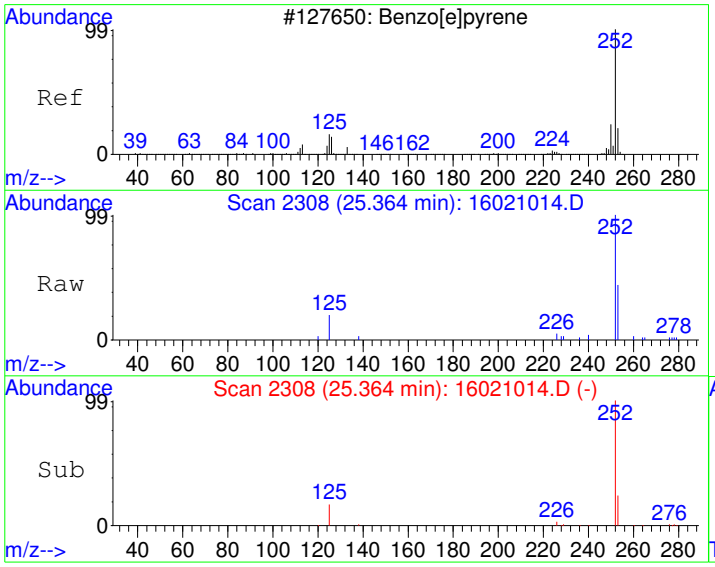


#23
Benzo(j)fluoranthene
Concen: 11.37 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:252 Resp: 7730

Ion	Ratio	Lower	Upper
252	100		
253	29.3	2.3	42.3
125	16.1	0.0	34.0

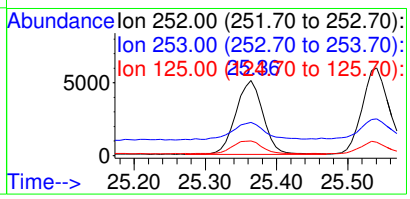


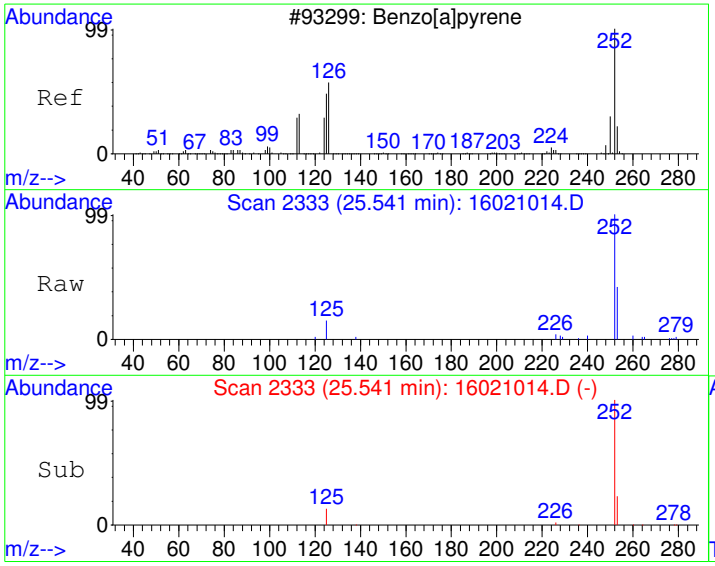


#24
Benzo[e]pyrene
Concen: 17.69 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:252 Resp: 13454

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.2	42.2
125	17.5	0.0	36.0

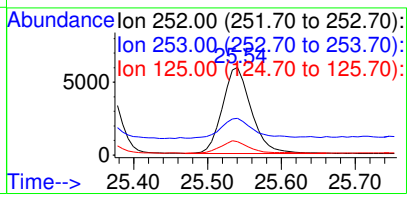


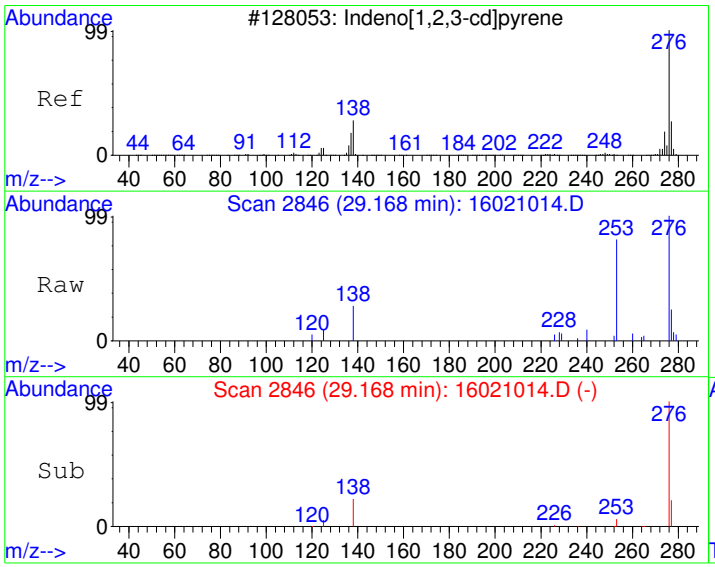


#25
Benzo[a]pyrene
Concen: 21.63 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:252 Resp: 16013

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	13.5	0.0	32.3

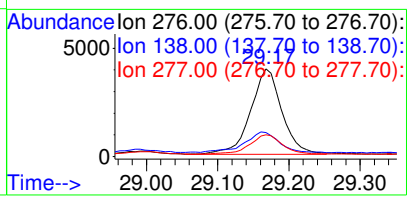


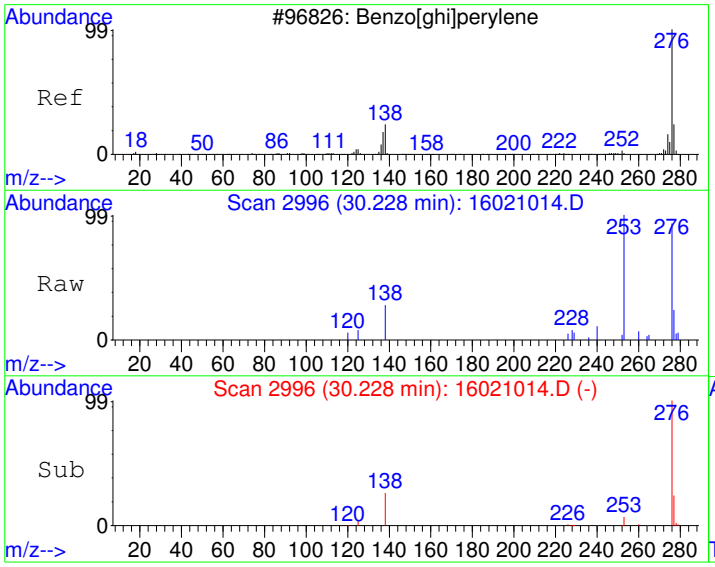


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.35 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:276 Resp: 11976

Ion	Ratio	Lower	Upper
276	100		
138	23.7	2.1	42.1
277	22.7	4.2	44.2

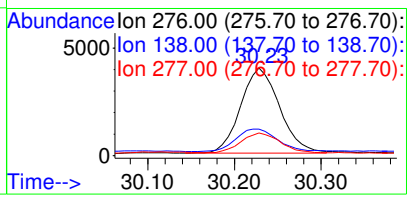




#28
Benzo[g,h,i]perylene
Concen: 17.76 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021014.D
Acq: 10 Feb 2016 6:01 pm

Tgt Ion:276 Resp: 12434

Ion	Ratio	Lower	Upper
276	100		
138	26.2	3.9	43.9
277	23.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021015.D Vial: 15
Acq On : 10 Feb 2016 6:41 pm Operator:
Sample : 1601232-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2550736	4000.00 ug/kg	122
5) Acenaphthene-d10	13.15	164	1984322	4000.00 ug/kg	109
11) Phenanthrene-d10	15.23	188	3352620	4000.00 ug/kg	103
17) Chrysene-d12	20.79	240	3326888	4000.00 ug/kg	115
20) Perylene-d12	25.86	264	3014805	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	44638	77.65 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#	
16) 4-Terphenyl-d14	17.65	244	47637	85.05 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	7190	14.38 ug/kg#	10
12) Phenanthrene	15.26	178	7713	9.69 ug/kg	99
14) Fluoranthene	17.19	202	23782	30.12 ug/kg	98
15) Pyrene	17.76	202	22041	27.41 ug/kg	100
18) Benzo[a]anthracene	20.63	228	12527	16.33 ug/kg	100
19) Chrysene	20.87	228	15580	21.33 ug/kg	100
21) Benzo[b]fluoranthene	24.17	252	16055	19.97 ug/kg	99
22) Benzo[k]fluoranthene	24.24	252	6930	9.71 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	7215	10.76 ug/kg	94
24) Benzo[e]pyrene	25.36	252	12497	16.65 ug/kg	99
25) Benzo[a]pyrene	25.53	252	14945	20.46 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.17	276	10913	13.26 ug/kg	98
28) Benzo[g,h,i]perylene	30.23	276	11256	16.30 ug/kg	94

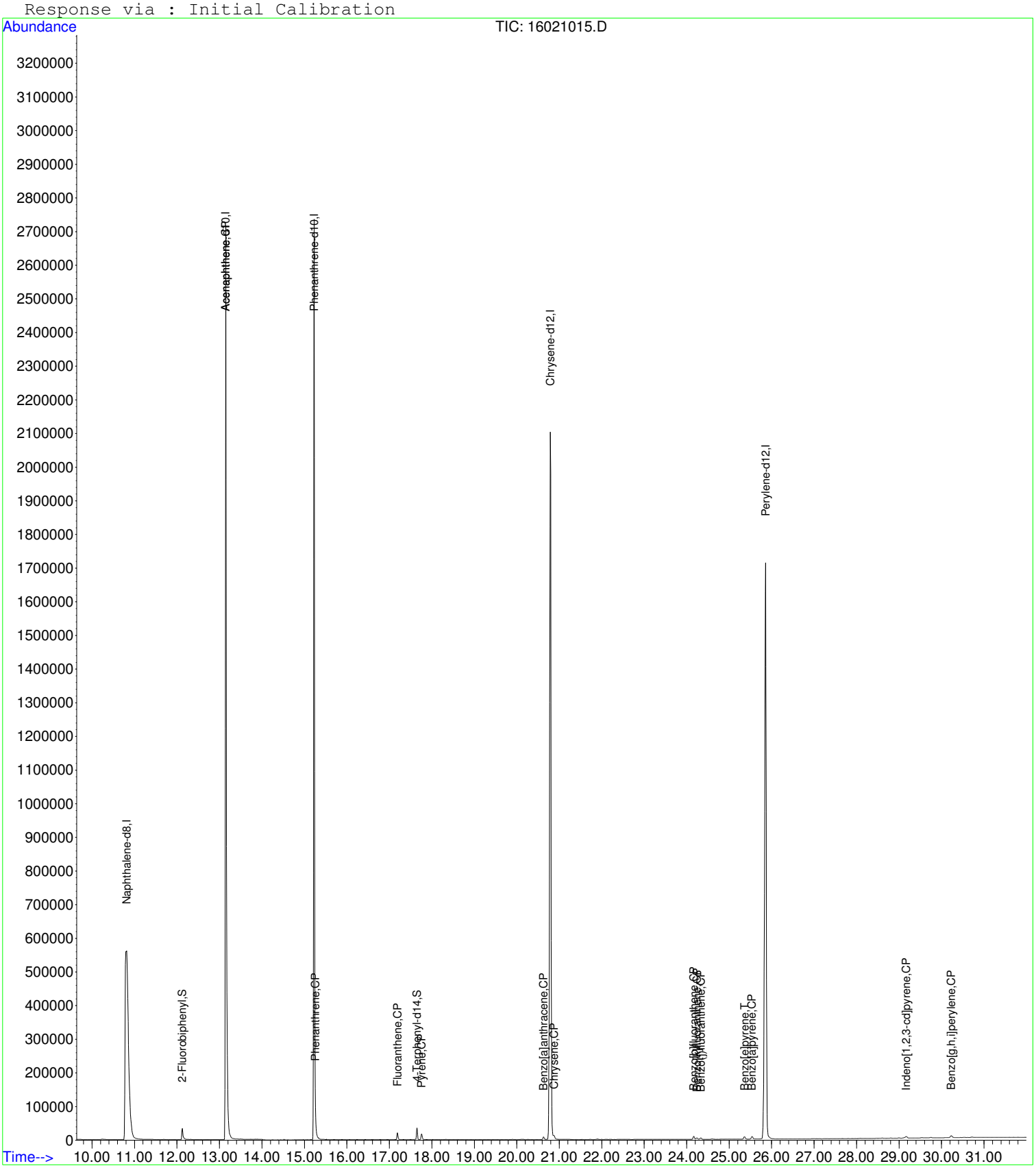
CONFIRMED
By Sherri Herschmann at 11:31:43 AM, 2/16/2016

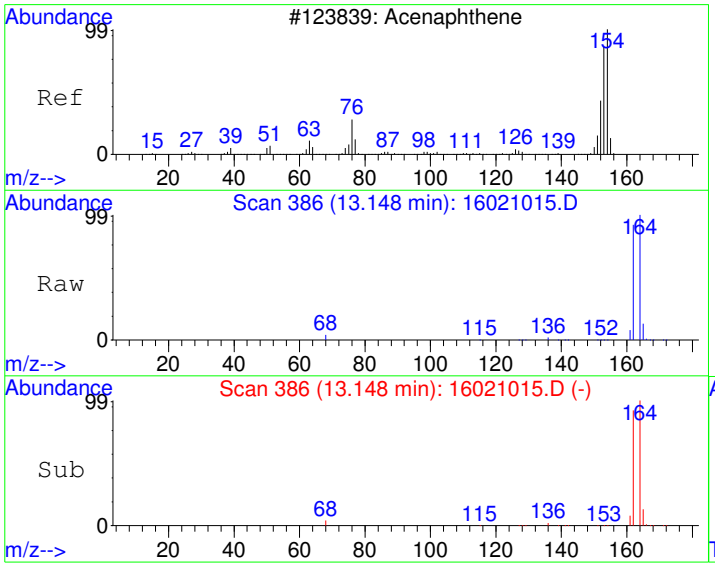
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021015.D Vial: 15
Acq On : 10 Feb 2016 6:41 pm Operator:
Sample : 1601232-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

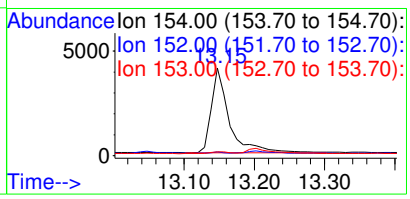


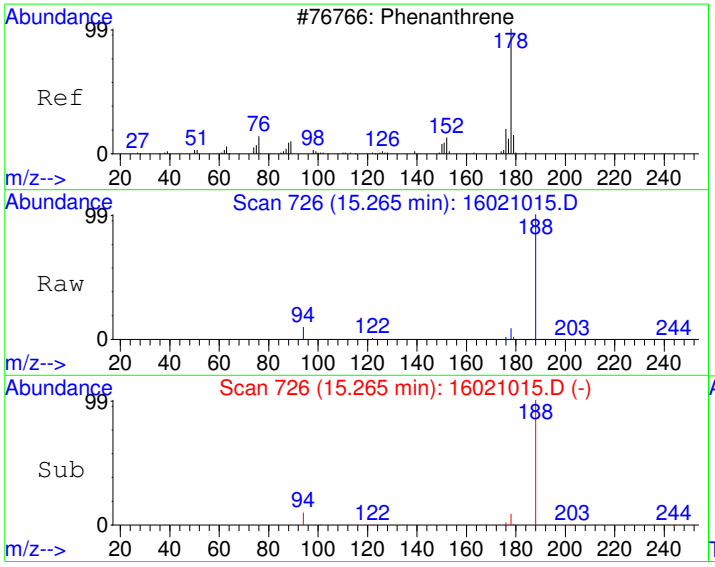


#9
Acenaphthene
Concen: 14.38 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:154 Resp: 7190

Ion	Ratio	Lower	Upper
154	100		
152	1.5	18.7	78.7#
153	2.0	74.4	134.4#

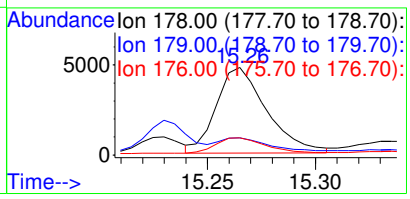


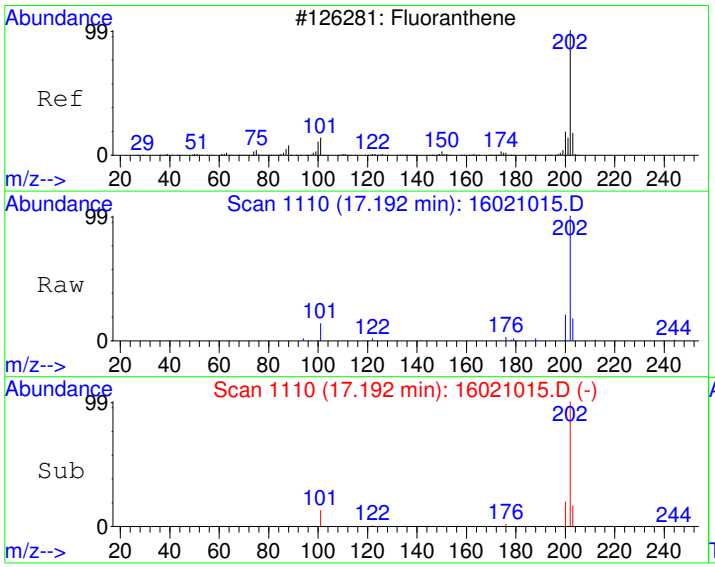


#12
Phenanthrene
Concen: 9.69 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. 0.00 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:178 Resp: 7713

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	46.1
176	18.9	0.0	49.0

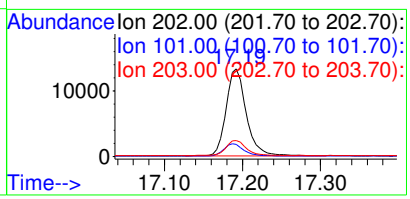


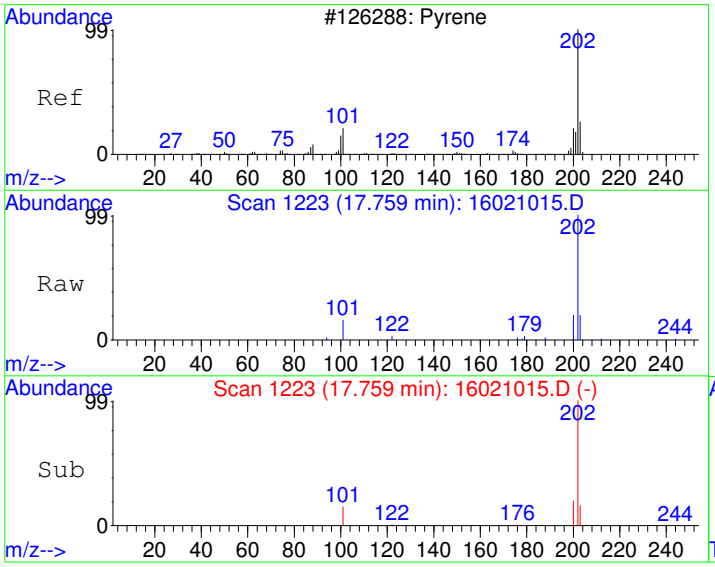


#14
Fluoranthene
Concen: 30.12 ug/kg
RT: 17.19 min Scan# 1110
Delta R.T. 0.02 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:202 Resp: 23782

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	42.5
203	17.5	0.0	48.0

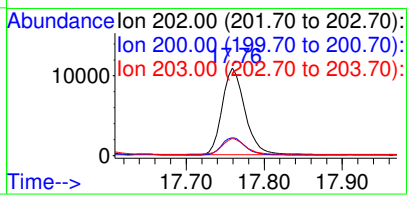


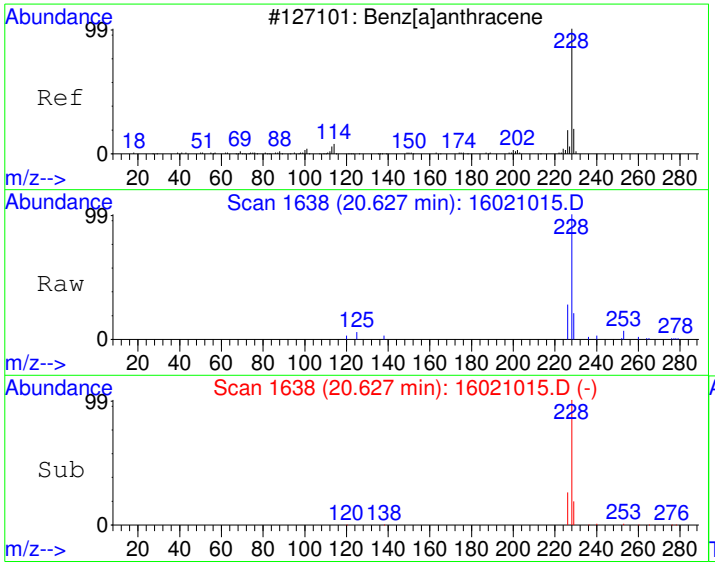


#15
Pyrene
Concen: 27.41 ug/kg
RT: 17.76 min Scan# 1223
Delta R.T. 0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:202 Resp: 22041

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	18.3	0.0	48.0

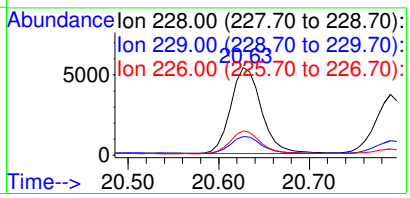


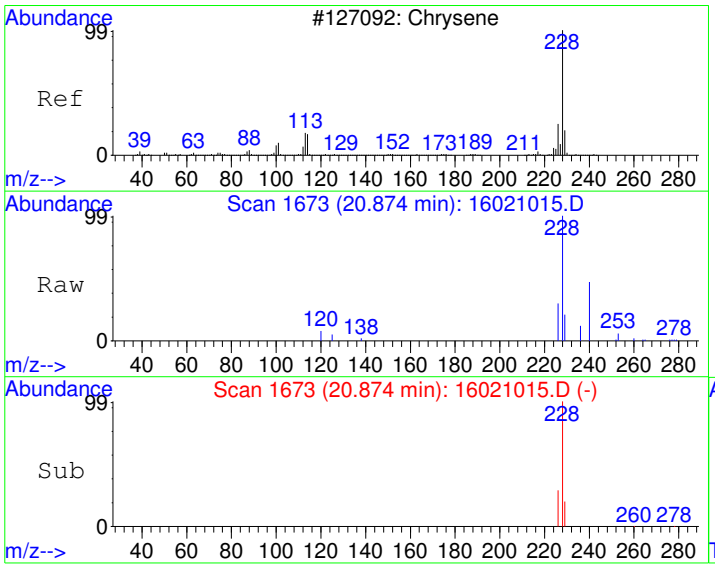


#18
Benzo[a]anthracene
Concen: 16.33 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:228 Resp: 12527

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.0
226	26.4	0.0	56.4

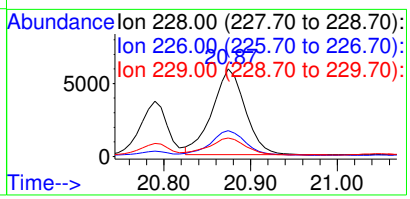


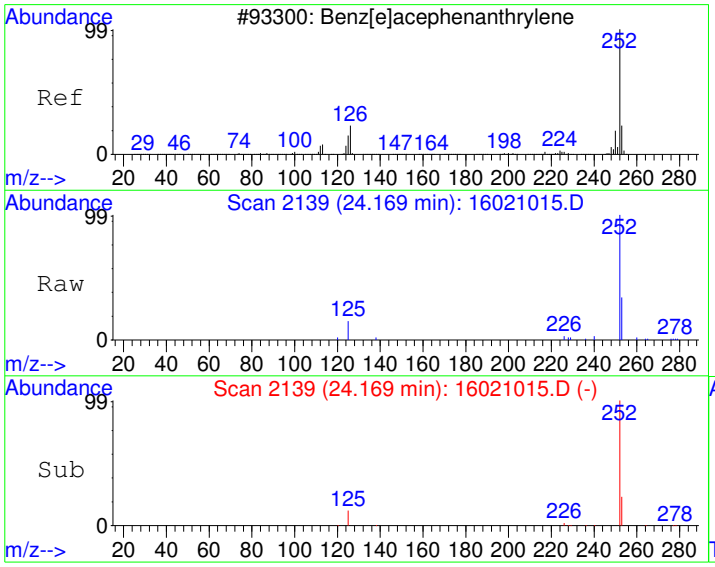


#19
Chrysene
Concen: 21.33 ug/kg
RT: 20.87 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:228 Resp: 15580

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.5
229	19.8	0.0	50.1

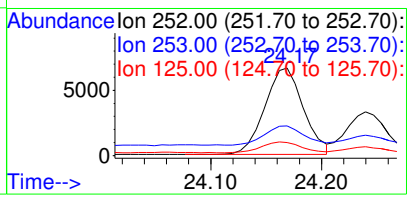


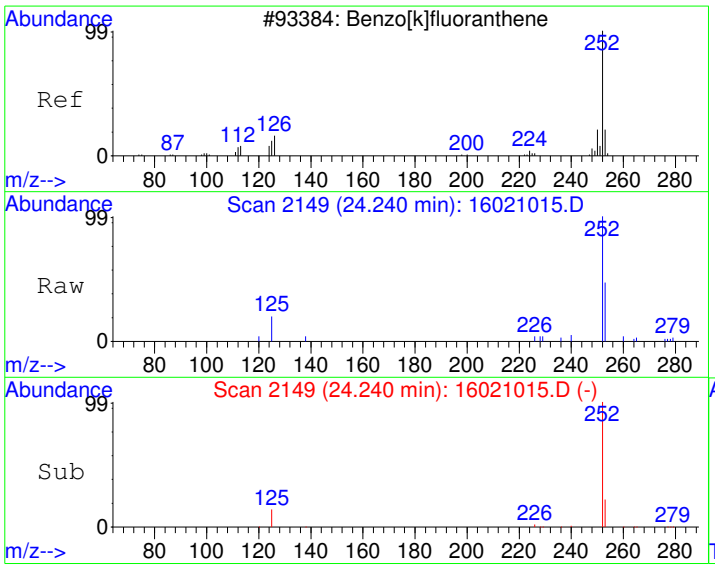


#21
Benzo[b]fluoranthene
Concen: 19.97 ug/kg
RT: 24.17 min Scan# 2139
Delta R.T. -0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:252 Resp: 16055

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	11.5	0.0	40.5

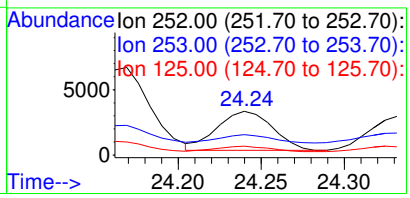


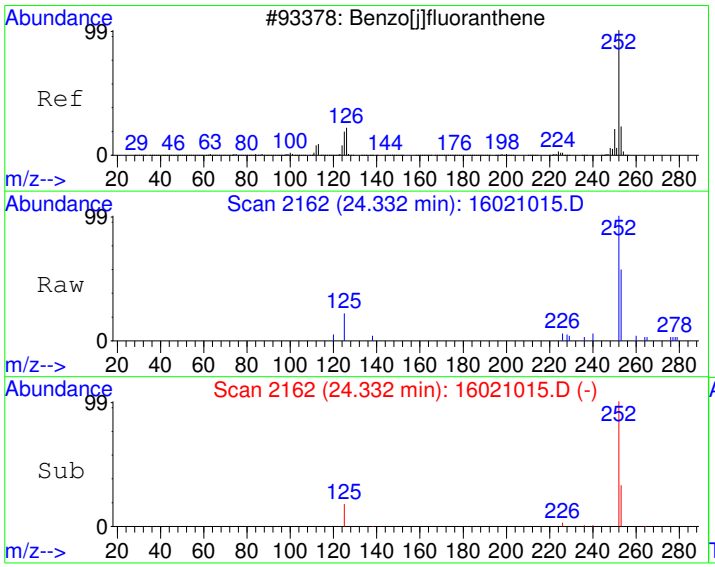


#22
Benzo[k]fluoranthene
Concen: 9.71 ug/kg
RT: 24.24 min Scan# 2149
Delta R.T. -0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:252 Resp: 6930

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.2	42.2
125	13.6	0.0	31.8

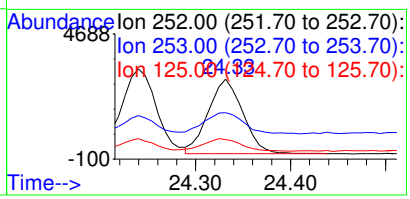


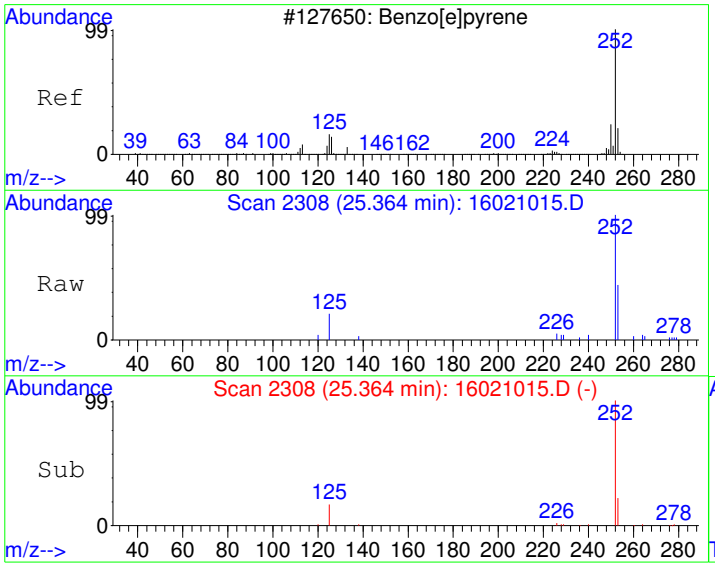


#23
Benzo(j)fluoranthene
Concen: 10.76 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:252 Resp: 7215

Ion	Ratio	Lower	Upper
252	100		
253	26.4	2.3	42.3
125	14.6	0.0	34.0

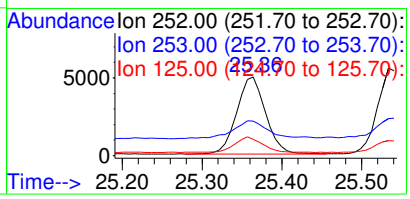


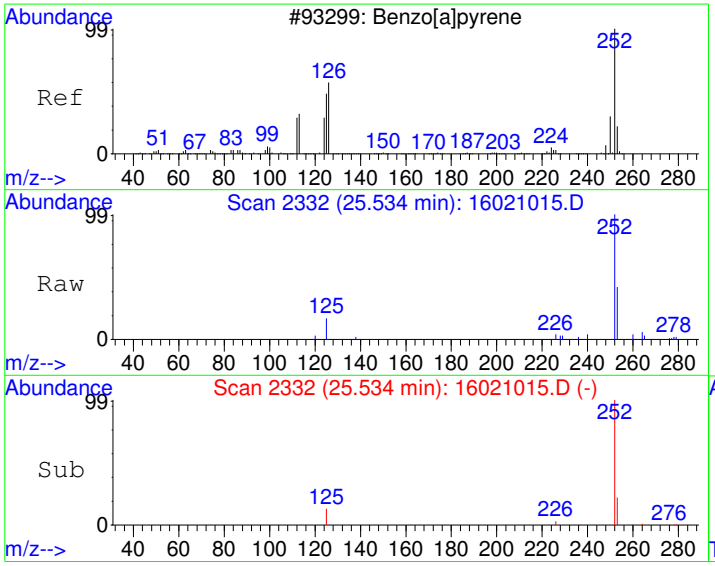


#24
Benzo[e]pyrene
Concen: 16.65 ug/kg
RT: 25.36 min Scan# 2308
Delta R.T. -0.03 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:252 Resp: 12497

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	16.8	0.0	36.0

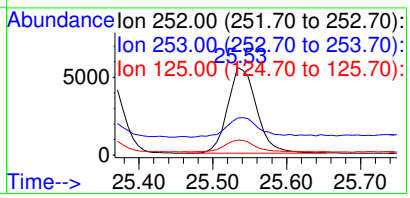


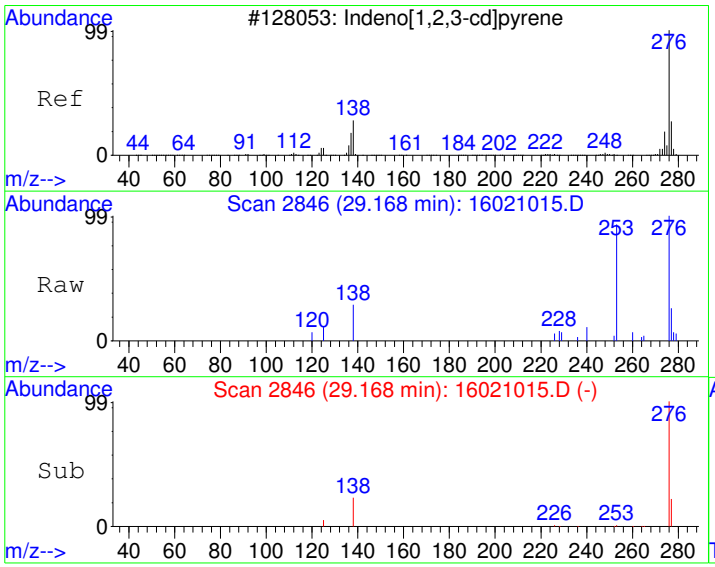


#25
Benzo[a]pyrene
Concen: 20.46 ug/kg
RT: 25.53 min Scan# 2332
Delta R.T. -0.04 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:252 Resp: 14945

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.0	42.0
125	13.6	0.0	32.3

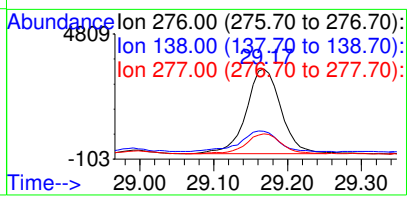


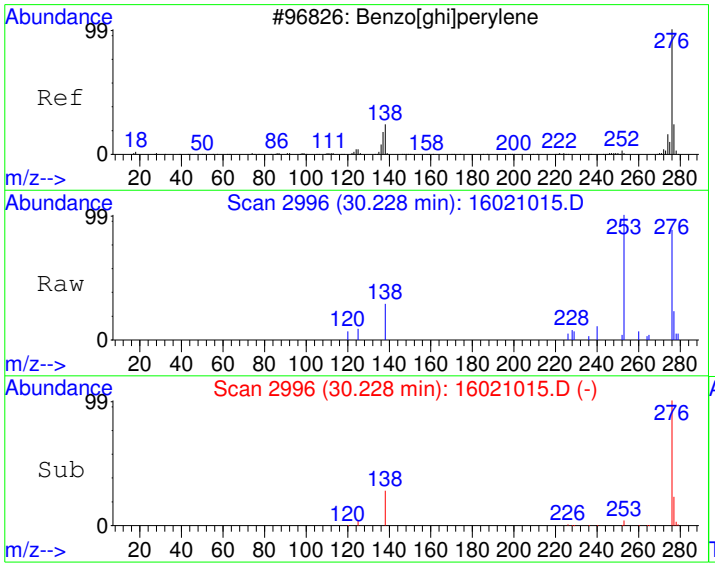


#27
Indeno[1,2,3-cd]pyrene
Concen: 13.26 ug/kg
RT: 29.17 min Scan# 2846
Delta R.T. 0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:276 Resp: 10913

Ion	Ratio	Lower	Upper
276	100		
138	23.7	2.1	42.1
277	23.6	4.2	44.2

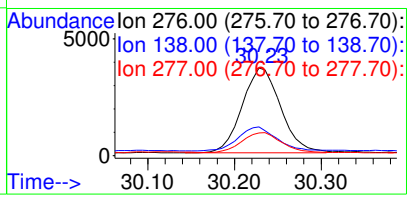




#28
Benzo[g,h,i]perylene
Concen: 16.30 ug/kg
RT: 30.23 min Scan# 2996
Delta R.T. 0.01 min
Lab File: 16021015.D
Acq: 10 Feb 2016 6:41 pm

Tgt Ion:276 Resp: 11256

Ion	Ratio	Lower	Upper
276	100		
138	28.3	3.9	43.9
277	22.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021019.D Vial: 19
Acq On : 10 Feb 2016 9:17 pm Operator:
Sample : ICV2-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2894822	4000.00 ug/kg	138
5) Acenaphthene-d10	13.15	164	2140153	4000.00 ug/kg	118
11) Phenanthrene-d10	15.22	188	3416275	4000.00 ug/kg	104
17) Chrysene-d12	20.79	240	3395827	4000.00 ug/kg	118
20) Perylene-d12	25.86	264	2985525	4000.00 ug/kg	129

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1263548	2037.84 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.95%	
16) 4-Terphenyl-d14	17.64	244	1197359	2097.95 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	52.45%	

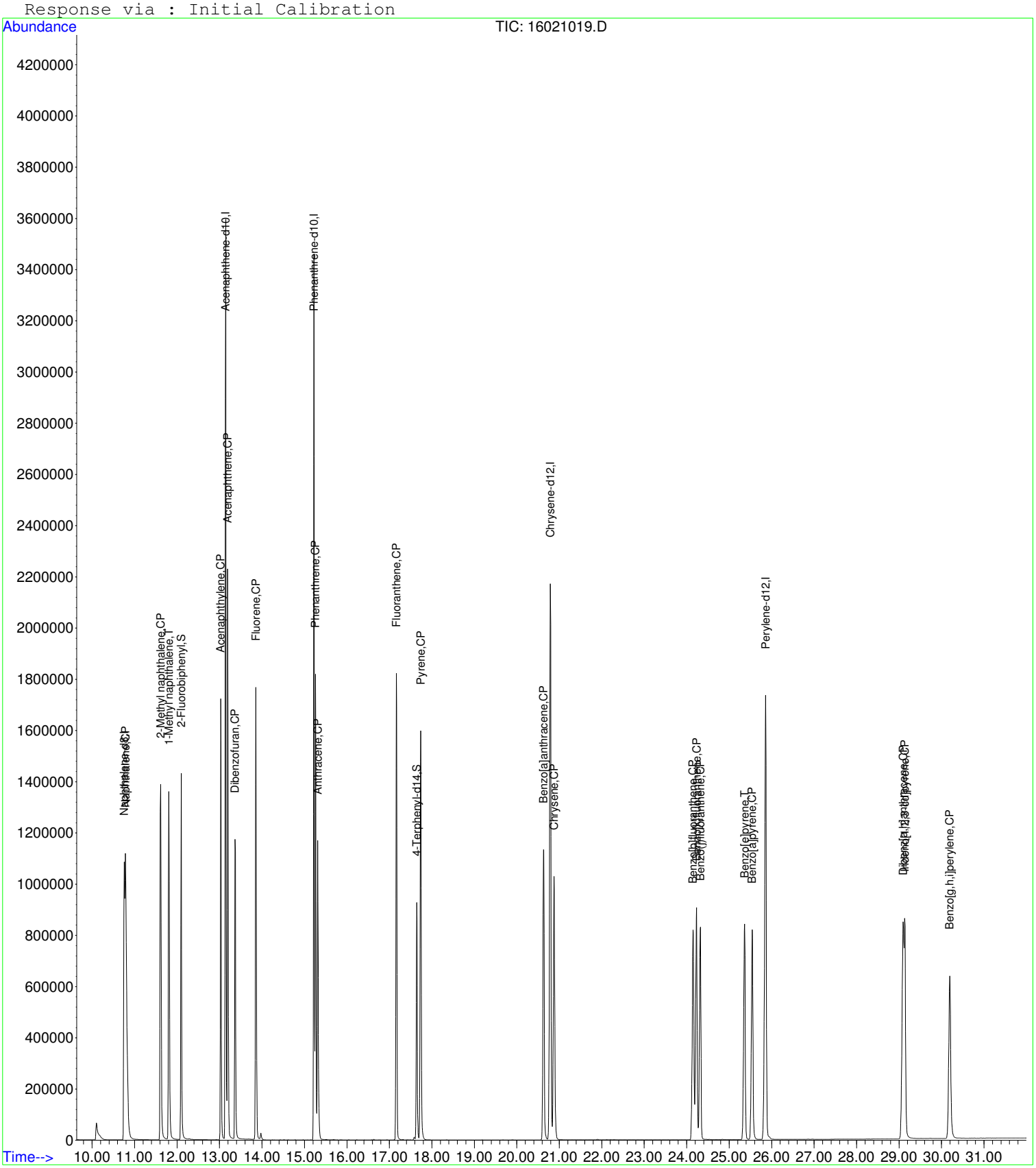
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1462628	2019.51 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1104226	1936.37 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	1011242	1879.06 ug/kg	96
6) Dibenzofuran	13.37	168	1302408	1872.59 ug/kg	98
8) Acenaphthylene	13.03	152	1725713	1939.34 ug/kg	99
9) Acenaphthene	13.19	154	1044157	1936.61 ug/kg	96
10) Fluorene	13.86	166	1135048	1784.42 ug/kg	98
12) Phenanthrene	15.26	178	1566487	1930.92 ug/kg	99
13) Anthracene	15.31	178	1453591	1831.32 ug/kg	100
14) Fluoranthene	17.17	202	1747410	2172.13 ug/kg	98
15) Pyrene	17.74	202	1768912	2158.80 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1624232	2074.37 ug/kg	99
19) Chrysene	20.87	228	1547957	2076.34 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1636629	2056.11 ug/kg	97
22) Benzo[k]fluoranthene	24.23	252	1427124	2018.36 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1383184	2082.49 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1521901	2047.88 ug/kg	99
25) Benzo[a]pyrene	25.54	252	1498582	2071.72 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	1367024	2042.91 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	1632837	2002.94 ug/kg	99
28) Benzo[g,h,i]perylene	30.19	276	1286986	1881.54 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021019.D Vial: 19
Acq On : 10 Feb 2016 9:17 pm Operator:
Sample : ICV2-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021021.D Vial: 21
Acq On : 10 Feb 2016 10:38 pm Operator:
Sample : SB-160210 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2136665	4000.00 ug/kg	102
5) Acenaphthene-d10	13.15	164	1588594	4000.00 ug/kg	87
11) Phenanthrene-d10	15.23	188	2697052	4000.00 ug/kg	82
17) Chrysene-d12	20.79	240	2757243	4000.00 ug/kg	95
20) Perylene-d12	25.86	264	2417445	4000.00 ug/kg	105

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.14	172	187	0.41 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	
16) 4-Terphenyl-d14	17.69	244	185	0.41 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	

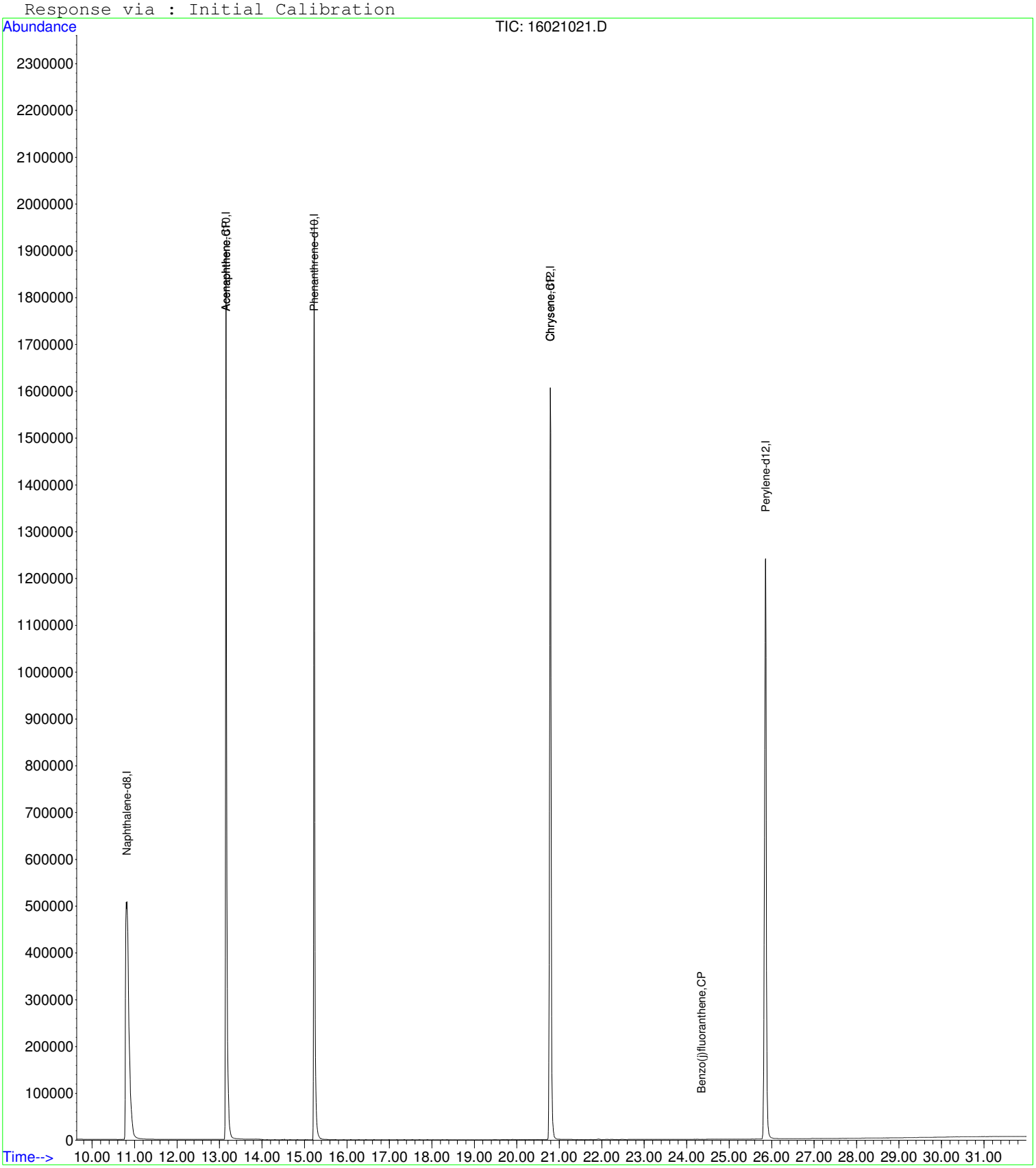
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5632	14.07 ug/kg#	10
19) Chrysene	20.79	228	6141	10.14 ug/kg	74
23) Benzo(j)fluoranthene	24.35	252	26	0.05 ug/kg#	58

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021021.D Vial: 21
Acq On : 10 Feb 2016 10:38 pm Operator:
Sample : SB-160210 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021029.D Vial: 29
Acq On : 11 Feb 2016 4:01 am Operator:
Sample : 1601247-04AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2486132	4000.00	ug/kg	119
5) Acenaphthene-d10	13.15	164	1909958	4000.00	ug/kg	105
11) Phenanthrene-d10	15.23	188	3195355	4000.00	ug/kg	98
17) Chrysene-d12	20.80	240	3085130	4000.00	ug/kg	107
20) Perylene-d12	25.86	264	2862477	4000.00	ug/kg	124

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.12	172	41219	74.49	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.86%#			
16) 4-Terphenyl-d14	17.65	244	42775	80.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			

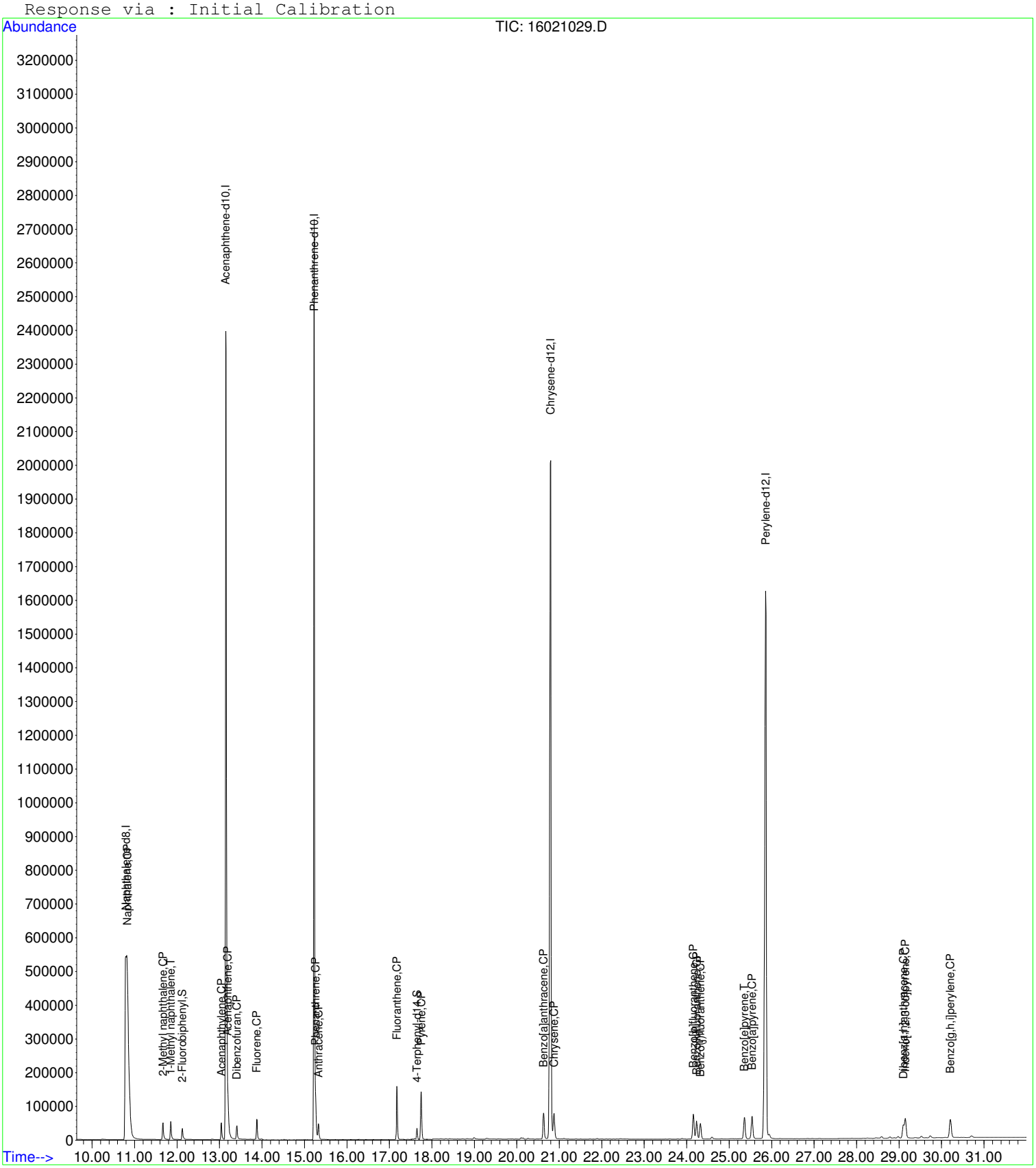
Target Compounds						Qvalue
2) Naphthalene	10.84	128	60151	96.71	ug/kg	100
3) 2-Methyl naphthalene	11.67	142	41143	84.01	ug/kg	98
4) 1-Methyl naphthalene	11.85	142	38491	83.28	ug/kg	94
6) Dibenzofuran	13.41	168	49430	79.64	ug/kg	98
8) Acenaphthylene	13.05	152	62125	78.23	ug/kg	98
9) Acenaphthene	13.20	154	39146	81.36	ug/kg	98
10) Fluorene	13.87	166	42648	75.13	ug/kg	95
12) Phenanthrene	15.26	178	91267	120.28	ug/kg	99
13) Anthracene	15.33	178	62958	84.80	ug/kg	99
14) Fluoranthene	17.18	202	172502	229.26	ug/kg	97
15) Pyrene	17.75	202	167506	218.56	ug/kg	99
18) Benzo[a]anthracene	20.63	228	114777	161.35	ug/kg	99
19) Chrysene	20.87	228	125699	185.59	ug/kg	98
21) Benzo[b]fluoranthene	24.15	252	135830	177.98	ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	84016	123.93	ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	82422	129.43	ug/kg	93
24) Benzo[e]pyrene	25.36	252	115151	161.61	ug/kg	97
25) Benzo[a]pyrene	25.54	252	126882	182.95	ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	62639	97.63	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	116024	148.44	ug/kg	95
28) Benzo[g,h,i]perylene	30.21	276	108946	166.12	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021029.D Vial: 29
Acq On : 11 Feb 2016 4:01 am Operator:
Sample : 1601247-04AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021030.D Vial: 30
Acq On : 11 Feb 2016 4:41 am Operator:
Sample : 1601247-04AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2462186	4000.00	ug/kg	117
5) Acenaphthene-d10	13.15	164	1917931	4000.00	ug/kg	105
11) Phenanthrene-d10	15.23	188	3233030	4000.00	ug/kg	99
17) Chrysene-d12	20.79	240	3160019	4000.00	ug/kg	109
20) Perylene-d12	25.86	264	2889090	4000.00	ug/kg	125

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.13	172	41794	75.21	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
16) 4-Terphenyl-d14	17.65	244	44140	81.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#			

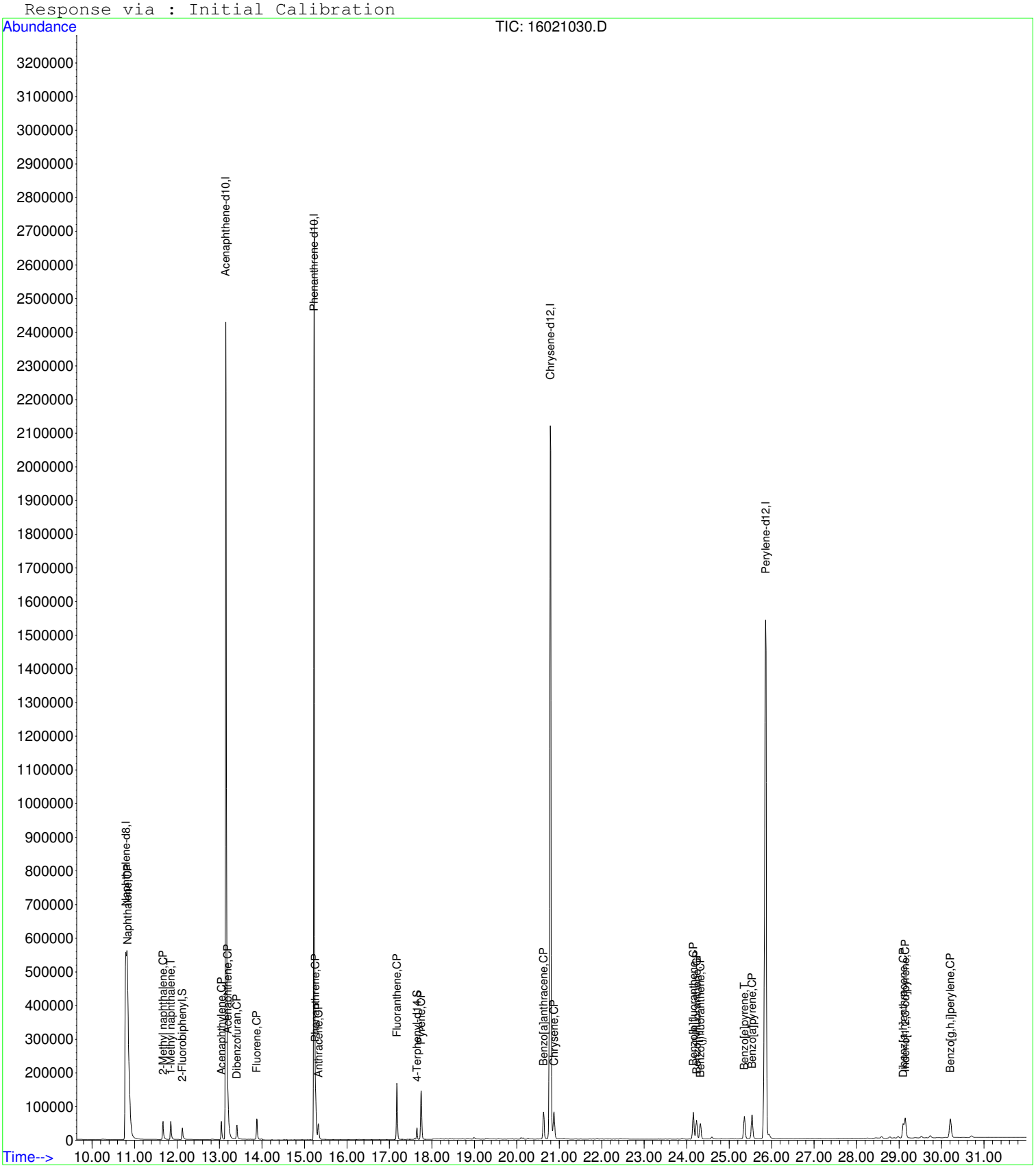
Target Compounds						Qvalue
2) Naphthalene	10.85	128	61562	99.94	ug/kg	100
3) 2-Methyl naphthalene	11.67	142	42602	87.83	ug/kg	98
4) 1-Methyl naphthalene	11.85	142	39753	86.85	ug/kg	94
6) Dibenzofuran	13.41	168	50589	81.16	ug/kg	99
8) Acenaphthylene	13.05	152	63596	79.75	ug/kg	99
9) Acenaphthene	13.20	154	39863	82.50	ug/kg	97
10) Fluorene	13.88	166	43472	76.26	ug/kg	96
12) Phenanthrene	15.26	178	95203	124.00	ug/kg	99
13) Anthracene	15.33	178	65569	87.29	ug/kg	99
14) Fluoranthene	17.18	202	178798	234.85	ug/kg	97
15) Pyrene	17.75	202	173653	223.94	ug/kg	99
18) Benzo[a]anthracene	20.63	228	119423	163.90	ug/kg	99
19) Chrysene	20.87	228	128781	185.63	ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	140785	182.77	ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	86036	125.74	ug/kg	98
23) Benzo(j)fluoranthene	24.32	252	86295	134.26	ug/kg	94
24) Benzo[e]pyrene	25.36	252	117931	163.99	ug/kg	97
25) Benzo[a]pyrene	25.54	252	130001	185.72	ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	65552	101.23	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.15	276	120168	152.33	ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	111343	168.21	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021030.D Vial: 30
Acq On : 11 Feb 2016 4:41 am Operator:
Sample : 1601247-04AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021031.D Vial: 31
Acq On : 11 Feb 2016 5:20 am Operator:
Sample : CCV1-160210 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2894942	4000.00 ug/kg	138
5) Acenaphthene-d10	13.15	164	2021207	4000.00 ug/kg	111
11) Phenanthrene-d10	15.23	188	3360767	4000.00 ug/kg	103
17) Chrysene-d12	20.80	240	3461724	4000.00 ug/kg	120
20) Perylene-d12	25.86	264	3074243	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	596438	1018.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	25.46%#	
16) 4-Terphenyl-d14	17.65	244	587078	1045.64 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	26.14%#	

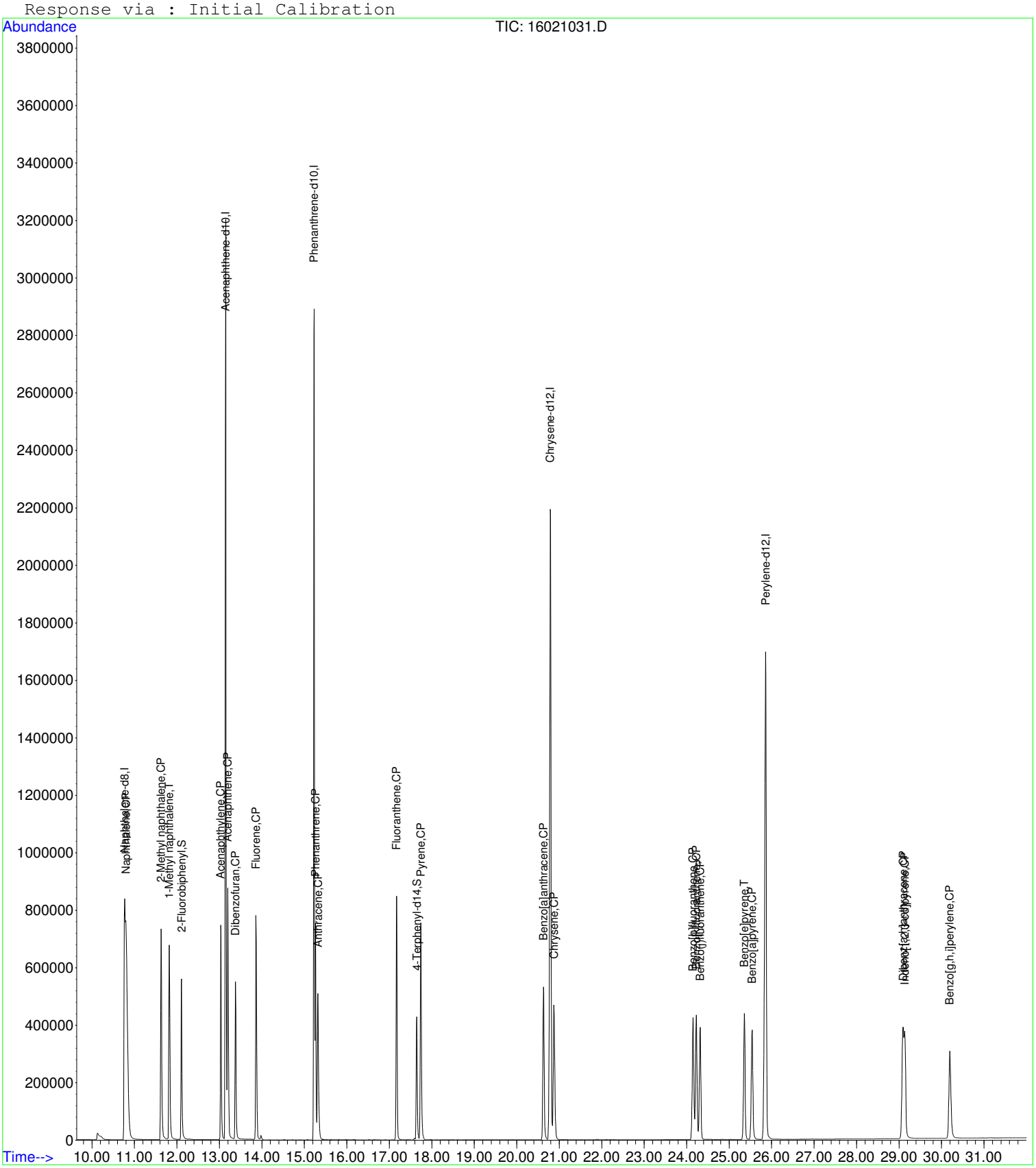
Target Compounds					Qvalue
2) Naphthalene	10.80	128	762343	1052.55 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	555277	973.69 ug/kg	99
4) 1-Methyl naphthalene	11.82	142	502900	934.43 ug/kg	95
6) Dibenzofuran	13.38	168	614888	936.11 ug/kg	98
8) Acenaphthylene	13.03	152	827036	984.11 ug/kg	99
9) Acenaphthene	13.19	154	478958	940.61 ug/kg	96
10) Fluorene	13.86	166	540243	899.30 ug/kg	97
12) Phenanthrene	15.26	178	747791	936.99 ug/kg	99
13) Anthracene	15.32	178	713783	914.12 ug/kg	99
14) Fluoranthene	17.17	202	862920	1090.38 ug/kg	98
15) Pyrene	17.74	202	882819	1095.20 ug/kg	99
18) Benzo[a]anthracene	20.63	228	780757	978.15 ug/kg	100
19) Chrysene	20.87	228	752049	989.55 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	804128	981.08 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	679455	933.21 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	665770	973.44 ug/kg	97
24) Benzo[e]pyrene	25.36	252	743300	971.32 ug/kg	97
25) Benzo[a]pyrene	25.54	252	725231	973.66 ug/kg	99
26) Dibenz[a,h]anthracene	29.09	278	655322	951.07 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	779506	928.60 ug/kg	96
28) Benzo[g,h,i]perylene	30.19	276	634845	901.34 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021031.D Vial: 31
Acq On : 11 Feb 2016 5:20 am Operator:
Sample : CCV1-160210 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:50 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1601232

CAL ID: 621

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160126.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	----	PAHCAL160126	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160126-1	1
SSCV 2500 ppb	-----	PAHSSCV160126-2	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	**PAHCAL160126**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160126-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160126-2**

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

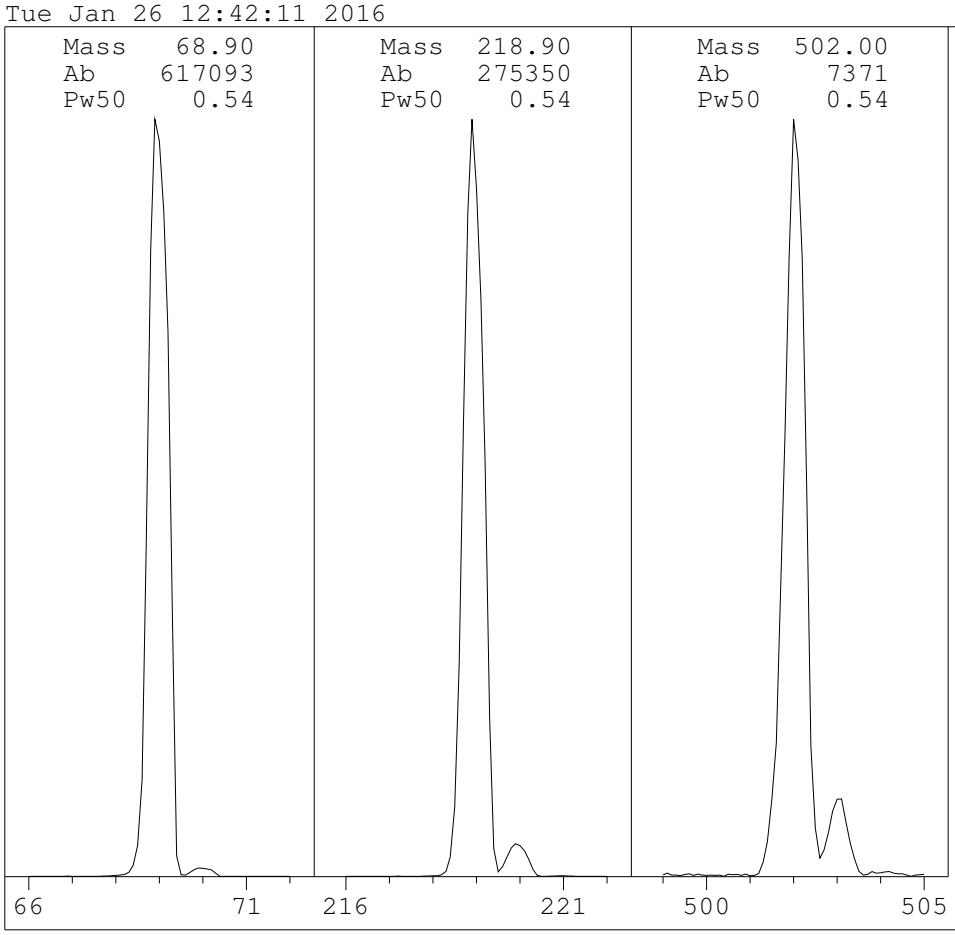
Analyst: Karyn Lane Don Winston Date: 01/26/16

Second-Level Review: [signature] Date: 01/28/2016

HP5973

Instrument: GC/MS #6

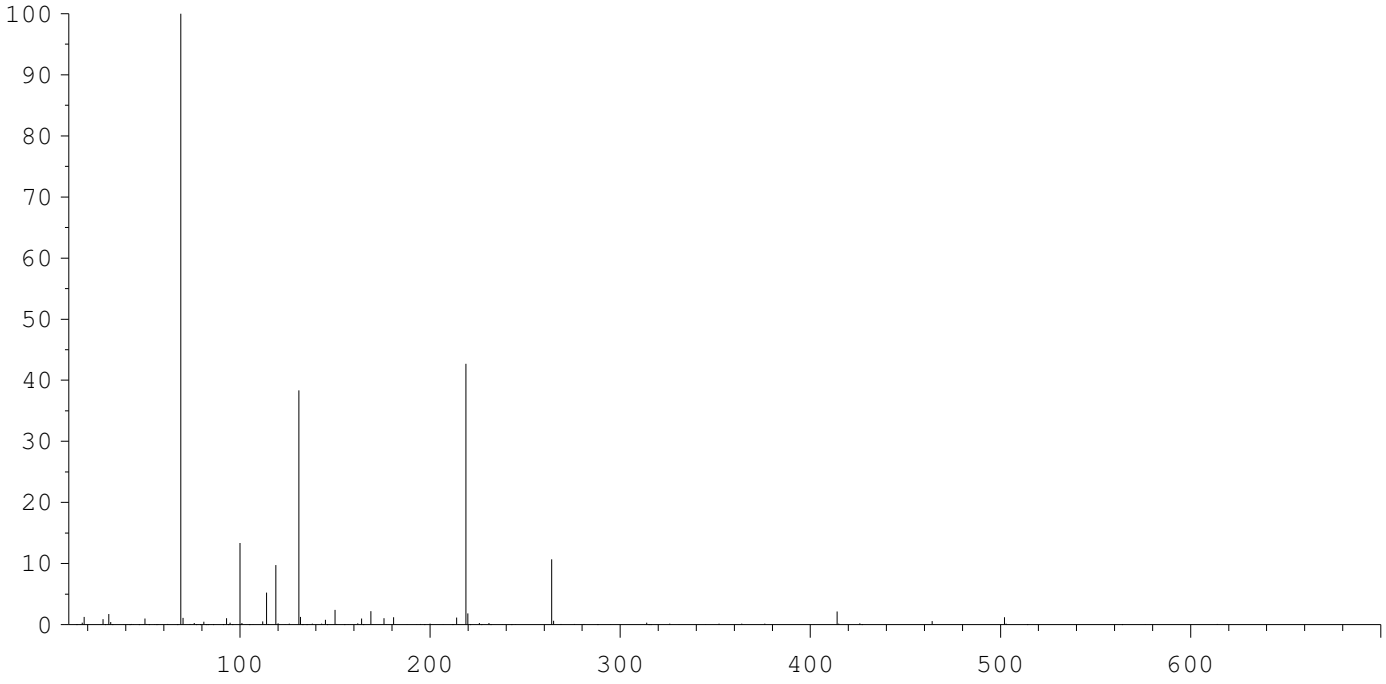
Tue Jan 26 12:42:11 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2211
EleEnergy	69.9	AmuOffs	128
Filament	1	Wid219	0.044
		DC Pol	POS
Repeller	21.08		
IonFocus	81.6	HED	ON
EntLens	7.0	EMVolts	1471
EntOffs	19.58		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	87
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

126 peaks Base: 69.00 Abundance: 530496



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	530496	100.00	70.00	5936	1.12
218.90	226496	42.70	219.90	9767	4.31
502.00	6318	1.19	503.00	718	11.36

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(%):	1.0	100.0	38.3	42.7	2.1	1.2

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160126.M
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response Via : Initial Calibration

Calibration Files
1 =16012602.D 2 =16012603.D 3 =16012604.D 4 =16012605.D 5 =16012606.D 6 =16012607.D 7 =16012608.D
8 =16012609.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	1.195	1.100	0.990	0.935	0.983	0.953	0.920	0.931	1.001	9.70	A	0.0970	0.0000	1.0008	0.0000
3)	CP	2-Methyl napht...	0.872	0.848	0.770	0.707	0.793	0.796	0.749	0.769	0.788	6.70	A	0.0670	0.0000	0.7880	0.0000
4)	T	1-Methyl napht...	0.875	0.795	0.747	0.669	0.748	0.737	0.682	0.696	0.744	9.04	A	0.0904	0.0000	0.7436	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.433	1.357	1.268	1.198	1.268	1.244	1.277	1.354	1.300	5.82#	A	0.0582	0.0000	1.2999	0.0000
7)	S	2-Fluorobiphenyl	1.366	1.255	1.130	1.085	1.140	1.109	1.063	1.124	1.159	8.73	A	0.0873	0.0000	1.1589	0.0000
8)	CP	Acenaphthylene	1.994	1.761	1.600	1.525	1.614	1.609	1.580	1.623	1.663	8.97	A	0.0897	0.0000	1.6631	0.0000
9)	CP	Acenaphthene	1.213	1.070	0.975	0.919	0.959	0.951	0.958	1.016	1.008	9.41	A	0.0941	0.0000	1.0077	0.0000
10)	CP	Fluorene	1.389	1.184	1.140	1.085	1.146	1.137	1.162	1.267	1.189	8.09	A	0.0809	0.0000	1.1889	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.069	0.998	0.953	0.884	0.923	0.905	0.912	0.954	0.950	6.29	A	0.0629	0.0000	0.9499	0.0000
13)	CP	Anthracene	1.014	0.940	0.911	0.875	0.924	0.913	0.905	0.952	0.929	4.44	A	0.0444	0.0000	0.9294	0.0000
14)	CP	Fluoranthene	1.062	0.970	0.900	0.885	0.952	0.930	0.903	0.932	0.942	5.95	A	0.0595	0.0000	0.9419	0.0000
15)	CP	Pyrene	1.128	1.009	0.911	0.899	0.963	0.931	0.904	0.930	0.959	8.03	A	0.0803	0.0000	0.9594	0.0000
16)	S	4-Terphenyl-d14	0.759	0.675	0.629	0.615	0.662	0.653	0.650	0.703	0.668	6.82	A	0.0682	0.0000	0.6682	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	1.056	0.932	0.883	0.842	0.903	0.906	0.898	0.958	0.922	6.91	A	0.0691	0.0000	0.9223	0.0000
19)	CP	Chrysene	1.016	0.892	0.837	0.799	0.860	0.860	0.847	0.915	0.878	7.48	A	0.0748	0.0000	0.8782	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	1.292	1.101	1.014	0.960	1.040	1.026	1.040	1.058	1.066	9.31	A	0.0931	0.0000	1.0665	0.0000
22)	CP	Benzo[k]fluora...	1.120	0.966	0.873	0.861	0.922	0.936	0.938	0.962	0.947	8.39	A	0.0839	0.0000	0.9473	0.0000
23)	CP	Benzo(j)fluora...	0.973	0.892	0.862	0.828	0.885	0.868	0.886	0.924	0.890	4.90	A	0.0490	0.0000	0.8899	0.0000
24)	T	Benzo[e]pyrene	1.245	1.048	0.936	0.902	0.960	0.949	0.953	0.973	0.996	10.94	A	0.1094	0.0000	0.9957	0.0000
25)	CP	Benzo[a]pyrene	1.203	0.986	0.912	0.872	0.939	0.931	0.944	0.966	0.969	10.35	A	0.1035	0.0000	0.9691	0.0000
26)	CP	Dibenz[a,h]ant...	1.183	0.914	0.812	0.783	0.869	0.864	0.866	0.882	0.897	13.71	A	0.1371	0.0000	0.8965	0.0000
27)	CP	Indeno[1,2,3-c...	1.467	1.138	0.994	0.955	1.049	1.040	1.045	1.050	1.092	14.65	A	0.1465	0.0000	1.0922	0.0000
28)	CP	Benzo[g,h,i]pe...	1.203	0.956	0.861	0.827	0.894	0.869	0.864	0.858	0.916	13.29	A	0.1329	0.0000	0.9164	0.0000

(#) = Out of Range

REVIEWED/APPROVED

By Sherri Herschmann at 10:45:54 AM, 1/28/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160126A** **Run No.:** 83823

Analytical Run Date: 1/26/2016 **InstrumentID:** GCMS6

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

Column ID: 0.18mm

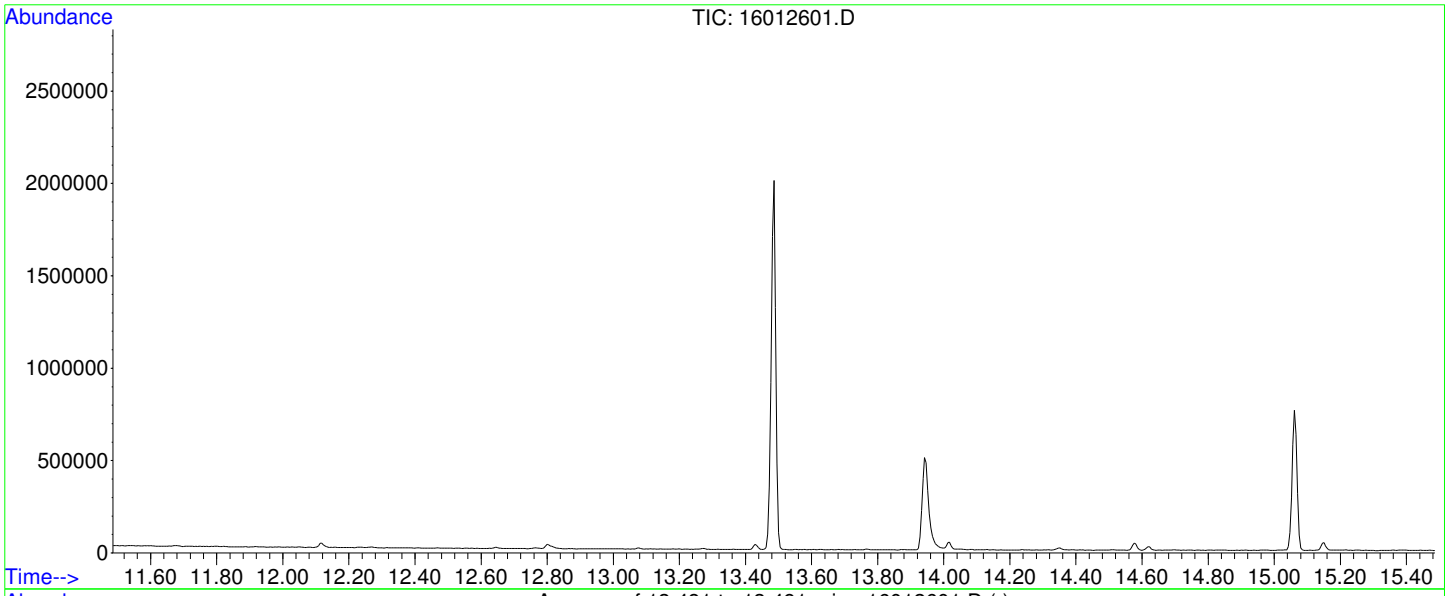
Column Length: 20m

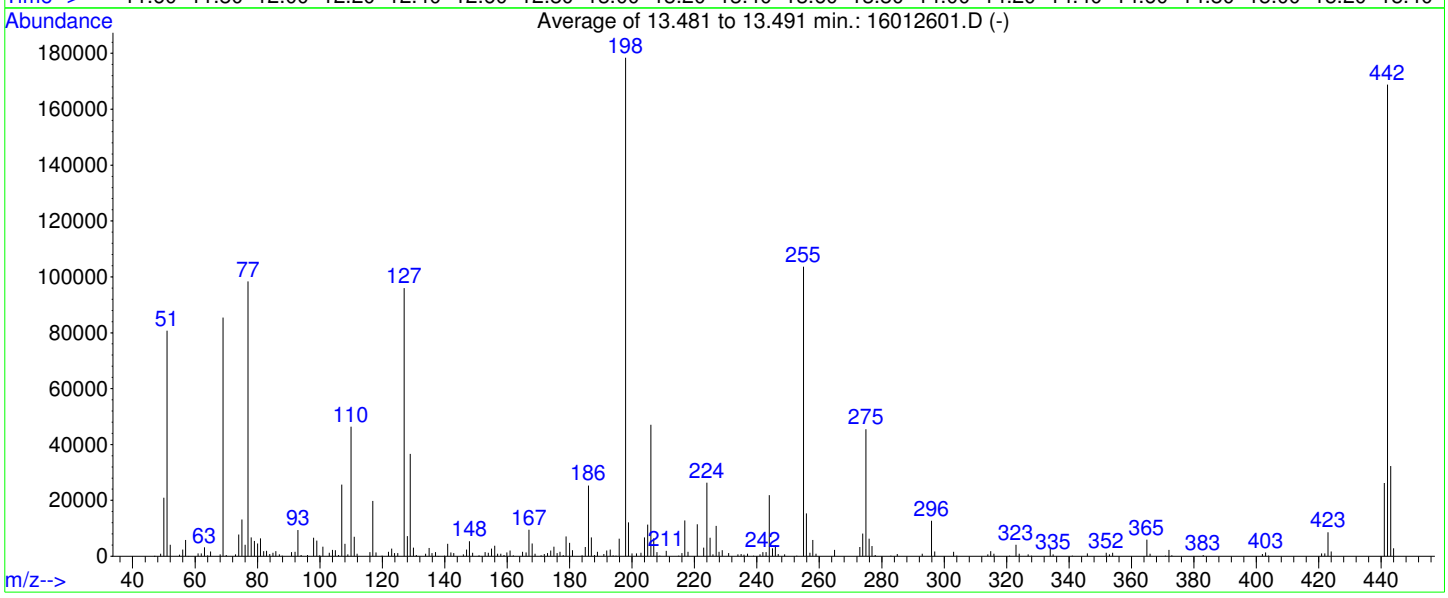
SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160126	1	PAH_ALL_W	TUNE	R83823	1/26/2016 1:25:00 PM		
PAH1 160126 5ppb	1	PAH_ALL_W	CAL1	R83823	1/26/2016 2:02:00 PM		
PAH2 160126 10ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 2:43:00 PM		
PAH3 160126 50ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 3:24:00 PM		
PAH4 160126 100ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 4:04:00 PM		
PAH5 160126 500ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 4:44:00 PM		
PAH6 160126 1000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 5:24:00 PM		
PAH7 160126 2000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 6:04:00 PM		
PAH8 160126 5000ppb	1	PAH_ALL_W	CAL	R83823	1/26/2016 6:45:00 PM		
SSCV 160126 2500ppb	1	PAH_ALL_W	ICV	R83823	1/26/2016 8:04:00 PM		Chrysene low - see rerun for chrysene and all analytes in that standard spiked in SSCV 160127 2500 ppb
SSCV 160126 2500ppb	1	PAH_ALL_W	ICV	R83823	1/26/2016 8:43:00 PM		Dibenzofuran and Benzo(j)fluoranthene.
DFTPP-160127	1	PAH_ALL_W	TUNE	R83823	1/27/2016 10:30:00 AM		
SSCV 160127 2500ppb	1	PAH_ALL_W	ICV	R83823	1/27/2016 11:08:00 AM		PAH mix. PAHSSCV160127-1 used for rerun.

REVIEWED/APPROVED

By Sherri Herschmann at 10:46:01 AM, 1/28/2016

Data File : C:\HPCHEM\1\DATA\160126\16012601.D Vial: 1
Acq On : 26 Jan 2016 1:25 pm Operator:
Sample : DFTPP-160126 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

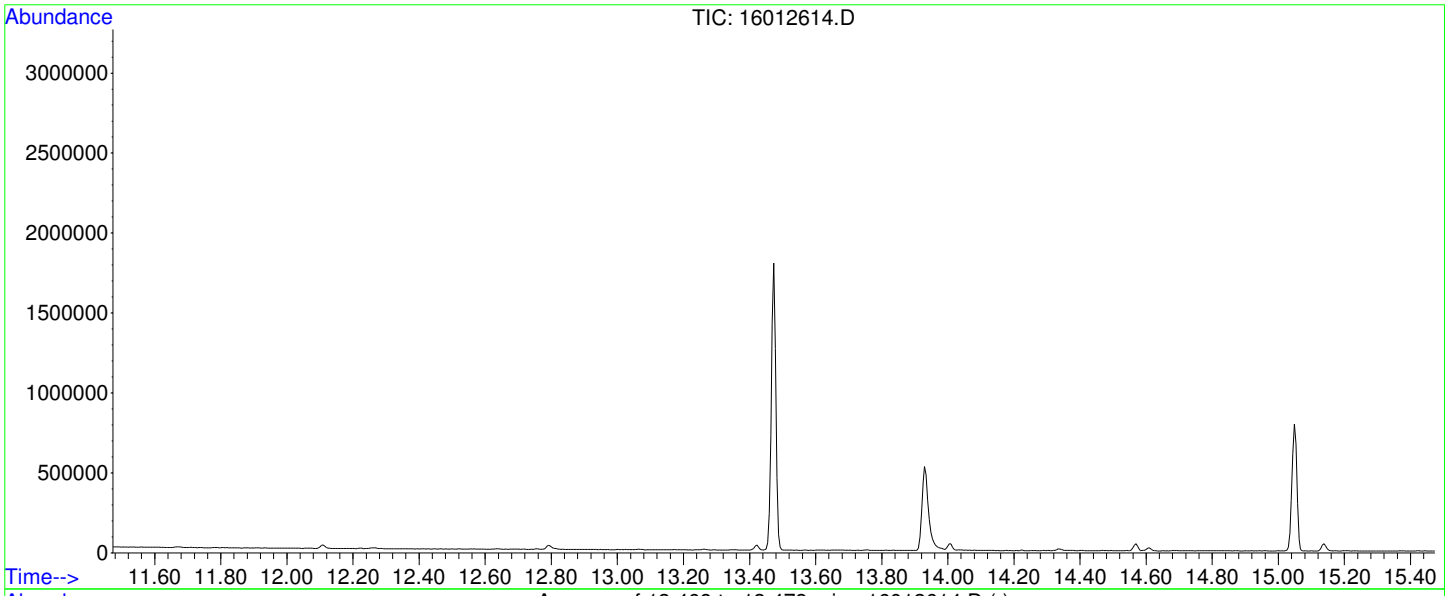


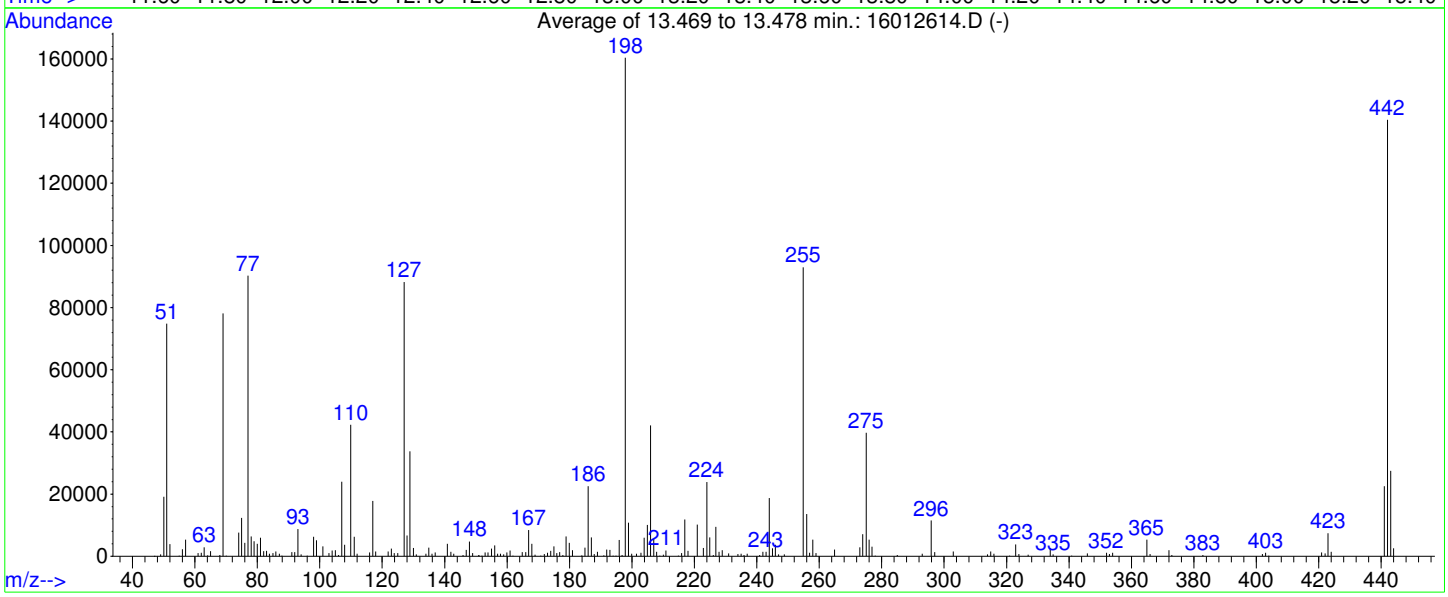


AutoFind: Scans 1572, 1573, 1574; Background Corrected with Scan 1565

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.3	80805	PASS
68	69	0.00	2	0.9	742	PASS
69	198	0.00	100	47.9	85408	PASS
70	69	0.00	2	0.5	410	PASS
127	198	10	80	53.8	96027	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	178453	PASS
199	198	5	9	6.8	12127	PASS
275	198	10	60	25.5	45480	PASS
365	198	1	200	3.4	5986	PASS
441	442	0.01	24	15.5	26192	PASS
442	198	50	400	94.6	168800	PASS
443	442	15	24	19.1	32272	PASS

Data File : C:\HPCHEM\1\DATA\160126\16012614.D Vial: 2
Acq On : 27 Jan 2016 10:30 am Operator:
Sample : DFTPP-160127 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 1569, 1570, 1571; Background Corrected with Scan 1562

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	46.7	74877	PASS
68	69	0.00	2	0.6	459	PASS
69	198	0.00	100	48.7	78123	PASS
70	69	0.00	2	0.2	181	PASS
127	198	10	80	55.0	88221	PASS
197	198	0.00	2	0.2	373	PASS
198	198	100	100	100.0	160405	PASS
199	198	5	9	6.7	10786	PASS
275	198	10	60	24.8	39789	PASS
365	198	1	200	3.4	5408	PASS
441	442	0.01	24	16.1	22532	PASS
442	198	50	400	87.5	140381	PASS
443	442	15	24	19.6	27475	PASS

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012602.D Vial: 2
Acq On : 26 Jan 2016 2:02 pm Operator:
Sample : PAH1 160126 5ppb Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:52 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2244252	4000.00 ug/kg	107
5) Acenaphthene-d10	13.19	164	1779934	4000.00 ug/kg	98
11) Phenanthrene-d10	15.28	188	3068359	4000.00 ug/kg	94
17) Chrysene-d12	20.91	240	2677596	4000.00 ug/kg	93
20) Perylene-d12	26.01	264	2201084	4000.00 ug/kg	95

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.15	172	3039	5.89 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.15%#		
16) 4-Terphenyl-d14	17.72	244	2912	5.68 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.14%#		

Target Compounds					Qvalue
2) Naphthalene	10.82	128	3352	5.97 ug/kg	97
3) 2-Methyl naphthalene	11.69	142	2445	5.53 ug/kg	98
4) 1-Methyl naphthalene	11.88	142	2455	5.88 ug/kg	95
6) Dibenzofuran	13.43	168	3189	5.51 ug/kg	98
8) Acenaphthylene	13.08	152	4436	5.99 ug/kg	98
9) Acenaphthene	13.24	154	2698	6.02 ug/kg	96
10) Fluorene	13.91	166	3091	5.84 ug/kg	100
12) Phenanthrene	15.31	178	4102	5.63 ug/kg	98
13) Anthracene	15.36	178	3888	5.45 ug/kg	97
14) Fluoranthene	17.25	202	4073	5.64 ug/kg	98
15) Pyrene	17.82	202	4325	5.88 ug/kg	99
18) Benzo[a]anthracene	20.74	228	3535	5.73 ug/kg	97
19) Chrysene	20.99	228	3401	5.79 ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	3554	6.06 ug/kg	92
22) Benzo[k]fluoranthene	24.37	252	3082	5.91 ug/kg	97
23) Benzo(j)fluoranthene	24.46	252	2678	5.47 ug/kg	89
24) Benzo[e]pyrene	25.51	252	3425	6.25 ug/kg	98
25) Benzo[a]pyrene	25.68	252	3309	6.20 ug/kg	95
26) Dibenz[a,h]anthracene	29.25	278	3256	6.60 ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.29	276	4035	6.71 ug/kg	97
28) Benzo[g,h,i]perylene	30.36	276	3310	6.56 ug/kg	100

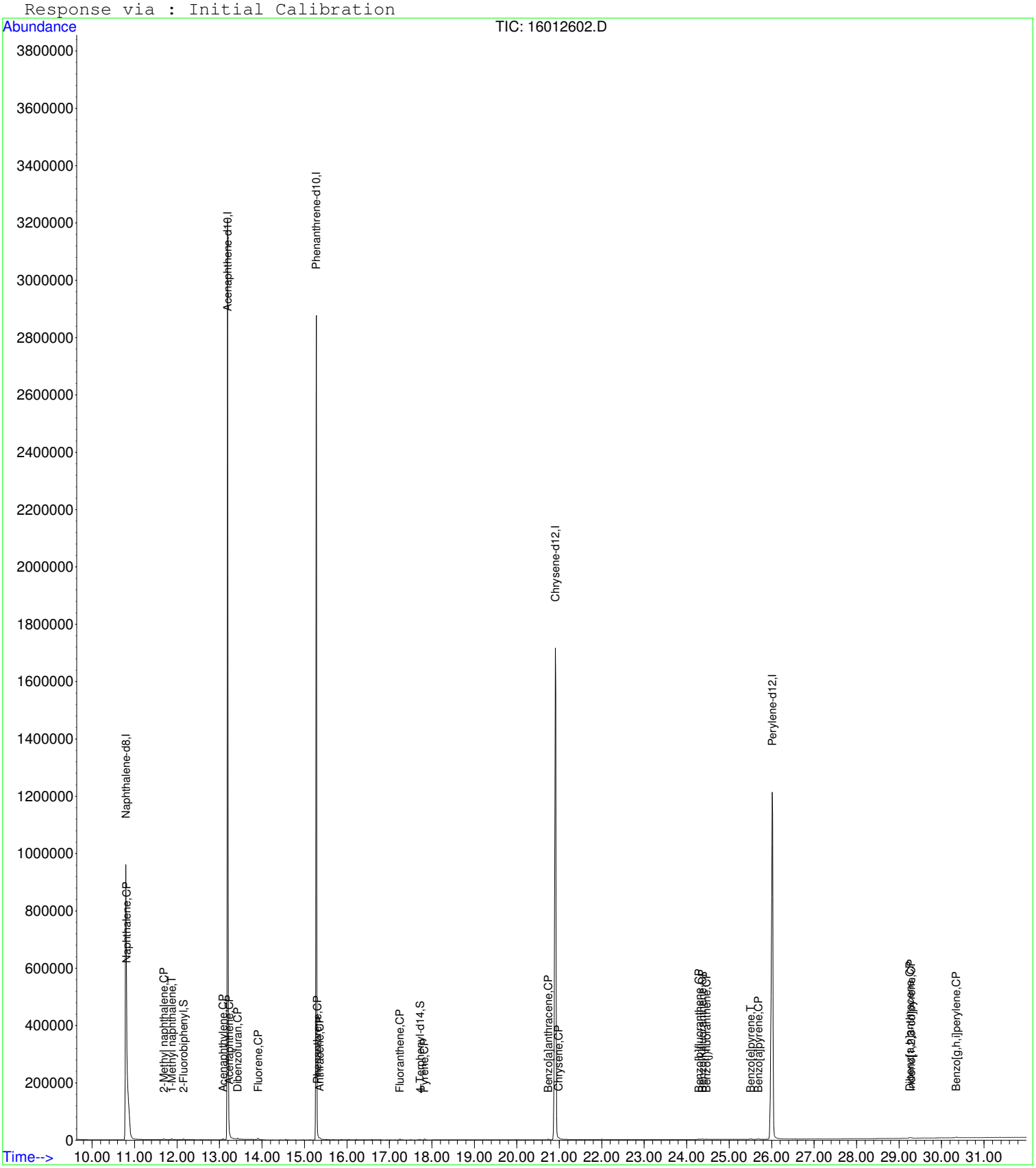
Slightly high, reprocessed low point must pass at 10 ppb for all analytes.

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012602.D Vial: 2
Acq On : 26 Jan 2016 2:02 pm Operator:
Sample : PAH1 160126 5ppb Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:52 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012603.D Vial: 3
Acq On : 26 Jan 2016 2:43 pm Operator:
Sample : PAH2 160126 10ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Reprocessed low point.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2188478	4000.00	ug/kg	104
5) Acenaphthene-d10	13.19	164	1792842	4000.00	ug/kg	98
11) Phenanthrene-d10	15.28	188	3016862	4000.00	ug/kg	92
17) Chrysene-d12	20.91	240	2693318	4000.00	ug/kg	93
20) Perylene-d12	26.01	264	2176517	4000.00	ug/kg	94

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.15	172	5623	10.83	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.27%#			
16) 4-Terphenyl-d14	17.72	244	5091	10.10	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			

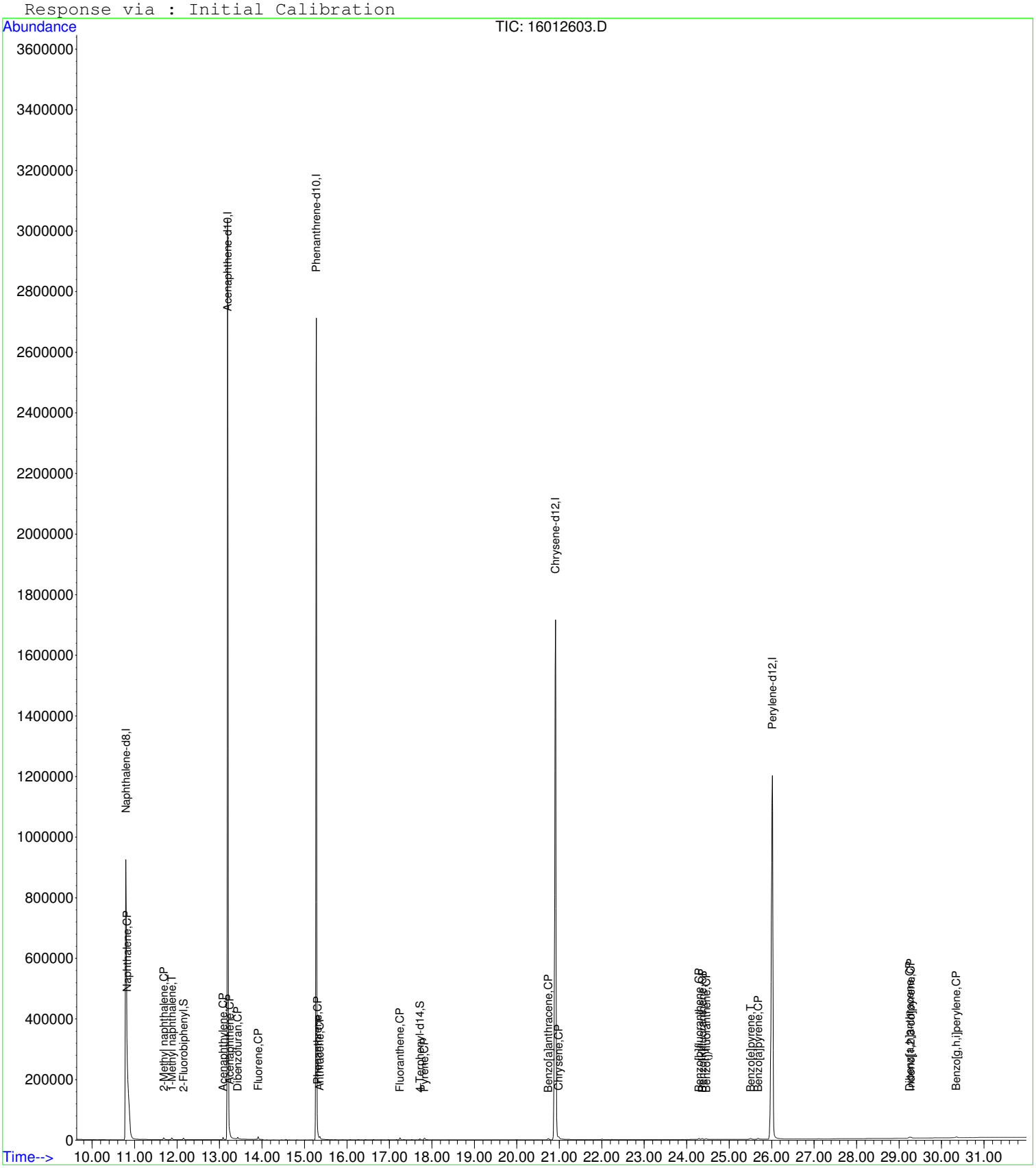
Target Compounds						Qvalue
2) Naphthalene	10.83	128	6018	10.99	ug/kg	97
3) 2-Methyl naphthalene	11.69	142	4642	10.77	ug/kg	96
4) 1-Methyl naphthalene	11.88	142	4350	10.69	ug/kg	96
6) Dibenzofuran	13.43	168	6082	10.44	ug/kg	100
8) Acenaphthylene	13.08	152	7894	10.59	ug/kg	97
9) Acenaphthene	13.24	154	4796	10.62	ug/kg	99
10) Fluorene	13.91	166	5307	9.96	ug/kg	98
12) Phenanthrene	15.31	178	7524	10.50	ug/kg	98
13) Anthracene	15.36	178	7093	10.12	ug/kg	98
14) Fluoranthene	17.25	202	7319	10.30	ug/kg	98
15) Pyrene	17.82	202	7611	10.52	ug/kg	97
18) Benzo[a]anthracene	20.74	228	6278	10.11	ug/kg	100
19) Chrysene	20.99	228	6008	10.16	ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	5993	10.33	ug/kg	98
22) Benzo[k]fluoranthene	24.37	252	5254	10.19	ug/kg	95
23) Benzo(j)fluoranthene	24.46	252	4856	10.03	ug/kg	95
24) Benzo[e]pyrene	25.51	252	5704	10.53	ug/kg	98
25) Benzo[a]pyrene	25.68	252	5367	10.18	ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	4973	10.19	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.28	276	6194	10.42	ug/kg	96
28) Benzo[g,h,i]perylene	30.36	276	5203	10.43	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012603.D Vial: 3
Acq On : 26 Jan 2016 2:43 pm Operator:
Sample : PAH2 160126 10ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012604.D Vial: 4
Acq On : 26 Jan 2016 3:24 pm Operator:
Sample : PAH3 160126 50ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2159310	4000.00 ug/kg	103
5) Acenaphthene-d10	13.19	164	1703253	4000.00 ug/kg	94
11) Phenanthrene-d10	15.28	188	3035492	4000.00 ug/kg	93
17) Chrysene-d12	20.91	240	2655973	4000.00 ug/kg	92
20) Perylene-d12	26.01	264	2149058	4000.00 ug/kg	93

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.14	172	24057	48.75 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.22%#	
16) 4-Terphenyl-d14	17.72	244	23858	47.05 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.18%#	

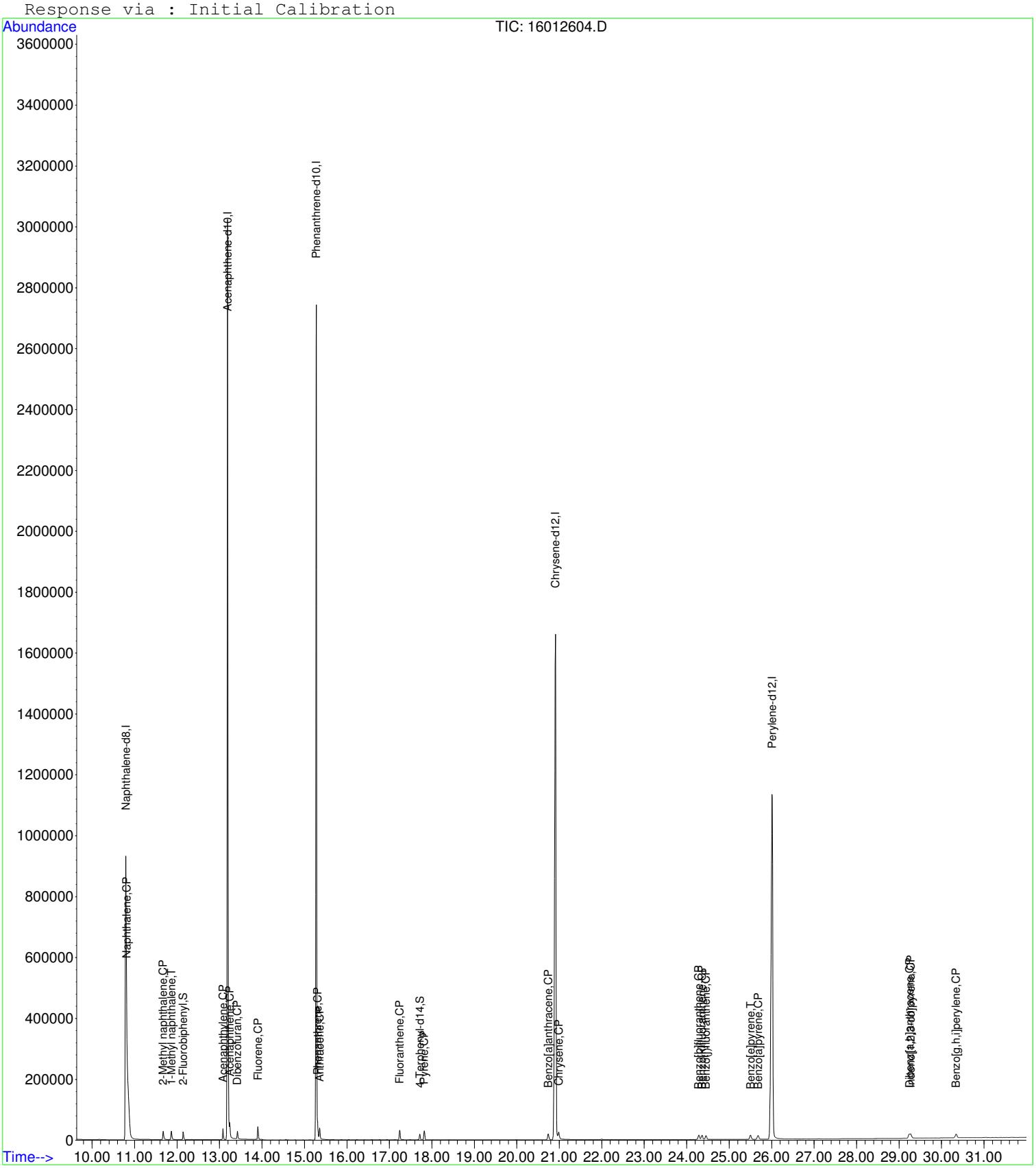
Target Compounds					Qvalue
2) Naphthalene	10.82	128	26716	49.45 ug/kg	99
3) 2-Methyl naphthalene	11.68	142	20774	48.84 ug/kg	97
4) 1-Methyl naphthalene	11.87	142	20153	50.20 ug/kg	99
6) Dibenzofuran	13.42	168	26996	48.77 ug/kg	99
8) Acenaphthylene	13.08	152	34058	48.09 ug/kg	98
9) Acenaphthene	13.24	154	20762	48.39 ug/kg	97
10) Fluorene	13.90	166	24273	47.95 ug/kg	98
12) Phenanthrene	15.31	178	36149	50.15 ug/kg	99
13) Anthracene	15.36	178	34574	49.02 ug/kg	98
14) Fluoranthene	17.24	202	34157	47.79 ug/kg	99
15) Pyrene	17.82	202	34571	47.48 ug/kg	100
18) Benzo[a]anthracene	20.74	228	29307	47.86 ug/kg	97
19) Chrysene	20.99	228	27789	47.66 ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	27252	47.56 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	23453	46.08 ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	23156	48.43 ug/kg	96
24) Benzo[e]pyrene	25.51	252	25151	47.02 ug/kg	98
25) Benzo[a]pyrene	25.68	252	24499	47.05 ug/kg	99
26) Dibenz[a,h]anthracene	29.24	278	21808	45.28 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.27	276	26698	45.50 ug/kg	98
28) Benzo[g,h,i]perylene	30.34	276	23119	46.95 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012604.D Vial: 4
Acq On : 26 Jan 2016 3:24 pm Operator:
Sample : PAH3 160126 50ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012605.D Vial: 5
Acq On : 26 Jan 2016 4:04 pm Operator:
Sample : PAH4 160126 100ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2435003	4000.00	ug/kg	116
5) Acenaphthene-d10	13.19	164	1827825	4000.00	ug/kg	100
11) Phenanthrene-d10	15.28	188	3102712	4000.00	ug/kg	95
17) Chrysene-d12	20.91	240	2787948	4000.00	ug/kg	97
20) Perylene-d12	26.02	264	2244118	4000.00	ug/kg	97

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.14	172	49563	93.59	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.34%#			
16) 4-Terphenyl-d14	17.71	244	47722	92.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.30%#			

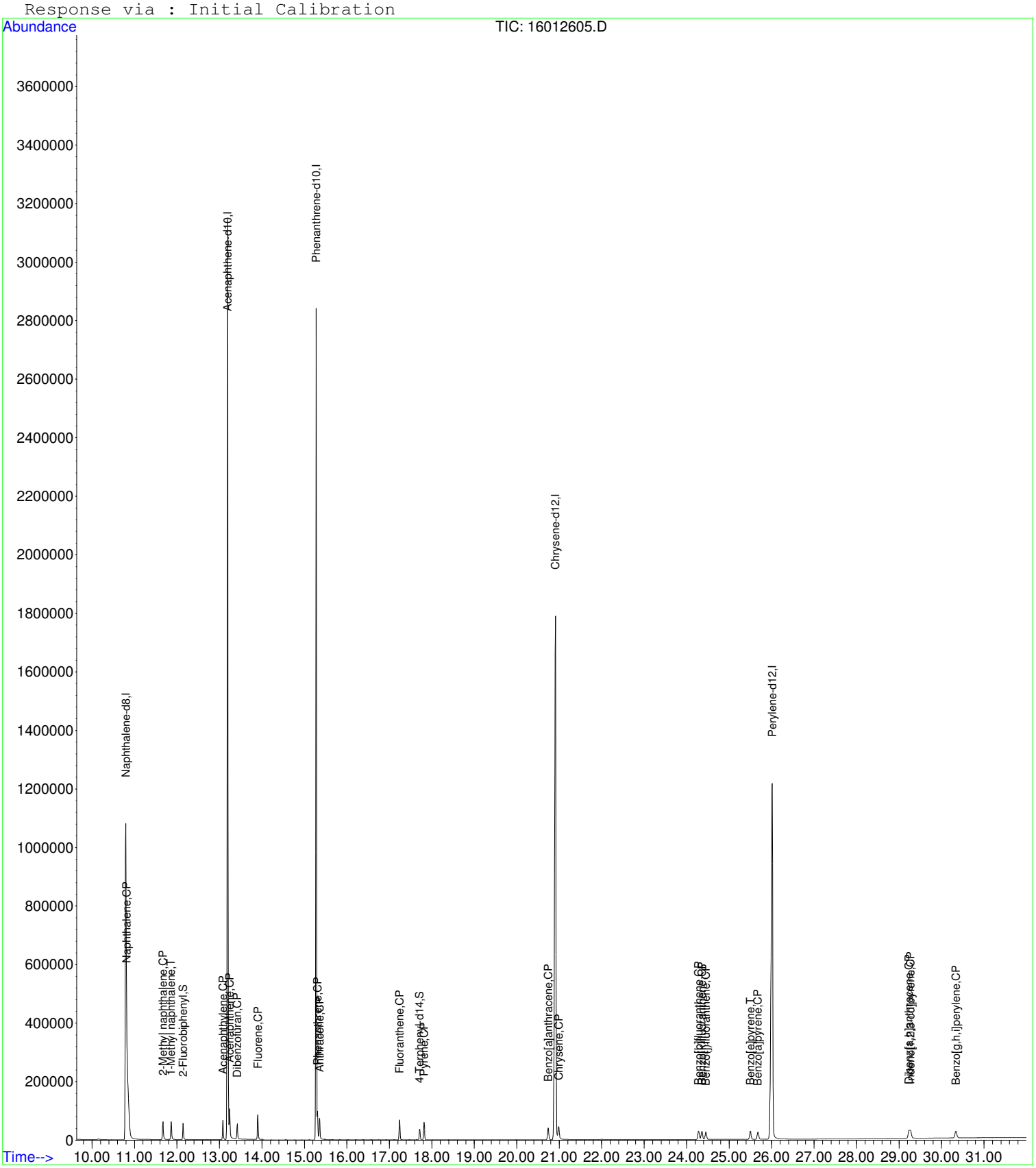
Target Compounds						Qvalue
2) Naphthalene	10.82	128	56912	93.42	ug/kg	100
3) 2-Methyl naphthalene	11.67	142	43051	89.75	ug/kg	97
4) 1-Methyl naphthalene	11.86	142	40729	89.97	ug/kg	95
6) Dibenzofuran	13.42	168	54736	92.15	ug/kg	99
8) Acenaphthylene	13.08	152	69695	91.71	ug/kg	98
9) Acenaphthene	13.24	154	41980	91.17	ug/kg	96
10) Fluorene	13.90	166	49598	91.30	ug/kg	99
12) Phenanthrene	15.31	178	68605	93.11	ug/kg	99
13) Anthracene	15.36	178	67902	94.19	ug/kg	98
14) Fluoranthene	17.24	202	68672	93.99	ug/kg	99
15) Pyrene	17.82	202	69706	93.67	ug/kg	99
18) Benzo[a]anthracene	20.74	228	58721	91.35	ug/kg	99
19) Chrysene	20.99	228	55673	90.96	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	53876	90.05	ug/kg	98
22) Benzo[k]fluoranthene	24.36	252	48315	90.91	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	46455	93.05	ug/kg	97
24) Benzo[e]pyrene	25.50	252	50586	90.56	ug/kg	99
25) Benzo[a]pyrene	25.68	252	48932	90.00	ug/kg	99
26) Dibenz[a,h]anthracene	29.23	278	43917	87.31	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	53593	87.46	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	46383	90.21	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012605.D Vial: 5
Acq On : 26 Jan 2016 4:04 pm Operator:
Sample : PAH4 160126 100ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012606.D Vial: 6
Acq On : 26 Jan 2016 4:44 pm Operator:
Sample : PAH5 160126 500ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2235270	4000.00 ug/kg	107
5) Acenaphthene-d10	13.19	164	1798502	4000.00 ug/kg	99
11) Phenanthrene-d10	15.28	188	3098904	4000.00 ug/kg	95
17) Chrysene-d12	20.91	240	2763319	4000.00 ug/kg	96
20) Perylene-d12	26.01	264	2233167	4000.00 ug/kg	97

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	256192	491.67 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.29%#		
16) 4-Terphenyl-d14	17.71	244	256452	495.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#		

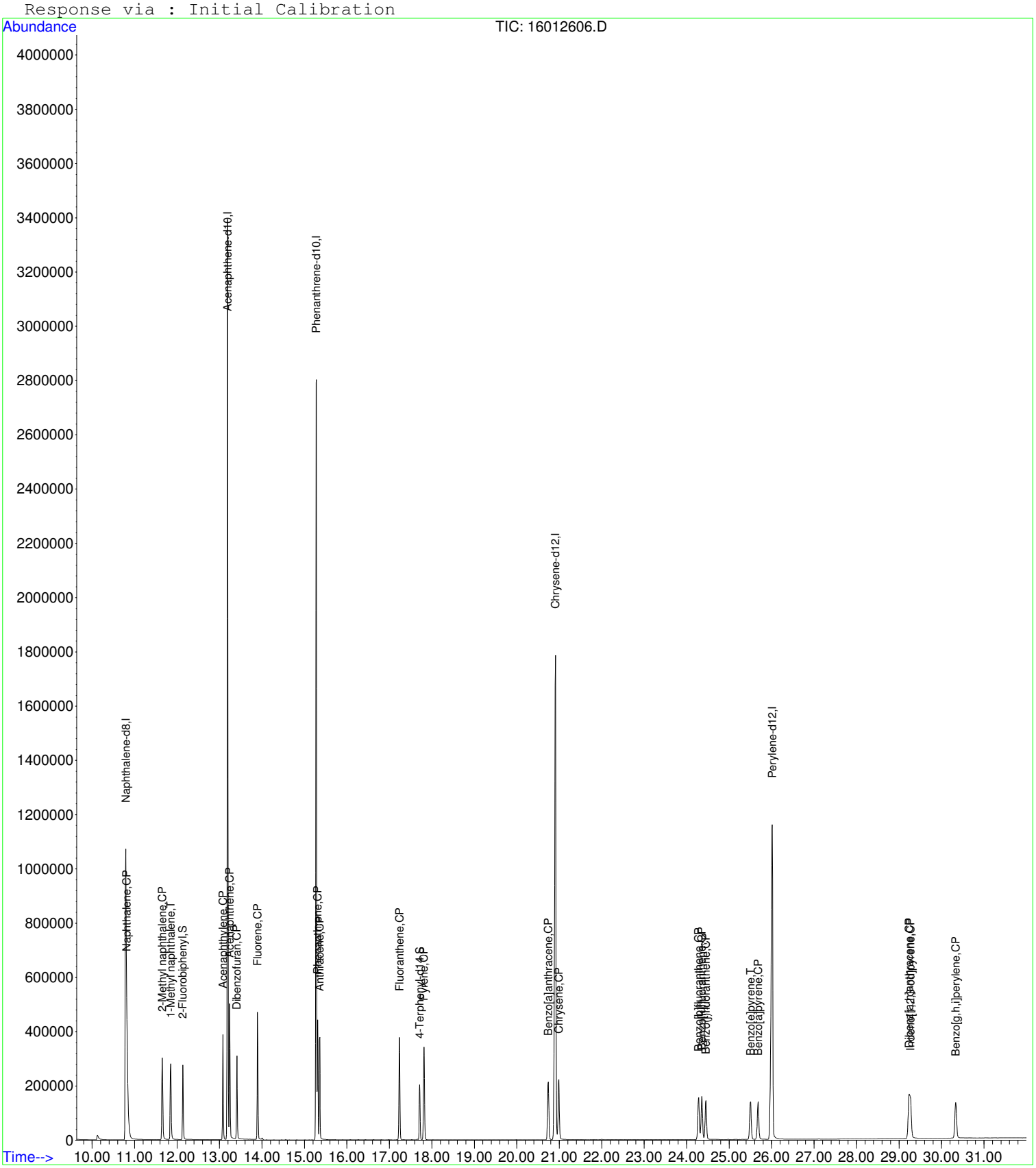
Target Compounds					Qvalue
2) Naphthalene	10.82	128	274664	491.14 ug/kg	100
3) 2-Methyl naphthalene	11.65	142	221689	503.46 ug/kg	99
4) 1-Methyl naphthalene	11.85	142	209018	502.99 ug/kg	97
6) Dibenzofuran	13.41	168	285022	487.65 ug/kg	99
8) Acenaphthylene	13.08	152	362848	485.23 ug/kg	98
9) Acenaphthene	13.24	154	215617	475.88 ug/kg	97
10) Fluorene	13.89	166	257524	481.77 ug/kg	96
12) Phenanthrene	15.31	178	357624	485.97 ug/kg	99
13) Anthracene	15.36	178	357883	497.06 ug/kg	98
14) Fluoranthene	17.24	202	368769	505.35 ug/kg	99
15) Pyrene	17.81	202	373093	501.96 ug/kg	100
18) Benzo[a]anthracene	20.74	228	311912	489.54 ug/kg	99
19) Chrysene	20.99	228	296934	489.46 ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	290417	487.77 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	257477	486.83 ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	246972	497.11 ug/kg	99
24) Benzo[e]pyrene	25.51	252	268004	482.12 ug/kg	100
25) Benzo[a]pyrene	25.68	252	262128	484.47 ug/kg	100
26) Dibenz[a,h]anthracene	29.23	278	242580	484.65 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	292712	480.03 ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	249501	487.65 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012606.D Vial: 6
Acq On : 26 Jan 2016 4:44 pm Operator:
Sample : PAH5 160126 500ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012607.D Vial: 7
Acq On : 26 Jan 2016 5:24 pm Operator:
Sample : PAH6 160126 1000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2158518	4000.00 ug/kg	103
5) Acenaphthene-d10	13.19	164	1840013	4000.00 ug/kg	101
11) Phenanthrene-d10	15.27	188	3200350	4000.00 ug/kg	98
17) Chrysene-d12	20.91	240	2810849	4000.00 ug/kg	97
20) Perylene-d12	26.01	264	2296486	4000.00 ug/kg	99

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	510284	957.23 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.93%#		
16) 4-Terphenyl-d14	17.71	244	522441	977.15 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.43%#		

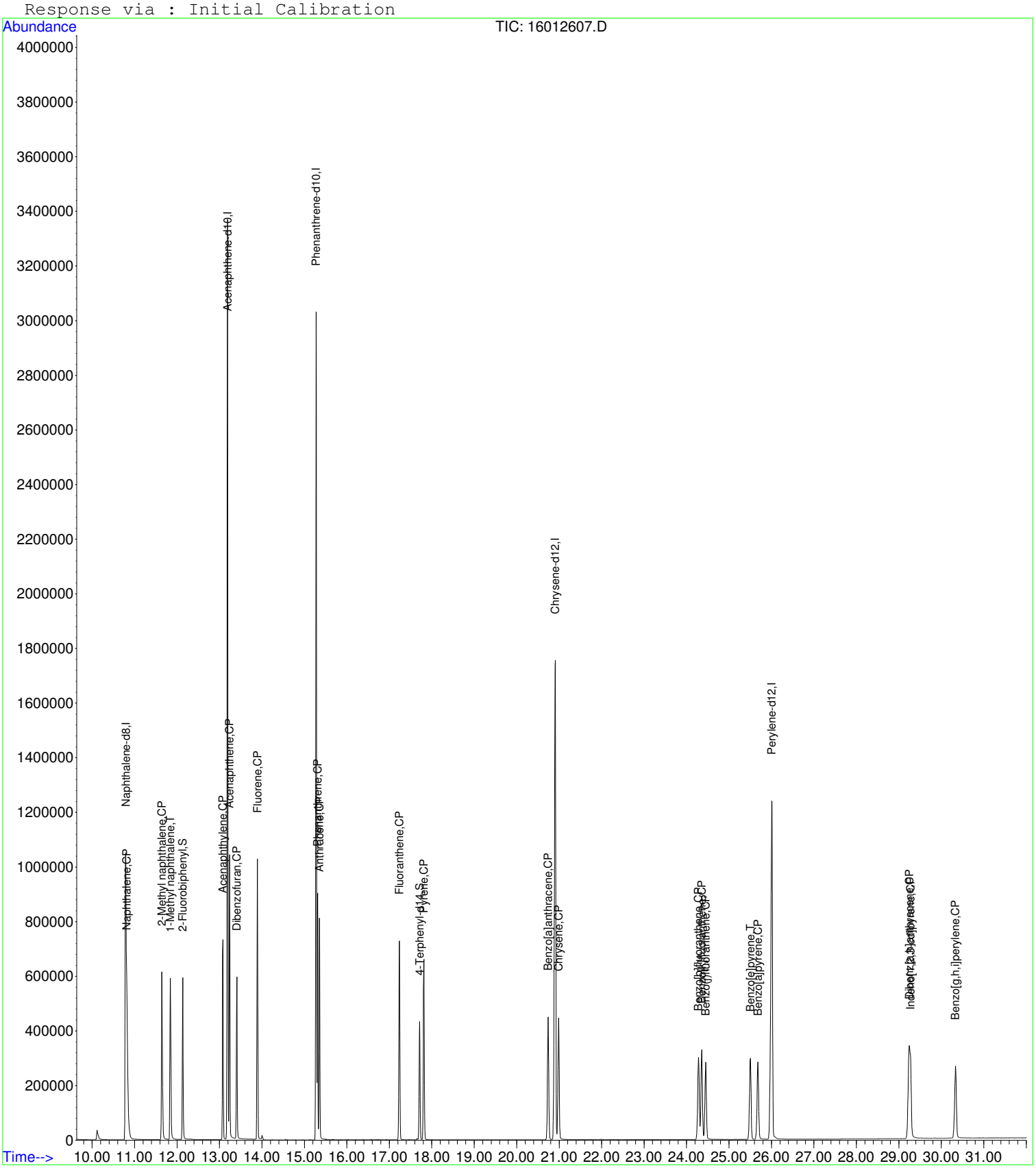
Target Compounds					Qvalue
2) Naphthalene	10.82	128	514174	952.11 ug/kg	100
3) 2-Methyl naphthalene	11.64	142	429319	1009.66 ug/kg	99
4) 1-Methyl naphthalene	11.84	142	397544	990.69 ug/kg	97
6) Dibenzofuran	13.41	168	572385	957.21 ug/kg	100
8) Acenaphthylene	13.08	152	740088	967.37 ug/kg	98
9) Acenaphthene	13.24	154	437672	944.17 ug/kg	98
10) Fluorene	13.89	166	523181	956.66 ug/kg	98
12) Phenanthrene	15.31	178	724398	953.17 ug/kg	99
13) Anthracene	15.35	178	730503	982.42 ug/kg	99
14) Fluoranthene	17.24	202	744264	987.58 ug/kg	99
15) Pyrene	17.81	202	744857	970.36 ug/kg	99
18) Benzo[a]anthracene	20.74	228	636710	982.40 ug/kg	99
19) Chrysene	20.99	228	604061	978.88 ug/kg	100
21) Benzo[b]fluoranthene	24.28	252	589003	961.99 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	537156	987.63 ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	498392	975.51 ug/kg	97
24) Benzo[e]pyrene	25.50	252	544995	953.38 ug/kg	99
25) Benzo[a]pyrene	25.68	252	534701	960.99 ug/kg	100
26) Dibenz[a,h]anthracene	29.24	278	495792	963.23 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.28	276	596831	951.78 ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	498982	948.38 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012607.D Vial: 7
Acq On : 26 Jan 2016 5:24 pm Operator:
Sample : PAH6 160126 1000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012608.D Vial: 8
Acq On : 26 Jan 2016 6:04 pm Operator:
Sample : PAH7 160126 2000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2097846	4000.00	ug/kg	100
5) Acenaphthene-d10	13.19	164	1821291	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	3269176	4000.00	ug/kg	100
17) Chrysene-d12	20.91	240	2887924	4000.00	ug/kg	100
20) Perylene-d12	26.01	264	2311437	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	967726	1833.99	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.85%			
16) 4-Terphenyl-d14	17.71	244	1061938	1944.39	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.61%			

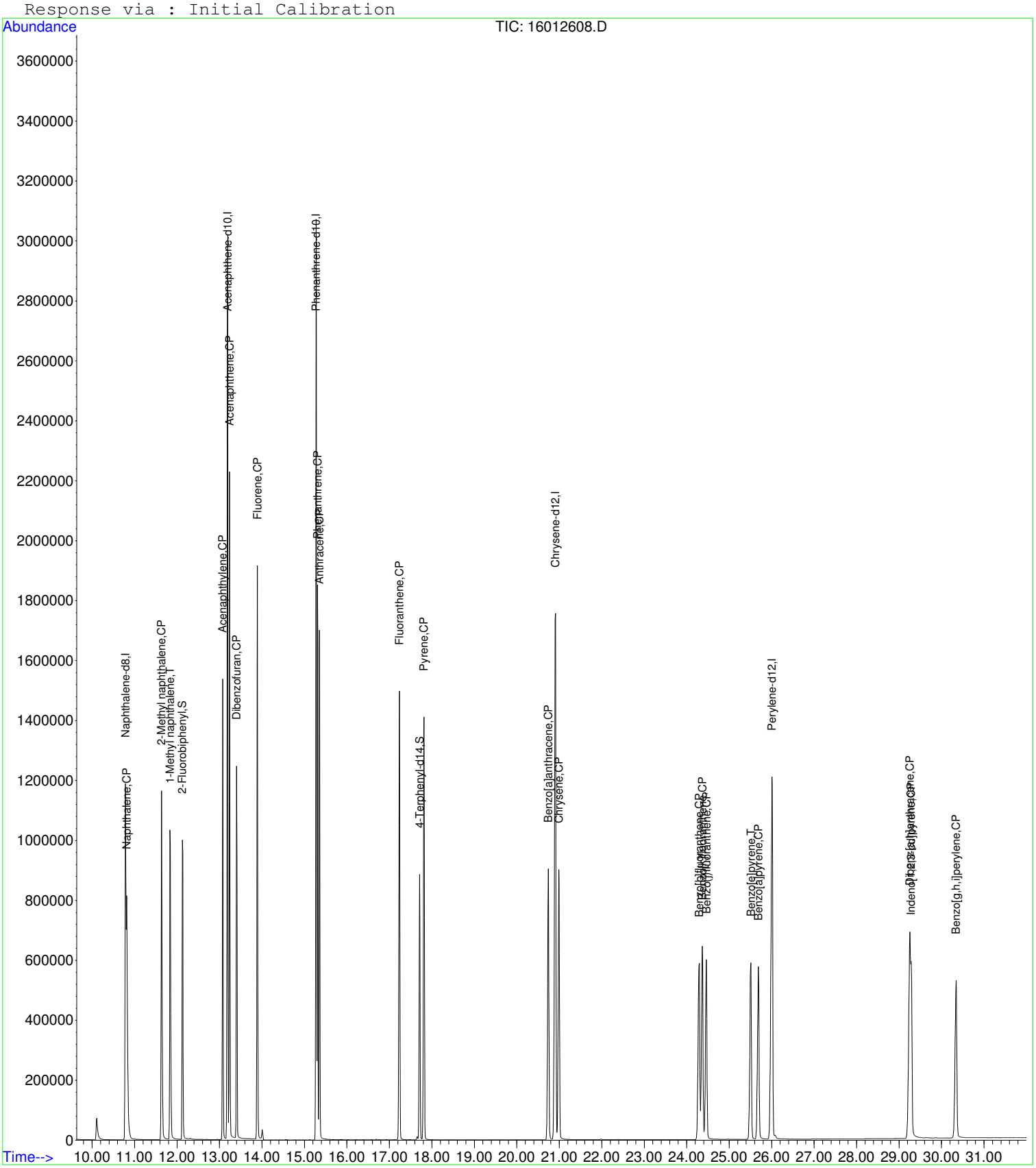
Target Compounds						Qvalue
2) Naphthalene	10.82	128	965006	1838.61	ug/kg	100
3) 2-Methyl naphthalene	11.63	142	785437	1900.59	ug/kg	100
4) 1-Methyl naphthalene	11.84	142	715870	1835.55	ug/kg	100
6) Dibenzofuran	13.40	168	1163125	1965.11	ug/kg	100
8) Acenaphthylene	13.07	152	1438629	1899.77	ug/kg	100
9) Acenaphthene	13.24	154	872830	1902.27	ug/kg	100
10) Fluorene	13.89	166	1058004	1954.50	ug/kg	100
12) Phenanthrene	15.31	178	1490541	1919.98	ug/kg	100
13) Anthracene	15.35	178	1479040	1947.22	ug/kg	100
14) Fluoranthene	17.24	202	1475933	1917.22	ug/kg	100
15) Pyrene	17.81	202	1477970	1884.89	ug/kg	100
18) Benzo[a]anthracene	20.74	228	1296771	1947.43	ug/kg	100
19) Chrysene	20.99	228	1223411	1929.62	ug/kg	100
21) Benzo[b]fluoranthene	24.30	252	1201887	1950.29	ug/kg	100
22) Benzo[k]fluoranthene	24.37	252	1084547	1981.18	ug/kg	100
23) Benzo(j)fluoranthene	24.47	252	1024021	1991.36	ug/kg	100
24) Benzo[e]pyrene	25.51	252	1100846	1913.30	ug/kg	100
25) Benzo[a]pyrene	25.69	252	1090866	1947.87	ug/kg	100
26) Dibenz[a,h]anthracene	29.25	278	1000571	1931.35	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1208037	1914.01	ug/kg	100
28) Benzo[g,h,i]perylene	30.34	276	998970	1886.38	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012608.D Vial: 8
Acq On : 26 Jan 2016 6:04 pm Operator:
Sample : PAH7 160126 2000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

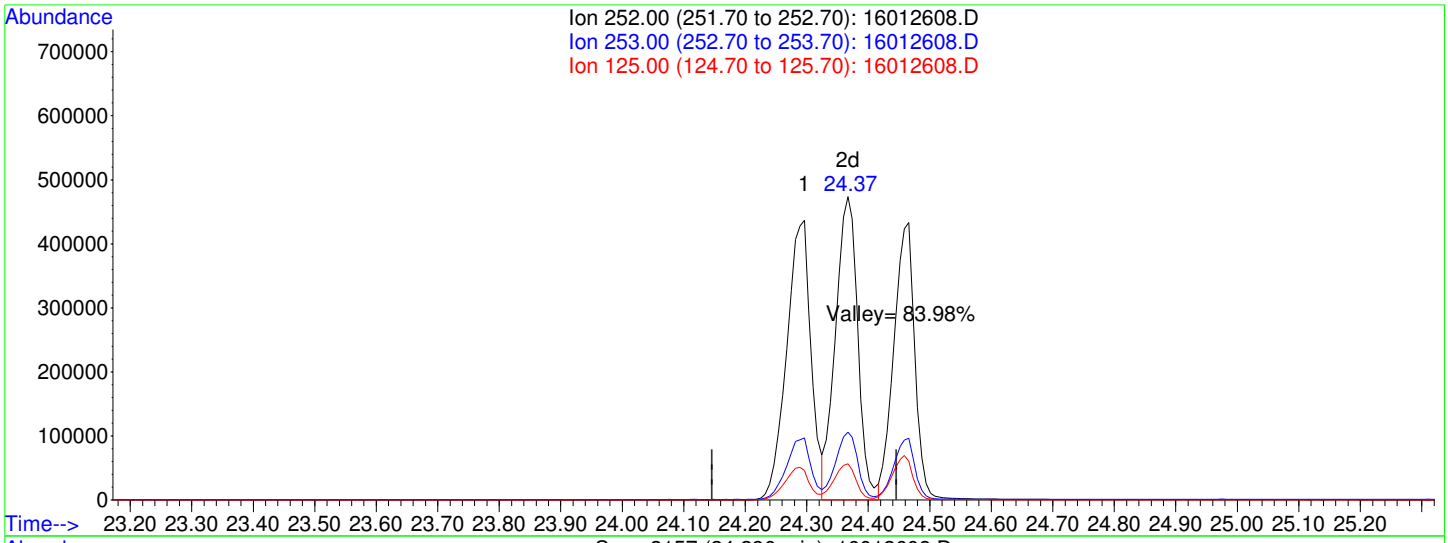
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration

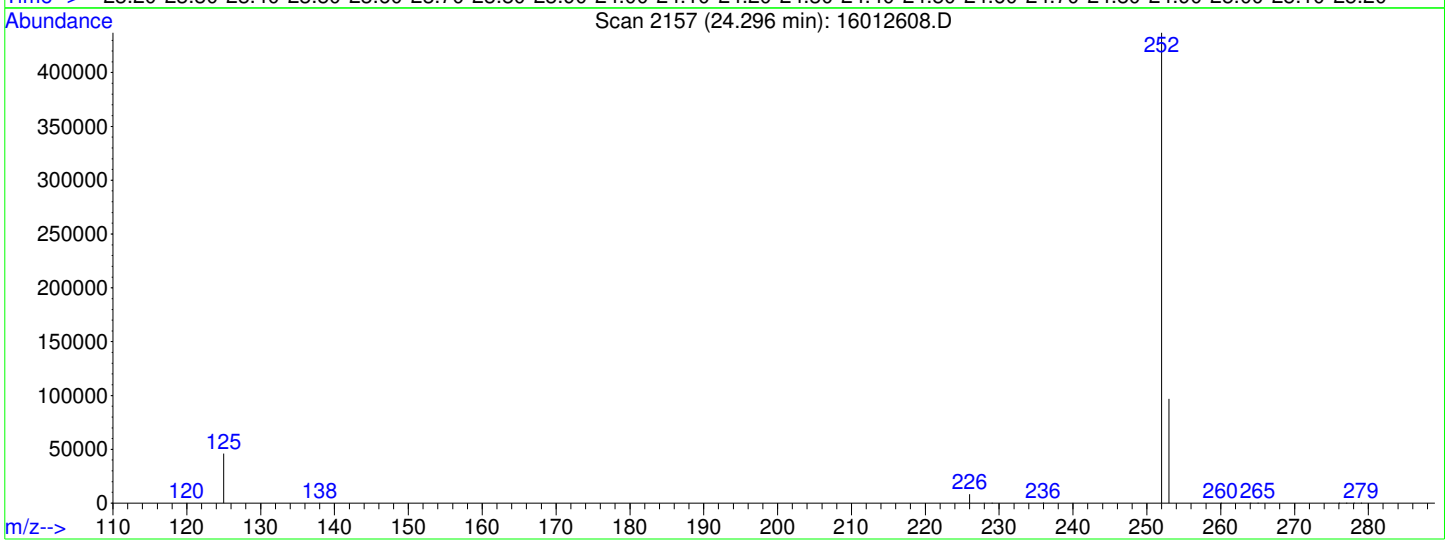


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160126\16012608.D          Vial: 8
Acq On    : 26 Jan 2016   6:04 pm                   Operator:
Sample    : PAH7 160126 2000ppb                     Inst    : GC/MS #6
Misc      : CAL                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Jan 27 09:39:38 2016
Response via : Multiple Level Calibration
```





TIC: 16012608.D

(21) Benzo[b]fluoranthene (CP)

24.30min 1950.29ug/kg

response 1201887

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.97
125.00	10.50	10.52
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012609.D Vial: 9
Acq On : 26 Jan 2016 6:45 pm Operator:
Sample : PAH8 160126 5000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2131998	4000.00 ug/kg	102
5) Acenaphthene-d10	13.19	164	1769567	4000.00 ug/kg	97
11) Phenanthrene-d10	15.27	188	3189275	4000.00 ug/kg	98
17) Chrysene-d12	20.91	240	2852801	4000.00 ug/kg	99
20) Perylene-d12	26.01	264	2290073	4000.00 ug/kg	99

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	2487205	4851.41 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 121.29%		
16) 4-Terphenyl-d14	17.72	244	2802740	5260.34 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 131.51%		

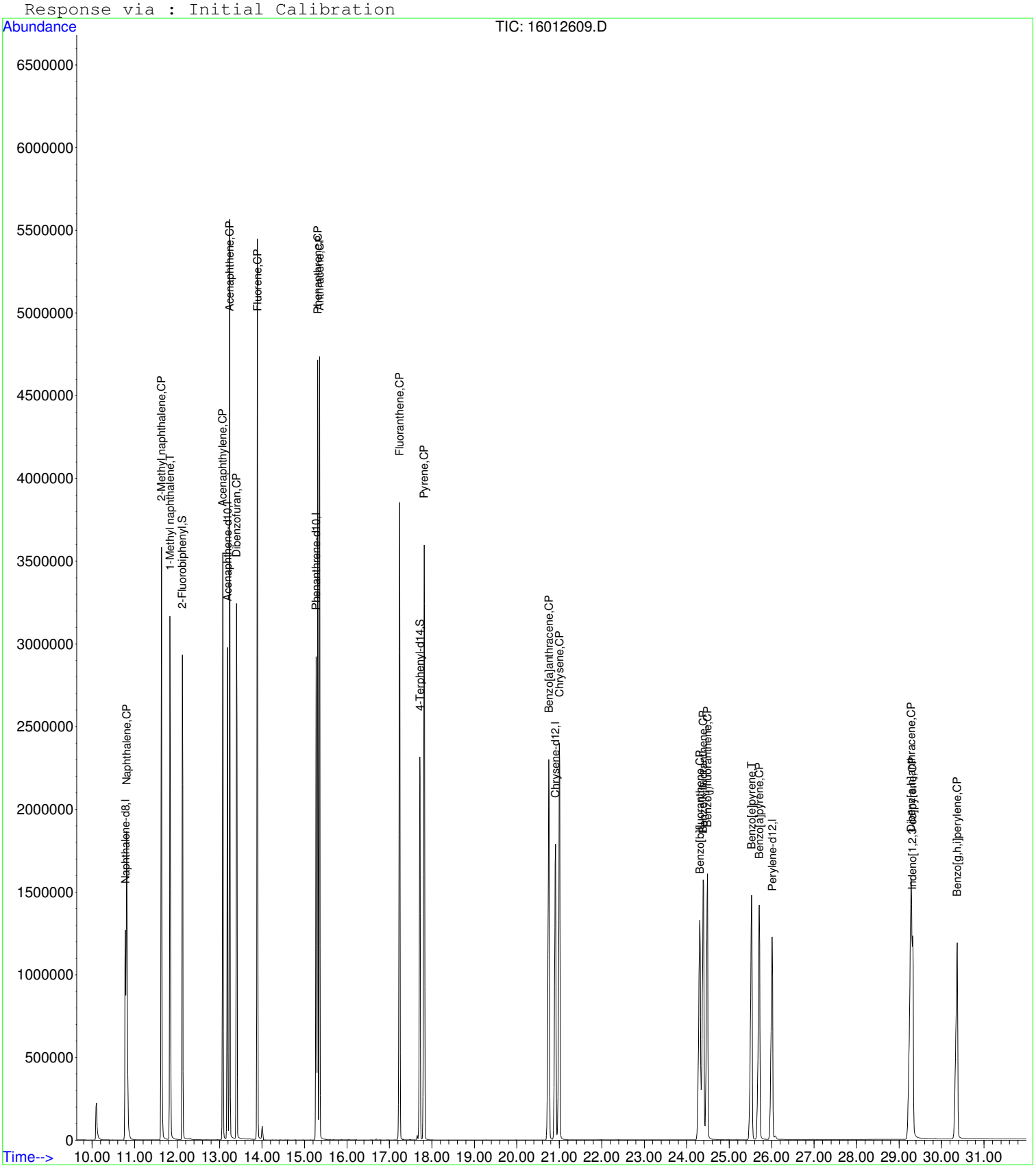
Target Compounds					Qvalue
2) Naphthalene	10.81	128	2480231	4649.84 ug/kg	99
3) 2-Methyl naphthalene	11.63	142	2049599	4880.15 ug/kg	96
4) 1-Methyl naphthalene	11.83	142	1854399	4678.68 ug/kg	95
6) Dibenzofuran	13.40	168	2994948	5207.90 ug/kg	100
8) Acenaphthylene	13.08	152	3589088	4878.07 ug/kg	98
9) Acenaphthene	13.24	154	2247788	5042.08 ug/kg	98
10) Fluorene	13.89	166	2803540	5330.51 ug/kg	99
12) Phenanthrene	15.31	178	3804386	5023.24 ug/kg	98
13) Anthracene	15.36	178	3796920	5124.05 ug/kg	98
14) Fluoranthene	17.24	202	3716902	4949.19 ug/kg	98
15) Pyrene	17.82	202	3709059	4848.76 ug/kg	98
18) Benzo[a]anthracene	20.75	228	3414531	5190.91 ug/kg	99
19) Chrysene	21.00	228	3261363	5207.30 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	3027218	4958.05 ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	2754530	5078.74 ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	2646283	5194.10 ug/kg	99
24) Benzo[e]pyrene	25.53	252	2784027	4883.85 ug/kg	99
25) Benzo[a]pyrene	25.71	252	2764409	4982.23 ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	2524704	4918.75 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	3006879	4808.54 ug/kg	100
28) Benzo[g,h,i]perylene	30.37	276	2454792	4678.70 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012609.D Vial: 9
Acq On : 26 Jan 2016 6:45 pm Operator:
Sample : PAH8 160126 5000ppb Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012611.D Vial: 11
Acq On : 26 Jan 2016 8:04 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2122032	4000.00 ug/kg	101
5) Acenaphthene-d10	13.18	164	1686505	4000.00 ug/kg	93
11) Phenanthrene-d10	15.27	188	3137706	4000.00 ug/kg	96
17) Chrysene-d12	20.90	240	2751552	4000.00 ug/kg	95
20) Perylene-d12	26.01	264	2232569	4000.00 ug/kg	97

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1123996	2300.38 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	57.51%	
16) 4-Terphenyl-d14	17.71	244	1263023	2409.47 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.24%	

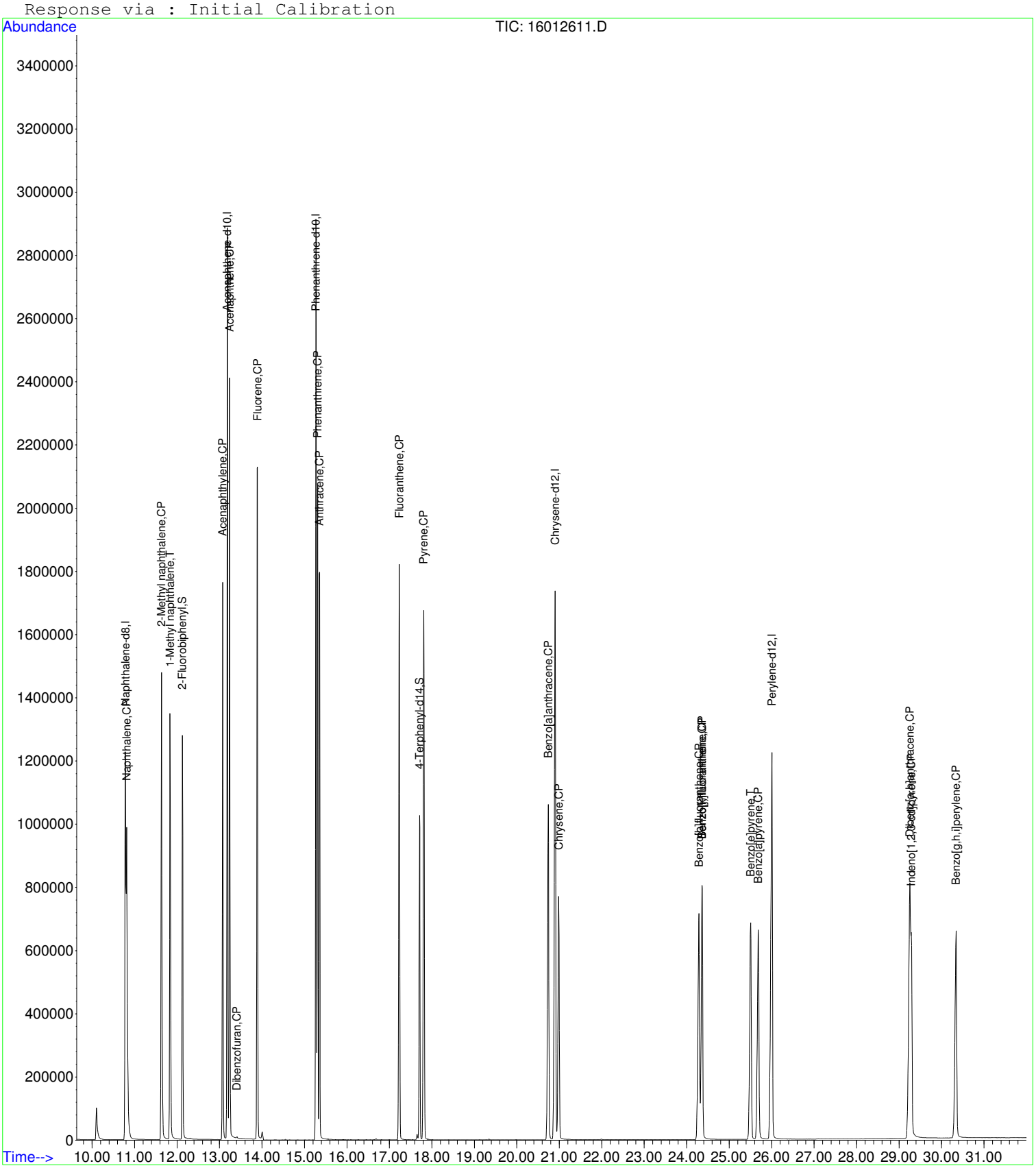
Target Compounds					Qvalue
2) Naphthalene	10.81	128	1167168	2198.44 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	958720	2293.46 ug/kg	98
4) 1-Methyl naphthalene	11.83	142	868184	2200.73 ug/kg	95
6) Dibenzofuran	13.41	168	3873	7.07 ug/kg	99
8) Acenaphthylene	13.07	152	1592321	2270.77 ug/kg	99
9) Acenaphthene	13.24	154	1021217	2403.54 ug/kg	99
10) Fluorene	13.89	166	1276059	2545.73 ug/kg	99
12) Phenanthrene	15.31	178	1734390	2327.69 ug/kg	99
13) Anthracene	15.36	178	1681552	2306.60 ug/kg	99
14) Fluoranthene	17.23	202	1786177	2417.45 ug/kg	99
15) Pyrene	17.81	202	1778177	2362.77 ug/kg	100
18) Benzo[a]anthracene	20.74	228	1504586	2371.50 ug/kg	100
19) Chrysene	20.99	228	1045327	1730.45 ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1399124	2350.54 ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	1395386	2639.05 ug/kg	100
23) ~~Benzo(j)fluoranthene~~	~~24.36~~	~~252~~	~~1303711~~	~~2624.82 ug/kg~~	~~98~~
24) Benzo[e]pyrene	25.51	252	1301959	2342.78 ug/kg	99
25) Benzo[a]pyrene	25.68	252	1282202	2370.41 ug/kg	100
26) Dibenz[a,h]anthracene	29.25	278	1164891	2327.95 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1408528	2310.51 ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	1176633	2300.36 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012611.D Vial: 11
Acq On : 26 Jan 2016 8:04 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012612.D Vial: 12
Acq On : 26 Jan 2016 8:43 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.80	136	2256776	4000.00	ug/kg	108
5) Acenaphthene-d10	13.18	164	1819151	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	2835818	4000.00	ug/kg	87
17) Chrysene-d12	20.90	240	2721810	4000.00	ug/kg	94
20) Perylene-d12	26.00	264	2158293	4000.00	ug/kg	93

System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.15	172	422	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.02%#	
16) 4-Terphenyl-d14	17.72	244	2951	6.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.16%#	

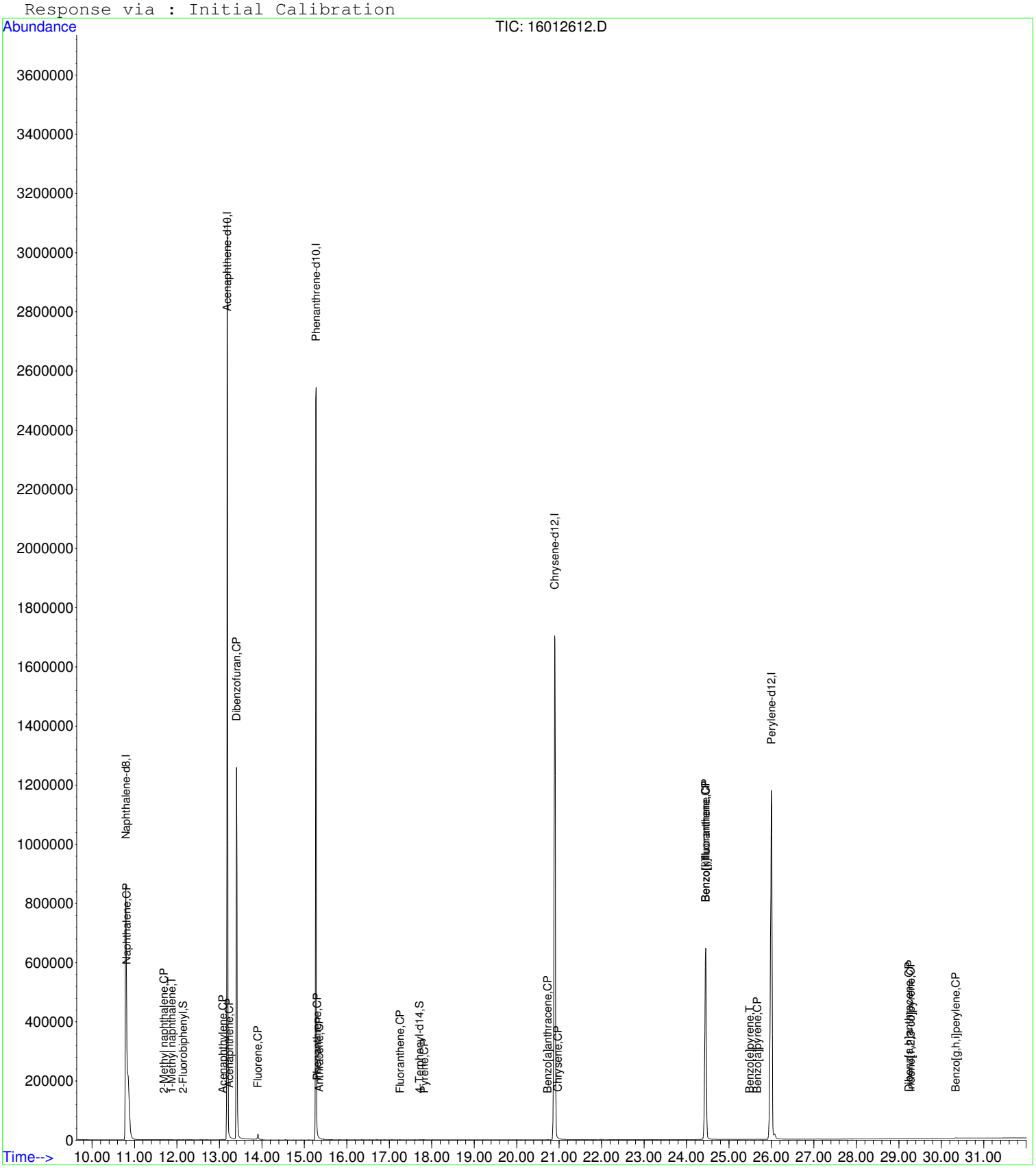
Target Compounds						Qvalue
2) Naphthalene	10.82	128	1045	1.85	ug/kg	77
3) 2-Methyl naphthalene	11.69	142	524	1.18	ug/kg	94
4) 1-Methyl naphthalene	11.88	142	428	1.02	ug/kg	94
6) Dibenzofuran	13.40	168	1285939	2175.16	ug/kg	100
8) Acenaphthylene	13.08	152	1592	2.10	ug/kg	96
9) Acenaphthene	13.24	154	1331	2.90	ug/kg	97
10) Fluorene	13.90	166	11770	21.77	ug/kg	96
12) Phenanthrene	15.30	178	1441	2.14	ug/kg	98
13) Anthracene	15.35	178	1393	2.11	ug/kg	97
14) Fluoranthene	17.25	202	1464	2.19	ug/kg	95
15) Pyrene	17.82	202	1694	2.49	ug/kg	97
18) Benzo[a]anthracene	20.73	228	1504	2.40	ug/kg	98
19) Chrysene	20.98	228	1272	2.13	ug/kg	96
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) ~~Benzo[k]fluoranthene~~	~~24.45~~	~~252~~	~~1139730~~	~~2229.72~~	~~ug/kg~~	~~96~~
23) Benzo(j)fluoranthene	24.45	252	1163368	2422.87	ug/kg	98
24) Benzo[e]pyrene	25.50	252	1410	2.62	ug/kg	92
25) Benzo[a]pyrene	25.67	252	1461	2.79	ug/kg	85
26) Dibenz[a,h]anthracene	29.24	278	1981	4.10	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.28	276	1973	3.35	ug/kg	96
28) Benzo[g,h,i]perylene	30.34	276	1993	4.03	ug/kg	93

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012612.D Vial: 12
Acq On : 26 Jan 2016 8:43 pm Operator:
Sample : SSCV 160126 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160126\16012615.D Vial: 3
Acq On : 27 Jan 2016 11:08 am Operator:
Sample : SSCV 160127 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.78	136	2058743	4000.00	ug/kg	98
5) Acenaphthene-d10	13.18	164	1745665	4000.00	ug/kg	96
11) Phenanthrene-d10	15.27	188	3186342	4000.00	ug/kg	97
17) Chrysene-d12	20.90	240	2845374	4000.00	ug/kg	99
20) Perylene-d12	26.00	264	2226993	4000.00	ug/kg	96

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1171215	2315.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.89%			
16) 4-Terphenyl-d14	17.71	244	1235718	2321.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.04%			

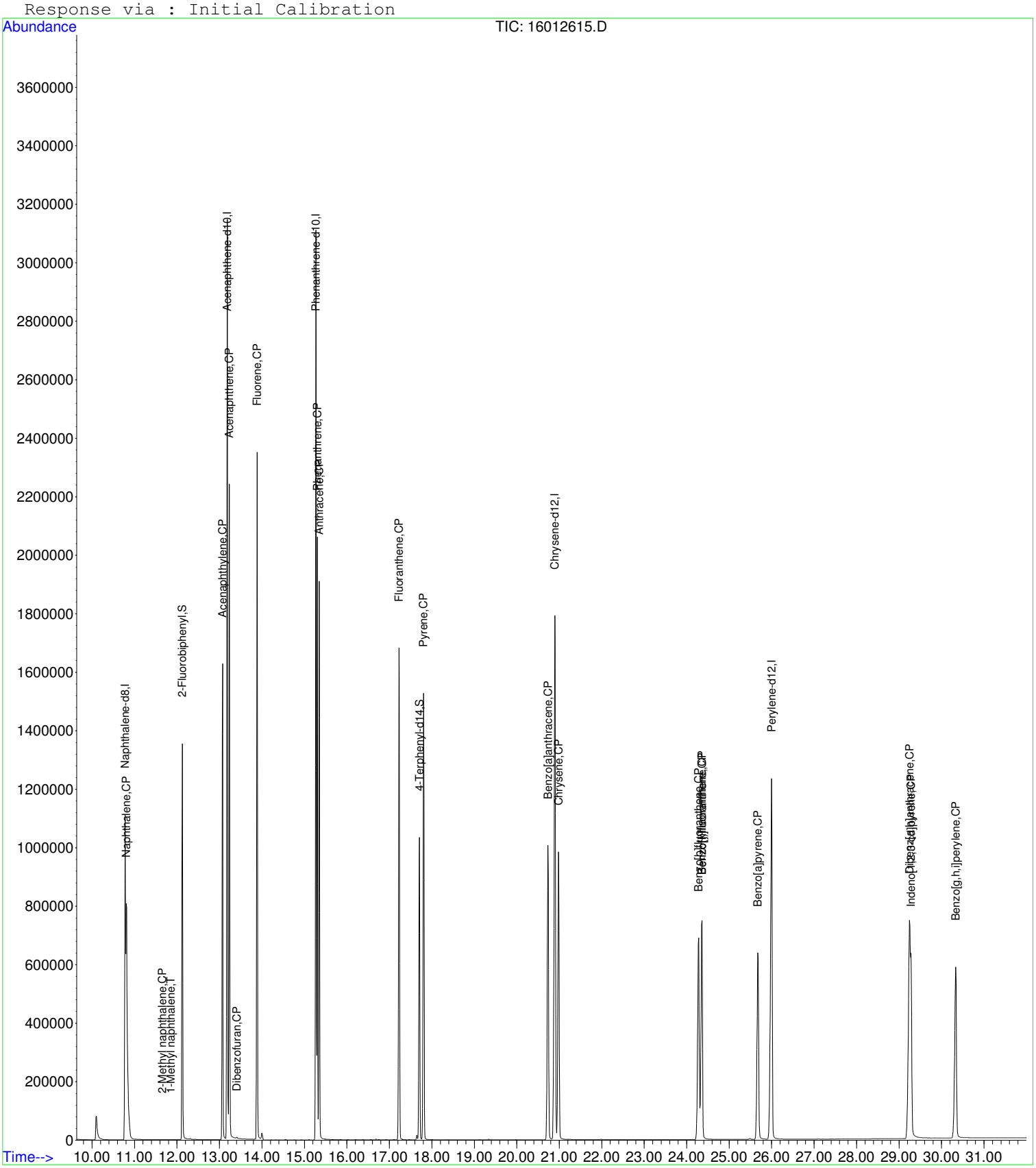
Target Compounds						Qvalue
2) Naphthalene	10.81	128	1077756	2092.43	ug/kg	100
3) 2-Methyl naphthalene	11.65	142	274	0.68	ug/kg	93
4) 1-Methyl naphthalene	11.85	142	435	1.14	ug/kg	98
6) Dibenzofuran	13.41	168	3680	6.49	ug/kg	100
8) Acenaphthylene	13.07	152	1559597	2148.73	ug/kg	98
9) Acenaphthene	13.23	154	1004536	2284.16	ug/kg	96
10) Fluorene	13.89	166	1176439	2267.45	ug/kg	99
12) Phenanthrene	15.30	178	1641177	2168.97	ug/kg	100
13) Anthracene	15.35	178	1652973	2232.79	ug/kg	100
14) Fluoranthene	17.23	202	1627306	2168.81	ug/kg	99
15) Pyrene	17.81	202	1636098	2140.80	ug/kg	100
18) Benzo[a]anthracene	20.73	228	1441199	2196.69	ug/kg	99
19) Chrysene	20.99	228	1359414	2176.19	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	1320758	2224.44	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	1314133	2491.60	ug/kg	100
23) ~~Benzo(j)fluoranthene~~	~~24.36~~	~~252~~	~~1233993~~	~~2490.68~~	~~ug/kg~~	~~97~~
24) Benzo[e]pyrene	0.00	252	0	N.D.		
25) Benzo[a]pyrene	25.67	252	1228299	2276.44	ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	1087317	2178.37	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.28	276	1329344	2186.08	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	1107890	2171.39	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160126\16012615.D Vial: 3
Acq On : 27 Jan 2016 11:08 am Operator:
Sample : SSCV 160127 2500ppb Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 27 11:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Jan 27 09:39:38 2016
Response via : Initial Calibration



ICP-MS4
For

DHL Work Order
1601232

ICP-MS4_160211F
For

DHL Work Order
1601232

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_160211F SOP:			
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: 02/12/2016

Second-Level Review: Date Stamp: **02/15/2016**

REVIEWED/APPROVED

By Sherri Herschmann at 2:14:11 PM, 2/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211F** **Run No.:** 84127

Analytical Run Date: 2/11/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R84127	2/11/2016 10:09:00 AM		
L2-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:11:00 AM		
L-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:13:00 AM		
10X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:15:00 AM		
5X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:17:00 AM		
2X-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:19:00 AM		
H-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:21:00 AM		
H2-160211	1	ICPMS_TW	CAL	R84127	2/11/2016 10:23:00 AM		
ICSA-160211	1	ICPMS_TW	ICSA	R84127	2/11/2016 10:31:00 AM		
ICSAB-160211	1	ICPMS_TW	ICSB	R84127	2/11/2016 10:33:00 AM		
ICV-160211	1	ICPMS_TW	ICV	R84127	2/11/2016 10:41:00 AM		
LCVL-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 10:46:00 AM		
ICB-160211	1	ICPMS_TW	ICB	R84127	2/11/2016 10:50:00 AM		
CCV4-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 12:42:00 PM		
LCVL4-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 12:46:00 PM		
CCB4-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 12:49:00 PM		
MB-73587	5	ICPMS_TSDOD1	MBLK	73587	2/11/2016 1:01:00 PM		
LCS-73587	5	ICPMS_TSDOD1	LCS	73587	2/11/2016 1:03:00 PM		
LCSD-73587	5	ICPMS_TSDOD1	LCSD	73587	2/11/2016 1:05:00 PM		
1601232-15A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:09:00 PM		
1601232-15A SD	25	ICPMS_TSDOD1	SD	73587	2/11/2016 1:11:00 PM		
1601231-24A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:13:00 PM		
1601231-25A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:15:00 PM		
1601231-26A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:17:00 PM		
1601231-27A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:19:00 PM		
1601232-01A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:21:00 PM		
1601232-02A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:23:00 PM		
1601232-03A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:25:00 PM		
1601232-04A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:27:00 PM		
1601232-05A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:29:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

REVIEWED/APPROVED

By Sherri Herschmann at 2:14:40 PM, 2/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211F** **Run No.:** 84127

1601232-15A PDS	5	ICPMS_TSDOD1	PDS	73587	2/11/2016 1:31:00 PM		
1601232-15A MS	5	ICPMS_TSDOD1	MS	73587	2/11/2016 1:33:00 PM		
1601232-15A MSD	5	ICPMS_TSDOD1	MSD	73587	2/11/2016 1:35:00 PM		
CCV5-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 1:37:00 PM		
LCVL5-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 1:42:00 PM		
CCB5-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 1:47:00 PM		
1601232-06A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:49:00 PM		
1601232-07A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:51:00 PM		
1601232-08A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:53:00 PM		
1601232-09A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:55:00 PM		
1601232-10A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:57:00 PM		
1601232-11A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 1:59:00 PM		
1601232-12A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:01:00 PM		
1601232-13A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:03:00 PM		
1601232-14A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:05:00 PM		
1601232-16A	5	ICPMS_TSDOD1	SAMP	73587	2/11/2016 2:07:00 PM		
CCV6-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 2:09:00 PM		
LCVL6-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 2:15:00 PM		
CCB6-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 2:18:00 PM		
MB-73600	5	ICPMS_TSDOD1	MBLK	73600	2/11/2016 2:20:00 PM		
LCS-73600	5	ICPMS_TSDOD1	LCS	73600	2/11/2016 2:22:00 PM		
LCSD-73600	5	ICPMS_TSDOD1	LCSD	73600	2/11/2016 2:24:00 PM		
1601232-17A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:28:00 PM		
1601232-17A SD	25	ICPMS_TSDOD1	SD	73600	2/11/2016 2:30:00 PM		
1601232-18A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:33:00 PM		
1601232-19A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:35:00 PM		
1601232-20A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:37:00 PM		
1601232-21A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:39:00 PM		
1601232-22A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:41:00 PM		
1601232-23A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:43:00 PM		
1601232-24A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:45:00 PM		
1601232-25A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:47:00 PM		
1601232-26A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 2:49:00 PM		
1601232-17A PDS	5	ICPMS_TSDOD1	PDS	73600	2/11/2016 2:51:00 PM		
1601232-17A MS	5	ICPMS_TSDOD1	MS	73600	2/11/2016 2:53:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

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Run ID: **ICP-MS4_160211F** **Run No.:** 84127

1601232-17A MSD	5	ICPMS_TSDOD1	MSD	73600	2/11/2016 2:55:00 PM		
CCV7-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 2:56:00 PM		
LCVL7-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 3:06:00 PM		
CCB7-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 3:25:00 PM		
1601232-27A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:27:00 PM		
1601247-01A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:29:00 PM		
1601247-02A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:31:00 PM		
1601247-03A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:33:00 PM		
1601247-04A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:35:00 PM		
1601247-05A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:37:00 PM		
1601247-06A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:39:00 PM		
1601247-07A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:41:00 PM		
1601247-08A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:43:00 PM		
1601247-09A	5	ICPMS_TSDOD1	SAMP	73600	2/11/2016 3:45:00 PM		
CCV8-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 3:47:00 PM		
LCVL8-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 4:00:00 PM		
CCB8-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 4:02:00 PM		
MB-73601	5	ICPMS_TSDOD1	MBLK	73601	2/11/2016 4:04:00 PM		
LCS-73601	5	ICPMS_TSDOD1	LCS	73601	2/11/2016 4:06:00 PM		
LCSD-73601	5	ICPMS_TSDOD1	LCSD	73601	2/11/2016 4:08:00 PM		
1601247-16A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:12:00 PM		
1601247-16A SD	25	ICPMS_TSDOD1	SD	73601	2/11/2016 4:14:00 PM		
1601247-10A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:16:00 PM		
1601247-11A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:18:00 PM		
1601247-12A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:20:00 PM		
1601247-14A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:22:00 PM		
1601247-15A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:24:00 PM		
1601247-17A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:26:00 PM		
1601247-18A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:28:00 PM		
1601247-19A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:30:00 PM		
1601247-20A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:32:00 PM		
1601247-16A PDS	5	ICPMS_TSDOD1	PDS	73601	2/11/2016 4:34:00 PM		
1601247-16A MS	5	ICPMS_TSDOD1	MS	73601	2/11/2016 4:36:00 PM		
1601247-16A MSD	5	ICPMS_TSDOD1	MSD	73601	2/11/2016 4:38:00 PM		
CCV9-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 4:40:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160211F** **Run No.:** 84127

LCVL9-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 4:44:00 PM		
CCB9-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 4:46:00 PM		
1601247-21A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:48:00 PM		
1601247-22A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:50:00 PM		
1601285-01A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:52:00 PM		
1601285-02A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:54:00 PM		
1601285-03A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:56:00 PM		
1601285-04A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 4:58:00 PM		
1601285-05A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:00:00 PM		
1601285-06A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:02:00 PM		
1601285-07A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:04:00 PM		
1601285-08A	5	ICPMS_TSDOD1	SAMP	73601	2/11/2016 5:06:00 PM		
CCV10-160211	1	ICPMS_TW	CCV	R84127	2/11/2016 5:08:00 PM		
LCVL10-160211	1	ICPMS_TW	LCVL	R84127	2/11/2016 5:12:00 PM		
CCB10-160211	1	ICPMS_TW	CCB	R84127	2/11/2016 5:15:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160203	ICPMS CCV 200/5000 PPB		05/08/2016
MET-H2CAL-1602	ICPMS High Cal2 2000ppb std 8		05/08/2016
MET-HCAL-16020	ICPMS High Cal 500ppb/10ppm s		05/08/2016
MET-ICV-160203	ICPMS ICV 100 ppb		05/08/2016
MET-IS-160123	INTERNAL STANDARD 1 PPM		04/22/2016
MET-L2CAL-16020	ICPMS Low Cal2 1/20ppb std 2		05/08/2016
MET-LCAL-160203	ICPMS Low Cal 10/200ppb std 3		05/08/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		05/08/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		05/08/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		02/22/2016
MET-MCAL-16020	ICPMS Mid Cal 250/5000ppb std		05/08/2016
MET-PA-151021	ICPMS PA FACTOR SOLUTION		04/21/2016
MET-PDS-160114-	10 PPM Ag+Sb PDS		04/13/2016
MET-PDS-160114-	10 PPM CUSTOM PDS SOLUTI		04/13/2016
MET-PDS-160114-	250 PPM Naturals+Al+Fe PDS		04/13/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICB	BLANK	CCB ICPMS_TW	1103	
23	ICSA	ICSA-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33		10	
34		50	
35		50	
36		50	
37		10	
38		10	
39		10	
40		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			
42			
43			
44			
45			
46		1	
47		1	
48		1	
49			
50		10	
51		50	
52		50	
53		10	
54		10	
55		10	
56		10	
57		10	
58		10	
59		10	
60		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	
62		10	
63		10	
64			
65			
66			
67			
68		10	
69		10	
70		1	
71			
72			
73			
74			
75		1	
76		1	
77			
78		1	
79		1	
80		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	
82		1	
83		1	
84		1	
85		1	
86			
87			
88			
89			
90		5	Skip
91		5	Skip
92		5	Skip
93			Skip
94		5	Skip
95		25	Skip
96		5	Skip
97		5	Skip
98		5	Skip
99		5	Skip
100		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	Skip
102		5	Skip
103		5	Skip
104		5	Skip
105		5	Skip
106		5	Skip
107		5	Skip

Sample List

108		Skip
109		Skip
110		Skip
111		Skip
112	5	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	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	Skip
122			Skip
123			Skip
124			Skip
125			Skip
126		5	Skip
127		5	Skip
128		5	Skip
129			Skip
130		5	Skip
131		25	Skip
132		5	Skip
133		5	Skip
134		5	Skip
135		5	Skip

Sample List

136	5	Skip
137	5	Skip
138	5	Skip
139	5	Skip
140	5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	Skip
142		5	Skip
143		5	Skip
144			Skip
145			Skip
146			Skip
147			Skip
148		5	Skip
149		5	Skip
150		5	Skip
151		5	Skip
152		5	Skip
153		5	Skip
154		5	Skip
155		5	Skip
156		5	Skip
157		5	Skip
158			Skip
159			Skip
160			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			Skip
162		5	Skip
163		5	Skip
164		5	Skip
165			Skip
166		5	Skip
167		25	Skip
168		5	Skip
169		5	Skip
170		5	Skip
171		5	Skip
172		5	Skip
173		5	Skip
174		5	Skip
175		5	Skip
176		5	Skip
177		5	Skip
178		5	Skip
179		5	Skip
180			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	CCB	CCB10-160211	CCB ICPMS_TW	1102
199	CCB	CCB10-160211	CCB ICPMS_TW	1102
200	CCB	CCB10-160211	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
181			Skip
182			Skip
183			Skip
184		5	Skip
185		5	Skip
186		5	Skip
187		5	Skip
188		5	Skip
189		5	Skip
190		5	Skip
191		5	Skip
192		5	Skip
193		5	Skip
194			Skip
195			Skip
196			Skip
197			Skip
198			Skip
199			Skip
200			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	CCB10-160211	CCB ICPMS_TW	1103	
202	CCB	CCB10-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
201			Skip
202			Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sample List

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160211.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	L2-160211	CAL ICPMS_TW	2102	
14	CalStd	L-160211	CAL ICPMS_TW	2103	
15	CalStd	10X-160211	CAL ICPMS_TW	2104	
16	CalStd	5X-160211	CAL ICPMS_TW	2105	
17	CalStd	2X-160211	CAL ICPMS_TW	2106	
18	CalStd	H-160211	CAL ICPMS_TW	2107	
19	CalStd	H2-160211	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-160211	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160211	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-160211	ICV ICPMS_TW	2111	
29	ICB	ICB-160211	ICB ICPMS_TW	1101	
30	LLICV	LCVL-160211	LCVLICPMS_TW	2112	
31	ICB	ICB-160211	ICB ICPMS_TW	1102	
32	ICB	ICB-160211	ICB ICPMS_TW	1103	
33	AllRef	1602011-01A	SAMP200.8	2201	
34	SD	1602011-01A SD	SD 200.8	2202	
35	SAMP_W	1602015-01A	SAMP200.8	2203	
36	SAMP_W	1602015-02A	SAMP200.8	2204	
37	SAMP_W	1602015-03A	SAMP200.8	2206	
38	SAMP_W	1602015-04A	SAMP200.8	2207	
39	SAMP_W	1602015-05A	SAMP200.8	2208	
40	PDS	1602011-01A PDS	PDS 200.8	2209	

#	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		10	Skip
34		50	Skip
35		50	Skip
36		50	Skip
37		10	Skip
38		10	Skip
39		10	Skip
40		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CCV	CCV1-160211	CCV ICPMS_TW	1207	
42	CCV	CCV1-160211	CCV ICPMS_TW	1207	
43	CCB	CCB1-160211	CCB ICPMS_TW	1102	
44	LLCCV	LCVL1-160211	LCVLICPMS_TW	2112	
45	CCB	CCB1-160211	CCB ICPMS_TW	1103	

Sample List

46	PB_W	MB-73540	MBLK6020A_W	2301
47	LCS_W	LCS-73540	LCS 6020A_W	2302
48	LCS_W	LCSD-73540	LCSD6020A_W	2303
49	CCB	RINSE	CCB ICPMS_TW	1101
50	AllRef	1602026-09B	SAMP6020A_W	2304
51	SD	1602026-09B SD	SD 6020A_W	2305
52	SAMP_W	1602045-01C	SAMP6020A_W	2306
53	SAMP_W	1602045-04B	SAMP6020A_W	2307
54	SAMP_W	1602045-06C	SAMP6020A_W	2308
55	SAMP_W	1602045-07B	SAMP6020A_W	2309
56	SAMP_W	1602045-09C	SAMP6020A_W	2310
57	SAMP_W	1602045-10B	SAMP6020A_W	2311
58	SAMP_W	1602045-11B	SAMP6020A_W	2312
59	SAMP_W	1602045-13B	SAMP6020A_W	2401
60	SAMP_W	1602045-14C	SAMP6020A_W	2402

#	Level	Dilution	Skip
41			Skip
42			Skip
43			Skip
44			Skip
45			Skip
46		1	Skip
47		1	Skip
48		1	Skip
49			Skip
50		10	Skip
51		50	Skip
52		50	Skip
53		10	Skip
54		10	Skip
55		10	Skip
56		10	Skip
57		10	Skip
58		10	Skip
59		10	Skip
60		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PDS	1602026-09B PDS	PDS 6020A_W	2403	
62	MS_W	1602026-09B MS	MS 6020A_W	2404	
63	MS_W	1602026-09B MSD	MSD 6020A_W	2405	
64	CCV	CCV2-160211	CCV ICPMS_TW	1207	
65	CCB	CCB2-160211	CCB ICPMS_TW	1102	
66	LLCCV	LCVL2-160211	LCVLICPMS_TW	2112	
67	CCB	CCB2-160211	CCB ICPMS_TW	1103	
68	SAMP_W	1602045-17C	SAMP6020A_W	2406	
69	SAMP_W	1602045-19C	SAMP6020A_W	2407	
70	SAMP_W	1602032-01A	SAMPICPMS_TW	2408	
71	CCV	CCV3-160211	CCV ICPMS_TW	1207	
72	CCB	CCB3-160211	CCB ICPMS_TW	1102	
73	LLCCV	LCVL3-160211	LCVLICPMS_TW	2512	

Sample List

74	CCB	CCB3-160211	CCB ICPMS_TW	1103
75	PB_W	MB-73575	MBLKICPMS_TWDOD	3101
76	LCS_W	LCS-73575	LCS ICPMS_TWDOD	3102
77	CCB	RINSE	CCB ICPMS_TW	1101
78	SAMP_W	1601190-07A	SAMPICPMS_TWDOD	3103
79	SAMP_W	1601205-19A	SAMPICPMS_TWDOD	3104
80	SAMP_W	1601214-10A	SAMPICPMS_TWDOD	3105

#	Level	Dilution	Skip
61		10	Skip
62		10	Skip
63		10	Skip
64			Skip
65			Skip
66			Skip
67			Skip
68		10	Skip
69		10	Skip
70		1	Skip
71			Skip
72			Skip
73			Skip
74			Skip
75		1	Skip
76		1	Skip
77			Skip
78		1	Skip
79		1	Skip
80		1	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1601230-16A	SAMPICPMS_TWDOD	3106	
82	SAMP_W	1601231-28A	SAMPICPMS_TWDOD	3107	
83	SAMP_W	1601247-13A	SAMPICPMS_TWDOD	3108	
84	SAMP_W	1601285-19A	SAMPICPMS_TWDOD	3109	
85	SAMP_W	1601289-07A	SAMPICPMS_TWDOD	3110	
86	CCV	CCV4-160211	CCV ICPMS_TW	1207	
87	CCB	CCB4-160211	CCB ICPMS_TW	1102	
88	LLCCV	LCVL4-160211	LCVLICPMS_TW	2512	
89	CCB	CCB4-160211	CCB ICPMS_TW	1103	
90	PB	MB-73587	MBLKICPMS_TSDOD	3201	
91	LCS_S	LCS-73587	LCS ICPMS_TSDOD	3202	
92	LCS_S	LCSD-73587	LCSDICPMS_TSDOD	3203	
93	CCB	RINSE	CCB ICPMS_TW	1101	
94	AllRef	1601232-15A	SAMPICPMS_TSDOD	3204	
95	SD	1601232-15A SD	SD ICPMS_TSDOD	3205	
96	Sample	1601231-24A	SAMPICPMS_TSDOD	3206	
97	Sample	1601231-25A	SAMPICPMS_TSDOD	3207	
98	Sample	1601231-26A	SAMPICPMS_TSDOD	3208	
99	Sample	1601231-27A	SAMPICPMS_TSDOD	3209	
100	Sample	1601232-01A	SAMPICPMS_TSDOD	3210	

Sample List

#	Level	Dilution	Skip
81		1	Skip
82		1	Skip
83		1	Skip
84		1	Skip
85		1	Skip
86			Skip
87			Skip
88			Skip
89			Skip
90		5	
91		5	
92		5	
93			
94		5	
95		25	
96		5	
97		5	
98		5	
99		5	
100		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	Sample	1601232-02A	SAMPICPMS_TSDOD	3211	
102	Sample	1601232-03A	SAMPICPMS_TSDOD	3212	
103	Sample	1601232-04A	SAMPICPMS_TSDOD	3301	
104	Sample	1601232-05A	SAMPICPMS_TSDOD	3302	
105	PDS	1601232-15A PDS	PDS ICPMS_TSDOD	3303	
106	MS_S	1601232-15A MS	MS ICPMS_TSDOD	3304	
107	MS_S	1601232-15A MSD	MSD ICPMS_TSDOD	3305	
108	CCV	CCV5-160211	CCV ICPMS_TW	1207	
109	CCB	CCB5-160211	CCB ICPMS_TW	1102	
110	LLCCV	LCVL5-160211	LCVLICPMS_TW	2511	
111	CCB	CCB5-160211	CCB ICPMS_TW	1103	
112	Sample	1601232-06A	SAMPICPMS_TSDOD	3306	
113	Sample	1601232-07A	SAMPICPMS_TSDOD	3307	
114	Sample	1601232-08A	SAMPICPMS_TSDOD	3308	
115	Sample	1601232-09A	SAMPICPMS_TSDOD	3309	
116	Sample	1601232-10A	SAMPICPMS_TSDOD	3310	
117	Sample	1601232-11A	SAMPICPMS_TSDOD	3311	
118	Sample	1601232-12A	SAMPICPMS_TSDOD	3312	
119	Sample	1601232-13A	SAMPICPMS_TSDOD	3401	
120	Sample	1601232-14A	SAMPICPMS_TSDOD	3402	

#	Level	Dilution	Skip
101		5	
102		5	
103		5	
104		5	
105		5	
106		5	
107		5	

Sample List

108					
109					
110					
111					
112		5			
113		5			
114		5			
115		5			
116		5			
117		5			
118		5			
119		5			
120		5			
#	**Sample Type**	**Sample Name**	**Comment**	**Vial#**	**File Name**
121	Sample	1601232-16A	SAMPICPMS_TSDOD	3403	
122	CCV	CCV6-160211	CCV ICPMS_TW	1207	
123	CCB	CCB6-160211	CCB ICPMS_TW	1102	
124	LLCCV	LCVL6-160211	LCVLICPMS_TW	2511	
125	CCB	CCB6-160211	CCB ICPMS_TW	1103	
126	PB	MB-73600	MBLKICPMS_TSDOD	4101	
127	LCS_S	LCS-73600	LCS ICPMS_TSDOD	4102	
128	LCS_S	LCSD-73600	LCSDICPMS_TSDOD	4103	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1601232-17A	SAMPICPMS_TSDOD	4104	
131	SD	1601232-17A SD	SD ICPMS_TSDOD	4105	
132	Sample	1601232-18A	SAMPICPMS_TSDOD	4106	
133	Sample	1601232-19A	SAMPICPMS_TSDOD	4107	
134	Sample	1601232-20A	SAMPICPMS_TSDOD	4108	
135	Sample	1601232-21A	SAMPICPMS_TSDOD	4109	
136	Sample	1601232-22A	SAMPICPMS_TSDOD	4110	
137	Sample	1601232-23A	SAMPICPMS_TSDOD	4111	
138	Sample	1601232-24A	SAMPICPMS_TSDOD	4112	
139	Sample	1601232-25A	SAMPICPMS_TSDOD	4201	
140	Sample	1601232-26A	SAMPICPMS_TSDOD	4202	

#	Level	Dilution	Skip
121		5	
122			
123			
124			
125			
126		5	
127		5	
128		5	
129			
130		5	
131		25	
132		5	
133		5	
134		5	
135		5	

Sample List

136	5
137	5
138	5
139	5
140	5

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PDS	1601232-17A PDS	PDS ICPMS_TSDOD	4203	
142	MS_S	1601232-17A MS	MS ICPMS_TSDOD	4204	
143	MS_S	1601232-17A MSD	MSD ICPMS_TSDOD	4205	
144	CCV	CCV7-160211	CCV ICPMS_TW	1207	
145	CCB	CCB7-160211	CCB ICPMS_TW	1102	
146	LLCCV	LCVL7-160211	LCVLICPMS_TW	2510	
147	CCB	CCB7-160211	CCB ICPMS_TW	1103	
148	Sample	1601232-27A	SAMPICPMS_TSDOD	4206	
149	Sample	1601247-01A	SAMPICPMS_TSDOD	4207	
150	Sample	1601247-02A	SAMPICPMS_TSDOD	4208	
151	Sample	1601247-03A	SAMPICPMS_TSDOD	4209	
152	Sample	1601247-04A	SAMPICPMS_TSDOD	4210	
153	Sample	1601247-05A	SAMPICPMS_TSDOD	4211	
154	Sample	1601247-06A	SAMPICPMS_TSDOD	4212	
155	Sample	1601247-07A	SAMPICPMS_TSDOD	4301	
156	Sample	1601247-08A	SAMPICPMS_TSDOD	4302	
157	Sample	1601247-09A	SAMPICPMS_TSDOD	4303	
158	CCV	CCV8-160211	CCV ICPMS_TW	1207	
159	CCB	CCB8-160211	CCB ICPMS_TW	1102	
160	LLCCV	LCVL8-160211	LCVLICPMS_TW	2510	

#	Level	Dilution	Skip
141		5	
142		5	
143		5	
144			
145			
146			
147			
148		5	
149		5	
150		5	
151		5	
152		5	
153		5	
154		5	
155		5	
156		5	
157		5	
158			
159			
160			

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	CCB	CCB8-160211	CCB ICPMS_TW	1102	

Sample List

162	PB	MB-73601	MBLKICPMS_TSDOD	4310
163	LCS_S	LCS-73601	LCS ICPMS_TSDOD	4311
164	LCS_S	LCSD-73601	LCSDICPMS_TSDOD	4312
165	CCB	RINSE	CCB ICPMS_TW	1101
166	AllRef	1601247-16A	SAMPICPMS_TSDOD	4401
167	SD	1601247-16A SD	SD ICPMS_TSDOD	4402
168	Sample	1601247-10A	SAMPICPMS_TSDOD	4403
169	Sample	1601247-11A	SAMPICPMS_TSDOD	4404
170	Sample	1601247-12A	SAMPICPMS_TSDOD	4405
171	Sample	1601247-14A	SAMPICPMS_TSDOD	4406
172	Sample	1601247-15A	SAMPICPMS_TSDOD	4407
173	Sample	1601247-17A	SAMPICPMS_TSDOD	4408
174	Sample	1601247-18A	SAMPICPMS_TSDOD	4409
175	Sample	1601247-19A	SAMPICPMS_TSDOD	4410
176	Sample	1601247-20A	SAMPICPMS_TSDOD	4411
177	PDS	1601247-16A PDS	PDS ICPMS_TSDOD	4412
178	MS_S	1601247-16A MS	MS ICPMS_TSDOD	4501
179	MS_S	1601247-16A MSD	MSD ICPMS_TSDOD	4502
180	CCV	CCV9-160211	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
161			
162		5	
163		5	
164		5	
165			
166		5	
167		25	
168		5	
169		5	
170		5	
171		5	
172		5	
173		5	
174		5	
175		5	
176		5	
177		5	
178		5	
179		5	
180			

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB9-160211	CCB ICPMS_TW	1102	
182	LLCCV	LCVL9-160211	LCVLICPMS_TW	2510	
183	CCB	CCB9-160211	CCB ICPMS_TW	1103	
184	Sample	1601247-21A	SAMPICPMS_TSDOD	4503	
185	Sample	1601247-22A	SAMPICPMS_TSDOD	4504	
186	Sample	1601285-01A	SAMPICPMS_TSDOD	4505	
187	Sample	1601285-02A	SAMPICPMS_TSDOD	4506	
188	Sample	1601285-03A	SAMPICPMS_TSDOD	4507	
189	Sample	1601285-04A	SAMPICPMS_TSDOD	4508	

Sample List

190	Sample	1601285-05A	SAMPICPMS_TSDOD	4509
191	Sample	1601285-06A	SAMPICPMS_TSDOD	4510
192	Sample	1601285-07A	SAMPICPMS_TSDOD	4511
193	Sample	1601285-08A	SAMPICPMS_TSDOD	4512
194	CCV	CCV10-160211	CCV ICPMS_TW	1207
195	CCB	CCB10-160211	CCB ICPMS_TW	1102
196	LLCCV	LCVL10-160211	LCVLICPMS_TW	2510
197	CCB	CCB10-160211	CCB ICPMS_TW	1102
198	PB_W	MB-73610	MBLK200.8	3408
199	LCS_200	LCS-73610	LCS 200.8	3409
200	LCS_200	LCSD-73610	LCSD200.8	3410

#	Level	Dilution	Skip
181			
182			
183			
184		5	
185		5	
186		5	
187		5	
188		5	
189		5	
190		5	
191		5	
192		5	
193		5	
194			
195			
196			
197			
198		1	
199		1	
200		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	CCB	RINSE	CCB ICPMS_TW	1101	
202	AllRef	1602093-02A	SAMP200.8	3411	
203	SD	1602093-02A SD	SD 200.8	3412	
204	SAMP_W	1602094-01A	SAMP200.8	3501	
205	SAMP_W	1602097-01A	SAMP200.8	3502	
206	SAMP_W	1602097-02A	SAMP200.8	3503	
207	SAMP_W	1602058-01A	SAMP200.8	3504	
208	SAMP_W	1602111-01A	SAMP200.8	3505	
209	SAMP_W	1602093-01A	SAMP200.8	3506	
210	SAMP_W	1602098-01A	SAMP200.8	3507	
211	SAMP_W	1602098-02A	SAMP200.8	3508	
212	SAMP_W	1602098-03A	SAMP200.8	3509	
213	PDS	1602093-02A PDS	PDS 200.8	3510	
214	MS_W	1602093-02A MS	MS 200.8	3511	
215	MS_W	1602093-02A MSD	MSD 200.8	3512	
216	CCV	CCV11-160211	CCV ICPMS_TW	1207	
217	CCB	CCB11-160211	CCB ICPMS_TW	1102	

Sample List

218	LLCCV	LCVL11-160211	LCVLICPMS_TW	2510
219	CCB	CCB11-160211	CCB ICPMS_TW	1102
220	CCB	CCB11-160211	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
201			
202		1	
203		5	
204		1	
205		1	
206		1	
207		1	
208		1	
209		1	
210		1	
211		1	
212		1	
213		1	
214		1	
215		1	
216			
217			
218			
219			
220			

#	Sample Type	Sample Name	Comment	Vial#	File Name
221	CCB	CCB11-160211	CCB ICPMS_TW	1102	
222	CCB	CCB11-160211	CCB ICPMS_TW	1103	
223	CCB	CCB11-160211	CCB ICPMS_TW	1103	
224	CCB	CCB11-160211	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
221			
222			
223			
224			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion:
Prep End Date:

Prep Batch **73587** 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 #
1601231-24A	Soil		1.00	50	50.000	1 of 1
1601231-25A	Soil		1.09	50	50.000	1 of 1
1601231-26A	Soil		1.13	50	50.000	1 of 1
1601231-27A	Soil		1.03	50	50.000	1 of 1
1601232-01A	Soil		1.03	50	50.000	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		1.05	50	50.000	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		1.08	50	50.000	1 of 1
1601232-04A	Soil		1.03	50	50.000	1 of 1
1601232-05A	Soil		1.07	50	50.000	1 of 1
1601232-06A	Soil		1.12	50	50.000	1 of 1
1601232-07A	Soil		1.06	50	50.000	1 of 1
1601232-08A	Soil		1.00	50	50.000	1 of 1
1601232-09A	Soil		1.13	50	50.000	1 of 1
1601232-10A	Soil		1.02	50	50.000	1 of 1
1601232-11A	Soil		1.01	50	50.000	1 of 1
1601232-12A	Soil		1.00	50	50.000	1 of 1
1601232-13A	Soil		1.07	50	50.000	1 of 1
1601232-14A	Soil		1.04	50	50.000	1 of 1
1601232-15A	Soil		1.02	50	50.000	1 of 1
1601232-16A	Soil		1.13	50	50.000	1 of 1
LCS-73587	Soil		1	50	50.000	of
LCSD-73587	Soil		1	50	50.000	of
MB-73587	Soil		1	50	50.000	of

MS 1.05

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

MSD 1.03

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

10:46-10:56
11:06-1:06
1:32-3:32
3:39-3:54

REVIEWED/APPROVED
By Sherri Herschmann at 2:17:06 PM, 2/15/2016

2/9/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26	
TEST DATE:	02/09/2016	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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0065	4.9965	99.93	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0052	4.9952	99.90		
3		5.0061	4.9961	99.92		
AVERAGE (MEAN)		5.006	4.996	99.92		0.013
						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	0.2021	0.2017	100.85	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2009	0.2005	100.25		
3		0.2022	0.2018	100.90		
AVERAGE (MEAN)		0.202	0.201	100.66		0.359
						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)						

Cas Vo Ryle 2/9/16
Analyst / Date

Sherri Herschmann 02/15/2016
Review and Approved / Date

REVIEWED/APPROVED
By Sherri Herschmann at 2:15:19 PM, 2/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion: **Start: 2/9/2016 10:46:00 AM / Stop: 2/9/2016 3:54:00 PM**
Prep End Date: **2/9/2016 5:30:00 PM**

Prep Batch **73587** 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 #
1601231-24A	Soil		1	50	50.000	1 of 1
1601231-25A	Soil		1.09	50	45.872	1 of 1
1601231-26A	Soil		1.13	50	44.248	1 of 1
1601231-27A	Soil		1.03	50	48.544	1 of 1
1601232-01A	Soil		1.03	50	48.544	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601232-02A	Soil		1.05	50	47.619	1 of 1
Sieved sample will be in 2-oz glass jar						
1601232-03A	Soil		1.08	50	46.296	1 of 1
1601232-04A	Soil		1.03	50	48.544	1 of 1
1601232-05A	Soil		1.07	50	46.729	1 of 1
1601232-06A	Soil		1.12	50	44.643	1 of 1
1601232-07A	Soil		1.06	50	47.170	1 of 1
1601232-08A	Soil		1	50	50.000	1 of 1
1601232-09A	Soil		1.13	50	44.248	1 of 1
1601232-10A	Soil		1.02	50	49.020	1 of 1
1601232-11A	Soil		1.01	50	49.505	1 of 1
1601232-12A	Soil		1	50	50.000	1 of 1
1601232-13A	Soil		1.07	50	46.729	1 of 1
1601232-14A	Soil		1.04	50	48.077	1 of 1
/						
1601232-15A	Soil		1.02	50	49.020	1 of 1
1601232-15A MS	Soil		1.05	50	47.619	of
1601232-15A MSD	Soil		1.03	50	48.544	of
1601232-15A PDS	Soil		1.02	50	49.020	of
1601232-15A SD	Soil		1.02	50	49.020	of
1601232-16A	Soil		1.13	50	44.248	1 of 1

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 8:27:13 AM**
Digestion: **Start: 2/9/2016 10:46:00 AM / Stop: 2/9/2016 3:54:00 PM**
Prep End Date: **2/9/2016 5:30:00 PM**

Prep Batch **73587** 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 #
LCS-73587	Soil		1	50	50.000	of
LCSD-73587	Soil		1	50	50.000	of
MB-73587	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160201-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160201-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/10/2016 8:30:00 AM**
Digestion: **Start: 2/10/2016 10:10:00 AM / Stop: 2/10/2016 3:40:00 PM**
Prep End Date: **2/10/2016 4:00:38 PM**

Prep Batch **73600** 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 #
1601232-17A	Soil		1.07	50	46.729	1 of 1
Weighed out on 2/9/16. Experiment performed 2/10/16.						
1601232-17A MS	Soil		1.07	50	46.729	of
1601232-17A MSD	Soil		1.19	50	42.017	of
1601232-17A PDS	Soil		1.07	50	46.729	of
1601232-17A SD	Soil		1.07	50	46.729	of
1601232-18A	Soil		1.01	50	49.505	1 of 1
1601232-19A	Soil		1.03	50	48.544	1 of 1
1601232-20A	Soil		1.06	50	47.170	1 of 1
1601232-21A	Soil		1.06	50	47.170	1 of 1
1601232-22A	Soil		1	50	50.000	1 of 1
1601232-23A	Soil		1.12	50	44.643	1 of 1
1601232-24A	Soil		1	50	50.000	1 of 1
1601232-25A	Soil		1.16	50	43.103	1 of 1
1601232-26A	Soil		1.04	50	48.077	1 of 1
1601232-27A	Soil		1.09	50	45.872	1 of 1
1601247-01A	Soil		1.15	50	43.478	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601247-02A	Soil		1.13	50	44.248	1 of 1
Sieved sample will be in 2-oz glass jar						
1601247-03A	Soil		1.05	50	47.619	1 of 1
1601247-04A	Soil		1.04	50	48.077	1 of 1
1601247-05A	Soil		1	50	50.000	1 of 1
1601247-06A	Soil		1.02	50	49.020	1 of 1
1601247-07A	Soil		1.01	50	49.505	1 of 1
1601247-08A	Soil		1.09	50	45.872	1 of 1
1601247-09A	Soil		1.05	50	47.619	1 of 1

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160210-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	05/10/2016
MET-SPIKE-160210-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	05/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/10/2016 8:30:00 AM**
Digestion: **Start: 2/10/2016 10:10:00 AM / Stop: 2/10/2016 3:40:00 PM**
Prep End Date: **2/10/2016 4:00:38 PM**

Prep Batch **73600** 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 #
LCS-73600	Soil		1	50	50.000	of
LCSD-73600	Soil		1	50	50.000	of
MB-73600	Soil		1	50	50.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
MET-SPIKE-160210-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	05/10/2016
MET-SPIKE-160210-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	05/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/9/2016 1:03:47 PM**
Digestion:
Prep End Date:

Prep Batch **73600** 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 #
1601232-17A	Soil		1.07	50	50.000	1 of 1
1601232-18A	Soil		1.01	50	50.000	1 of 1
1601232-19A	Soil		1.03	50	50.000	1 of 1
1601232-20A	Soil		1.06	50	50.000	1 of 1
1601232-21A	Soil		1.06	50	50.000	1 of 1
1601232-22A	Soil		1.00	50	50.000	1 of 1
1601232-23A	Soil		1.12	50	50.000	1 of 1
1601232-24A	Soil		1.~~12~~.00	50 CVD 2/12	50.000	1 of 1
1601232-25A	Soil		1.16	50	50.000	1 of 1
1601232-26A	Soil		1.04	50	50.000	1 of 1
1601232-27A	Soil		1.09	50	50.000	1 of 1
1601247-01A	Soil		1.15	50	50.000	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601247-02A	Soil		1.13	50	50.000	1 of 1
Sieved sample will be in 2-oz glass jar						
1601247-03A	Soil		1.05	50	50.000	1 of 1
1601247-04A	Soil		1.04	50	50.000	1 of 1
1601247-05A	Soil		1.00	50	50.000	1 of 1
1601247-06A	Soil		1.02	50	50.000	1 of 1
1601247-07A	Soil		1.01	50	50.000	1 of 1
1601247-08A	Soil		1.09	50	50.000	1 of 1
1601247-09A	Soil		1.05	50	50.000	1 of 1
LCS-73600	Soil		1	50	50.000	of
LCSD-73600	Soil		1	50	50.000	of
MB-73600	Soil		1	50	50.000	of

MS 232-17A 1.07
MSD 232-17A 1.19

Number	Reagent Name	Amt	Units	Exp. Date
9707	Digestion Vessels	1	vessel	04/11/2016
9829	Nitric Acid (Trace Metal Grade)	10	ml	05/30/2025
9830	Hydrochloric Acid (trace metal grade)	5	ml	05/30/2025
9974	Hydrogen Peroxide	3	ml	01/20/2026

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-160127-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	04/26/2016
~~MET-SPIKE-160201-1~~	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	04/19/2016
~~MET-SPIKE-160201-2~~	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	04/19/2016
MET-SPIKE-160210-4	50 PPM Sb+Ag CAL			
MET-SPIKE-160210-5	50 PPM Custom			

CVD 2/10/16

10:10-10:20
10:48-12:48
1:15-3:15
3:25-3:40

REVIEWED/APPROVED
By Sherri Herschmann at 2:18:01 PM, 2/15/2016

2/10/16

Calibration Summary Report

Date Acquired 2/11/2016 10:09
Data Batch 160211.b

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

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0012 * x + 4.0986E-004
Be	1.0000	y = 4.2145E-005 * x + 5.0492E-006
B	1.0000	y = 1.6041E-005 * x + 0.0013
Na	1.0000	y = 7.3867E-004 * x + 0.1241
Mg	1.0000	y = 3.6206E-004 * x + 5.9939E-004
Al	1.0000	y = 1.3935E-004 * x + 7.2438E-004
K	1.0000	y = 4.1039E-004 * x + 0.0553
Ca	0.9999	y = 2.1328E-005 * x + 3.0899E-004
Ti	1.0000	y = 1.4346E-004 * x + 8.4928E-006
V	1.0000	y = 0.0044 * x + 0.0048
Cr	1.0000	y = 0.0052 * x + 0.0014
Mn	1.0000	y = 0.0030 * x + 9.1931E-005
Fe	1.0000	y = 0.0044 * x + 0.0069
Co	1.0000	y = 0.0112 * x + 6.8772E-005
Ni	1.0000	y = 0.0029 * x + 3.8739E-004
Cu	1.0000	y = 0.0081 * x + 0.0041
Zn	1.0000	y = 0.0014 * x + 3.4258E-004
Se	1.0000	y = 7.8347E-005 * x + 1.5354E-004
Sr	0.9999	y = 6.6703E-004 * x + 2.8777E-005
Mo	0.9999	y = 5.0226E-004 * x + 2.8798E-006
Ag	1.0000	y = 0.0015 * x + 9.1528E-006
Cd	1.0000	y = 2.3433E-004 * x + 1.3076E-006
Sn	0.9999	y = 5.4214E-004 * x + 8.3474E-005
Sb	1.0000	y = 7.7902E-004 * x + 3.7286E-005
Tl	1.0000	y = 0.0016 * x + 6.3451E-006
Ba	1.0000	y = 2.7004E-004 * x + 3.1401E-006
Pb	1.0000	y = 0.0021 * x + 2.2125E-004
Li	1.0000	y = 3.3115E-005 * x + 3.3795E-005

REVIEWED BY
By Janice Whitt at 1:33:09 PM, 2/11/2016

Calibration Summary Report

Level 7 Cal

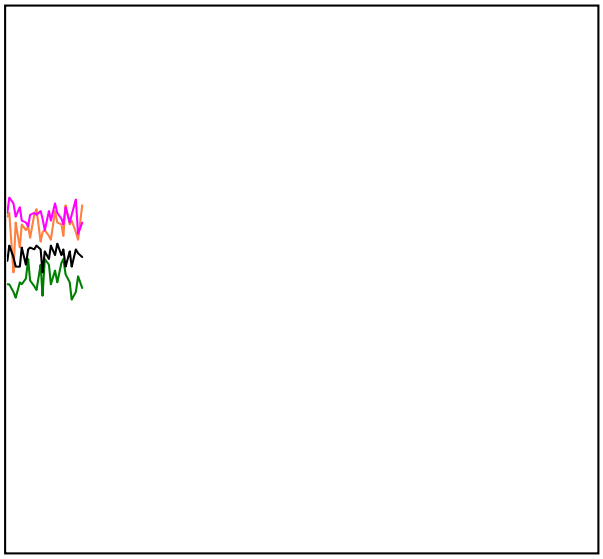
Ele	Conc	Calc	%Rec
As	500	500.19	100
Be	500	500.65	100
B	500	491.98	98
Na	10000	10135.77	101
Mg	10000	10013.92	100
Al	10000	9965.62	100
K	10000	9954.34	100
Ca	10000	9776.01	98
Ti	500	491.13	98
V	500	503.06	101
Cr	500	500.02	100
Mn	500	506.78	101
Fe	10000	9985.39	100
Co	500	505.29	101
Ni	500	516.35	103
Cu	500	513.28	103
Zn	500	508.16	102
Se	500	502.62	101
Sr	500	475.53	95
Mo	500	480.26	96
Ag	500	500.74	100
Cd	500	495.79	99
Sn	500	480.25	96
Sb	500	500.13	100
Tl	500	499.31	100
Ba	500	498.78	100
Pb	500	498.75	100

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.77	100
Be	2000	1999.70	100
B	2000	2003.75	100
Na	25000	24930.44	100
Mg	25000	24982.76	100
K	25000	25019.20	100
Ca	25000	25103.71	100
Ti	2000	2002.96	100
V	2000	1999.40	100
Cr	2000	1999.95	100
Mn	2000	1997.69	100
Co	2000	1998.22	100
Ni	2000	1994.82	100
Cu	2000	1995.61	100
Zn	2000	1996.91	100
Se	2000	1998.26	100
Sr	2000	2008.22	100
Mo	2000	2006.96	100
Cd	2000	2001.34	100
Sn	2000	2006.59	100
Tl	2000	1999.72	100
Ba	2000	2000.42	100
Pb	2000	2000.07	100
Li	2000	2001.70	100

REVIEWED BY
By Janice Whitt at 1:33:17 PM, 2/11/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	488	469.7	6.15
59	2000	970	998.7	4.43
89	2000	1276	1190.1	4.62
140	5000	3023	3086.3	2.71
205	5000	2703	2725.2	2.77
156/140	1	0.397 %	0.342 %	42.05
51	500	269	278.3	7.97
56	2000	1375	1349.5	3.62
75	20	7	10.2	37.34
78	50	11	17.1	28.73

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	0.8		

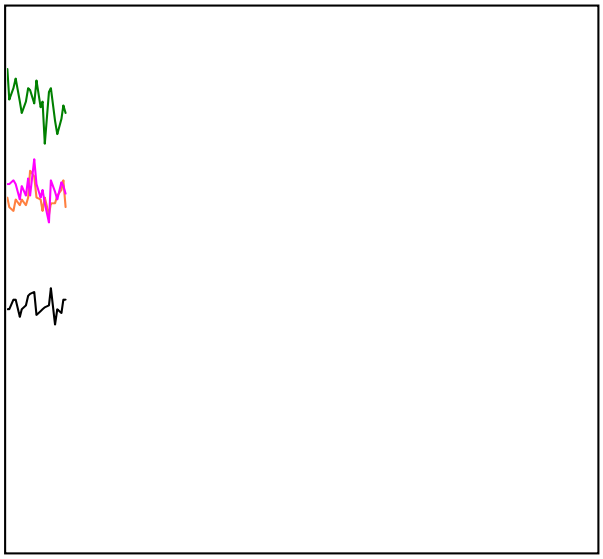
Cell Parameters

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

Meters

IF/BK Press	2.11E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.91E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1548	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
63	1000	619	644.3	7.01
59	2000	1613	1652.6	4.03
89	5000	3161	3240.9	3.18
140	5000	3283	3327.2	3.39
205	5000	2313	2260.6	3.62
156/140	2	0.640 %	1.012 %	21.58
51	50000	45711	45364.8	1.97
56	500000	235037	235912.9	2.22
75	10000	5638	5758.9	1.61
78	5000	2524	2535.2	2.16

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.50
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	9.9
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

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

Meters

IF/BK Press	2.10E+2	Pa	Carrier Gas(BP)	1.27E+2	kPa
Analyzer Press	1.06E-4	Pa	Carrier Gas	0.50	L/min
Forward Power	1551	W			

US EPA Tune Check Sample Report

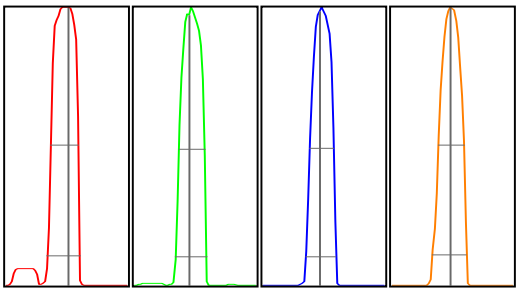
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	534704	1.02	5.00	
59	941453	1.23	5.00	
115	1653750	1.03	5.00	
205	1460212	1.45	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	533550	526966	533226	539263	540513
59	948990	921100	947093	943693	946389
115	1671687	1629463	1644343	1665399	1657858
205	1495345	1448627	1449294	1443357	1464439

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	82074	7.05	6.9 - 7.1		0.777	0.850	
59	158774	58.90	58.9 - 59.1		0.738	0.850	
115	300724	114.95	114.9 - 115.1		0.737	0.850	
205	250726	205.00	204.9 - 205.1		0.835	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	0.50	L/min	Makeup/Dilution Gas	0.55	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	9.9	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 1:33:21 PM, 2/11/2016

P/A Factor Tuning Report

========== Current Sample ==========
Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 02/11/2016 10:09:01

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1848 V
PulseHV: 1001 V

Acquired: 02/11/2016 09:34:13

Mass[u]	Element	P/A Factor
6	Li	0.107993
9	Be	0.119345
23	Na	0.126112
24	Mg	0.130717
27	Al	0.134962
39	K	0.137420
45	Sc	0.139263
48		0.139807
51	V	0.140606
52	Cr	0.144564
55	Mn	0.146422
59	Co	0.149854
60	Ni	0.150630
63	Cu	0.152433
66	Zn	0.152951
72		0.151718
74	Ge	0.152204
75	As	0.151776
88	Sr	0.152988
89		0.151579
95		0.151877
97	Mo	0.151763
98	Mo	0.152696
99	[Mo]	0.154122
101		0.153910
105		0.156808
111	Cd	0.158676
114	Cd	0.159510
115	In	0.159157
118	Sn	0.158444
121		0.158339
123	Sb	0.158311
135	Ba	0.157291
138		0.159919
175		0.164337
193		0.165694
205	Tl	0.167002
206	[Pb]	0.165897
207	[Pb]	0.166755
208	Pb	0.167681
209	Bi	0.167109
232		0.167037
238	U	0.167466
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 1:33:26 PM, 2/11/2016

Calibration Blank Report

Date Acquired	2/11/2016 10:09	Sample Name	BLANK STD 1
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	40	13.92
9	Be	45	6	50.00
11	B	45	1487	12.57
23	Na	45	147026	1.23
24	Mg	45	710	1.24
27	Al	45	858	9.12
39	K	45	65455	0.91
44	Ca	45	366	3.46
47	Ti	45	10	100.00
51	V	45	5704	1.27
52	Cr	45	1663	3.82
55	Mn	45	109	6.37
56	Fe	45	8199	4.23
59	Co	72	58	23.31
60	Ni	72	326	8.95
63	Cu	72	3440	3.19
66	Zn	72	288	22.05
75	As	72	344	10.81
78	Se	72	129	3.90
88	Sr	115	244	8.22
95	Mo	115	24	55.10
107	Ag	115	78	24.37
111	Cd	115	11	75.52
118	Sn	115	709	5.84
121	Sb	115	317	1.82
137	Ba	115	27	69.58
205	Tl	209	113	16.38
208	Pb	209	3954	5.62

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1184753	1.01
72	Ge	840651	0.48
115	In	8493915	0.52
209	Bi	17861880	1.91

Calibration Standard Report

Date Acquired	2/11/2016 10:11	Sample Name	L2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	74	27.92
9	Be	45	64	5.63
11	B	45	1443	4.09
23	Na	45	168610	0.43
24	Mg	45	9870	2.40
27	Al	45	4196	3.11
39	K	45	75308	1.06
44	Ca	45	849	6.64
47	Ti	45	160	15.02
51	V	45	11293	1.92
52	Cr	45	7973	1.07
55	Mn	45	3899	1.71
56	Fe	45	114405	1.08
59	Co	72	9909	2.36
60	Ni	72	3140	3.75
63	Cu	72	10819	1.32
66	Zn	72	1619	7.37
75	As	72	1401	2.90
78	Se	72	206	4.96
88	Sr	115	5728	1.11
95	Mo	115	4123	5.12
107	Ag	115	12867	0.42
111	Cd	115	2124	5.90
118	Sn	115	5199	3.39
121	Sb	115	7176	4.63
137	Ba	115	2279	3.72
205	Tl	209	29949	0.66
208	Pb	209	42556	0.94

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1167604	0.50	1184753	98.55	70	120	
72	Ge	833315	0.89	840651	99.13	70	120	
115	In	8374446	1.49	8493915	98.59	70	120	
209	Bi	17876407	0.21	17861880	100.08	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:13	Sample Name	L-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	409	6.88
9	Be	45	473	2.33
11	B	45	1391	2.54
23	Na	45	325741	0.70
24	Mg	45	88699	0.80
27	Al	45	34548	1.01
39	K	45	163070	0.73
44	Ca	45	5268	2.04
47	Ti	45	1722	7.18
51	V	45	58776	1.43
52	Cr	45	63758	1.47
55	Mn	45	37455	1.31
56	Fe	45	1063777	0.61
59	Co	72	98079	0.70
60	Ni	72	26816	1.40
63	Cu	72	75521	0.35
66	Zn	72	12839	2.59
75	As	72	10758	0.61
78	Se	72	848	2.64
88	Sr	115	54230	1.04
95	Mo	115	41441	2.24
107	Ag	115	126650	0.86
111	Cd	115	20348	2.46
118	Sn	115	45100	0.94
121	Sb	115	67842	0.53
137	Ba	115	22882	1.53
205	Tl	209	288951	0.19
208	Pb	209	393739	0.37

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1158016	0.81	1184753	97.74	70	120	
72	Ge	830667	0.87	840651	98.81	70	120	
115	In	8294239	2.05	8493915	97.65	70	120	
209	Bi	18095999	0.83	17861880	101.31	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:15	Sample Name	10X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1977	2.57
9	Be	45	2439	2.53
11	B	45	2195	3.91
23	Na	45	1005870	0.24
24	Mg	45	425249	0.65
27	Al	45	163164	1.12
39	K	45	542996	0.20
44	Ca	45	24948	2.17
47	Ti	45	8241	1.78
51	V	45	260331	0.78
52	Cr	45	302128	0.43
55	Mn	45	180444	0.33
56	Fe	45	5184295	0.15
59	Co	72	478322	0.24
60	Ni	72	128931	0.60
63	Cu	72	351761	0.67
66	Zn	72	61977	0.57
75	As	72	51402	0.34
78	Se	72	3473	1.92
88	Sr	115	265890	0.71
95	Mo	115	198828	0.52
107	Ag	115	618442	0.64
111	Cd	115	98576	0.98
118	Sn	115	218110	1.31
121	Sb	115	326284	1.89
137	Ba	115	112318	0.79
205	Tl	209	1411926	1.06
208	Pb	209	1887750	1.17

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1165132	0.11	1184753	98.34	70	120	
72	Ge	827538	1.30	840651	98.44	70	120	
115	In	8417971	0.31	8493915	99.11	70	120	
209	Bi	17650108	1.70	17861880	98.81	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:17	Sample Name	5X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	3825	2.75
9	Be	45	4977	3.33
11	B	45	3234	2.40
23	Na	45	1890800	0.64
24	Mg	45	857591	0.34
27	Al	45	328156	0.42
39	K	45	1015322	0.20
44	Ca	45	49361	0.42
47	Ti	45	16778	1.67
51	V	45	520316	0.44
52	Cr	45	611083	0.68
55	Mn	45	365350	0.62
56	Fe	45	10625381	0.57
59	Co	72	956297	0.09
60	Ni	72	254913	0.68
63	Cu	72	699385	0.40
66	Zn	72	123033	0.41
75	As	72	102914	0.83
78	Se	72	6829	2.79
88	Sr	115	531111	0.92
95	Mo	115	397973	0.22
107	Ag	115	1234338	0.54
111	Cd	115	196664	0.71
118	Sn	115	438022	0.71
121	Sb	115	649258	0.74
137	Ba	115	224693	0.58
205	Tl	209	2838152	0.67
208	Pb	209	3830880	0.65

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1177682	0.41	1184753	99.40	70	120	
72	Ge	827010	1.03	840651	98.38	70	120	
115	In	8438848	1.74	8493915	99.35	70	120	
209	Bi	17711136	1.55	17861880	99.16	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:19	Sample Name	2X-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9658	2.11
9	Be	45	12322	1.23
11	B	45	5971	2.42
23	Na	45	4505098	0.40
24	Mg	45	2129433	0.12
27	Al	45	823070	0.52
39	K	45	2455942	0.28
44	Ca	45	123246	1.36
47	Ti	45	40830	1.12
51	V	45	1283104	0.37
52	Cr	45	1517387	0.80
55	Mn	45	901721	0.98
56	Fe	45	25709917	1.58
59	Co	72	2361605	0.90
60	Ni	72	630953	1.05
63	Cu	72	1734104	0.59
66	Zn	72	308629	1.06
75	As	72	256677	0.50
78	Se	72	16922	0.74
88	Sr	115	1326851	0.49
95	Mo	115	1002555	0.20
107	Ag	115	3060369	0.53
111	Cd	115	489532	0.64
118	Sn	115	1092795	0.63
121	Sb	115	1643531	0.11
137	Ba	115	568399	0.15
205	Tl	209	7273682	1.34
208	Pb	209	9627007	0.36

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1163620	0.45	1184753	98.22	70	120	
72	Ge	834344	1.06	840651	99.25	70	120	
115	In	8428006	0.92	8493915	99.22	70	120	
209	Bi	18038290	0.41	17861880	100.99	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:21	Sample Name	H-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	19203	1.27
9	Be	45	24724	1.25
11	B	45	10720	5.01
23	Na	45	8915586	0.56
24	Mg	45	4247903	0.15
27	Al	45	1627604	0.43
39	K	45	4849998	0.40
44	Ca	45	244621	0.65
47	Ti	45	82550	1.31
51	V	45	2602857	0.81
52	Cr	45	3046407	0.83
55	Mn	45	1810611	0.38
56	Fe	45	51586214	1.31
59	Co	72	4739701	0.46
60	Ni	72	1272433	0.22
63	Cu	72	3472262	0.21
66	Zn	72	611505	0.75
75	As	72	512239	0.37
78	Se	72	33032	0.45
88	Sr	115	2666337	1.04
95	Mo	115	2027628	0.80
107	Ag	115	6152755	0.45
111	Cd	115	976533	0.32
118	Sn	115	2189262	1.03
121	Sb	115	3275287	0.75
137	Ba	115	1132236	1.47
205	Tl	209	14482301	2.11
208	Pb	209	19307726	1.70

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1171532	1.22	1184753	98.88	70	120	
72	Ge	835596	0.49	840651	99.40	70	120	
115	In	8405773	0.77	8493915	98.96	70	120	
209	Bi	18221030	1.28	17861880	102.01	70	120	

Calibration Standard Report

Date Acquired	2/11/2016 10:23	Sample Name	H2-160211
Data Batch	160211.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	76770	1.19
9	Be	45	97562	0.30
11	B	45	38658	2.26
23	Na	45	21460194	1.76
24	Mg	45	10471711	1.81
27	Al	45	1873	7.72
39	K	45	11949321	1.64
44	Ca	45	620161	1.31
47	Ti	45	332625	0.94
51	V	45	10205493	0.21
52	Cr	45	12035506	1.01
55	Mn	45	7052917	1.77
56	Fe	45	37438	11.43
59	Co	72	18515582	2.40
60	Ni	72	4854920	0.70
63	Cu	72	13324408	1.66
66	Zn	72	2372747	0.50
75	As	72	2021874	0.73
78	Se	72	129347	0.47
88	Sr	115	10956976	2.18
95	Mo	115	8244820	0.61
107	Ag	115	2351	18.12
111	Cd	115	3835832	1.01
118	Sn	115	8898526	1.12
121	Sb	115	2701	10.10
137	Ba	115	4418330	0.27
205	Tl	209	56166661	0.67
208	Pb	209	74961575	0.74

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1157576	0.50	1184753	97.71	70	120	
72	Ge	825387	0.62	840651	98.18	70	120	
115	In	8179208	0.22	8493915	96.29	70	120	
209	Bi	17647678	1.52	17861880	98.80	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	2/11/2016 10:31	Sample Name	ICSA-160211
Data Batch	160211.b	Comment	ICSAICPMS_TW
Data File Name	023ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.102	11	44.3	1.2	0.8	
11	B	14.663	1702	2.6	30	30	
51	V	0.043	5710	4.0	10	10	
52	Cr	0.301	3390	2.1	8	5	
55	Mn	1.285	4576	2.1	8	10	
59	Co	0.583	5385	1.8	8	10	
60	Ni	0.338	1127	2.0	8	10	
63	Cu	0.514	6709	3.5	8	10	
66	Zn	1.537	2078	2.4	10	5	
75	As	0.205	538	4.1	4	5	
78	Se	0.428	152	17.9	2	5	
88	Sr	1.690	9221	1.3	10	10	
107	Ag	0.443	5243	0.4	0.8	2	
111	Cd	0.605	1141	7.6	1.2	1	
118	Sn	0.503	2844	6.5	10	10	
121	Sb	0.282	2048	3.6	4	2.5	
137	Ba	0.351	781	3.1	8	10	
205	Tl	0.040	1151	0.7	4	1.5	
208	Pb	0.524	22130	0.1	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141506	0.81	1184753	96.35	70	120	
72	Ge	813608	1.04	840651	96.78	70	120	
115	In	7977859	0.58	8493915	93.92	70	120	
209	Bi	16578181	0.95	17861880	92.81	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	2/11/2016 10:33	Sample Name	ICSAB-160211
Data Batch	160211.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	37.404	194546	0.55	40	93.5	80	120	
52	Cr	45	19.494	117807	1.19	20	97.5	80	120	
55	Mn	45	18.693	65478	0.49	20	93.5	80	120	
59	Co	72	37.580	345139	1.28	40	94.0	80	120	
60	Ni	72	35.599	86178	1.43	40	89.0	80	120	
63	Cu	72	19.382	131579	0.49	20	96.9	80	120	
66	Zn	72	18.739	22346	0.31	20	93.7	80	120	
75	As	72	18.972	19343	0.11	20	94.9	80	120	
78	Se	72	19.480	1374	2.93	20	97.4	80	120	
107	Ag	115	18.482	217117	1.51	20	92.4	80	120	
111	Cd	115	9.572	18029	2.30	10	95.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1146691	0.59	1184753	96.79	70	120	
72	Ge	818060	0.62	840651	97.31	70	120	
115	In	8033501	0.63	8493915	94.58	70	120	
209	Bi	16755728	1.69	17861880	93.81	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	2/11/2016 10:41	Sample Name	ICV-160211
Data Batch	160211.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	100.209	4007	1.41	100	100.2	90	110	
9	Be	45	98.965	4993	1.62	100	99.0	90	110	
11	B	45	84.046	3113	3.86	100	84.0	90	110	Fail
23	Na	45	2517.869	2371893	0.91	2500	100.7	90	110	
24	Mg	45	2567.934	1112203	1.08	2500	102.7	90	110	
27	Al	45	2503.980	418003	1.58	2500	100.2	90	110	
39	K	45	2457.983	1272045	0.49	2500	98.3	90	110	
44	Ca	45	2354.173	60399	1.04	2500	94.2	90	110	
47	Ti	45	99.882	17137	3.48	100	99.9	90	110	
51	V	45	100.734	536502	1.03	100	100.7	90	110	
52	Cr	45	101.940	635150	0.81	100	101.9	90	110	
55	Mn	45	98.754	360185	1.04	100	98.8	90	110	
56	Fe	45	2590.795	13663627	1.60	2500	103.6	90	110	
59	Co	72	103.157	980742	1.17	100	103.2	90	110	
60	Ni	72	103.552	258900	0.99	100	103.6	90	110	
63	Cu	72	102.978	708804	0.62	100	103.0	90	110	
66	Zn	72	101.985	124605	1.21	100	102.0	90	110	
75	As	72	100.615	104706	0.35	100	100.6	90	110	
78	Se	72	101.941	6894	2.07	100	101.9	90	110	
88	Sr	115	96.079	548435	0.56	100	96.1	90	110	
95	Mo	115	95.506	410327	1.10	100	95.5	90	110	
107	Ag	115	103.195	1290503	0.69	100	103.2	90	110	
111	Cd	115	99.442	199335	1.46	100	99.4	90	110	
118	Sn	115	99.242	460892	1.18	100	99.2	90	110	
121	Sb	115	101.731	678219	1.20	100	101.7	90	110	
137	Ba	115	100.129	231308	0.55	100	100.1	90	110	
205	Tl	209	97.975	2890054	0.55	100	98.0	90	110	
208	Pb	209	99.683	3927898	0.80	100	99.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1195723	1.32	1184753	100.93	70	120	
72	Ge	846983	1.27	840651	100.75	70	120	
115	In	8556463	2.07	8493915	100.74	70	120	
209	Bi	18537601	2.64	17861880	103.78	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 10:46	Sample Name	LCVL-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	030LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.127	475	8.19	10	111.3	70	130	
9	Be	45	1.101	61	15.58	1	110.1	70	130	
11	B	45	-3.052	1425	10.65	20	-15.3	70	130	Fail
23	Na	45	101.479	234920	0.69	100	101.5	70	130	
24	Mg	45	108.199	46936	0.63	100	108.2	70	130	
27	Al	45	113.232	19474	3.17	100	113.2	70	130	
39	K	45	106.246	116654	0.60	100	106.2	70	130	
44	Ca	45	107.558	3071	2.26	100	107.6	70	130	
47	Ti	45	5.322	911	2.79	5	106.4	70	130	
51	V	45	1.250	12181	1.82	1	125.0	70	130	
52	Cr	45	5.194	33515	1.05	5	103.9	70	130	
55	Mn	45	5.164	18691	1.05	5	103.3	70	130	
56	Fe	45	104.137	549965	0.89	100	104.1	70	130	
59	Co	72	5.233	49631	1.37	5	104.7	70	130	
60	Ni	72	5.313	13546	0.75	5	106.3	70	130	
63	Cu	72	5.286	39537	2.04	5	105.7	70	130	
66	Zn	72	5.545	7025	3.80	5	110.9	70	130	
75	As	72	5.100	5618	2.50	5	102.0	70	130	
78	Se	72	5.466	491	2.84	5	109.3	70	130	
88	Sr	115	4.828	27783	0.89	5	96.6	70	130	
95	Mo	115	4.858	20889	1.31	5	97.2	70	130	
107	Ag	115	2.081	26081	0.98	2	104.0	70	130	
111	Cd	115	1.048	2110	4.35	1	104.8	70	130	
118	Sn	115	5.121	24452	0.98	5	102.4	70	130	
121	Sb	115	2.025	13806	1.71	2	101.3	70	130	
137	Ba	115	4.947	11449	2.09	5	98.9	70	130	
205	Tl	209	1.022	29325	1.36	1	102.2	70	130	
208	Pb	209	0.999	42091	1.68	1	99.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1180059	0.66	1184753	99.60	70	120	
72	Ge	843888	0.73	840651	100.39	70	120	
115	In	8551879	1.93	8493915	100.68	70	120	
209	Bi	17961075	1.94	17861880	100.56	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	2/11/2016 10:50	Sample Name	ICB-160211
Data Batch	160211.b	Comment	ICB ICPMS_TW
Data File Name	032_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.000	40	20.5	2	5	
9	Be	45	0.014	7	91.7	0.4	0.3	
11	B	45	-20.047	1106	7.5	10	10	
23	Na	45	-1.867	145216	0.4	50	100	
24	Mg	45	0.204	797	8.9	50	100	
27	Al	45	4.082	1530	3.2	50	10	
39	K	45	5.941	68259	0.7	50	100	
44	Ca	45	-0.693	348	3.5	50	100	
47	Ti	45	-0.033	4	43.4	4	3	
51	V	45	0.224	6863	3.2	4	3	
52	Cr	45	0.027	1830	7.6	2	2	
55	Mn	45	0.014	160	16.3	2	3	
56	Fe	45	0.573	11176	3.8	50	50	
59	Co	72	0.001	70	17.2	2	3	
60	Ni	72	-0.022	277	9.4	2	3	
63	Cu	72	-0.057	3104	3.8	2	2	
66	Zn	72	0.079	390	12.4	4	2	
75	As	72	-0.012	338	8.7	2	2	
78	Se	72	0.251	148	8.1	1	2	
88	Sr	115	0.005	272	10.3	4	3	
95	Mo	115	0.009	62	3.1	2	2	
107	Ag	115	0.008	178	14.1	0.4	1	
111	Cd	115	0.000	11	62.5	0.4	0.3	
118	Sn	115	0.084	1084	7.2	4	3	
121	Sb	115	-0.010	247	12.9	2	0.8	
137	Ba	115	0.008	43	66.6	2	3	
205	Tl	209	0.006	277	8.7	2	0.5	
208	Pb	209	-0.036	2602	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1183169	0.38	1184753	99.87	70	120	
72	Ge	854937	0.34	840651	101.70	70	120	
115	In	8420624	1.01	8493915	99.14	70	120	
209	Bi	17894220	1.85	17861880	100.18	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 12:42	Sample Name	CCV4-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	086_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	202.980	7911	2.28	200	101.5	90	110	
9	Be	45	205.332	10139	1.54	200	102.7	90	110	
11	B	45	158.661	4451	3.22	200	79.3	90	110	Fail
23	Na	45	5091.441	4549065	0.78	5000	101.8	90	110	
24	Mg	45	5078.721	2153859	0.47	5000	101.6	90	110	
27	Al	45	4971.832	812187	0.94	5000	99.4	90	110	
39	K	45	5037.468	2485485	0.45	5000	100.7	90	110	
44	Ca	45	4848.692	121465	1.27	5000	97.0	90	110	
47	Ti	45	198.258	33314	0.68	200	99.1	90	110	
51	V	45	201.207	1043888	0.83	200	100.6	90	110	
52	Cr	45	202.015	1231166	0.39	200	101.0	90	110	
55	Mn	45	204.493	730362	0.78	200	102.2	90	110	
56	Fe	45	5037.466	26017333	2.12	5000	100.7	90	110	
59	Co	72	202.234	1911112	0.68	200	101.1	90	110	
60	Ni	72	203.897	506392	0.45	200	101.9	90	110	
63	Cu	72	205.858	1404969	1.16	200	102.9	90	110	
66	Zn	72	204.059	247543	0.84	200	102.0	90	110	
75	As	72	198.844	205360	0.69	200	99.4	90	110	
78	Se	72	202.158	13462	0.33	200	101.1	90	110	
88	Sr	115	188.222	1062688	0.72	200	94.1	90	110	
95	Mo	115	190.454	809487	0.64	200	95.2	90	110	
107	Ag	115	199.595	2469127	0.77	200	99.8	90	110	
111	Cd	115	199.110	394876	1.01	200	99.6	90	110	
118	Sn	115	190.845	876317	0.86	200	95.4	90	110	
121	Sb	115	197.412	1301752	0.64	200	98.7	90	110	
137	Ba	115	197.708	451809	0.63	200	98.9	90	110	
205	Tl	209	199.290	5742748	0.24	200	99.6	90	110	
208	Pb	209	199.813	7687170	0.29	200	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171053	1.25	1184753	98.84	70	120	
72	Ge	841833	0.73	840651	100.14	70	120	
115	In	8465060	2.29	8493915	99.66	70	120	
209	Bi	18106015	1.70	17861880	101.37	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 12:46	Sample Name	LCVL4-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	088LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.799	423	5.48	10	98.0	70	130	
9	Be	45	1.007	56	21.43	1	100.7	70	130	
11	B	45	-6.752	1354	1.68	20	-33.8	70	130	Fail
23	Na	45	81.848	217741	0.49	100	81.8	70	130	
24	Mg	45	106.805	46325	1.10	100	106.8	70	130	
27	Al	45	115.688	19872	1.59	100	115.7	70	130	
39	K	45	111.178	119006	0.08	100	111.2	70	130	
44	Ca	45	117.880	3330	3.89	100	117.9	70	130	
47	Ti	45	5.121	877	1.74	5	102.4	70	130	
51	V	45	1.395	12932	2.54	1	139.5	70	130	Fail
52	Cr	45	5.198	33532	0.25	5	104.0	70	130	
55	Mn	45	5.115	18513	1.83	5	102.3	70	130	
56	Fe	45	103.873	548441	0.50	100	103.9	70	130	
59	Co	72	5.181	49585	0.42	5	103.6	70	130	
60	Ni	72	5.272	13565	0.97	5	105.4	70	130	
63	Cu	72	5.100	38609	2.19	5	102.0	70	130	
66	Zn	72	5.651	7218	1.17	5	113.0	70	130	
75	As	72	5.137	5707	2.25	5	102.7	70	130	
78	Se	72	5.456	495	4.31	5	109.1	70	130	
88	Sr	115	4.949	28141	1.09	5	99.0	70	130	
95	Mo	115	4.918	20899	1.35	5	98.4	70	130	
107	Ag	115	2.136	26462	0.22	2	106.8	70	130	
111	Cd	115	1.018	2028	6.50	1	101.8	70	130	
118	Sn	115	5.203	24546	2.00	5	104.1	70	130	
121	Sb	115	2.113	14228	0.98	2	105.7	70	130	
137	Ba	115	4.985	11402	1.29	5	99.7	70	130	
205	Tl	209	1.014	29475	0.30	1	101.4	70	130	
208	Pb	209	0.974	41630	1.21	1	97.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179693	0.40	1184753	99.57	70	120	
72	Ge	851525	0.88	840651	101.29	70	120	
115	In	8451510	1.25	8493915	99.50	70	120	
209	Bi	18186517	0.66	17861880	101.82	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 12:49	Sample Name	CCB4-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	089_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.390	25	34.0	2	5	
9	Be	45	0.001	6	16.7	0.4	0.3	
11	B	45	-28.908	934	10.0	10	10	
23	Na	45	-22.525	126722	0.5	50	100	
24	Mg	45	-0.437	520	8.3	50	100	
27	Al	45	7.265	2048	2.2	50	10	
39	K	45	5.656	67882	0.7	50	100	
44	Ca	45	1.333	398	9.7	50	100	
47	Ti	45	-0.026	6	124.9	4	3	
51	V	45	0.276	7112	5.4	4	3	
52	Cr	45	0.045	1933	2.9	2	2	
55	Mn	45	0.024	193	19.0	2	3	
56	Fe	45	0.391	10194	0.7	50	50	
59	Co	72	0.011	167	35.4	2	3	
60	Ni	72	0.007	346	19.4	2	3	
63	Cu	72	-0.105	2747	4.8	2	2	
66	Zn	72	0.193	526	17.8	4	2	
75	As	72	-0.004	344	7.8	2	2	
78	Se	72	0.126	139	8.2	1	2	
88	Sr	115	0.010	303	6.7	4	3	
95	Mo	115	0.012	78	13.8	2	2	
107	Ag	115	0.020	321	19.3	0.4	1	
111	Cd	115	0.004	19	62.0	0.4	0.3	
118	Sn	115	0.013	771	5.9	4	3	
121	Sb	115	0.017	431	9.2	2	0.8	
137	Ba	115	0.019	71	28.6	2	3	
205	Tl	209	0.010	412	7.2	2	0.5	
208	Pb	209	-0.047	2169	6.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179075	0.57	1184753	99.52	70	120	
72	Ge	847831	0.81	840651	100.85	70	120	
115	In	8506507	1.01	8493915	100.15	70	120	
209	Bi	17967770	0.37	17861880	100.59	70	120	

Method Blank Report

Date Acquired	2/11/16 1:01 PM	Sample Name	MB-73587
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	090_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.453	22	27.27		
9	Be	45	-0.046	4	15.75		
11	B	45	-37.861	760	3.82		
23	Na	45	-20.916	127308	0.75		
24	Mg	45	3.549	2208	4.02		
27	Al	45	5.594	1762	8.91		
39	K	45	8.450	68797	0.83		
44	Ca	45	31.350	1145	1.18		
47	Ti	45	0.099	27	45.07		
51	V	45	0.390	7653	1.67		
52	Cr	45	0.290	3409	5.05		
55	Mn	45	0.372	1436	4.26		
56	Fe	45	21.770	120564	0.63		
59	Co	72	0.011	162	18.42		
60	Ni	72	0.424	1376	4.48		
63	Cu	72	1.444	13261	2.64		
66	Zn	72	1.489	2090	5.39		
75	As	72	-0.007	337	3.97		
78	Se	72	0.328	151	9.85		
88	Sr	115	0.046	509	11.39		
95	Mo	115	0.068	317	6.32		
107	Ag	115	0.012	222	18.08		
111	Cd	115	0.006	22	8.65		
118	Sn	115	3.407	16465	6.97		
121	Sb	115	-0.006	276	16.47		
137	Ba	115	0.093	241	7.61		
205	Tl	209	0.005	264	45.28		
208	Pb	209	0.024	5083	9.81		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171594	0.39	1184753	98.89	70	120	
72	Ge	840739	0.30	840651	100.01	70	120	
115	In	8529865	2.08	8493915	100.42	70	120	
209	Bi	18627919	1.17	17861880	104.29	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 13:03	Sample Name	LCS-73587
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	091_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.629	7990	0.53	200	103.3	80	120	
9	Be	45	206.533	10119	1.13	200	103.3	80	120	
11	B	45	164.757	4530	3.44	200	82.4	80	120	
23	Na	45	5139.421	4555122	0.27	1000	513.9	80	120	Fail
24	Mg	45	5178.702	2179258	0.60	1000	517.9	80	120	Fail
27	Al	45	1029.205	167487	0.68	1000	102.9	80	120	
39	K	45	5087.826	2490189	0.13	1000	508.8	80	120	Fail
44	Ca	45	4981.248	123802	0.85	1000	498.1	80	120	Fail
47	Ti	45	200.519	33433	2.23	200	100.3	80	120	
51	V	45	205.364	1057166	0.37	200	102.7	80	120	
52	Cr	45	206.015	1245833	1.24	200	103.0	80	120	
55	Mn	45	207.569	735646	1.19	200	103.8	80	120	
56	Fe	45	1026.861	5268419	0.20	1000	102.7	80	120	
59	Co	72	205.338	1929516	0.93	200	102.7	80	120	
60	Ni	72	205.619	507801	0.51	200	102.8	80	120	
63	Cu	72	207.387	1407447	0.33	200	103.7	80	120	
66	Zn	72	202.920	244787	0.50	200	101.5	80	120	
75	As	72	200.590	205988	0.70	200	100.3	80	120	
78	Se	72	198.473	13145	0.51	200	99.2	80	120	
88	Sr	115	187.844	1068172	0.75	200	93.9	80	120	
95	Mo	115	190.503	815571	1.29	200	95.3	80	120	
107	Ag	115	198.682	2475399	0.23	200	99.3	80	120	
111	Cd	115	195.105	389704	1.38	200	97.6	80	120	
118	Sn	115	196.963	910821	0.57	200	98.5	80	120	
121	Sb	115	198.547	1318540	0.25	200	99.3	80	120	
137	Ba	115	196.548	452389	1.18	200	98.3	80	120	
205	Tl	209	200.296	5749812	0.46	200	100.1	80	120	
208	Pb	209	203.829	7812746	0.28	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1161902	0.51	1184753	98.07	70	120	
72	Ge	837067	0.25	840651	99.57	70	120	
115	In	8523627	1.18	8493915	100.35	70	120	
209	Bi	18043884	2.62	17861880	101.02	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 13:05	Sample Name	LCSD-73587
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	092_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	208.074	8063	1.75	200	104.0	80	120	
9	Be	45	209.016	10263	0.76	200	104.5	80	120	
11	B	45	164.753	4540	0.79	200	82.4	80	120	
23	Na	45	5151.136	4575103	0.59	1000	515.1	80	120	Fail
24	Mg	45	5153.854	2173400	0.44	1000	515.4	80	120	Fail
27	Al	45	1023.381	166893	0.85	1000	102.3	80	120	
39	K	45	5086.640	2494985	0.62	1000	508.7	80	120	Fail
44	Ca	45	4953.145	123373	1.08	1000	495.3	80	120	Fail
47	Ti	45	204.641	34197	1.84	200	102.3	80	120	
51	V	45	205.251	1058854	0.52	200	102.6	80	120	
52	Cr	45	205.280	1244052	0.91	200	102.6	80	120	
55	Mn	45	208.626	740986	0.23	200	104.3	80	120	
56	Fe	45	1030.558	5298746	0.28	1000	103.1	80	120	
59	Co	72	205.466	1936678	0.75	200	102.7	80	120	
60	Ni	72	208.565	516658	0.78	200	104.3	80	120	
63	Cu	72	207.451	1412191	0.33	200	103.7	80	120	
66	Zn	72	202.683	245241	0.62	200	101.3	80	120	
75	As	72	201.583	207638	0.16	200	100.8	80	120	
78	Se	72	199.845	13276	0.97	200	99.9	80	120	
88	Sr	115	191.295	1073394	0.59	200	95.6	80	120	
95	Mo	115	195.560	826129	0.74	200	97.8	80	120	
107	Ag	115	202.533	2490013	0.41	200	101.3	80	120	
111	Cd	115	199.280	392741	0.18	200	99.6	80	120	
118	Sn	115	198.896	907572	0.25	200	99.4	80	120	
121	Sb	115	201.118	1317998	0.32	200	100.6	80	120	
137	Ba	115	201.263	457113	0.30	200	100.6	80	120	
205	Tl	209	204.384	5822924	0.71	200	102.2	80	120	
208	Pb	209	203.792	7751110	0.32	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1164410	0.64	1184753	98.28	70	120	
72	Ge	839640	0.65	840651	99.88	70	120	
115	In	8411125	1.37	8493915	99.03	70	120	
209	Bi	17899913	1.55	17861880	100.21	70	120	

Sample Report

Date Acquired	2/11/16 1:09 PM	Sample Name	1601232-15A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	094_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.740	2038	1.16	2000	>RL
9	Be	45	2.403	124	13.57	2000	>RL
11	B	45	47.779	2359	6.08	2000	>RL
23	Na	45	570.541	636355	0.75	25000	>RL
24	Mg	45	14984.657	6329200	0.60	25000	>RL
27	Al	45	61220.057	9951321	0.91	10000	OUTCAL
39	K	45	16759.350	8087921	2.20	25000	>RL
44	Ca	45	70969.334	1765942	0.28	25000	OUTCAL
47	Ti	45	207.758	34777	1.78	2000	>RL
51	V	45	83.495	434853	0.91	2000	>RL
52	Cr	45	54.191	330201	0.38	2000	>RL
55	Mn	45	762.241	2711680	0.26	2000	>RL
56	Fe	45	57933.667	297934984	1.29	10000	OUTCAL
59	Co	72	20.320	187108	1.26	2000	>RL
60	Ni	72	34.938	84803	0.75	2000	>RL
63	Cu	72	26.860	181505	0.87	2000	>RL
66	Zn	72	251.745	297464	0.75	2000	>RL
75	As	72	17.283	17694	1.01	2000	>RL
78	Se	72	3.910	377	1.31	2000	>RL
88	Sr	115	361.495	1968232	1.20	2000	>RL
95	Mo	115	1.325	5454	2.01	2000	
107	Ag	115	0.144	1791	2.36	500	
111	Cd	115	0.920	1771	7.78	2000	>RL
118	Sn	115	4.870	22225	0.68	2000	>RL
121	Sb	115	2.612	16912	1.25	500	>RL
137	Ba	115	457.569	1008399	0.63	2000	>RL
205	Tl	209	0.509	14403	1.01	2000	
208	Pb	209	77.057	2888478	0.77	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1166503	1.05	1184753	98.46	70	120	
72	Ge	820180	1.14	840651	97.56	70	120	
115	In	8161826	1.47	8493915	96.09	70	120	
209	Bi	17633619	2.59	17861880	98.72	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 13:11	Sample Name	1601232-15A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	095_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	9.976	427	6.42	51.7	96.4	110	90	Good
9	Be	45	0.535	32	9.45	2.4	111.4	110	90	
11	B	45	-24.114	1019	3.82	47.8	-252.4	110	90	
23	Na	45	86.822	220648	0.95	570.5	76.1	110	90	
24	Mg	45	3094.656	1313994	0.88	14984.7	103.3	110	90	Good
27	Al	45	12604.238	2059595	0.78	61220.1	102.9	110	90	Good
39	K	45	3463.692	1730840	0.75	16759.3	103.3	110	90	Good
44	Ca	45	14660.167	366870	1.44	70969.3	103.3	110	90	Good
47	Ti	45	41.969	7064	6.31	207.8	101.0	110	90	Good
51	V	45	16.956	93233	0.75	83.5	101.5	110	90	Good
52	Cr	45	11.180	69760	1.32	54.2	103.2	110	90	Good
55	Mn	45	156.310	558888	1.07	762.2	102.5	110	90	Good
56	Fe	45	12054.635	62299242	0.57	57933.7	104.0	110	90	Good
59	Co	72	4.201	39339	1.07	20.3	103.4	110	90	Good
60	Ni	72	7.277	18192	0.66	34.9	104.1	110	90	Good
63	Cu	72	5.577	40976	1.49	26.9	103.8	110	90	Good
66	Zn	72	52.942	63757	2.38	251.7	105.2	110	90	Good
75	As	72	3.469	3881	2.80	17.3	100.4	110	90	Good
78	Se	72	0.896	186	13.62	3.9	114.5	110	90	
88	Sr	115	71.728	406113	0.92	361.5	99.2	110	90	Good
95	Mo	115	0.283	1231	6.71	1.3	106.9	110	90	Good
107	Ag	115	0.048	678	3.00	0.1	168.2	110	90	
111	Cd	115	0.182	372	7.62	0.9	98.7	110	90	Good
118	Sn	115	0.894	4815	7.36	4.9	91.7	110	90	Good
121	Sb	115	0.522	3765	3.86	2.6	99.9	110	90	Good
137	Ba	115	92.017	210818	0.35	457.6	100.5	110	90	Good
205	Tl	209	0.114	3469	3.72	0.5	111.9	110	90	
208	Pb	209	15.427	609196	0.53	77.1	100.1	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1172148	1.24	1184753	98.94	70	120	
72	Ge	832910	0.75	840651	99.08	70	120	
115	In	8484123	1.14	8493915	99.88	70	120	
209	Bi	18468575	0.98	17861880	103.40	70	120	

Sample Report

Date Acquired	2/11/16 1:21 PM	Sample Name	1601232-01A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	100SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	42.785	1681	2.91	2000	>RL
9	Be	45	2.049	106	9.29	2000	>RL
11	B	45	17.394	1779	2.68	2000	>RL
23	Na	45	622.566	676710	0.73	25000	>RL
24	Mg	45	9986.183	4190348	0.99	25000	>RL
27	Al	45	45177.102	7295766	1.78	10000	OUTCAL
39	K	45	10186.355	4908350	0.33	25000	>RL
44	Ca	45	69257.730	1712209	1.29	25000	OUTCAL
47	Ti	45	258.395	42969	1.15	2000	>RL
51	V	45	76.372	395618	0.62	2000	>RL
52	Cr	45	47.472	287581	0.93	2000	>RL
55	Mn	45	623.138	2202502	0.52	2000	>RL
56	Fe	45	47402.246	242203724	1.50	10000	OUTCAL
59	Co	72	16.917	154816	0.28	2000	>RL
60	Ni	72	30.722	74133	2.18	2000	>RL
63	Cu	72	44.537	296882	0.50	2000	>RL
66	Zn	72	240.494	282395	0.15	2000	>RL
75	As	72	18.667	18965	1.32	2000	>RL
78	Se	72	3.272	334	9.25	2000	>RL
88	Sr	115	335.097	1836475	0.84	2000	>RL
95	Mo	115	1.329	5507	2.31	2000	
107	Ag	115	0.130	1633	9.35	500	
111	Cd	115	0.451	879	2.32	2000	>RL
118	Sn	115	4.259	19654	2.34	2000	>RL
121	Sb	115	2.112	13820	2.21	500	>RL
137	Ba	115	493.128	1093947	0.42	2000	>RL
205	Tl	209	0.411	11455	1.53	2000	
208	Pb	209	100.014	3688308	0.18	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1158883	0.89	1184753	97.82	70	120	
72	Ge	814951	0.38	840651	96.94	70	120	
115	In	8215219	0.57	8493915	96.72	70	120	
209	Bi	17345089	1.20	17861880	97.11	70	120	

Sample Report

Date Acquired	2/11/16 1:23 PM	Sample Name	1601232-02A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	101SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.683	1933	3.03	2000	>RL
9	Be	45	1.847	97	3.14	2000	>RL
11	B	45	21.591	1882	3.69	2000	>RL
23	Na	45	692.979	747097	0.81	25000	>RL
24	Mg	45	10744.786	4570411	0.74	25000	>RL
27	Al	45	48755.830	7981349	1.61	10000	OUTCAL
39	K	45	10896.607	5317726	0.19	25000	>RL
44	Ca	45	65996.122	1653781	0.17	25000	OUTCAL
47	Ti	45	267.009	45004	1.34	2000	>RL
51	V	45	79.925	419406	0.14	2000	>RL
52	Cr	45	51.248	314553	0.68	2000	>RL
55	Mn	45	615.211	2204089	0.37	2000	>RL
56	Fe	45	51267.984	265534789	0.85	10000	OUTCAL
59	Co	72	19.277	179393	1.07	2000	>RL
60	Ni	72	32.891	80697	1.54	2000	>RL
63	Cu	72	38.326	260296	0.79	2000	>RL
66	Zn	72	249.905	298412	0.53	2000	>RL
75	As	72	19.973	20613	0.79	2000	>RL
78	Se	72	3.617	362	4.71	2000	>RL
88	Sr	115	336.164	1844888	1.13	2000	>RL
95	Mo	115	1.435	5955	3.63	2000	
107	Ag	115	0.162	2019	1.49	500	
111	Cd	115	0.500	974	6.55	2000	>RL
118	Sn	115	4.240	19597	1.32	2000	>RL
121	Sb	115	2.314	15138	0.84	500	>RL
137	Ba	115	498.677	1107789	0.71	2000	>RL
205	Tl	209	0.427	12164	0.89	2000	
208	Pb	209	103.459	3900136	0.81	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1174667	0.56	1184753	99.15	70	120	
72	Ge	828788	0.78	840651	98.59	70	120	
115	In	8226554	0.71	8493915	96.85	70	120	
209	Bi	17730008	1.09	17861880	99.26	70	120	

Sample Report

Date Acquired	2/11/16 1:25 PM	Sample Name	1601232-03A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	102SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.048	1961	1.73	2000	>RL
9	Be	45	2.340	128	8.63	2000	>RL
11	B	45	28.243	2106	2.00	2000	>RL
23	Na	45	429.794	544072	0.34	25000	>RL
24	Mg	45	12576.987	5611190	0.54	25000	>RL
27	Al	45	63194.742	10850851	0.52	10000	OUTCAL
39	K	45	16286.042	8302124	1.57	25000	>RL
44	Ca	45	34165.950	898220	0.97	25000	OUTCAL
47	Ti	45	238.065	42090	0.40	2000	>RL
51	V	45	87.854	482967	0.45	2000	>RL
52	Cr	45	59.922	385471	1.00	2000	>RL
55	Mn	45	616.642	2317189	0.32	2000	>RL
56	Fe	45	56963.312	309448219	2.18	10000	OUTCAL
59	Co	72	19.507	187379	0.90	2000	>RL
60	Ni	72	38.536	97526	0.89	2000	>RL
63	Cu	72	47.249	330406	1.32	2000	>RL
66	Zn	72	341.491	420786	0.32	2000	>RL
75	As	72	20.000	21304	0.52	2000	>RL
78	Se	72	3.975	398	11.18	2000	>RL
88	Sr	115	234.447	1344440	0.66	2000	>RL
95	Mo	115	1.318	5717	3.30	2000	
107	Ag	115	0.193	2501	7.22	500	
111	Cd	115	1.059	2145	5.47	2000	>RL
118	Sn	115	9.105	43139	0.88	2000	>RL
121	Sb	115	4.979	33653	0.98	500	>RL
137	Ba	115	411.720	955562	0.70	2000	>RL
205	Tl	209	0.531	15319	0.94	2000	
208	Pb	209	294.857	11272851	0.45	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1232088	0.64	1184753	104.00	70	120	
72	Ge	855429	0.25	840651	101.76	70	120	
115	In	8596827	1.89	8493915	101.21	70	120	
209	Bi	17993104	0.81	17861880	100.73	70	120	

Sample Report

Date Acquired	2/11/16 1:27 PM	Sample Name	1601232-04A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	103SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	44.948	1866	2.89	2000	>RL
9	Be	45	2.080	114	10.50	2000	>RL
11	B	45	34.192	2212	6.66	2000	>RL
23	Na	45	682.406	770255	0.34	25000	>RL
24	Mg	45	11909.380	5287794	0.09	25000	>RL
27	Al	45	57054.417	9749652	0.92	10000	OUTCAL
39	K	45	15237.290	7735169	0.81	25000	>RL
44	Ca	45	38909.385	1017920	0.63	25000	OUTCAL
47	Ti	45	239.743	42184	1.58	2000	>RL
51	V	45	82.502	451728	0.16	2000	>RL
52	Cr	45	57.376	367410	0.22	2000	>RL
55	Mn	45	623.203	2330660	0.47	2000	>RL
56	Fe	45	53411.703	288766157	2.09	10000	OUTCAL
59	Co	72	18.280	176005	1.24	2000	>RL
60	Ni	72	37.007	93882	0.49	2000	>RL
63	Cu	72	49.614	347552	0.35	2000	>RL
66	Zn	72	315.779	390019	0.65	2000	>RL
75	As	72	18.239	19505	0.65	2000	>RL
78	Se	72	3.913	394	10.07	2000	>RL
88	Sr	115	244.747	1402901	0.16	2000	>RL
95	Mo	115	1.269	5501	3.29	2000	
107	Ag	115	0.141	1853	10.83	500	
111	Cd	115	0.981	1986	4.22	2000	>RL
118	Sn	115	6.649	31689	1.56	2000	>RL
121	Sb	115	3.589	24347	1.83	500	>RL
137	Ba	115	405.912	941841	0.66	2000	>RL
205	Tl	209	0.484	14021	2.11	2000	
208	Pb	209	266.763	10225319	0.75	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1226151	0.20	1184753	103.49	70	120	
72	Ge	857397	0.43	840651	101.99	70	120	
115	In	8593011	1.47	8493915	101.17	70	120	
209	Bi	18039449	0.80	17861880	100.99	70	120	

Sample Report

Date Acquired	2/11/16 1:29 PM	Sample Name	1601232-05A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	104SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.128	2028	2.46	2000	>RL
9	Be	45	2.230	123	2.85	2000	>RL
11	B	45	27.455	2113	1.91	2000	>RL
23	Na	45	485.700	601563	0.74	25000	>RL
24	Mg	45	12722.836	5739032	0.96	25000	>RL
27	Al	45	64017.082	11114368	0.62	10000	OUTCAL
39	K	45	16117.555	8309176	0.79	25000	>RL
44	Ca	45	33934.672	902019	0.65	25000	OUTCAL
47	Ti	45	246.430	44053	1.74	2000	>RL
51	V	45	87.289	485253	1.65	2000	>RL
52	Cr	45	58.125	378151	0.85	2000	>RL
55	Mn	45	646.786	2457574	0.73	2000	>RL
56	Fe	45	55684.222	305861232	0.68	10000	OUTCAL
59	Co	72	19.793	190905	0.11	2000	>RL
60	Ni	72	36.023	91563	0.64	2000	>RL
63	Cu	72	42.392	298010	0.54	2000	>RL
66	Zn	72	334.142	413441	0.94	2000	>RL
75	As	72	17.862	19142	0.61	2000	>RL
78	Se	72	3.824	389	2.20	2000	>RL
88	Sr	115	251.369	1441665	1.01	2000	>RL
95	Mo	115	1.295	5617	2.19	2000	
107	Ag	115	0.149	1950	4.80	500	
111	Cd	115	0.906	1837	3.53	2000	>RL
118	Sn	115	6.636	31648	0.94	2000	>RL
121	Sb	115	4.954	33495	1.99	500	>RL
137	Ba	115	394.664	916209	0.33	2000	>RL
205	Tl	209	0.527	15288	1.68	2000	
208	Pb	209	242.454	9311110	0.69	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1245804	0.74	1184753	105.15	70	120	
72	Ge	858979	0.87	840651	102.18	70	120	
115	In	8599437	2.25	8493915	101.24	70	120	
209	Bi	18075946	2.14	17861880	101.20	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 13:31	Sample Name	1601232-15A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	105_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	248.531	9723	2.09	51.7	200	98.4	75	125	
9	Be	45	202.465	10045	1.78	2.4	200	100.0	75	125	
11	B	45	237.083	5952	0.76	47.8	200	94.7	75	125	
23	Na	45	5598.130	5011258	1.20	570.5	5000	100.6	75	125	
24	Mg	45	20582.382	8768265	0.75	14984.7	5000	112.0	75	125	
27	Al	45	68050.254	11158168	1.68	61220.1	5000	136.6	75	125	Fail
39	K	45	22137.847	10754122	0.79	16759.3	5000	107.6	75	125	
44	Ca	45	77375.833	1941994	0.06	70969.3	5000	128.1	75	125	Fail
47	Ti	45	410.359	69277	3.17	207.8	200	101.3	75	125	
51	V	45	283.768	1477018	0.78	83.5	200	100.1	75	125	
52	Cr	45	256.147	1568148	0.41	54.2	200	101.0	75	125	
55	Mn	45	964.830	3462244	1.73	762.2	200	101.3	75	125	
56	Fe	45	64320.583	333667098	1.15	57933.7	5000	127.7	75	125	Fail
59	Co	72	222.684	2072929	0.91	20.3	200	101.2	75	125	
60	Ni	72	233.656	571596	0.68	34.9	200	99.4	75	125	
63	Cu	72	223.143	1499955	1.00	26.9	200	98.1	75	125	
66	Zn	72	449.287	536568	0.59	251.7	200	98.8	75	125	
75	As	72	214.107	217788	0.02	17.3	200	98.4	75	125	
78	Se	72	199.245	13072	1.13	3.9	200	97.7	75	125	
88	Sr	115	551.324	3079677	1.06	361.5	200	94.9	75	125	
95	Mo	115	192.932	811532	0.17	1.3	200	95.8	75	125	
107	Ag	115	188.937	2313136	1.15	0.1	200	94.4	75	125	
111	Cd	115	190.624	374082	1.17	0.9	200	94.9	75	125	
118	Sn	115	203.503	924642	0.12	4.9	200	99.3	75	125	
121	Sb	115	208.909	1363313	0.56	2.6	200	103.1	75	125	
137	Ba	115	655.128	1481551	0.31	457.6	200	98.8	75	125	
205	Tl	209	199.816	5606354	1.06	0.5	200	99.7	75	125	
208	Pb	209	280.713	10513801	0.27	77.1	200	101.8	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1176537	0.26	1184753	99.31	70	120	
72	Ge	829230	0.06	840651	98.64	70	120	
115	In	8376253	1.73	8493915	98.61	70	120	
209	Bi	17627114	0.85	17861880	98.69	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 13:33	Sample Name	1601232-15A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	106_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	249.251	9709	1.31	51.7	200	98.8	80	120	
9	Be	45	198.264	9795	1.66	2.4	200	97.9	80	120	
11	B	45	243.864	6053	3.09	47.8	200	98.0	80	120	
23	Na	45	5500.130	4904745	0.30	570.5	1000	493.0	80	120	Fail
24	Mg	45	21157.433	8974248	0.58	14984.7	1000	617.3	80	120	Fail
27	Al	45	72578.062	11848947	1.04	61220.1	1000	1135.8	80	120	Fail
39	K	45	23040.656	11141217	0.82	16759.3	1000	628.1	80	120	Fail
44	Ca	45	78813.949	1969520	0.10	70969.3	1000	784.5	80	120	Fail
47	Ti	45	458.699	77098	2.14	207.8	200	125.5	80	120	Fail
51	V	45	290.387	1504826	0.55	83.5	200	103.4	80	120	
52	Cr	45	255.091	1554930	0.21	54.2	200	100.4	80	120	
55	Mn	45	983.572	3514099	1.16	762.2	200	110.7	80	120	
56	Fe	45	61419.462	317225081	0.90	57933.7	1000	348.6	80	120	Fail
59	Co	72	219.146	2014705	0.61	20.3	200	99.4	80	120	
60	Ni	72	236.851	572252	1.09	34.9	200	101.0	80	120	
63	Cu	72	226.815	1505719	0.82	26.9	200	100.0	80	120	
66	Zn	72	462.788	545852	1.01	251.7	200	105.5	80	120	
75	As	72	212.133	213114	0.84	17.3	200	97.4	80	120	
78	Se	72	199.580	12931	0.64	3.9	200	97.8	80	120	
88	Sr	115	586.605	3188401	0.94	361.5	200	112.6	80	120	
95	Mo	115	180.070	736936	0.47	1.3	200	89.4	80	120	
107	Ag	115	198.491	2364195	0.75	0.1	200	99.2	80	120	
111	Cd	115	196.861	375856	0.36	0.9	200	98.0	80	120	
118	Sn	115	199.103	880187	0.59	4.9	200	97.1	80	120	
121	Sb	115	67.154	426574	0.78	2.6	200	32.3	80	120	Fail
137	Ba	115	676.548	1488630	0.89	457.6	200	109.5	80	120	
205	Tl	209	199.394	5574112	0.37	0.5	200	99.4	80	120	
208	Pb	209	281.427	10502522	0.78	77.1	200	102.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171453	0.45	1184753	98.88	70	120	
72	Ge	818985	1.04	840651	97.42	70	120	
115	In	8148702	1.36	8493915	95.94	70	120	
209	Bi	17563066	0.99	17861880	98.33	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 13:35	Sample Name	1601232-15A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	107_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	251.236	9586	0.54	51.7	200	99.7	80	120	
9	Be	45	202.706	9810	0.84	2.4	200	100.2	80	120	
11	B	45	245.933	5969	2.09	47.8	200	99.1	80	120	
23	Na	45	5548.407	4845970	1.41	570.5	1000	497.8	80	120	Fail
24	Mg	45	20721.501	8610412	0.90	14984.7	1000	573.7	80	120	Fail
27	Al	45	71060.997	11365055	0.56	61220.1	1000	984.1	80	120	Fail
39	K	45	22848.475	10824133	0.33	16759.3	1000	608.9	80	120	Fail
44	Ca	45	78151.141	1913210	0.22	70969.3	1000	718.2	80	120	Fail
47	Ti	45	450.396	74163	0.96	207.8	200	121.3	80	120	Fail
51	V	45	292.056	1482631	0.81	83.5	200	104.3	80	120	
52	Cr	45	257.858	1539770	0.47	54.2	200	101.8	80	120	
55	Mn	45	989.067	3461853	0.66	762.2	200	113.4	80	120	
56	Fe	45	61661.334	312004468	1.23	57933.7	1000	372.8	80	120	Fail
59	Co	72	224.583	2027280	0.50	20.3	200	102.1	80	120	
60	Ni	72	241.381	572623	1.17	34.9	200	103.2	80	120	
63	Cu	72	231.472	1508638	0.29	26.9	200	102.3	80	120	
66	Zn	72	453.841	525552	0.83	251.7	200	101.0	80	120	
75	As	72	214.734	211805	0.05	17.3	200	98.7	80	120	
78	Se	72	201.643	12827	0.14	3.9	200	98.9	80	120	
88	Sr	115	584.567	3157719	0.49	361.5	200	111.5	80	120	
95	Mo	115	181.296	737371	0.88	1.3	200	90.0	80	120	
107	Ag	115	198.622	2351213	0.53	0.1	200	99.2	80	120	
111	Cd	115	198.475	376633	0.44	0.9	200	98.8	80	120	
118	Sn	115	198.533	872246	0.41	4.9	200	96.8	80	120	
121	Sb	115	64.622	407968	0.51	2.6	200	31.0	80	120	Fail
137	Ba	115	670.698	1466698	0.60	457.6	200	106.6	80	120	
205	Tl	209	202.791	5578755	0.74	0.5	200	101.1	80	120	
208	Pb	209	283.695	10417976	0.66	77.1	200	103.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1147606	0.30	1184753	96.86	70	120	
72	Ge	804137	0.89	840651	95.66	70	120	
115	In	8098408	1.12	8493915	95.34	70	120	
209	Bi	17285386	1.38	17861880	96.77	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 13:37	Sample Name	CCV5-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	108_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	202.382	7686	1.85	200	101.2	90	110	
9	Be	45	201.611	9701	2.64	200	100.8	90	110	
11	B	45	156.247	4293	1.76	200	78.1	90	110	Fail
23	Na	45	5027.698	4379324	0.52	5000	100.6	90	110	
24	Mg	45	5013.749	2071967	0.59	5000	100.3	90	110	
27	Al	45	4895.121	779208	0.46	5000	97.9	90	110	
39	K	45	4988.082	2398803	0.37	5000	99.8	90	110	
44	Ca	45	4854.082	118482	1.39	5000	97.1	90	110	
47	Ti	45	197.482	32335	1.64	200	98.7	90	110	
51	V	45	202.372	1023143	0.46	200	101.2	90	110	
52	Cr	45	201.128	1194501	0.88	200	100.6	90	110	
55	Mn	45	203.997	710022	0.37	200	102.0	90	110	
56	Fe	45	5009.947	25213285	0.95	5000	100.2	90	110	
59	Co	72	205.730	1873457	0.92	200	102.9	90	110	
60	Ni	72	207.692	497052	0.78	200	103.8	90	110	
63	Cu	72	210.044	1381370	0.76	200	105.0	90	110	
66	Zn	72	206.711	241646	0.80	200	103.4	90	110	
75	As	72	200.347	199371	0.83	200	100.2	90	110	
78	Se	72	202.519	12996	1.73	200	101.3	90	110	
88	Sr	115	190.593	1026389	0.40	200	95.3	90	110	
95	Mo	115	194.965	790329	1.51	200	97.5	90	110	
107	Ag	115	205.251	2421632	0.93	200	102.6	90	110	
111	Cd	115	201.903	381878	0.36	200	101.0	90	110	
118	Sn	115	196.593	861003	0.90	200	98.3	90	110	
121	Sb	115	203.008	1276874	1.16	200	101.5	90	110	
137	Ba	115	204.639	446053	0.87	200	102.3	90	110	
205	Tl	209	200.856	5677790	0.01	200	100.4	90	110	
208	Pb	209	201.733	7613996	0.69	200	100.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141066	0.54	1184753	96.31	70	120	
72	Ge	811201	1.01	840651	96.50	70	120	
115	In	8072337	1.18	8493915	95.04	70	120	
209	Bi	17763218	1.97	17861880	99.45	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 13:42	Sample Name	LCVL5-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	110LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.056	424	8.21	10	100.6	70	130	
9	Be	45	1.247	67	17.90	1	124.7	70	130	
11	B	45	-12.749	1216	8.35	20	-63.7	70	130	Fail
23	Na	45	81.376	213023	0.64	100	81.4	70	130	
24	Mg	45	107.870	45851	1.62	100	107.9	70	130	
27	Al	45	117.331	19745	1.45	100	117.3	70	130	
39	K	45	111.324	116718	0.67	100	111.3	70	130	
44	Ca	45	107.606	3012	7.12	100	107.6	70	130	
47	Ti	45	4.969	834	10.69	5	99.4	70	130	
51	V	45	1.277	12077	2.62	1	127.7	70	130	
52	Cr	45	5.262	33250	1.04	5	105.2	70	130	
55	Mn	45	5.175	18359	1.58	5	103.5	70	130	
56	Fe	45	105.054	543610	0.73	100	105.1	70	130	
59	Co	72	5.194	48767	0.98	5	103.9	70	130	
60	Ni	72	5.265	13290	0.93	5	105.3	70	130	
63	Cu	72	5.189	38474	1.75	5	103.8	70	130	
66	Zn	72	6.532	8140	2.91	5	130.6	70	130	Fail
75	As	72	5.085	5545	1.32	5	101.7	70	130	
78	Se	72	5.625	496	1.53	5	112.5	70	130	
88	Sr	115	4.991	28037	1.04	5	99.8	70	130	
95	Mo	115	4.924	20672	1.24	5	98.5	70	130	
107	Ag	115	2.154	26365	0.59	2	107.7	70	130	
111	Cd	115	1.008	1982	4.22	1	100.8	70	130	
118	Sn	115	5.241	24415	1.77	5	104.8	70	130	
121	Sb	115	2.152	14305	2.53	2	107.6	70	130	
137	Ba	115	5.202	11755	0.55	5	104.0	70	130	
205	Tl	209	1.033	29327	2.28	1	103.3	70	130	
208	Pb	209	1.006	41903	0.37	1	100.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1156366	0.63	1184753	97.60	70	120	
72	Ge	835347	0.19	840651	99.37	70	120	
115	In	8349401	0.85	8493915	98.30	70	120	
209	Bi	17765635	0.63	17861880	99.46	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 13:47	Sample Name	CCB5-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	111_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.275	29	6.9	2	5	
9	Be	45	-0.073	2	65.5	0.4	0.3	
11	B	45	-32.951	854	6.6	10	10	
23	Na	45	-25.803	123459	0.4	50	100	
24	Mg	45	0.023	714	4.8	50	100	
27	Al	45	7.511	2080	8.0	50	10	
39	K	45	4.403	67055	0.4	50	100	
44	Ca	45	0.680	380	6.3	50	100	
47	Ti	45	-0.033	4	86.6	4	3	
51	V	45	0.318	7305	2.6	4	3	
52	Cr	45	0.043	1913	3.5	2	2	
55	Mn	45	0.047	276	24.4	2	3	
56	Fe	45	1.091	13786	0.3	50	50	
59	Co	72	0.005	103	20.1	2	3	
60	Ni	72	-0.026	262	8.3	2	3	
63	Cu	72	-0.155	2407	3.3	2	2	
66	Zn	72	0.086	396	9.7	4	2	
75	As	72	-0.008	339	7.3	2	2	
78	Se	72	0.131	139	2.7	1	2	
88	Sr	115	0.009	300	2.9	4	3	
95	Mo	115	0.005	47	21.4	2	2	
107	Ag	115	0.019	317	20.0	0.4	1	
111	Cd	115	0.000	11	105.4	0.4	0.3	
118	Sn	115	-0.012	661	1.3	4	3	
121	Sb	115	0.019	450	7.1	2	0.8	
137	Ba	115	0.009	47	25.8	2	3	
205	Tl	209	0.012	441	11.3	2	0.5	
208	Pb	209	-0.046	2189	5.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1175236	0.97	1184753	99.20	70	120	
72	Ge	847875	0.30	840651	100.86	70	120	
115	In	8581166	1.61	8493915	101.03	70	120	
209	Bi	17862269	0.83	17861880	100.00	70	120	

Sample Report

Date Acquired	2/11/16 1:49 PM	Sample Name	1601232-06A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	112SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.027	2074	4.72	2000	>RL
9	Be	45	1.950	103	5.41	2000	>RL
11	B	45	28.366	2020	3.25	2000	>RL
23	Na	45	736.055	788399	0.59	25000	>RL
24	Mg	45	11594.083	4956327	0.74	25000	>RL
27	Al	45	52377.784	8618267	1.74	10000	OUTCAL
39	K	45	11661.960	5715657	2.27	25000	>RL
44	Ca	45	76812.747	1934453	0.44	25000	OUTCAL
47	Ti	45	272.854	46221	1.43	2000	>RL
51	V	45	87.168	459216	1.11	2000	>RL
52	Cr	45	56.065	345708	0.60	2000	>RL
55	Mn	45	677.183	2438366	0.37	2000	>RL
56	Fe	45	54642.768	284437464	0.97	10000	OUTCAL
59	Co	72	19.523	180958	1.22	2000	>RL
60	Ni	72	35.045	85606	0.38	2000	>RL
63	Cu	72	54.653	368215	0.26	2000	>RL
66	Zn	72	289.468	344206	0.63	2000	>RL
75	As	72	22.410	22992	0.42	2000	>RL
78	Se	72	3.714	367	4.93	2000	>RL
88	Sr	115	362.323	2027486	0.34	2000	>RL
95	Mo	115	1.591	6725	2.49	2000	
107	Ag	115	0.157	2005	3.34	500	
111	Cd	115	0.571	1133	6.45	2000	>RL
118	Sn	115	4.516	21235	0.61	2000	>RL
121	Sb	115	3.076	20415	2.39	500	>RL
137	Ba	115	588.109	1332315	0.91	2000	>RL
205	Tl	209	0.462	13254	2.60	2000	
208	Pb	209	105.931	4024079	0.28	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1180575	0.42	1184753	99.65	70	120	
72	Ge	825408	0.66	840651	98.19	70	120	
115	In	8390884	2.20	8493915	98.79	70	120	
209	Bi	17871004	2.05	17861880	100.05	70	120	

Sample Report

Date Acquired	2/11/16 1:51 PM	Sample Name	1601232-07A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	113SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.810	1895	2.94	2000	>RL
9	Be	45	2.283	119	12.62	2000	>RL
11	B	45	32.990	2093	10.63	2000	>RL
23	Na	45	2951.402	2700482	0.53	25000	>RL
24	Mg	45	14104.423	5985720	1.60	25000	>RL
27	Al	45	56381.213	9209705	1.46	10000	OUTCAL
39	K	45	11998.557	5835726	1.67	25000	>RL
44	Ca	45	98976.465	2474341	1.11	25000	OUTCAL
47	Ti	45	457.818	76987	0.52	2000	>RL
51	V	45	94.044	491366	0.64	2000	>RL
52	Cr	45	54.844	335724	1.06	2000	>RL
55	Mn	45	802.509	2868367	1.08	2000	>RL
56	Fe	45	51627.617	266773012	0.82	10000	OUTCAL
59	Co	72	17.975	166191	0.80	2000	>RL
60	Ni	72	37.795	92074	0.55	2000	>RL
63	Cu	72	82.317	551553	0.76	2000	>RL
66	Zn	72	526.681	624512	0.65	2000	>RL
75	As	72	16.819	17298	0.59	2000	>RL
78	Se	72	4.049	388	3.34	2000	>RL
88	Sr	115	420.346	2345796	0.80	2000	>RL
95	Mo	115	1.727	7282	1.23	2000	
107	Ag	115	0.198	2500	0.61	500	
111	Cd	115	3.096	6079	2.52	2000	>RL
118	Sn	115	5.293	24706	1.78	2000	>RL
121	Sb	115	1.592	10688	1.85	500	
137	Ba	115	483.545	1092354	0.82	2000	>RL
205	Tl	209	0.531	15269	0.92	2000	
208	Pb	209	66.915	2553724	1.11	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1172025	0.89	1184753	98.93	70	120	
72	Ge	823378	0.31	840651	97.95	70	120	
115	In	8365770	0.44	8493915	98.49	70	120	
209	Bi	17939608	1.37	17861880	100.44	70	120	

Sample Report

Date Acquired	2/11/16 1:53 PM	Sample Name	1601232-08A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	114SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	44.450	1754	4.09	2000	>RL
9	Be	45	2.053	107	6.58	2000	>RL
11	B	45	28.257	1991	6.30	2000	>RL
23	Na	45	3521.541	3174556	0.41	25000	>RL
24	Mg	45	13678.055	5769018	1.35	25000	>RL
27	Al	45	53780.398	8730520	0.39	10000	OUTCAL
39	K	45	11854.910	5731217	1.03	25000	>RL
44	Ca	45	105500.936	2621394	0.87	25000	OUTCAL
47	Ti	45	438.033	73207	0.87	2000	>RL
51	V	45	89.945	467345	1.20	2000	>RL
52	Cr	45	54.729	333005	0.21	2000	>RL
55	Mn	45	774.257	2750677	0.10	2000	>RL
56	Fe	45	50712.435	260447430	0.62	10000	OUTCAL
59	Co	72	16.787	153567	0.85	2000	>RL
60	Ni	72	34.728	83729	1.25	2000	>RL
63	Cu	72	65.284	433462	1.13	2000	>RL
66	Zn	72	371.627	436069	1.71	2000	>RL
75	As	72	16.390	16686	0.68	2000	>RL
78	Se	72	3.809	368	6.69	2000	>RL
88	Sr	115	467.909	2578580	0.61	2000	>RL
95	Mo	115	1.694	7054	2.90	2000	
107	Ag	115	0.247	3060	1.71	500	
111	Cd	115	1.846	3584	1.13	2000	>RL
118	Sn	115	4.968	22941	0.96	2000	>RL
121	Sb	115	1.526	10131	0.39	500	
137	Ba	115	478.028	1066403	0.16	2000	>RL
205	Tl	209	0.513	14602	1.47	2000	
208	Pb	209	67.479	2549378	0.82	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1164818	0.33	1184753	98.32	70	120	
72	Ge	814628	0.71	840651	96.90	70	120	
115	In	8261473	0.82	8493915	97.26	70	120	
209	Bi	17760032	1.12	17861880	99.43	70	120	

Sample Report

Date Acquired	2/11/16 1:55 PM	Sample Name	1601232-09A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	115SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.033	1913	1.29	2000	>RL
9	Be	45	2.135	110	9.31	2000	>RL
11	B	45	39.236	2176	1.08	2000	>RL
23	Na	45	3229.557	2896158	0.54	25000	>RL
24	Mg	45	15649.306	6539201	1.08	25000	>RL
27	Al	45	60441.613	9720446	1.54	10000	OUTCAL
39	K	45	13377.861	6399273	0.51	25000	>RL
44	Ca	45	114094.874	2808507	0.72	25000	OUTCAL
47	Ti	45	491.066	81307	0.85	2000	>RL
51	V	45	100.825	518316	0.23	2000	>RL
52	Cr	45	61.856	372647	0.57	2000	>RL
55	Mn	45	862.081	3034174	0.27	2000	>RL
56	Fe	45	56746.874	288728175	0.16	10000	OUTCAL
59	Co	72	19.029	172640	0.12	2000	>RL
60	Ni	72	39.955	95484	0.98	2000	>RL
63	Cu	72	82.706	543751	0.53	2000	>RL
66	Zn	72	452.677	526726	0.11	2000	>RL
75	As	72	19.667	19791	0.69	2000	>RL
78	Se	72	4.708	422	4.50	2000	>RL
88	Sr	115	495.706	2702821	0.80	2000	>RL
95	Mo	115	2.012	8285	2.53	2000	>RL
107	Ag	115	0.206	2538	3.33	500	
111	Cd	115	2.650	5085	2.25	2000	>RL
118	Sn	115	5.595	25475	1.52	2000	>RL
121	Sb	115	1.939	12644	4.79	500	
137	Ba	115	556.631	1228578	0.52	2000	>RL
205	Tl	209	0.598	16727	1.42	2000	
208	Pb	209	80.187	2974631	0.65	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1153977	0.39	1184753	97.40	70	120	
72	Ge	807996	1.17	840651	96.12	70	120	
115	In	8174448	1.21	8493915	96.24	70	120	
209	Bi	17441778	0.68	17861880	97.65	70	120	

Sample Report

Date Acquired	2/11/16 1:57 PM	Sample Name	1601232-10A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	116SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	43.996	1706	0.36	2000	>RL
9	Be	45	2.113	108	6.04	2000	>RL
11	B	45	14.609	1706	4.18	2000	>RL
23	Na	45	393.629	474753	1.02	25000	>RL
24	Mg	45	11458.373	4748116	1.06	25000	>RL
27	Al	45	54082.809	8625672	1.90	10000	OUTCAL
39	K	45	14580.139	6910142	0.86	25000	>RL
44	Ca	45	82248.167	2007668	0.65	25000	OUTCAL
47	Ti	45	309.813	50870	1.91	2000	>RL
51	V	45	80.522	411577	0.26	2000	>RL
52	Cr	45	47.651	285027	0.43	2000	>RL
55	Mn	45	525.919	1835472	0.47	2000	>RL
56	Fe	45	48704.354	245717910	1.07	10000	OUTCAL
59	Co	72	16.661	150020	0.44	2000	>RL
60	Ni	72	29.626	70346	0.81	2000	>RL
63	Cu	72	27.882	184104	0.42	2000	>RL
66	Zn	72	198.299	229160	0.71	2000	>RL
75	As	72	14.995	15052	1.59	2000	>RL
78	Se	72	3.598	349	6.62	2000	>RL
88	Sr	115	255.206	1384187	0.93	2000	>RL
95	Mo	115	0.950	3902	1.28	2000	
107	Ag	115	0.111	1389	2.04	500	
111	Cd	115	0.373	720	7.45	2000	
118	Sn	115	4.354	19870	1.74	2000	>RL
121	Sb	115	1.979	12833	4.11	500	
137	Ba	115	504.470	1107641	1.29	2000	>RL
205	Tl	209	0.445	12561	3.67	2000	
208	Pb	209	39.771	1490450	0.65	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1144318	0.75	1184753	96.59	70	120	
72	Ge	801906	1.24	840651	95.39	70	120	
115	In	8130604	0.99	8493915	95.72	70	120	
209	Bi	17597847	1.00	17861880	98.52	70	120	

Sample Report

Date Acquired	2/11/16 1:59 PM	Sample Name	1601232-11A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	117SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	43.802	1684	1.28	2000	>RL
9	Be	45	1.930	98	11.77	2000	>RL
11	B	45	13.839	1677	7.43	2000	>RL
23	Na	45	466.459	531644	0.66	25000	>RL
24	Mg	45	11658.260	4788815	0.34	25000	>RL
27	Al	45	55077.823	8707153	1.93	10000	OUTCAL
39	K	45	14665.317	6890047	2.13	25000	>RL
44	Ca	45	86510.955	2093417	0.74	25000	OUTCAL
47	Ti	45	309.634	50398	0.78	2000	>RL
51	V	45	82.949	420142	0.31	2000	>RL
52	Cr	45	48.493	287522	0.61	2000	>RL
55	Mn	45	534.968	1850872	1.26	2000	>RL
56	Fe	45	48736.633	243757173	1.75	10000	OUTCAL
59	Co	72	17.170	152129	0.86	2000	>RL
60	Ni	72	30.595	71482	0.20	2000	>RL
63	Cu	72	28.895	187620	0.72	2000	>RL
66	Zn	72	201.234	228827	0.12	2000	>RL
75	As	72	16.224	16002	0.54	2000	>RL
78	Se	72	3.576	342	1.59	2000	>RL
88	Sr	115	258.584	1390590	0.07	2000	>RL
95	Mo	115	0.957	3899	2.43	2000	
107	Ag	115	0.131	1621	6.89	500	
111	Cd	115	0.378	724	1.74	2000	
118	Sn	115	4.469	20204	2.03	2000	>RL
121	Sb	115	1.929	12413	3.32	500	
137	Ba	115	526.394	1145850	0.35	2000	>RL
205	Tl	209	0.444	12493	2.62	2000	
208	Pb	209	41.528	1549662	0.44	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1134362	0.25	1184753	95.75	70	120	
72	Ge	789092	1.10	840651	93.87	70	120	
115	In	8061374	1.02	8493915	94.91	70	120	
209	Bi	17524497	0.46	17861880	98.11	70	120	

Sample Report

Date Acquired	2/11/16 2:01 PM	Sample Name	1601232-12A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	118SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	42.006	1617	3.92	2000	>RL
9	Be	45	2.105	106	20.29	2000	>RL
11	B	45	15.877	1715	2.48	2000	>RL
23	Na	45	454.665	521992	0.38	25000	>RL
24	Mg	45	11071.605	4549986	0.97	25000	>RL
27	Al	45	52188.868	8254916	1.51	10000	OUTCAL
39	K	45	14172.435	6663113	1.07	25000	>RL
44	Ca	45	78236.393	1894059	0.45	25000	OUTCAL
47	Ti	45	309.257	50361	0.64	2000	>RL
51	V	45	78.851	399844	0.99	2000	>RL
52	Cr	45	48.022	284871	1.12	2000	>RL
55	Mn	45	500.786	1733400	0.96	2000	>RL
56	Fe	45	47170.053	236026515	0.89	10000	OUTCAL
59	Co	72	15.963	144348	0.32	2000	>RL
60	Ni	72	28.614	68245	0.91	2000	>RL
63	Cu	72	25.805	171349	0.77	2000	>RL
66	Zn	72	196.064	227524	0.46	2000	>RL
75	As	72	14.401	14532	1.96	2000	>RL
78	Se	72	3.313	333	11.81	2000	>RL
88	Sr	115	247.865	1333614	0.53	2000	>RL
95	Mo	115	0.851	3468	6.27	2000	
107	Ag	115	0.109	1360	2.73	500	
111	Cd	115	0.356	682	4.07	2000	
118	Sn	115	4.343	19664	0.39	2000	>RL
121	Sb	115	1.558	10088	2.08	500	
137	Ba	115	509.677	1109962	0.18	2000	>RL
205	Tl	209	0.417	11674	0.99	2000	
208	Pb	209	41.564	1541376	0.06	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1134894	0.59	1184753	95.79	70	120	
72	Ge	805209	0.17	840651	95.78	70	120	
115	In	8065299	1.15	8493915	94.95	70	120	
209	Bi	17415498	0.30	17861880	97.50	70	120	

Sample Report

Date Acquired	2/11/16 2:03 PM	Sample Name	1601232-13A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	119SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.141	1928	1.22	2000	>RL
9	Be	45	2.701	138	8.54	2000	>RL
11	B	45	49.293	2376	9.58	2000	>RL
23	Na	45	666.198	715270	0.36	25000	>RL
24	Mg	45	15924.750	6693223	0.78	25000	>RL
27	Al	45	64206.611	10386564	0.40	10000	OUTCAL
39	K	45	17813.679	8549813	1.73	25000	>RL
44	Ca	45	75088.751	1859306	0.78	25000	OUTCAL
47	Ti	45	231.230	38515	3.68	2000	>RL
51	V	45	87.544	453419	0.59	2000	>RL
52	Cr	45	54.988	333401	1.16	2000	>RL
55	Mn	45	807.500	2858758	0.58	2000	>RL
56	Fe	45	59784.494	305969241	0.38	10000	OUTCAL
59	Co	72	21.609	198860	1.21	2000	>RL
60	Ni	72	35.231	85446	1.10	2000	>RL
63	Cu	72	27.604	186308	0.11	2000	>RL
66	Zn	72	253.928	299828	0.71	2000	>RL
75	As	72	17.867	18270	1.34	2000	>RL
78	Se	72	4.149	392	8.29	2000	>RL
88	Sr	115	344.950	1895235	0.72	2000	>RL
95	Mo	115	1.364	5668	2.29	2000	
107	Ag	115	0.161	2019	3.21	500	
111	Cd	115	1.022	1982	3.03	2000	>RL
118	Sn	115	4.761	21948	1.21	2000	>RL
121	Sb	115	2.171	14236	1.28	500	>RL
137	Ba	115	494.852	1100567	0.47	2000	>RL
205	Tl	209	0.528	14734	2.00	2000	
208	Pb	209	76.565	2835788	0.67	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1160740	0.04	1184753	97.97	70	120	
72	Ge	819538	1.00	840651	97.49	70	120	
115	In	8237249	1.38	8493915	96.98	70	120	
209	Bi	17413314	0.26	17861880	97.49	70	120	

Sample Report

Date Acquired	2/11/16 2:05 PM	Sample Name	1601232-14A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	120SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.646	2062	1.12	2000	>RL
9	Be	45	2.166	114	27.85	2000	>RL
11	B	45	43.116	2304	3.89	2000	>RL
23	Na	45	537.335	616183	0.46	25000	>RL
24	Mg	45	15280.131	6543336	1.07	25000	>RL
27	Al	45	63801.312	10513671	1.27	10000	OUTCAL
39	K	45	17564.975	8590192	0.37	25000	>RL
44	Ca	45	67700.648	1708024	0.63	25000	OUTCAL
47	Ti	45	221.590	37599	2.01	2000	>RL
51	V	45	86.877	458457	0.41	2000	>RL
52	Cr	45	54.301	335445	0.64	2000	>RL
55	Mn	45	753.880	2719298	0.83	2000	>RL
56	Fe	45	58934.462	307316183	1.12	10000	OUTCAL
59	Co	72	20.857	193148	1.11	2000	>RL
60	Ni	72	35.858	87518	0.51	2000	>RL
63	Cu	72	28.345	192453	1.17	2000	>RL
66	Zn	72	258.993	307757	0.65	2000	>RL
75	As	72	18.043	18563	0.87	2000	>RL
78	Se	72	3.891	378	5.65	2000	>RL
88	Sr	115	325.602	1804893	0.86	2000	>RL
95	Mo	115	1.353	5669	5.99	2000	
107	Ag	115	0.133	1695	4.62	500	
111	Cd	115	0.796	1561	5.63	2000	>RL
118	Sn	115	4.616	21491	0.34	2000	>RL
121	Sb	115	2.168	14347	4.47	500	>RL
137	Ba	115	453.548	1017623	1.99	2000	>RL
205	Tl	209	0.515	14796	1.44	2000	
208	Pb	209	78.445	2990478	0.56	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1182776	1.64	1184753	99.83	70	120	
72	Ge	824756	0.45	840651	98.11	70	120	
115	In	8311192	1.52	8493915	97.85	70	120	
209	Bi	17929013	2.40	17861880	100.38	70	120	

Sample Report

Date Acquired	2/11/16 2:07 PM	Sample Name	1601232-16A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	121SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	38.378	1630	2.91	2000	>RL
9	Be	45	1.609	91	7.69	2000	>RL
11	B	45	6.551	1700	5.27	2000	
23	Na	45	834.324	924910	0.63	25000	>RL
24	Mg	45	8553.459	3869388	0.82	25000	>RL
27	Al	45	44819.934	7802843	3.31	10000	OUTCAL
39	K	45	9694.676	5039059	0.22	25000	>RL
44	Ca	45	20651.490	550612	0.26	25000	>RL
47	Ti	45	289.573	51907	0.64	2000	>RL
51	V	45	65.143	364643	0.76	2000	>RL
52	Cr	45	41.115	268726	0.63	2000	>RL
55	Mn	45	508.445	1937223	0.53	2000	>RL
56	Fe	45	43053.565	237136568	0.99	10000	OUTCAL
59	Co	72	13.778	134217	0.35	2000	>RL
60	Ni	72	26.969	69307	0.55	2000	>RL
63	Cu	72	165.540	1164866	0.09	2000	>RL
66	Zn	72	356.689	445639	0.60	2000	>RL
75	As	72	12.270	13390	0.25	2000	>RL
78	Se	72	2.821	325	12.28	2000	>RL
88	Sr	115	223.932	1305247	0.51	2000	>RL
95	Mo	115	1.970	8671	2.80	2000	
107	Ag	115	0.161	2138	1.58	500	
111	Cd	115	0.497	1029	6.87	2000	>RL
118	Sn	115	4.878	23831	0.44	2000	>RL
121	Sb	115	1.996	13909	2.06	500	
137	Ba	115	331.059	781057	0.32	2000	>RL
205	Tl	209	0.394	11475	1.03	2000	
208	Pb	209	82.211	3165160	0.32	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1249205	0.29	1184753	105.44	70	120	
72	Ge	867413	0.64	840651	103.18	70	120	
115	In	8737732	1.60	8493915	102.87	70	120	
209	Bi	18104589	1.34	17861880	101.36	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 14:09	Sample Name	CCV6-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	122_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.410	7901	1.19	200	98.7	90	110	
9	Be	45	205.929	10441	0.68	200	103.0	90	110	
11	B	45	158.387	4565	2.08	200	79.2	90	110	Fail
23	Na	45	5106.700	4684800	0.21	5000	102.1	90	110	
24	Mg	45	5065.768	2206013	0.56	5000	101.3	90	110	
27	Al	45	4995.244	837854	0.22	5000	99.9	90	110	
39	K	45	5100.573	2583272	0.48	5000	102.0	90	110	
44	Ca	45	4917.868	126487	1.15	5000	98.4	90	110	
47	Ti	45	199.015	34339	0.71	200	99.5	90	110	
51	V	45	202.843	1080647	0.07	200	101.4	90	110	
52	Cr	45	203.555	1273890	0.35	200	101.8	90	110	
55	Mn	45	205.251	752784	0.97	200	102.6	90	110	
56	Fe	45	5057.961	26821789	1.18	5000	101.2	90	110	
59	Co	72	206.058	1981839	1.11	200	103.0	90	110	
60	Ni	72	207.516	524543	0.98	200	103.8	90	110	
63	Cu	72	208.773	1450178	1.51	200	104.4	90	110	
66	Zn	72	205.100	253231	0.45	200	102.6	90	110	
75	As	72	202.474	212807	0.29	200	101.2	90	110	
78	Se	72	204.768	13878	2.87	200	102.4	90	110	
88	Sr	115	190.863	1098380	0.39	200	95.4	90	110	
95	Mo	115	191.818	831017	0.42	200	95.9	90	110	
107	Ag	115	200.550	2528702	0.63	200	100.3	90	110	
111	Cd	115	198.920	402069	0.93	200	99.5	90	110	
118	Sn	115	192.961	903059	0.59	200	96.5	90	110	
121	Sb	115	198.699	1335457	0.18	200	99.3	90	110	
137	Ba	115	199.117	463806	0.54	200	99.6	90	110	
205	Tl	209	200.586	5768136	0.63	200	100.3	90	110	
208	Pb	209	202.506	7775152	0.87	200	101.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1202371	0.15	1184753	101.49	70	120	
72	Ge	856757	0.63	840651	101.92	70	120	
115	In	8625535	0.38	8493915	101.55	70	120	
209	Bi	18070577	2.25	17861880	101.17	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 14:15	Sample Name	LCVL6-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	124LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.052	435	7.12	10	100.5	70	130	
9	Be	45	1.093	61	13.32	1	109.3	70	130	
11	B	45	-16.113	1184	4.49	20	-80.6	70	130	Fail
23	Na	45	75.908	213958	0.56	100	75.9	70	130	
24	Mg	45	107.583	46965	1.72	100	107.6	70	130	
27	Al	45	118.843	20525	2.56	100	118.8	70	130	
39	K	45	106.179	117351	0.41	100	106.2	70	130	
44	Ca	45	102.469	2962	3.37	100	102.5	70	130	
47	Ti	45	5.028	867	11.13	5	100.6	70	130	
51	V	45	1.274	12386	2.29	1	127.4	70	130	
52	Cr	45	5.226	33926	1.83	5	104.5	70	130	
55	Mn	45	5.160	18796	1.87	5	103.2	70	130	
56	Fe	45	103.944	552408	0.61	100	103.9	70	130	
59	Co	72	5.184	49451	0.72	5	103.7	70	130	
60	Ni	72	5.249	13464	0.65	5	105.0	70	130	
63	Cu	72	5.219	39301	4.06	5	104.4	70	130	
66	Zn	72	6.264	7943	3.84	5	125.3	70	130	
75	As	72	5.163	5714	1.54	5	103.3	70	130	
78	Se	72	5.621	504	5.42	5	112.4	70	130	
88	Sr	115	4.956	28310	1.00	5	99.1	70	130	
95	Mo	115	4.871	20796	1.60	5	97.4	70	130	
107	Ag	115	2.120	26392	0.99	2	106.0	70	130	
111	Cd	115	1.014	2028	1.80	1	101.4	70	130	
118	Sn	115	5.139	24363	0.75	5	102.8	70	130	
121	Sb	115	2.087	14121	2.98	2	104.4	70	130	
137	Ba	115	5.035	11571	2.95	5	100.7	70	130	
205	Tl	209	1.008	29017	1.27	1	100.8	70	130	
208	Pb	209	0.970	41124	1.35	1	97.0	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1187426	0.25	1184753	100.23	70	120	
72	Ge	848736	0.60	840651	100.96	70	120	
115	In	8489597	0.34	8493915	99.95	70	120	
209	Bi	18029401	2.88	17861880	100.94	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 14:18	Sample Name	CCB6-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	125_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.356	26	28.7	2	5	
9	Be	45	-0.011	5	75.8	0.4	0.3	
11	B	45	-39.657	723	6.0	10	10	
23	Na	45	-26.382	122108	0.3	50	100	
24	Mg	45	0.141	759	6.7	50	100	
27	Al	45	7.256	2026	1.8	50	10	
39	K	45	4.160	66477	1.3	50	100	
44	Ca	45	0.981	385	6.2	50	100	
47	Ti	45	-0.033	4	114.6	4	3	
51	V	45	0.338	7358	2.9	4	3	
52	Cr	45	0.026	1798	5.3	2	2	
55	Mn	45	0.043	259	6.4	2	3	
56	Fe	45	1.332	14934	4.4	50	50	
59	Co	72	0.004	92	41.7	2	3	
60	Ni	72	-0.022	269	11.2	2	3	
63	Cu	72	-0.169	2276	5.9	2	2	
66	Zn	72	0.125	437	0.8	4	2	
75	As	72	-0.001	341	5.6	2	2	
78	Se	72	0.118	136	13.1	1	2	
88	Sr	115	0.001	243	6.3	4	3	
95	Mo	115	0.005	44	11.5	2	2	
107	Ag	115	0.008	177	14.2	0.4	1	
111	Cd	115	0.003	17	34.6	0.4	0.3	
118	Sn	115	-0.035	529	13.3	4	3	
121	Sb	115	-0.011	237	6.1	2	0.8	
137	Ba	115	0.012	52	20.5	2	3	
205	Tl	209	0.007	316	8.0	2	0.5	
208	Pb	209	-0.058	1722	3.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1167107	0.63	1184753	98.51	70	120	
72	Ge	834810	0.86	840651	99.31	70	120	
115	In	8230778	0.56	8493915	96.90	70	120	
209	Bi	17704418	0.87	17861880	99.12	70	120	

Method Blank Report

Date Acquired	2/11/16 2:20 PM	Sample Name	MB-73600
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	126_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.436	23	25.47		
9	Be	45	-0.005	6	26.96		
11	B	45	-43.905	647	10.46		
23	Na	45	-22.566	125912	0.78		
24	Mg	45	2.402	1721	2.45		
27	Al	45	1.996	1175	9.25		
39	K	45	6.268	67763	1.13		
44	Ca	45	12.602	677	1.45		
47	Ti	45	0.106	28	34.63		
51	V	45	0.348	7441	4.82		
52	Cr	45	0.790	6457	8.39		
55	Mn	45	0.133	583	19.55		
56	Fe	45	10.342	61545	2.32		
59	Co	72	0.008	136	13.54		
60	Ni	72	0.489	1525	6.68		
63	Cu	72	0.071	3889	0.75		
66	Zn	72	2.265	3003	1.29		
75	As	72	-0.017	324	2.45		
78	Se	72	0.284	147	19.29		
88	Sr	115	0.032	429	15.35		
95	Mo	115	0.019	104	10.26		
107	Ag	115	0.011	218	18.45		
111	Cd	115	-0.002	8	89.21		
118	Sn	115	3.506	16991	5.08		
121	Sb	115	-0.015	219	7.82		
137	Ba	115	0.109	280	8.33		
205	Tl	209	0.006	289	14.52		
208	Pb	209	0.000	4029	3.49		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171851	0.64	1184753	98.91	70	120	
72	Ge	833547	1.11	840651	99.15	70	120	
115	In	8567082	1.18	8493915	100.86	70	120	
209	Bi	18313051	2.74	17861880	102.53	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 14:22	Sample Name	LCS-73600
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	127_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	199.968	7757	1.14	200	100.0	80	120	
9	Be	45	202.768	9965	2.56	200	101.4	80	120	
11	B	45	149.571	4258	4.30	200	74.8	80	120	
23	Na	45	5066.425	4506055	1.10	1000	506.6	80	120	Fail
24	Mg	45	5053.675	2132994	0.84	1000	505.4	80	120	Fail
27	Al	45	1007.811	164515	1.08	1000	100.8	80	120	
39	K	45	5083.059	2495397	0.86	1000	508.3	80	120	Fail
44	Ca	45	4951.310	123431	1.45	1000	495.1	80	120	Fail
47	Ti	45	200.445	33523	1.67	200	100.2	80	120	
51	V	45	201.760	1041834	0.82	200	100.9	80	120	
52	Cr	45	201.492	1222185	0.70	200	100.7	80	120	
55	Mn	45	202.700	720505	0.33	200	101.3	80	120	
56	Fe	45	1021.942	5258788	0.34	1000	102.2	80	120	
59	Co	72	202.799	1898076	0.79	200	101.4	80	120	
60	Ni	72	204.472	502953	0.09	200	102.2	80	120	
63	Cu	72	203.562	1376045	0.90	200	101.8	80	120	
66	Zn	72	201.395	241977	2.24	200	100.7	80	120	
75	As	72	199.872	204434	1.11	200	99.9	80	120	
78	Se	72	198.694	13106	0.57	200	99.3	80	120	
88	Sr	115	193.355	1073782	0.02	200	96.7	80	120	
95	Mo	115	194.165	811805	0.69	200	97.1	80	120	
107	Ag	115	205.157	2496300	0.37	200	102.6	80	120	
111	Cd	115	195.721	381778	0.51	200	97.9	80	120	
118	Sn	115	197.428	891613	0.12	200	98.7	80	120	
121	Sb	115	203.191	1317994	1.21	200	101.6	80	120	
137	Ba	115	197.855	444734	0.53	200	98.9	80	120	
205	Tl	209	198.797	5596895	0.61	200	99.4	80	120	
208	Pb	209	200.708	7544448	0.38	200	100.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1165403	1.12	1184753	98.37	70	120	
72	Ge	833725	0.24	840651	99.18	70	120	
115	In	8325203	1.65	8493915	98.01	70	120	
209	Bi	17687808	0.77	17861880	99.03	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 14:24	Sample Name	LCSD-73600
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	128_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.898	7882	0.95	200	98.9	80	120	
9	Be	45	198.793	10031	1.30	200	99.4	80	120	
11	B	45	157.799	4532	0.42	200	78.9	80	120	
23	Na	45	5025.899	4590904	1.05	1000	502.6	80	120	Fail
24	Mg	45	5035.746	2182416	1.15	1000	503.6	80	120	Fail
27	Al	45	1004.499	168369	1.16	1000	100.4	80	120	
39	K	45	5066.215	2553922	0.21	1000	506.6	80	120	Fail
44	Ca	45	4911.244	125711	0.89	1000	491.1	80	120	Fail
47	Ti	45	200.745	34470	1.33	200	100.4	80	120	
51	V	45	200.135	1061160	0.73	200	100.1	80	120	
52	Cr	45	200.208	1246920	0.33	200	100.1	80	120	
55	Mn	45	202.017	737352	0.47	200	101.0	80	120	
56	Fe	45	1017.262	5375095	0.38	1000	101.7	80	120	
59	Co	72	202.547	1938112	0.75	200	101.3	80	120	
60	Ni	72	205.248	516163	2.19	200	102.6	80	120	
63	Cu	72	203.190	1404286	1.30	200	101.6	80	120	
66	Zn	72	201.178	247134	0.55	200	100.6	80	120	
75	As	72	199.357	208478	0.96	200	99.7	80	120	
78	Se	72	197.452	13317	0.76	200	98.7	80	120	
88	Sr	115	192.187	1100158	0.94	200	96.1	80	120	
95	Mo	115	191.805	826582	0.11	200	95.9	80	120	
107	Ag	115	202.037	2534020	0.47	200	101.0	80	120	
111	Cd	115	193.939	389928	0.55	200	97.0	80	120	
118	Sn	115	194.425	905093	0.72	200	97.2	80	120	
121	Sb	115	200.954	1343495	0.98	200	100.5	80	120	
137	Ba	115	195.019	451868	1.23	200	97.5	80	120	
205	Tl	209	197.994	5673063	0.58	200	99.0	80	120	
208	Pb	209	199.173	7619507	0.89	200	99.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1196580	0.41	1184753	101.00	70	120	
72	Ge	852399	0.37	840651	101.40	70	120	
115	In	8579921	0.13	8493915	101.01	70	120	
209	Bi	18003532	1.41	17861880	100.79	70	120	

Sample Report

Date Acquired	2/11/16 2:28 PM	Sample Name	1601232-17A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	130_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	40.230	1730	2.97	2000	>RL
9	Be	45	2.053	116	11.85	2000	>RL
11	B	45	9.491	1783	10.96	2000	
23	Na	45	884.313	984454	0.19	25000	>RL
24	Mg	45	8758.232	4016679	0.26	25000	>RL
27	Al	45	49100.982	8666799	1.44	10000	OUTCAL
39	K	45	10236.047	5390004	0.45	25000	>RL
44	Ca	45	22086.669	596986	0.38	25000	>RL
47	Ti	45	273.479	49698	1.77	2000	>RL
51	V	45	65.906	373947	0.99	2000	>RL
52	Cr	45	43.823	290265	0.61	2000	>RL
55	Mn	45	477.340	1843841	0.45	2000	>RL
56	Fe	45	43811.215	244634986	1.31	10000	OUTCAL
59	Co	72	14.022	139546	0.11	2000	>RL
60	Ni	72	27.630	72537	1.07	2000	>RL
63	Cu	72	466.957	3350411	0.37	2000	>RL
66	Zn	72	319.609	407997	0.63	2000	>RL
75	As	72	12.674	14119	2.22	2000	>RL
78	Se	72	3.420	374	3.87	2000	>RL
88	Sr	115	216.478	1277364	0.33	2000	>RL
95	Mo	115	1.874	8350	2.29	2000	
107	Ag	115	0.176	2358	7.53	500	
111	Cd	115	0.484	1014	6.34	2000	>RL
118	Sn	115	5.474	26987	1.63	2000	>RL
121	Sb	115	2.066	14567	1.95	500	>RL
137	Ba	115	334.160	798106	1.08	2000	>RL
205	Tl	209	0.438	12873	4.62	2000	
208	Pb	209	77.413	3014743	0.23	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1266462	0.36	1184753	106.90	70	120	
72	Ge	886169	0.34	840651	105.41	70	120	
115	In	8844839	1.05	8493915	104.13	70	120	
209	Bi	18310768	0.93	17861880	102.51	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 14:30	Sample Name	1601232-17A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	131_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	7.793	370	4.60	40.2	96.9	110	90	Good
9	Be	45	0.423	29	5.97	2.1	103.0	110	90	Good
11	B	45	-30.930	963	5.49	9.5	#####	110	90	
23	Na	45	158.395	305711	0.54	884.3	89.6	110	90	
24	Mg	45	1774.090	815166	0.32	8758.2	101.3	110	90	Good
27	Al	45	9804.399	1733226	0.80	49101.0	99.8	110	90	Good
39	K	45	2079.199	1151928	0.58	10236.0	101.6	110	90	Good
44	Ca	45	4496.942	121999	0.27	22086.7	101.8	110	90	Good
47	Ti	45	54.056	9843	4.80	273.5	98.8	110	90	Good
51	V	45	13.270	80252	0.92	65.9	100.7	110	90	Good
52	Cr	45	9.013	61177	1.98	43.8	102.8	110	90	Good
55	Mn	45	97.247	376170	0.56	477.3	101.9	110	90	Good
56	Fe	45	8955.845	50074449	0.99	43811.2	102.2	110	90	Good
59	Co	72	2.856	28705	0.62	14.0	101.8	110	90	Good
60	Ni	72	5.819	15675	1.98	27.6	105.3	110	90	Good
63	Cu	72	95.012	690181	0.24	467.0	101.7	110	90	Good
66	Zn	72	65.846	84983	1.52	319.6	103.0	110	90	Good
75	As	72	2.520	3124	2.00	12.7	99.4	110	90	Good
78	Se	72	0.856	197	5.61	3.4	125.1	110	90	
88	Sr	115	42.673	259849	0.27	216.5	98.6	110	90	Good
95	Mo	115	0.400	1858	9.38	1.9	106.8	110	90	Good
107	Ag	115	0.054	808	1.67	0.2	154.2	110	90	
111	Cd	115	0.112	251	13.30	0.5	115.9	110	90	
118	Sn	115	0.997	5688	4.49	5.5	91.1	110	90	Good
121	Sb	115	0.404	3209	9.04	2.1	97.8	110	90	Good
137	Ba	115	65.671	161736	0.77	334.2	98.3	110	90	Good
205	Tl	209	0.094	2959	4.96	0.4	107.3	110	90	Good
208	Pb	209	15.291	620587	0.18	77.4	98.8	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1267906	0.25	1184753	107.02	70	120	
72	Ge	893403	0.28	840651	106.28	70	120	
115	In	9122613	2.20	8493915	107.40	70	120	
209	Bi	18980909	1.66	17861880	106.26	70	120	

Sample Report

Date Acquired	2/11/16 2:33 PM	Sample Name	1601232-18A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	132SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	35.564	1541	0.69	2000	>RL
9	Be	45	1.397	81	12.38	2000	>RL
11	B	45	3.807	1676	4.03	2000	
23	Na	45	744.751	857862	0.52	25000	>RL
24	Mg	45	7641.312	3520838	0.33	25000	>RL
27	Al	45	43010.801	7626999	1.82	10000	OUTCAL
39	K	45	9155.576	4850956	0.54	25000	>RL
44	Ca	45	16517.313	448625	0.26	25000	>RL
47	Ti	45	269.288	49164	1.18	2000	>RL
51	V	45	59.060	337293	0.57	2000	>RL
52	Cr	45	37.874	252266	1.31	2000	>RL
55	Mn	45	396.424	1538434	0.16	2000	>RL
56	Fe	45	38250.483	214585556	0.83	10000	OUTCAL
59	Co	72	12.206	119969	0.66	2000	>RL
60	Ni	72	24.177	62725	1.21	2000	>RL
63	Cu	72	199.580	1416219	0.91	2000	>RL
66	Zn	72	284.293	358429	0.86	2000	>RL
75	As	72	11.133	12292	0.40	2000	>RL
78	Se	72	2.992	340	4.05	2000	>RL
88	Sr	115	183.245	1077026	0.22	2000	>RL
95	Mo	115	1.680	7457	1.72	2000	
107	Ag	115	0.143	1919	6.51	500	
111	Cd	115	0.442	926	10.54	2000	>RL
118	Sn	115	4.663	23002	1.71	2000	>RL
121	Sb	115	3.000	20918	0.86	500	>RL
137	Ba	115	289.290	688173	0.40	2000	>RL
205	Tl	209	0.355	10514	2.73	2000	
208	Pb	209	73.527	2878609	0.44	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1272356	0.40	1184753	107.39	70	120	
72	Ge	875142	0.31	840651	104.10	70	120	
115	In	8811107	1.78	8493915	103.73	70	120	
209	Bi	18409340	1.78	17861880	103.06	70	120	

Sample Report

Date Acquired	2/11/16 2:35 PM	Sample Name	1601232-19A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	133SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.411	2033	3.04	2000	>RL
9	Be	45	1.981	110	12.73	2000	>RL
11	B	45	3.385	1628	7.21	2000	
23	Na	45	237.687	372233	0.66	25000	>RL
24	Mg	45	8668.237	3898835	0.57	25000	>RL
27	Al	45	50312.362	8709051	1.12	10000	OUTCAL
39	K	45	13274.104	6834832	0.33	25000	>RL
44	Ca	45	28712.958	761014	0.60	25000	OUTCAL
47	Ti	45	191.808	34188	1.30	2000	>RL
51	V	45	64.792	360635	1.11	2000	>RL
52	Cr	45	45.602	296145	1.64	2000	>RL
55	Mn	45	432.992	1640304	1.12	2000	>RL
56	Fe	45	50206.597	274958771	0.12	10000	OUTCAL
59	Co	72	18.496	177872	1.29	2000	>RL
60	Ni	72	33.281	84371	0.25	2000	>RL
63	Cu	72	57.122	399174	0.86	2000	>RL
66	Zn	72	261.194	322288	0.27	2000	>RL
75	As	72	13.402	14408	2.06	2000	>RL
78	Se	72	3.033	335	10.83	2000	>RL
88	Sr	115	130.616	762336	0.61	2000	>RL
95	Mo	115	0.839	3712	5.81	2000	
107	Ag	115	0.135	1807	4.05	500	
111	Cd	115	0.503	1042	3.97	2000	>RL
118	Sn	115	4.432	21748	1.93	2000	>RL
121	Sb	115	3.172	21939	3.89	500	>RL
137	Ba	115	402.078	949712	0.75	2000	>RL
205	Tl	209	0.389	11088	0.80	2000	
208	Pb	209	65.682	2478981	0.99	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1242104	0.58	1184753	104.84	70	120	
72	Ge	856434	0.23	840651	101.88	70	120	
115	In	8747026	0.46	8493915	102.98	70	120	
209	Bi	17743098	1.54	17861880	99.33	70	120	

Sample Report

Date Acquired	2/11/16 2:37 PM	Sample Name	1601232-20A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	134SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.577	2054	2.64	2000	>RL
9	Be	45	1.796	99	7.89	2000	>RL
11	B	45	7.752	1692	7.22	2000	
23	Na	45	195.684	329418	0.73	25000	>RL
24	Mg	45	9000.008	3996136	0.25	25000	>RL
27	Al	45	52525.419	8975898	0.97	10000	OUTCAL
39	K	45	13453.441	6837372	0.37	25000	>RL
44	Ca	45	31622.572	827355	0.52	25000	OUTCAL
47	Ti	45	214.874	37807	0.67	2000	>RL
51	V	45	68.948	378474	0.32	2000	>RL
52	Cr	45	47.852	306700	0.63	2000	>RL
55	Mn	45	441.148	1649819	0.85	2000	>RL
56	Fe	45	52878.555	285883269	2.29	10000	OUTCAL
59	Co	72	18.563	175496	0.78	2000	>RL
60	Ni	72	33.768	84152	0.76	2000	>RL
63	Cu	72	52.536	361187	0.39	2000	>RL
66	Zn	72	324.186	393174	0.07	2000	>RL
75	As	72	13.961	14742	0.12	2000	>RL
78	Se	72	3.138	336	6.31	2000	>RL
88	Sr	115	144.774	817395	0.72	2000	>RL
95	Mo	115	0.940	4018	3.22	2000	
107	Ag	115	0.135	1743	4.47	500	
111	Cd	115	0.634	1269	5.10	2000	>RL
118	Sn	115	4.617	21888	1.54	2000	>RL
121	Sb	115	2.968	19879	2.01	500	>RL
137	Ba	115	404.308	923867	0.88	2000	>RL
205	Tl	209	0.393	11227	3.12	2000	
208	Pb	209	68.174	2576005	0.09	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1226140	0.39	1184753	103.49	70	120	
72	Ge	841937	0.32	840651	100.15	70	120	
115	In	8461751	0.23	8493915	99.62	70	120	
209	Bi	17764533	1.41	17861880	99.46	70	120	

Sample Report

Date Acquired	2/11/16 2:39 PM	Sample Name	1601232-21A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	135SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.593	2147	1.45	2000	>RL
9	Be	45	1.849	100	6.78	2000	>RL
11	B	45	3.972	1596	2.38	2000	
23	Na	45	194.802	324073	0.34	25000	>RL
24	Mg	45	9034.610	3956051	0.60	25000	>RL
27	Al	45	53130.826	8954061	1.19	10000	OUTCAL
39	K	45	13684.486	6857665	0.80	25000	>RL
44	Ca	45	28630.635	738763	1.28	25000	OUTCAL
47	Ti	45	225.852	39187	1.73	2000	>RL
51	V	45	69.273	374966	0.80	2000	>RL
52	Cr	45	48.432	306105	0.52	2000	>RL
55	Mn	45	441.089	1626813	1.02	2000	>RL
56	Fe	45	52228.949	278472309	1.95	10000	OUTCAL
59	Co	72	18.337	172001	0.13	2000	>RL
60	Ni	72	33.472	82763	1.55	2000	>RL
63	Cu	72	53.360	363922	0.59	2000	>RL
66	Zn	72	274.408	330239	0.51	2000	>RL
75	As	72	13.715	14374	1.30	2000	>RL
78	Se	72	3.414	352	7.93	2000	>RL
88	Sr	115	132.519	753894	0.35	2000	>RL
95	Mo	115	0.926	3989	5.26	2000	
107	Ag	115	0.131	1710	6.85	500	
111	Cd	115	0.553	1116	4.86	2000	>RL
118	Sn	115	5.032	23975	1.60	2000	>RL
121	Sb	115	3.292	22184	1.05	500	>RL
137	Ba	115	380.643	876448	0.32	2000	>RL
205	Tl	209	0.392	11102	2.84	2000	
208	Pb	209	63.565	2380001	0.54	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1209203	0.50	1184753	102.06	70	120	
72	Ge	835334	0.10	840651	99.37	70	120	
115	In	8527583	1.53	8493915	100.40	70	120	
209	Bi	17598917	0.71	17861880	98.53	70	120	

Sample Report

Date Acquired	2/11/16 2:41 PM	Sample Name	1601232-22A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	136SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.124	2100	1.94	2000	>RL
9	Be	45	1.682	92	8.13	2000	>RL
11	B	45	3.383	1593	2.18	2000	
23	Na	45	172.370	305818	1.01	25000	>RL
24	Mg	45	8404.472	3701656	0.38	25000	>RL
27	Al	45	49621.946	8410894	2.18	10000	OUTCAL
39	K	45	12933.947	6523111	1.06	25000	>RL
44	Ca	45	33143.767	860127	0.30	25000	OUTCAL
47	Ti	45	208.294	36349	6.88	2000	>RL
51	V	45	66.963	364787	1.07	2000	>RL
52	Cr	45	45.229	287658	1.71	2000	>RL
55	Mn	45	419.921	1557774	0.61	2000	>RL
56	Fe	45	50172.889	269066949	1.34	10000	OUTCAL
59	Co	72	18.183	171449	1.17	2000	>RL
60	Ni	72	32.512	80815	1.55	2000	>RL
63	Cu	72	25.028	173404	0.61	2000	>RL
66	Zn	72	225.300	272608	0.66	2000	>RL
75	As	72	13.476	14203	1.72	2000	>RL
78	Se	72	3.260	343	10.23	2000	>RL
88	Sr	115	143.746	816995	0.58	2000	>RL
95	Mo	115	0.952	4098	1.30	2000	
107	Ag	115	0.199	2558	10.50	500	
111	Cd	115	0.377	764	10.70	2000	
118	Sn	115	4.420	21123	1.37	2000	>RL
121	Sb	115	2.146	14565	3.14	500	>RL
137	Ba	115	395.036	908698	0.49	2000	>RL
205	Tl	209	0.368	10408	1.76	2000	
208	Pb	209	48.879	1829145	0.67	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1216248	0.60	1184753	102.66	70	120	
72	Ge	839698	0.48	840651	99.89	70	120	
115	In	8519153	1.44	8493915	100.30	70	120	
209	Bi	17583153	1.89	17861880	98.44	70	120	

Sample Report

Date Acquired	2/11/16 2:43 PM	Sample Name	1601232-23A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	137SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.920	2245	5.05	2000	>RL
9	Be	45	1.925	106	10.90	2000	>RL
11	B	45	4.796	1645	7.14	2000	
23	Na	45	297.115	424031	0.23	25000	>RL
24	Mg	45	8883.776	3970351	0.67	25000	>RL
27	Al	45	54612.884	9394055	2.03	10000	OUTCAL
39	K	45	13122.284	6714367	0.48	25000	>RL
44	Ca	45	31542.601	830653	0.53	25000	OUTCAL
47	Ti	45	214.415	37975	1.37	2000	>RL
51	V	45	71.656	395676	0.92	2000	>RL
52	Cr	45	49.074	316538	0.24	2000	>RL
55	Mn	45	447.528	1684583	0.22	2000	>RL
56	Fe	45	53972.094	293696993	1.03	10000	OUTCAL
59	Co	72	19.399	185150	1.02	2000	>RL
60	Ni	72	35.708	89819	1.44	2000	>RL
63	Cu	72	33.186	231619	0.24	2000	>RL
66	Zn	72	273.379	334775	0.90	2000	>RL
75	As	72	14.547	15492	1.21	2000	>RL
78	Se	72	3.531	366	5.88	2000	>RL
88	Sr	115	144.662	815107	0.90	2000	>RL
95	Mo	115	0.935	3989	2.62	2000	
107	Ag	115	0.146	1873	5.98	500	
111	Cd	115	0.526	1051	11.14	2000	>RL
118	Sn	115	5.528	26015	1.40	2000	>RL
121	Sb	115	2.703	18095	1.53	500	>RL
137	Ba	115	424.687	968387	0.82	2000	>RL
205	Tl	209	0.396	11385	2.57	2000	
208	Pb	209	58.112	2208561	0.12	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1234156	0.68	1184753	104.17	70	120	
72	Ge	849995	0.38	840651	101.11	70	120	
115	In	8446155	1.64	8493915	99.44	70	120	
209	Bi	17861489	0.86	17861880	100.00	70	120	

Sample Report

Date Acquired	2/11/16 2:45 PM	Sample Name	1601232-24A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	138SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.442	2050	3.13	2000	>RL
9	Be	45	1.801	101	0.57	2000	>RL
11	B	45	2.646	1625	12.50	2000	
23	Na	45	368.516	496059	0.50	25000	>RL
24	Mg	45	8664.167	3927132	0.38	25000	>RL
27	Al	45	50634.899	8833018	1.06	10000	OUTCAL
39	K	45	13594.317	7052175	0.85	25000	>RL
44	Ca	45	31570.315	843178	0.80	25000	OUTCAL
47	Ti	45	195.228	35067	0.47	2000	>RL
51	V	45	66.246	371444	1.17	2000	>RL
52	Cr	45	44.121	288805	0.86	2000	>RL
55	Mn	45	405.465	1547925	0.42	2000	>RL
56	Fe	45	49019.721	270530887	0.91	10000	OUTCAL
59	Co	72	17.466	168868	0.50	2000	>RL
60	Ni	72	31.075	79219	0.88	2000	>RL
63	Cu	72	30.417	215333	0.46	2000	>RL
66	Zn	72	223.870	277753	0.86	2000	>RL
75	As	72	13.809	14915	0.87	2000	>RL
78	Se	72	3.490	368	6.00	2000	>RL
88	Sr	115	140.880	799563	0.85	2000	>RL
95	Mo	115	0.860	3700	3.84	2000	
107	Ag	115	0.110	1450	1.00	500	
111	Cd	115	0.417	843	8.67	2000	>RL
118	Sn	115	4.680	22301	2.87	2000	>RL
121	Sb	115	2.016	13676	1.68	500	>RL
137	Ba	115	380.405	873835	0.65	2000	>RL
205	Tl	209	0.372	10720	1.10	2000	
208	Pb	209	50.568	1927951	0.29	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1251656	0.47	1184753	105.65	70	120	
72	Ge	861006	0.38	840651	102.42	70	120	
115	In	8507840	1.54	8493915	100.16	70	120	
209	Bi	17914497	1.30	17861880	100.29	70	120	

Sample Report

Date Acquired	2/11/16 2:47 PM	Sample Name	1601232-25A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	139SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	58.740	2398	1.99	2000	>RL
9	Be	45	2.706	144	8.27	2000	>RL
11	B	45	50.204	2498	5.33	2000	>RL
23	Na	45	1243.955	1263911	0.79	25000	>RL
24	Mg	45	16180.989	7100185	1.25	25000	>RL
27	Al	45	70556.656	11916626	1.98	10000	OUTCAL
39	K	45	20006.962	10016139	1.55	25000	>RL
44	Ca	45	74403.655	1923493	1.49	25000	OUTCAL
47	Ti	45	421.081	73220	1.96	2000	>RL
51	V	45	96.433	520845	0.60	2000	>RL
52	Cr	45	63.845	403860	0.38	2000	>RL
55	Mn	45	826.355	3054261	0.76	2000	>RL
56	Fe	45	61195.319	326965418	1.68	10000	OUTCAL
59	Co	72	20.250	191553	0.59	2000	>RL
60	Ni	72	38.398	95697	0.92	2000	>RL
63	Cu	72	46.508	320317	0.28	2000	>RL
66	Zn	72	372.627	452129	0.10	2000	>RL
75	As	72	21.214	22233	1.28	2000	>RL
78	Se	72	4.679	438	12.80	2000	>RL
88	Sr	115	347.525	1967782	0.95	2000	>RL
95	Mo	115	1.621	6936	3.01	2000	
107	Ag	115	0.174	2236	10.98	500	
111	Cd	115	0.751	1506	0.78	2000	>RL
118	Sn	115	5.084	24100	0.98	2000	>RL
121	Sb	115	4.848	32374	0.59	500	>RL
137	Ba	115	665.835	1526158	0.91	2000	>RL
205	Tl	209	0.611	17487	0.56	2000	
208	Pb	209	58.422	2219294	0.24	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1211827	0.67	1184753	102.29	70	120	
72	Ge	842402	0.29	840651	100.21	70	120	
115	In	8489198	1.91	8493915	99.94	70	120	
209	Bi	17852677	0.72	17861880	99.95	70	120	

Sample Report

Date Acquired	2/11/16 2:49 PM	Sample Name	1601232-26A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	140SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.715	2145	1.42	2000	>RL
9	Be	45	2.234	117	7.73	2000	>RL
11	B	45	28.582	2029	2.83	2000	>RL
23	Na	45	1414.976	1383751	0.09	25000	>RL
24	Mg	45	13736.764	5886757	1.57	25000	>RL
27	Al	45	59565.453	9823494	0.72	10000	OUTCAL
39	K	45	17655.989	8639912	1.15	25000	>RL
44	Ca	45	69761.556	1761105	0.36	25000	OUTCAL
47	Ti	45	363.833	61777	2.13	2000	>RL
51	V	45	81.387	430146	0.82	2000	>RL
52	Cr	45	52.798	326431	0.53	2000	>RL
55	Mn	45	673.698	2431627	0.27	2000	>RL
56	Fe	45	53128.393	277217269	0.74	10000	OUTCAL
59	Co	72	17.700	166052	0.56	2000	>RL
60	Ni	72	32.959	81512	1.13	2000	>RL
63	Cu	72	35.805	245347	1.29	2000	>RL
66	Zn	72	310.979	374242	0.85	2000	>RL
75	As	72	17.583	18333	0.50	2000	>RL
78	Se	72	3.343	347	1.98	2000	>RL
88	Sr	115	285.413	1626251	0.34	2000	>RL
95	Mo	115	1.371	5906	1.21	2000	
107	Ag	115	0.132	1725	4.71	500	
111	Cd	115	0.647	1306	9.48	2000	>RL
118	Sn	115	5.069	24179	1.56	2000	>RL
121	Sb	115	4.903	32939	1.17	500	>RL
137	Ba	115	693.586	1599600	0.81	2000	>RL
205	Tl	209	0.519	14820	0.40	2000	
208	Pb	209	52.557	1992977	0.22	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1183424	0.73	1184753	99.89	70	120	
72	Ge	835431	0.50	840651	99.38	70	120	
115	In	8542734	1.88	8493915	100.57	70	120	
209	Bi	17817674	0.62	17861880	99.75	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 14:51	Sample Name	1601232-17A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	141_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.296	9078	1.70	40.2	200	88.5	75	125	
9	Be	45	188.232	9968	0.99	2.1	200	93.1	75	125	
11	B	45	194.208	5490	4.19	9.5	200	92.4	75	125	
23	Na	45	5781.765	5518489	2.67	884.3	5000	97.9	75	125	
24	Mg	45	13696.089	6227860	0.75	8758.2	5000	98.8	75	125	
27	Al	45	54376.054	9516087	1.20	49101.0	5000	105.5	75	125	
39	K	45	14856.024	7725699	1.45	10236.0	5000	92.4	75	125	
44	Ca	45	26557.356	711703	0.67	22086.7	5000	89.4	75	125	
47	Ti	45	459.227	82745	0.78	273.5	200	92.9	75	125	
51	V	45	255.414	1419557	0.38	65.9	200	94.8	75	125	
52	Cr	45	235.288	1537630	0.81	43.8	200	95.7	75	125	
55	Mn	45	659.268	2525074	0.20	477.3	200	91.0	75	125	
56	Fe	45	47705.754	264138594	0.49	43811.2	5000	77.9	75	125	
59	Co	72	209.313	2036072	1.07	14.0	200	97.6	75	125	
60	Ni	72	220.402	563425	0.83	27.6	200	96.4	75	125	
63	Cu	72	657.057	4608182	0.24	467.0	200	95.0	75	125	
66	Zn	72	509.968	636379	1.31	319.6	200	95.2	75	125	
75	As	72	204.008	216859	0.56	12.7	200	95.7	75	125	
78	Se	72	196.620	13480	0.81	3.4	200	96.6	75	125	
88	Sr	115	405.631	2337737	0.32	216.5	200	94.6	75	125	
95	Mo	115	185.380	804334	1.28	1.9	200	91.8	75	125	
107	Ag	115	197.955	2499802	0.83	0.2	200	98.9	75	125	
111	Cd	115	185.667	375858	0.79	0.5	200	92.6	75	125	
118	Sn	115	195.802	917734	0.50	5.5	200	95.2	75	125	
121	Sb	115	202.069	1360237	0.31	2.1	200	100.0	75	125	
137	Ba	115	528.972	1234003	0.26	334.2	200	97.4	75	125	
205	Tl	209	188.276	5402943	0.88	0.4	200	93.9	75	125	
208	Pb	209	269.918	10340168	0.61	77.4	200	96.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1255794	0.59	1184753	106.00	70	120	
72	Ge	866505	0.73	840651	103.08	70	120	
115	In	8640092	1.41	8493915	101.72	70	120	
209	Bi	18028487	0.59	17861880	100.93	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 14:53	Sample Name	1601232-17A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	142_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	228.508	9443	0.89	40.2	200	94.1	80	120	
9	Be	45	193.758	10150	1.93	2.1	200	95.9	80	120	
11	B	45	198.059	5508	2.96	9.5	200	94.3	80	120	
23	Na	45	5947.241	5611820	0.74	884.3	1000	506.3	80	120	Fail
24	Mg	45	14031.133	6311884	0.30	8758.2	1000	527.3	80	120	Fail
27	Al	45	53200.179	9211154	0.47	49101.0	1000	409.9	80	120	Fail
39	K	45	15605.110	8025014	0.97	10236.0	1000	536.9	80	120	Fail
44	Ca	45	27101.626	718517	1.07	22086.7	1000	501.5	80	120	Fail
47	Ti	45	520.086	92705	0.39	273.5	200	123.3	80	120	Fail
51	V	45	263.699	1449721	0.60	65.9	200	98.9	80	120	
52	Cr	45	236.459	1528713	0.65	43.8	200	96.3	80	120	
55	Mn	45	663.755	2515036	0.67	477.3	200	93.2	80	120	
56	Fe	45	46021.377	252090897	0.48	43811.2	1000	221.0	80	120	Fail
59	Co	72	210.297	2040962	0.61	14.0	200	98.1	80	120	
60	Ni	72	226.290	577143	0.39	27.6	200	99.3	80	120	
63	Cu	72	665.743	4658688	1.25	467.0	200	99.4	80	120	
66	Zn	72	516.432	642978	0.93	319.6	200	98.4	80	120	
75	As	72	207.053	219593	0.71	12.7	200	97.2	80	120	
78	Se	72	195.300	13361	0.74	3.4	200	95.9	80	120	
88	Sr	115	413.426	2357266	0.80	216.5	200	98.5	80	120	
95	Mo	115	182.839	784971	0.65	1.9	200	90.5	80	120	
107	Ag	115	196.182	2451247	0.34	0.2	200	98.0	80	120	
111	Cd	115	189.869	380293	0.35	0.5	200	94.7	80	120	
118	Sn	115	194.366	901368	0.10	5.5	200	94.4	80	120	
121	Sb	115	84.062	560054	0.43	2.1	200	41.0	80	120	Fail
137	Ba	115	546.004	1260231	0.51	334.2	200	105.9	80	120	
205	Tl	209	194.358	5524456	0.27	0.4	200	97.0	80	120	
208	Pb	209	271.900	10316455	0.90	77.4	200	97.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1242352	0.55	1184753	104.86	70	120	
72	Ge	864536	0.52	840651	102.84	70	120	
115	In	8547786	1.03	8493915	100.63	70	120	
209	Bi	17859328	1.39	17861880	99.99	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 14:55	Sample Name	1601232-17A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	143_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	238.388	9810	1.38	40.2	200	99.1	80	120	
9	Be	45	193.132	10078	1.12	2.1	200	95.5	80	120	
11	B	45	212.579	5774	3.18	9.5	200	101.5	80	120	
23	Na	45	5947.604	5590469	2.67	884.3	1000	506.3	80	120	Fail
24	Mg	45	15060.445	6748051	1.15	8758.2	1000	630.2	80	120	Fail
27	Al	45	59570.556	10273088	1.81	49101.0	1000	1047.0	80	120	Fail
39	K	45	16846.777	8622872	0.98	10236.0	1000	661.1	80	120	Fail
44	Ca	45	29516.210	779343	0.71	22086.7	1000	743.0	80	120	Fail
47	Ti	45	534.635	94920	1.71	273.5	200	130.6	80	120	Fail
51	V	45	270.579	1481399	0.27	65.9	200	102.3	80	120	
52	Cr	45	242.671	1562564	0.82	43.8	200	99.4	80	120	
55	Mn	45	727.548	2745502	0.57	477.3	200	125.1	80	120	Fail
56	Fe	45	50747.952	276869891	1.64	43811.2	1000	693.7	80	120	Fail
59	Co	72	215.159	2068882	0.13	14.0	200	100.6	80	120	
60	Ni	72	231.981	586203	0.16	27.6	200	102.2	80	120	
63	Cu	72	735.675	5100049	0.40	467.0	200	134.4	80	120	Fail
66	Zn	72	557.767	688001	0.98	319.6	200	119.1	80	120	
75	As	72	206.980	217490	0.38	12.7	200	97.2	80	120	
78	Se	72	196.016	13286	0.42	3.4	200	96.3	80	120	
88	Sr	115	438.611	2527032	0.79	216.5	200	111.1	80	120	
95	Mo	115	181.384	786802	0.95	1.9	200	89.8	80	120	
107	Ag	115	196.680	2482899	1.19	0.2	200	98.3	80	120	
111	Cd	115	189.034	382572	0.04	0.5	200	94.3	80	120	
118	Sn	115	190.915	894623	0.57	5.5	200	92.7	80	120	
121	Sb	115	82.719	556835	0.85	2.1	200	40.3	80	120	Fail
137	Ba	115	574.533	1339912	0.97	334.2	200	120.2	80	120	Fail
205	Tl	209	198.454	5531927	0.92	0.4	200	99.0	80	120	
208	Pb	209	288.175	10723614	0.41	77.4	200	105.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1237397	1.06	1184753	104.44	70	120	
72	Ge	856567	0.47	840651	101.89	70	120	
115	In	8637063	1.00	8493915	101.69	70	120	
209	Bi	17513892	1.04	17861880	98.05	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 14:56	Sample Name	CCV7-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	144_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	196.411	7871	0.75	200	98.2	90	110	
9	Be	45	201.750	10242	0.74	200	100.9	90	110	
11	B	45	162.508	4648	5.84	200	81.3	90	110	Fail
23	Na	45	5068.650	4656497	0.34	5000	101.4	90	110	
24	Mg	45	5037.336	2196321	0.46	5000	100.7	90	110	
27	Al	45	4960.574	833081	0.80	5000	99.2	90	110	
39	K	45	5081.462	2576992	0.49	5000	101.6	90	110	
44	Ca	45	4890.862	125953	1.00	5000	97.8	90	110	
47	Ti	45	196.514	33948	1.02	200	98.3	90	110	
51	V	45	201.637	1075615	1.12	200	100.8	90	110	
52	Cr	45	200.763	1257969	0.40	200	100.4	90	110	
55	Mn	45	204.773	751948	0.57	200	102.4	90	110	
56	Fe	45	5097.009	27059433	1.28	5000	101.9	90	110	
59	Co	72	206.228	1960898	0.62	200	103.1	90	110	
60	Ni	72	207.910	519533	0.92	200	104.0	90	110	
63	Cu	72	208.992	1435181	0.86	200	104.5	90	110	
66	Zn	72	204.423	249532	1.09	200	102.2	90	110	
75	As	72	202.936	210863	0.58	200	101.5	90	110	
78	Se	72	206.039	13803	0.53	200	103.0	90	110	
88	Sr	115	189.825	1088802	0.78	200	94.9	90	110	
95	Mo	115	192.001	829127	0.71	200	96.0	90	110	
107	Ag	115	200.159	2515488	0.75	200	100.1	90	110	
111	Cd	115	197.953	398832	0.28	200	99.0	90	110	
118	Sn	115	191.127	891627	0.16	200	95.6	90	110	
121	Sb	115	196.564	1316726	1.00	200	98.3	90	110	
137	Ba	115	196.452	456161	0.06	200	98.2	90	110	
205	Tl	209	199.722	5694954	0.36	200	99.9	90	110	
208	Pb	209	200.330	7627092	0.30	200	100.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1203877	0.91	1184753	101.61	70	120	
72	Ge	847010	0.46	840651	100.76	70	120	
115	In	8602579	2.72	8493915	101.28	70	120	
209	Bi	17922529	2.63	17861880	100.34	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 15:06	Sample Name	LCVL7-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	146LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.719	429	9.16	10	97.2	70	130	
9	Be	45	1.164	65	15.02	1	116.4	70	130	
11	B	45	-17.310	1181	6.08	20	-86.6	70	130	Fail
23	Na	45	78.146	219617	0.16	100	78.1	70	130	
24	Mg	45	106.430	47265	1.17	100	106.4	70	130	
27	Al	45	103.204	18247	1.91	100	103.2	70	130	
39	K	45	111.018	121751	0.94	100	111.0	70	130	
44	Ca	45	107.597	3145	2.55	100	107.6	70	130	
47	Ti	45	5.145	902	10.06	5	102.9	70	130	
51	V	45	1.729	15021	1.58	1	172.9	70	130	Fail
52	Cr	45	5.206	34376	1.09	5	104.1	70	130	
55	Mn	45	5.179	19188	1.15	5	103.6	70	130	
56	Fe	45	103.449	559242	1.12	100	103.4	70	130	
59	Co	72	5.101	49775	1.18	5	102.0	70	130	
60	Ni	72	5.185	13608	1.14	5	103.7	70	130	
63	Cu	72	5.073	39175	0.60	5	101.5	70	130	
66	Zn	72	5.489	7157	2.76	5	109.8	70	130	
75	As	72	5.093	5771	0.16	5	101.9	70	130	
78	Se	72	5.731	523	13.94	5	114.6	70	130	
88	Sr	115	4.936	28394	0.93	5	98.7	70	130	
95	Mo	115	4.912	21116	2.61	5	98.2	70	130	
107	Ag	115	2.131	26703	0.28	2	106.5	70	130	
111	Cd	115	0.962	1938	2.74	1	96.2	70	130	
118	Sn	115	5.034	24044	0.95	5	100.7	70	130	
121	Sb	115	2.060	14038	2.94	2	103.0	70	130	
137	Ba	115	5.142	11895	1.45	5	102.8	70	130	
205	Tl	209	1.017	28787	0.34	1	101.7	70	130	
208	Pb	209	0.961	40052	0.48	1	96.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1207834	1.04	1184753	101.95	70	120	
72	Ge	868197	0.60	840651	103.28	70	120	
115	In	8549492	1.40	8493915	100.65	70	120	
209	Bi	17710891	1.57	17861880	99.15	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 15:25	Sample Name	CCB7-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	147_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.255	30	13.3	2	5	
9	Be	45	-0.093	1	86.6	0.4	0.3	
11	B	45	-41.023	716	5.0	10	10	
23	Na	45	-32.303	119962	0.3	50	100	
24	Mg	45	-0.471	513	6.2	50	100	
27	Al	45	7.464	2111	2.2	50	10	
39	K	45	4.372	68260	0.4	50	100	
44	Ca	45	0.521	383	9.6	50	100	
47	Ti	45	-0.020	7	100.0	4	3	
51	V	45	0.689	9394	1.5	4	3	
52	Cr	45	0.042	1939	5.3	2	2	
55	Mn	45	0.033	229	9.9	2	3	
56	Fe	45	0.662	11774	3.2	50	50	
59	Co	72	0.001	68	27.1	2	3	
60	Ni	72	-0.011	302	9.4	2	3	
63	Cu	72	-0.179	2247	2.9	2	2	
66	Zn	72	0.089	400	11.7	4	2	
75	As	72	0.018	367	10.0	2	2	
78	Se	72	0.356	154	10.8	1	2	
88	Sr	115	-0.005	218	17.1	4	3	
95	Mo	115	-0.001	21	9.1	2	2	
107	Ag	115	0.012	227	9.2	0.4	1	
111	Cd	115	0.001	13	66.2	0.4	0.3	
118	Sn	115	-0.054	470	16.6	4	3	
121	Sb	115	-0.008	269	23.6	2	0.8	
137	Ba	115	0.011	52	28.8	2	3	
205	Tl	209	0.005	250	14.8	2	0.5	
208	Pb	209	-0.079	970	10.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1196582	0.50	1184753	101.00	70	120	
72	Ge	850014	0.49	840651	101.11	70	120	
115	In	8640729	0.29	8493915	101.73	70	120	
209	Bi	18149508	3.31	17861880	101.61	70	120	

Sample Report

Date Acquired	2/11/16 3:27 PM	Sample Name	1601232-27A
Data Batch	160211.b	Comment	SAMPICPMS_TSDOD
Data File Name	148SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.149	2288	3.48	2000	>RL
9	Be	45	2.446	131	14.22	2000	>RL
11	B	45	30.327	2106	0.95	2000	>RL
23	Na	45	1156.327	1182176	0.42	25000	>RL
24	Mg	45	13945.058	6102123	0.45	25000	>RL
27	Al	45	65039.072	10953665	0.68	10000	OUTCAL
39	K	45	17529.781	8760394	0.63	25000	>RL
44	Ca	45	61278.646	1579783	0.70	25000	OUTCAL
47	Ti	45	368.168	63839	0.90	2000	>RL
51	V	45	85.430	460793	0.13	2000	>RL
52	Cr	45	55.637	351175	0.35	2000	>RL
55	Mn	45	723.247	2665695	0.22	2000	>RL
56	Fe	45	54918.381	292614584	0.15	10000	OUTCAL
59	Co	72	17.815	167554	0.46	2000	>RL
60	Ni	72	35.706	88500	1.72	2000	>RL
63	Cu	72	41.782	286469	1.31	2000	>RL
66	Zn	72	379.213	457473	0.80	2000	>RL
75	As	72	16.776	17552	0.38	2000	>RL
78	Se	72	3.952	388	1.39	2000	>RL
88	Sr	115	292.258	1668548	0.87	2000	>RL
95	Mo	115	1.505	6489	3.35	2000	
107	Ag	115	0.152	1983	3.24	500	
111	Cd	115	0.711	1437	4.87	2000	>RL
118	Sn	115	4.967	23759	0.99	2000	>RL
121	Sb	115	4.608	31042	1.35	500	>RL
137	Ba	115	598.511	1383023	0.32	2000	>RL
205	Tl	209	0.553	16039	1.15	2000	
208	Pb	209	50.886	1959766	0.40	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1208447	0.48	1184753	102.00	70	120	
72	Ge	837554	0.34	840651	99.63	70	120	
115	In	8559277	2.11	8493915	100.77	70	120	
209	Bi	18094540	0.73	17861880	101.30	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 15:47	Sample Name	CCV8-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	158_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	203.017	7713	0.81	200	101.5	90	110	
9	Be	45	208.500	10037	1.13	200	104.2	90	110	
11	B	45	153.355	4243	4.99	200	76.7	90	110	Fail
23	Na	45	5107.725	4449315	1.70	5000	102.2	90	110	
24	Mg	45	5099.211	2108499	1.39	5000	102.0	90	110	
27	Al	45	4986.096	794092	1.09	5000	99.7	90	110	
39	K	45	5101.053	2453058	1.02	5000	102.0	90	110	
44	Ca	45	4989.678	121849	1.27	5000	99.8	90	110	
47	Ti	45	199.352	32657	1.31	200	99.7	90	110	
51	V	45	204.775	1035754	0.25	200	102.4	90	110	
52	Cr	45	205.725	1222422	0.74	200	102.9	90	110	
55	Mn	45	207.210	721569	0.43	200	103.6	90	110	
56	Fe	45	5215.267	26260095	1.37	5000	104.3	90	110	
59	Co	72	205.851	1905859	0.86	200	102.9	90	110	
60	Ni	72	207.642	505215	0.55	200	103.8	90	110	
63	Cu	72	207.405	1386868	1.06	200	103.7	90	110	
66	Zn	72	204.384	242939	2.56	200	102.2	90	110	
75	As	72	202.293	204674	1.15	200	101.1	90	110	
78	Se	72	202.809	13232	1.74	200	101.4	90	110	
88	Sr	115	188.587	1055394	0.97	200	94.3	90	110	
95	Mo	115	191.118	805196	0.62	200	95.6	90	110	
107	Ag	115	200.113	2453725	1.52	200	100.1	90	110	
111	Cd	115	196.216	385685	1.48	200	98.1	90	110	
118	Sn	115	190.096	865172	1.38	200	95.0	90	110	
121	Sb	115	197.692	1292121	0.20	200	98.8	90	110	
137	Ba	115	200.242	453589	1.33	200	100.1	90	110	
205	Tl	209	201.579	5694874	0.94	200	100.8	90	110	
208	Pb	209	202.401	7634188	0.76	200	101.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1141656	0.93	1184753	96.36	70	120	
72	Ge	824767	1.17	840651	98.11	70	120	
115	In	8388051	0.17	8493915	98.75	70	120	
209	Bi	17748313	0.69	17861880	99.36	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 16:00	Sample Name	LCVL8-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	160LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.650	444	4.34	10	106.5	70	130	
9	Be	45	0.953	52	22.18	1	95.3	70	130	
11	B	45	-24.110	999	6.89	20	-120.5	70	130	Fail
23	Na	45	72.493	204225	0.22	100	72.5	70	130	
24	Mg	45	105.558	44622	0.59	100	105.6	70	130	
27	Al	45	104.218	17526	1.54	100	104.2	70	130	
39	K	45	109.672	115256	0.99	100	109.7	70	130	
44	Ca	45	114.739	3168	3.79	100	114.7	70	130	
47	Ti	45	4.973	830	5.43	5	99.5	70	130	
51	V	45	1.635	13819	1.34	1	163.5	70	130	Fail
52	Cr	45	5.252	33001	1.96	5	105.0	70	130	
55	Mn	45	5.202	18345	1.10	5	104.0	70	130	
56	Fe	45	103.513	532582	0.67	100	103.5	70	130	
59	Co	72	5.097	47461	0.86	5	101.9	70	130	
60	Ni	72	5.172	12955	0.54	5	103.4	70	130	
63	Cu	72	5.030	37096	2.01	5	100.6	70	130	
66	Zn	72	5.484	6824	1.72	5	109.7	70	130	
75	As	72	5.160	5575	1.52	5	103.2	70	130	
78	Se	72	5.642	493	6.51	5	112.8	70	130	
88	Sr	115	4.744	26807	0.70	5	94.9	70	130	
95	Mo	115	4.792	20230	0.67	5	95.8	70	130	
107	Ag	115	2.092	25750	2.18	2	104.6	70	130	
111	Cd	115	0.961	1901	3.88	1	96.1	70	130	
118	Sn	115	4.953	23243	1.61	5	99.1	70	130	
121	Sb	115	2.037	13632	2.52	2	101.8	70	130	
137	Ba	115	4.839	10997	3.67	5	96.8	70	130	
205	Tl	209	0.973	27436	0.66	1	97.3	70	130	
208	Pb	209	0.923	38494	1.57	1	92.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1149553	0.72	1184753	97.03	70	120	
72	Ge	828507	0.65	840651	98.56	70	120	
115	In	8395122	0.62	8493915	98.84	70	120	
209	Bi	17637564	1.21	17861880	98.74	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 16:02	Sample Name	CCB8-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	161_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.291	28	7.1	2	5	
9	Be	45	-0.031	4	13.3	0.4	0.3	
11	B	45	-44.074	637	5.5	10	10	
23	Na	45	-36.287	112883	0.7	50	100	
24	Mg	45	-0.205	609	13.3	50	100	
27	Al	45	13.030	2947	3.2	50	10	FailAq
39	K	45	3.355	65688	1.4	50	100	
44	Ca	45	1.512	396	25.8	50	100	
47	Ti	45	-0.039	3	100.1	4	3	
51	V	45	0.648	8895	2.8	4	3	
52	Cr	45	0.056	1966	7.5	2	2	
55	Mn	45	0.039	244	7.8	2	3	
56	Fe	45	1.165	13988	2.6	50	50	
59	Co	72	0.002	73	43.8	2	3	
60	Ni	72	-0.029	252	15.8	2	3	
63	Cu	72	-0.223	1920	3.0	2	2	
66	Zn	72	0.458	840	3.4	4	2	
75	As	72	0.055	400	3.3	2	2	
78	Se	72	0.354	152	15.9	1	2	
88	Sr	115	-0.004	221	16.6	4	3	
95	Mo	115	0.002	31	32.7	2	2	
107	Ag	115	0.008	180	6.7	0.4	1	
111	Cd	115	0.007	24	67.3	0.4	0.3	
118	Sn	115	-0.044	499	6.7	4	3	
121	Sb	115	-0.008	257	3.4	2	0.8	
137	Ba	115	0.010	49	17.2	2	3	
205	Tl	209	0.002	179	13.1	2	0.5	
208	Pb	209	-0.074	1123	3.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1160013	0.62	1184753	97.91	70	120	
72	Ge	837992	0.31	840651	99.68	70	120	
115	In	8359175	2.64	8493915	98.41	70	120	
209	Bi	17367259	1.50	17861880	97.23	70	120	

Method Blank Report

Date Acquired	2/11/16 4:04 PM	Sample Name	MB-73601
Data Batch	160211.b	Comment	MBLKICPMS_TSDOD
Data File Name	162_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.433	23	16.23		
9	Be	45	-0.028	5	101.27		
11	B	45	-41.571	707	8.06		
23	Na	45	-8.562	141345	0.51		
24	Mg	45	3.385	2190	2.84		
27	Al	45	5.630	1811	5.72		
39	K	45	13.921	73161	0.72		
44	Ca	45	31.473	1177	10.49		
47	Ti	45	0.115	30	22.23		
51	V	45	0.495	8396	1.67		
52	Cr	45	0.167	2728	3.67		
55	Mn	45	0.141	628	13.54		
56	Fe	45	5.700	38474	3.80		
59	Co	72	0.005	103	21.16		
60	Ni	72	0.327	1147	4.80		
63	Cu	72	-0.092	2840	3.54		
66	Zn	72	140.258	171458	1.07		FAIL
75	As	72	0.022	370	2.62		
78	Se	72	0.377	155	4.30		
88	Sr	115	0.040	481	1.74		
95	Mo	115	0.067	314	6.73		
107	Ag	115	0.010	207	15.55		
111	Cd	115	0.004	20	28.86		
118	Sn	115	3.581	17537	5.96		
121	Sb	115	0.013	410	4.07		
137	Ba	115	0.048	140	2.38		
205	Tl	209	0.004	229	16.75		
208	Pb	209	-0.019	3355	5.55		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1200038	0.76	1184753	101.29	70	120	
72	Ge	847797	0.53	840651	100.85	70	120	
115	In	8659257	1.26	8493915	101.95	70	120	
209	Bi	18584905	0.90	17861880	104.05	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 16:06	Sample Name	LCS-73601
Data Batch	160211.b	Comment	LCS ICPMS_TSDOD
Data File Name	163_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	198.957	7951	1.96	200	99.5	80	120	
9	Be	45	205.076	10383	0.27	200	102.5	80	120	
11	B	45	152.650	4448	4.19	200	76.3	80	120	
23	Na	45	5169.229	4733542	0.87	1000	516.9	80	120	Fail
24	Mg	45	5170.923	2248551	0.74	1000	517.1	80	120	Fail
27	Al	45	1030.797	173341	1.39	1000	103.1	80	120	
39	K	45	5219.641	2638206	0.88	1000	522.0	80	120	Fail
44	Ca	45	5077.538	130394	0.92	1000	507.8	80	120	Fail
47	Ti	45	205.816	35463	2.13	200	102.9	80	120	
51	V	45	207.833	1105478	0.70	200	103.9	80	120	
52	Cr	45	206.639	1291295	0.48	200	103.3	80	120	
55	Mn	45	209.896	768705	0.58	200	104.9	80	120	
56	Fe	45	1024.951	5434037	1.05	1000	102.5	80	120	
59	Co	72	210.094	2012236	0.91	200	105.0	80	120	
60	Ni	72	212.425	534718	0.47	200	106.2	80	120	
63	Cu	72	210.868	1458596	0.93	200	105.4	80	120	
66	Zn	72	208.913	256872	0.66	200	104.5	80	120	Fail
75	As	72	205.330	214911	0.49	200	102.7	80	120	
78	Se	72	205.933	13896	1.38	200	103.0	80	120	
88	Sr	115	196.843	1117242	0.24	200	98.4	80	120	
95	Mo	115	198.883	849821	0.23	200	99.4	80	120	
107	Ag	115	204.273	2540723	1.20	200	102.1	80	120	
111	Cd	115	200.431	399615	1.19	200	100.2	80	120	
118	Sn	115	202.186	933342	1.07	200	101.1	80	120	
121	Sb	115	204.862	1358158	1.04	200	102.4	80	120	
137	Ba	115	204.702	470306	0.48	200	102.4	80	120	
205	Tl	209	203.046	5838364	0.92	200	101.5	80	120	
208	Pb	209	204.737	7859358	0.78	200	102.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1200633	0.47	1184753	101.34	70	120	
72	Ge	853217	0.42	840651	101.49	70	120	
115	In	8508932	1.66	8493915	100.18	70	120	
209	Bi	18066533	1.90	17861880	101.15	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	2/11/2016 16:08	Sample Name	LCSD-73601
Data Batch	160211.b	Comment	LCSDICPMS_TSDOD
Data File Name	164_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.017	7949	0.42	200	98.5	80	120	
9	Be	45	201.495	10299	0.40	200	100.7	80	120	
11	B	45	151.239	4463	3.50	200	75.6	80	120	
23	Na	45	5054.849	4676266	1.04	1000	505.5	80	120	Fail
24	Mg	45	5057.767	2220329	0.60	1000	505.8	80	120	Fail
27	Al	45	1010.669	171590	0.56	1000	101.1	80	120	
39	K	45	5103.861	2605787	0.47	1000	510.4	80	120	Fail
44	Ca	45	4950.905	128365	0.28	1000	495.1	80	120	Fail
47	Ti	45	199.489	34700	1.54	200	99.7	80	120	
51	V	45	204.509	1098288	0.26	200	102.3	80	120	
52	Cr	45	203.422	1283355	0.32	200	101.7	80	120	
55	Mn	45	206.584	763800	0.50	200	103.3	80	120	
56	Fe	45	1031.135	5518955	0.47	1000	103.1	80	120	
59	Co	72	208.081	1999098	0.17	200	104.0	80	120	
60	Ni	72	209.043	527837	0.93	200	104.5	80	120	
63	Cu	72	209.629	1454542	0.72	200	104.8	80	120	
66	Zn	72	206.758	255005	0.36	200	103.4	80	120	Fail
75	As	72	205.866	216136	1.14	200	102.9	80	120	
78	Se	72	202.659	13720	1.08	200	101.3	80	120	
88	Sr	115	193.877	1115680	0.28	200	96.9	80	120	
95	Mo	115	193.385	837971	0.87	200	96.7	80	120	
107	Ag	115	200.163	2524218	0.80	200	100.1	80	120	
111	Cd	115	199.052	402401	0.99	200	99.5	80	120	
118	Sn	115	200.095	936579	0.82	200	100.0	80	120	
121	Sb	115	201.413	1353941	0.84	200	100.7	80	120	
137	Ba	115	200.099	466096	0.16	200	100.0	80	120	
205	Tl	209	202.604	5780950	0.16	200	101.3	80	120	
208	Pb	209	204.483	7789756	0.13	200	102.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1212095	0.13	1184753	102.31	70	120	
72	Ge	855888	1.11	840651	101.81	70	120	
115	In	8630986	3.05	8493915	101.61	70	120	
209	Bi	17926238	0.86	17861880	100.36	70	120	

Dilution Sample (Dil) Report

Date Acquired	2/11/2016 16:14	Sample Name	1601247-16A SD
Data Batch	160211.b	Comment	SD ICPMS_TSDOD
Data File Name	167_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	10.521	480	5.26	56.3	93.5	110	90	Good
9	Be	45	0.435	29	17.16	2.3	93.8	110	90	Good
11	B	45	-30.174	969	8.32	26.8	-563.1	110	90	
23	Na	45	39.413	192398	0.45	272.5	72.3	110	90	
24	Mg	45	2048.048	931847	0.87	10135.8	101.0	110	90	Good
27	Al	45	11673.625	2043620	0.99	58711.3	99.4	110	90	Good
39	K	45	2956.786	1593080	0.62	14874.8	99.4	110	90	Good
44	Ca	45	7906.757	212143	1.26	39218.5	100.8	110	90	Good
47	Ti	45	32.572	5879	4.03	159.9	101.9	110	90	Good
51	V	45	14.951	88783	0.29	74.7	100.1	110	90	Good
52	Cr	45	10.119	67809	1.10	49.7	101.7	110	90	Good
55	Mn	45	88.108	337545	1.51	438.8	100.4	110	90	Good
56	Fe	45	11730.856	64954346	1.90	58048.6	101.0	110	90	Good
59	Co	72	3.768	36932	1.30	18.4	102.2	110	90	Good
60	Ni	72	6.652	17434	0.17	31.4	105.9	110	90	Good
63	Cu	72	5.771	44249	1.56	28.1	102.8	110	90	Good
66	Zn	72	68.473	86208	0.81	330.0	103.8	110	90	Good
75	As	72	3.168	3739	0.85	15.9	99.7	110	90	Good
78	Se	72	1.060	206	7.55	3.7	142.4	110	90	
88	Sr	115	43.077	254031	0.67	212.6	101.3	110	90	Good
95	Mo	115	0.269	1220	1.52	1.3	102.0	110	90	Good
107	Ag	115	0.040	591	17.33	0.1	156.8	110	90	
111	Cd	115	0.115	250	19.64	0.5	126.5	110	90	
118	Sn	115	0.958	5323	1.76	5.0	95.2	110	90	Good
121	Sb	115	0.506	3808	2.43	2.6	96.8	110	90	Good
137	Ba	115	79.023	188501	1.33	389.4	101.5	110	90	Good
205	Tl	209	0.100	3120	2.04	0.5	107.3	110	90	Good
208	Pb	209	25.641	1032805	0.78	131.8	97.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1255698	0.74	1184753	105.99	70	120	
72	Ge	871629	0.22	840651	103.69	70	120	
115	In	8832545	0.94	8493915	103.99	70	120	
209	Bi	18886625	0.41	17861880	105.74	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	2/11/2016 16:34	Sample Name	1601247-16A PDS
Data Batch	160211.b	Comment	PDS ICPMS_TSDOD
Data File Name	177_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	233.032	9716	0.89	56.3	200	88.4	75	125	
9	Be	45	186.430	9856	0.71	2.3	200	92.1	75	125	
11	B	45	210.177	5801	2.47	26.8	200	91.7	75	125	
23	Na	45	5058.587	4839634	1.11	272.5	5000	95.7	75	125	
24	Mg	45	14948.994	6785340	3.59	10135.8	5000	96.3	75	125	
27	Al	45	62638.825	10943228	0.87	58711.3	5000	78.6	75	125	
39	K	45	19739.673	10224495	1.23	14874.8	5000	97.3	75	125	
44	Ca	45	43402.511	1160836	0.21	39218.5	5000	83.7	75	125	
47	Ti	45	348.849	62750	0.79	159.9	200	94.5	75	125	
51	V	45	264.224	1465717	1.21	74.7	200	94.8	75	125	
52	Cr	45	239.448	1561978	1.33	49.7	200	94.9	75	125	
55	Mn	45	622.048	2378415	0.52	438.8	200	91.6	75	125	
56	Fe	45	62298.188	344346262	1.06	58048.6	5000	85.0	75	125	
59	Co	72	212.390	2074387	0.35	18.4	200	97.0	75	125	
60	Ni	72	222.594	571343	0.27	31.4	200	95.6	75	125	
63	Cu	72	216.764	1528863	0.27	28.1	200	94.3	75	125	
66	Zn	72	517.676	648606	0.62	330.0	200	93.9	75	125	
75	As	72	205.485	219311	0.41	15.9	200	94.8	75	125	
78	Se	72	192.586	13261	0.85	3.7	200	94.4	75	125	
88	Sr	115	404.125	2333787	0.53	212.6	200	95.8	75	125	
95	Mo	115	182.961	795496	0.45	1.3	200	90.8	75	125	
107	Ag	115	192.925	2441344	0.75	0.1	200	96.4	75	125	
111	Cd	115	181.437	368059	0.66	0.5	200	90.5	75	125	
118	Sn	115	193.901	910702	0.54	5.0	200	94.4	75	125	
121	Sb	115	199.906	1348421	0.79	2.6	200	98.6	75	125	
137	Ba	115	577.982	1351152	0.74	389.4	200	94.3	75	125	
205	Tl	209	188.654	5353689	0.90	0.5	200	94.1	75	125	
208	Pb	209	327.180	12393508	0.22	131.8	200	97.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1253604	0.54	1184753	105.81	70	120	
72	Ge	870038	0.52	840651	103.50	70	120	
115	In	8656868	0.84	8493915	101.92	70	120	
209	Bi	17828045	0.43	17861880	99.81	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 16:36	Sample Name	1601247-16A MS
Data Batch	160211.b	Comment	MS ICPMS_TSDOD
Data File Name	178_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	249.014	10271	1.49	56.3	200	96.4	80	120	
9	Be	45	198.166	10367	2.29	2.3	200	97.9	80	120	
11	B	45	211.862	5773	4.17	26.8	200	92.5	80	120	
23	Na	45	5258.332	4972282	2.35	272.5	1000	498.6	80	120	Fail
24	Mg	45	15394.631	6914839	1.48	10135.8	1000	525.9	80	120	Fail
27	Al	45	65149.323	11263186	1.98	58711.3	1000	643.8	80	120	Fail
39	K	45	20273.331	10388923	0.43	14874.8	1000	539.9	80	120	Fail
44	Ca	45	43489.370	1150985	1.11	39218.5	1000	427.1	80	120	Fail
47	Ti	45	365.088	64977	1.31	159.9	200	102.6	80	120	
51	V	45	276.240	1516144	1.71	74.7	200	100.8	80	120	
52	Cr	45	248.385	1603283	1.67	49.7	200	99.3	80	120	
55	Mn	45	632.093	2391442	0.88	438.8	200	96.7	80	120	
56	Fe	45	58975.358	322553401	2.11	58048.6	1000	92.7	80	120	
59	Co	72	220.271	2117466	0.69	18.4	200	100.9	80	120	
60	Ni	72	235.429	594739	1.11	31.4	200	102.0	80	120	
63	Cu	72	230.012	1596539	0.92	28.1	200	101.0	80	120	
66	Zn	72	530.251	653905	1.15	330.0	200	100.1	80	120	
75	As	72	215.753	226625	0.70	15.9	200	99.9	80	120	
78	Se	72	202.428	13712	1.34	3.7	200	99.4	80	120	
88	Sr	115	420.179	2415893	0.68	212.6	200	103.8	80	120	
95	Mo	115	179.408	776672	0.75	1.3	200	89.0	80	120	
107	Ag	115	193.510	2438335	1.05	0.1	200	96.7	80	120	
111	Cd	115	191.877	387579	1.30	0.5	200	95.7	80	120	
118	Sn	115	194.744	910625	0.62	5.0	200	94.9	80	120	
121	Sb	115	66.460	446545	1.19	2.6	200	31.9	80	120	Fail
137	Ba	115	598.240	1392461	0.74	389.4	200	104.4	80	120	
205	Tl	209	199.229	5611537	0.59	0.5	200	99.4	80	120	
208	Pb	209	335.552	12617182	1.11	131.8	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1240440	0.47	1184753	104.70	70	120	
72	Ge	856330	0.46	840651	101.87	70	120	
115	In	8620543	1.76	8493915	101.49	70	120	
209	Bi	17703928	2.74	17861880	99.12	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	2/11/2016 16:38	Sample Name	1601247-16A MSD
Data Batch	160211.b	Comment	MSD ICPMS_TSDOD
Data File Name	179_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	250.468	10211	0.78	56.3	200	97.1	80	120	
9	Be	45	193.518	10006	1.69	2.3	200	95.6	80	120	
11	B	45	223.228	5931	4.38	26.8	200	98.2	80	120	
23	Na	45	5219.076	4879203	1.41	272.5	1000	494.7	80	120	Fail
24	Mg	45	16454.009	7305128	0.87	10135.8	1000	631.8	80	120	Fail
27	Al	45	70915.295	12117908	0.91	58711.3	1000	1220.4	80	120	Fail
39	K	45	21761.929	11018079	1.57	14874.8	1000	688.7	80	120	Fail
44	Ca	45	46578.709	1218453	0.69	39218.5	1000	736.0	80	120	Fail
47	Ti	45	367.575	64669	1.31	159.9	200	103.9	80	120	
51	V	45	283.802	1539438	0.26	74.7	200	104.5	80	120	
52	Cr	45	253.854	1619579	0.86	49.7	200	102.1	80	120	
55	Mn	45	661.348	2473173	0.44	438.8	200	111.3	80	120	
56	Fe	45	65085.531	351849062	1.46	58048.6	1000	703.7	80	120	Fail
59	Co	72	223.357	2104423	0.68	18.4	200	102.5	80	120	
60	Ni	72	242.255	599791	0.49	31.4	200	105.4	80	120	
63	Cu	72	234.785	1597147	0.15	28.1	200	103.4	80	120	
66	Zn	72	560.522	677447	0.50	330.0	200	115.3	80	120	
75	As	72	215.550	221909	0.02	15.9	200	99.8	80	120	
78	Se	72	204.530	13578	1.18	3.7	200	100.4	80	120	
88	Sr	115	436.337	2448404	1.23	212.6	200	111.9	80	120	
95	Mo	115	180.182	761271	1.50	1.3	200	89.4	80	120	
107	Ag	115	195.377	2402210	1.09	0.1	200	97.6	80	120	
111	Cd	115	194.878	384103	1.20	0.5	200	97.2	80	120	
118	Sn	115	196.809	898178	0.66	5.0	200	95.9	80	120	
121	Sb	115	67.298	441234	0.64	2.6	200	32.3	80	120	Fail
137	Ba	115	669.223	1520099	0.76	389.4	200	139.9	80	120	Fail
205	Tl	209	201.983	5512263	0.37	0.5	200	100.8	80	120	
208	Pb	209	352.205	12833089	1.16	131.8	200	110.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1226107	0.43	1184753	103.49	70	120	
72	Ge	839288	0.56	840651	99.84	70	120	
115	In	8412082	1.51	8493915	99.04	70	120	
209	Bi	17154696	2.88	17861880	96.04	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 16:40	Sample Name	CCV9-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	180_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	198.301	7785	0.91	200	99.2	90	110	
9	Be	45	198.796	9888	1.43	200	99.4	90	110	
11	B	45	161.563	4538	2.68	200	80.8	90	110	Fail
23	Na	45	5067.313	4561224	0.59	5000	101.3	90	110	
24	Mg	45	5072.676	2166952	0.33	5000	101.5	90	110	
27	Al	45	5013.804	824936	0.45	5000	100.3	90	110	
39	K	45	5080.016	2524099	0.08	5000	101.6	90	110	
44	Ca	45	4981.109	125676	2.01	5000	99.6	90	110	
47	Ti	45	197.991	33510	2.23	200	99.0	90	110	
51	V	45	203.185	1061848	1.13	200	101.6	90	110	
52	Cr	45	202.478	1243037	1.07	200	101.2	90	110	
55	Mn	45	206.164	741731	1.68	200	103.1	90	110	
56	Fe	45	5140.179	26739099	1.03	5000	102.8	90	110	
59	Co	72	205.632	1937689	1.22	200	102.8	90	110	
60	Ni	72	206.659	511790	0.87	200	103.3	90	110	
63	Cu	72	208.614	1419721	1.17	200	104.3	90	110	
66	Zn	72	204.492	247367	0.59	200	102.2	90	110	
75	As	72	202.209	208226	0.57	200	101.1	90	110	
78	Se	72	201.125	13356	1.76	200	100.6	90	110	
88	Sr	115	188.617	1070633	1.05	200	94.3	90	110	
95	Mo	115	189.668	810553	0.76	200	94.8	90	110	
107	Ag	115	197.244	2453206	0.48	200	98.6	90	110	
111	Cd	115	193.791	386351	1.20	200	96.9	90	110	
118	Sn	115	189.246	873626	0.67	200	94.6	90	110	
121	Sb	115	196.132	1300116	0.59	200	98.1	90	110	
137	Ba	115	195.350	448842	0.42	200	97.7	90	110	
205	Tl	209	200.123	5550341	0.84	200	100.1	90	110	
208	Pb	209	201.643	7466089	0.05	200	100.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179477	0.42	1184753	99.55	70	120	
72	Ge	839393	0.37	840651	99.85	70	120	
115	In	8509600	1.86	8493915	100.18	70	120	
209	Bi	17426984	1.95	17861880	97.57	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 16:44	Sample Name	LCVL9-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	182LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.414	459	5.15	10	104.1	70	130	
9	Be	45	1.003	57	3.63	1	100.3	70	130	
11	B	45	-20.706	1120	9.59	20	-103.5	70	130	Fail
23	Na	45	68.980	212136	0.40	100	69.0	70	130	Fail
24	Mg	45	106.727	47547	0.85	100	106.7	70	130	
27	Al	45	105.372	18671	2.29	100	105.4	70	130	
39	K	45	112.235	122763	0.65	100	112.2	70	130	
44	Ca	45	114.259	3327	0.95	100	114.3	70	130	
47	Ti	45	5.481	963	4.50	5	109.6	70	130	
51	V	45	1.845	15686	1.20	1	184.5	70	130	Fail
52	Cr	45	5.190	34393	0.48	5	103.8	70	130	
55	Mn	45	5.101	18961	1.22	5	102.0	70	130	
56	Fe	45	104.937	569041	0.76	100	104.9	70	130	
59	Co	72	5.175	50690	0.81	5	103.5	70	130	
60	Ni	72	5.170	13623	2.86	5	103.4	70	130	
63	Cu	72	4.912	38190	0.13	5	98.2	70	130	
66	Zn	72	5.250	6885	2.16	5	105.0	70	130	
75	As	72	5.155	5860	0.95	5	103.1	70	130	
78	Se	72	5.277	494	1.30	5	105.5	70	130	
88	Sr	115	4.953	28884	0.65	5	99.1	70	130	
95	Mo	115	4.838	21082	1.39	5	96.8	70	130	
107	Ag	115	2.080	26424	1.18	2	104.0	70	130	
111	Cd	115	0.964	1969	5.23	1	96.4	70	130	
118	Sn	115	5.055	24470	2.00	5	101.1	70	130	
121	Sb	115	1.997	13806	1.56	2	99.8	70	130	
137	Ba	115	4.825	11319	4.10	5	96.5	70	130	
205	Tl	209	1.024	28727	1.18	1	102.4	70	130	
208	Pb	209	1.019	41890	1.35	1	101.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1211778	0.89	1184753	102.28	70	120	
72	Ge	871564	0.26	840651	103.68	70	120	
115	In	8667145	0.95	8493915	102.04	70	120	
209	Bi	17560794	1.64	17861880	98.31	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 16:46	Sample Name	CCB9-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	183_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.372	26	13.3	2	5	
9	Be	45	0.054	9	29.4	0.4	0.3	
11	B	45	-37.989	792	2.4	10	10	
23	Na	45	-39.360	116451	0.6	50	100	
24	Mg	45	0.392	908	11.9	50	100	
27	Al	45	8.852	2399	2.7	50	10	
39	K	45	4.566	70000	0.7	50	100	
44	Ca	45	3.373	467	9.1	50	100	
47	Ti	45	-0.002	10	88.2	4	3	
51	V	45	0.851	10497	3.8	4	3	
52	Cr	45	0.045	2005	2.4	2	2	
55	Mn	45	0.062	343	9.9	2	3	
56	Fe	45	2.603	22544	4.3	50	50	
59	Co	72	0.011	168	5.0	2	3	
60	Ni	72	-0.007	317	13.1	2	3	
63	Cu	72	-0.222	1983	11.6	2	2	
66	Zn	72	0.104	426	8.2	4	2	
75	As	72	0.054	411	4.2	2	2	
78	Se	72	0.121	141	4.6	1	2	
88	Sr	115	0.014	328	19.1	4	3	
95	Mo	115	0.015	92	36.2	2	2	
107	Ag	115	0.031	464	11.5	0.4	1	
111	Cd	115	0.011	33	78.1	0.4	0.3	
118	Sn	115	-0.005	697	7.4	4	3	
121	Sb	115	0.015	420	18.7	2	0.8	
137	Ba	115	0.019	71	11.8	2	3	
205	Tl	209	0.020	690	2.9	2	0.5	
208	Pb	209	-0.016	3348	5.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1225326	0.62	1184753	103.42	70	120	
72	Ge	863921	0.23	840651	102.77	70	120	
115	In	8644623	1.54	8493915	101.77	70	120	
209	Bi	17900248	2.47	17861880	100.21	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	2/11/2016 17:08	Sample Name	CCV10-160211
Data Batch	160211.b	Comment	CCV ICPMS_TW
Data File Name	194_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	204.370	7649	1.60	200	102.2	90	110	
9	Be	45	205.155	9728	0.71	200	102.6	90	110	
11	B	45	158.130	4266	5.06	200	79.1	90	110	Fail
23	Na	45	5088.359	4366392	0.84	5000	101.8	90	110	
24	Mg	45	5111.563	2081818	0.26	5000	102.2	90	110	
27	Al	45	4987.792	782462	0.89	5000	99.8	90	110	
39	K	45	5082.250	2407551	0.75	5000	101.6	90	110	
44	Ca	45	4914.769	118223	0.22	5000	98.3	90	110	
47	Ti	45	197.080	31805	1.16	200	98.5	90	110	
51	V	45	203.330	1013116	0.65	200	101.7	90	110	
52	Cr	45	202.566	1185536	0.79	200	101.3	90	110	
55	Mn	45	205.194	703843	0.18	200	102.6	90	110	
56	Fe	45	5156.683	25572558	1.51	5000	103.1	90	110	
59	Co	72	204.276	1852736	0.54	200	102.1	90	110	
60	Ni	72	204.057	486422	1.23	200	102.0	90	110	
63	Cu	72	206.772	1354453	1.18	200	103.4	90	110	
66	Zn	72	203.849	237357	1.27	200	101.9	90	110	
75	As	72	202.376	200582	0.30	200	101.2	90	110	
78	Se	72	204.198	13049	1.32	200	102.1	90	110	
88	Sr	115	184.801	1033797	0.71	200	92.4	90	110	
95	Mo	115	187.911	791350	0.29	200	94.0	90	110	
107	Ag	115	195.371	2394527	0.67	200	97.7	90	110	
111	Cd	115	194.095	381341	0.52	200	97.0	90	110	
118	Sn	115	188.806	858918	0.41	200	94.4	90	110	
121	Sb	115	194.767	1272482	0.51	200	97.4	90	110	
137	Ba	115	196.676	445304	0.93	200	98.3	90	110	
205	Tl	209	200.659	5621471	0.39	200	100.3	90	110	
208	Pb	209	200.640	7504673	0.56	200	100.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1124582	1.06	1184753	94.92	70	120	
72	Ge	807943	0.79	840651	96.11	70	120	
115	In	8385029	1.05	8493915	98.72	70	120	
209	Bi	17608152	2.48	17861880	98.58	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	2/11/2016 17:12	Sample Name	LCVL10-160211
Data Batch	160211.b	Comment	LCVLICPMS_TW
Data File Name	196LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.412	442	7.81	10	104.1	70	130	
9	Be	45	1.092	60	18.54	1	109.2	70	130	
11	B	45	-16.044	1168	9.42	20	-80.2	70	130	Fail
23	Na	45	64.617	200878	0.03	100	64.6	70	130	Fail
24	Mg	45	108.998	46830	0.57	100	109.0	70	130	
27	Al	45	106.902	18262	0.63	100	106.9	70	130	
39	K	45	108.965	116867	1.05	100	109.0	70	130	
44	Ca	45	114.064	3206	4.03	100	114.1	70	130	
47	Ti	45	5.150	873	4.13	5	103.0	70	130	
51	V	45	1.305	12350	1.72	1	130.5	70	130	Fail
52	Cr	45	5.154	32960	0.89	5	103.1	70	130	
55	Mn	45	5.197	18633	1.88	5	103.9	70	130	
56	Fe	45	105.527	551991	0.77	100	105.5	70	130	
59	Co	72	5.147	48344	0.30	5	102.9	70	130	
60	Ni	72	5.254	13270	2.43	5	105.1	70	130	
63	Cu	72	5.065	37653	0.36	5	101.3	70	130	
66	Zn	72	5.354	6726	1.33	5	107.1	70	130	
75	As	72	5.127	5591	2.16	5	102.5	70	130	
78	Se	72	5.500	488	6.38	5	110.0	70	130	
88	Sr	115	4.876	27353	1.12	5	97.5	70	130	
95	Mo	115	4.842	20295	1.84	5	96.8	70	130	
107	Ag	115	2.123	25949	1.53	2	106.2	70	130	
111	Cd	115	0.936	1840	1.45	1	93.6	70	130	
118	Sn	115	5.014	23354	2.12	5	100.3	70	130	
121	Sb	115	2.094	13909	0.61	2	104.7	70	130	
137	Ba	115	5.042	11377	1.18	5	100.8	70	130	
205	Tl	209	1.022	28718	0.63	1	102.2	70	130	
208	Pb	209	0.994	41022	1.72	1	99.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1169002	0.92	1184753	98.67	70	120	
72	Ge	835698	0.68	840651	99.41	70	120	
115	In	8336763	1.05	8493915	98.15	70	120	
209	Bi	17593368	1.65	17861880	98.50	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	2/11/2016 17:15	Sample Name	CCB10-160211
Data Batch	160211.b	Comment	CCB ICPMS_TW
Data File Name	197_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.314	27	31.1	2	5	
9	Be	45	-0.005	6	73.5	0.4	0.3	
11	B	45	-37.216	770	12.4	10	10	
23	Na	45	-42.693	108189	1.1	50	100	
24	Mg	45	0.269	814	5.7	50	100	
27	Al	45	15.580	3384	1.2	50	10	FailAq
39	K	45	3.691	66339	1.8	50	100	
44	Ca	45	2.784	430	8.0	50	100	
47	Ti	45	-0.013	8	65.5	4	3	
51	V	45	0.331	7333	0.7	4	3	
52	Cr	45	0.044	1911	3.7	2	2	
55	Mn	45	0.070	356	6.7	2	3	
56	Fe	45	2.687	21934	4.0	50	50	
59	Co	72	0.009	138	17.2	2	3	
60	Ni	72	-0.008	303	12.5	2	3	
63	Cu	72	-0.230	1867	7.4	2	2	
66	Zn	72	0.569	972	13.4	4	2	
75	As	72	0.000	344	11.6	2	2	
78	Se	72	0.427	157	4.8	1	2	
88	Sr	115	0.001	251	21.3	4	3	
95	Mo	115	0.008	60	34.7	2	2	
107	Ag	115	0.018	301	20.7	0.4	1	
111	Cd	115	0.007	24	28.4	0.4	0.3	
118	Sn	115	-0.003	693	16.3	4	3	
121	Sb	115	0.007	359	8.3	2	0.8	
137	Ba	115	0.016	63	5.3	2	3	
205	Tl	209	0.012	451	21.8	2	0.5	
208	Pb	209	-0.037	2531	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1168601	0.14	1184753	98.64	70	120	
72	Ge	837193	0.69	840651	99.59	70	120	
115	In	8449234	2.29	8493915	99.47	70	120	
209	Bi	17647913	1.61	17861880	98.80	70	120	

Laredo Air Force Base – Shotgun Range

Data Usability Summary Report

LAREDO, TEXAS

Polynuclear Aromatic Hydrocarbons (PAHs) and Metals Analyses

SDG #1601247

Analyses Performed By:
DHL Analytical, Inc.
Round Rock, Texas

Report #25211R
Review Level: Tier II
Project: 04285081.0000.00043

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1601247 for samples collected in association with the Laredo AFB Shotgun Range Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis			
					VOC	SVOC	MET	MISC
SGR-DU150-A	1601247-01	Soil	1/26/2016			X	X	
SGR-DU150-B	1601247-02	Soil	1/26/2016			X	X	
SGR-DU150-C	1601247-03	Soil	1/26/2016			X	X	
SGR-DU005-A	1601247-04	Soil	1/26/2016			X	X	
SGR-DU005-B	1601247-05	Soil	1/26/2016			X	X	
SGR-DU005-C	1601247-06	Soil	1/26/2016			X	X	
SGR-DU087-A	1601247-07	Soil	1/26/2016			X	X	
SGR-DU087-B	1601247-08	Soil	1/26/2016			X	X	
SGR-DU087-C	1601247-09	Soil	1/26/2016			X	X	
SGR-DU060-A	1601247-10	Soil	1/26/2016			X	X	
SGR-DU060-B	1601247-11	Soil	1/26/2016			X	X	
SGR-DU060-C	1601247-12	Soil	1/26/2016			X	X	
SGR-EB-DU087	1601247-13	Water	1/26/2016			X	X	
SGR-DU003-A	1601247-14	Soil	1/26/2016			X	X	
SGR-DU003-B	1601247-15	Soil	1/26/2016			X	X	
SGR-DU003-C	1601247-16	Soil	1/26/2016			X	X	
SGR-DU004-A	1601247-17	Soil	1/26/2016			X	X	
SGR-DU004-B	1601247-18	Soil	1/26/2016			X	X	
SGR-DU004-C	1601247-19	Soil	1/26/2016			X	X	
SGR-DU006-A	1601247-20	Soil	1/26/2016			X	X	
SGR-DU006-B	1601247-21	Soil	1/26/2016			X	X	
SGR-DU006-C	1601247-22	Soil	1/26/2016			X	X	

Note:
1. Metals analyses includes lead.
2. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on for SVOCs on sample locations SGR-DU005-A and SGR-DU060-B.
3. MS/MSD analysis was performed for metals on sample location SGR-DU003-C.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8270 SIM. Data were reviewed in accordance with Laredo Air Force Base Shotgun Range UFP-QAPP (Arcadis 2015), DOD QSM, versions 4.2 (October 2010) and 5.0 (July 2013), and EM 200-1-10, June 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound limit of detection (LOD).

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported LOD. However, the reported limit is approximate and may or may not represent the actual LOD.

  H Bias in sample result likely to be high.

  L Bias in sample result likely to be low.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the DL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires the PAH surrogate compounds exhibit recoveries within the DoD QSM established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the DoD QSM established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the DoD QSM established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample locations SGR-DU005-A and SGR-DU060-B exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the DoD QSM established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of three times the LOQ is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

7. System Performance and Overall Assessment

The Project detection limits were not met. The samples were all diluted 10 fold due to the observed color of the sample extracts. Project Action Limits were still met with the elevated detection limits.

The laboratory is not certified for compound benzo(j)fluoranthene by DoD, and the compound is not on the NELAC list. The laboratory followed the same calibration criteria as the other PAHs for this compound.

The soil samples are air dried and sub-sampled per Incremental Sampling Methodology (ISM). Therefore, all results are reported as dry weight. Percent moisture was not measured.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

PAHs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

%R Percent recovery
RPD Relative percent difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6020A. Data were reviewed in accordance with Laredo Air Force Base Shotgun Range UFP-QAPP (Arcadis 2015), DOD QSM, versions 4.2 (October 2010) and 5.0 (July 2013), and EM 200-1-10, June 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte limit of detection (LOD).

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample LOD. However, the reported limit is approximate and may or may not represent the actual LOD.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  H Bias in sample result likely to be high.

  L Bias in sample result likely to be low.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6020A	Water	180 days from collection to analysis	Cool to < 6°C
	Soil	180 days from collection to analysis	Cool to < 6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the DL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the DoD QSM established acceptance limits. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample location SGR-DU003-C exhibited recoveries within the control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the LOQ. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of one times the LOQ is applied for water matrices and two times the LOQ for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the LOQ, a control limit of three times the LOQ is applied for soil matrices.

A field duplicate was not collected for sample location associated with this SDG.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery within DoD QSM established control limits.

The LCS/LCSD analysis exhibited recoveries within the control limits.

6. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the LOQ in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

The serial dilution performed on sample location SGR-DU003-C exhibited %D within the control limit.

7. System Performance and Overall Assessment

The soil samples are air dried and sub-sampled per Incremental Sampling Methodology (ISM). Therefore, all results are reported as dry weight. Percent moisture was not measured.

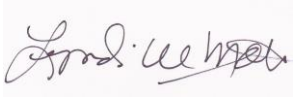
Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METALS

METALS; SW-846 6020	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Mass Spectrometry (ICP/MS)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment Blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
ICP Serial Dilution %D		X		X	
Moisture Content	X				X

%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE: 

DATE: February 22, 2016

PEER REVIEW BY: Dennis Capria

DATE: March 10, 2016

DATA QUALIFIER SUMMARY

REPORT NUMBER 25211R
ANALYTICAL DATA VALIDATION SUMMARY

Sample Delivery Group No.	Sample ID	Compound	Qualifier	Reason
PAHs				
1601247	SGR-DU150-A	None	--	--
	SGR-DU150-B	None	--	--
	SGR-DU150-C	None	--	--
	SGR-DU005-A	None	--	--
	SGR-DU005-B	None	--	--
	SGR-DU005-C	None	--	--
	SGR-DU087-A	None	--	--
	SGR-DU087-B	None	--	--
	SGR-DU087-C	None	--	--
	SGR-DU060-A	None	--	--
	SGR-DU060-B	None	--	--
	SGR-DU060-C	None	--	--
	SGR-EB-DU087	None	--	--
	SGR-DU003-A	None	--	--
	SGR-DU003-B	None	--	--
	SGR-DU003-C	None	--	--
	SGR-DU004-A	None	--	--
	SGR-DU004-B	None	--	--
	SGR-DU004-C	None	--	--
	SGR-DU006-A	None	--	--
	SGR-DU006-B	None	--	--
	SGR-DU006-C	None	--	--
Metals				
1601247	SGR-DU150-A	None	--	--
	SGR-DU150-B	None	--	--
	SGR-DU150-C	None	--	--
	SGR-DU005-A	None	--	--
	SGR-DU005-B	None	--	--
	SGR-DU005-C	None	--	--
	SGR-DU087-A	None	--	--
	SGR-DU087-B	None	--	--
	SGR-DU087-C	None	--	--
	SGR-DU060-A	None	--	--
	SGR-DU060-B	None	--	--
	SGR-DU060-C	None	--	--
	SGR-EB-DU087	None	--	--
	SGR-DU003-A	None	--	--
	SGR-DU003-B	None	--	--
	SGR-DU003-C	None	--	--
	SGR-DU004-A	None	--	--
	SGR-DU004-B	None	--	--
	SGR-DU004-C	None	--	--
	SGR-DU006-A	None	--	--
	SGR-DU006-B	None	--	--
	SGR-DU006-C	None	--	--

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

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

№ 70015

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 913-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: 1/26/2016 PAGE 1 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 1601247
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

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 8TEX ☐ 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 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU150-A	01	1/26/16	0850	soil	Bag	1				X						X													X		
SGR-DU150-B	02	1/26/16	0920	soil	Bag	1				X						X													X		
SGR-DU150-C	03	1/26/16	0945	soil	Bag	1				X						X													X		
SGR-DU005-A	04	1/26/16	0900	soil	Bag	1				X						X													X		
SGR-DU005-B	05	1/26/16	0920	soil	Bag	1				X						X													X		
SGR-DU005-C	06	1/26/16	0945	soil	Bag	1				X						X													X		
SGR-DU087-A	07	1/26/16	1110	soil	Bag	1				X						X													X		
SGR-DU087-B	08	1/26/16	1120	soil	Bag	1				X						X													X		
SGR-DU087-C	09	1/26/16	1130	soil	Bag	1				X						X													X		
SGR-DU060-A	10	1/26/16	1125	soil	Bag	1				X						X													X		
SGR-DU060-B	11	1/26/16	1150	soil	Bag	1				X						X													X		
SGR-DU060-C	12	1/26/16	1220	soil	Bag	1				X						X													X		
SGR-EB-DU087	13	1/26/16	1145	W	Glass/Poly	3		X		X						X													X		
SGR-DU003-A	14	1/26/16	1415	soil	Bag	1				X						X													X		
SGR-DU003-B	15	1/26/16	1430	soil	Bag	1				X						X													X		

RELINQUISHED BY: (Signature) DATE/TIME 1/26/16/1700 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 1/27/16 915 RECEIVED BY: (Signature) [signature]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.1.3.20 THERM #: 28
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

№ 70013

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: 1/26/16 PAGE 2 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 1601247
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU0003-C	16	1/26/16	1445	SO11	Bag	1				X						X														X		
SGR-DU0004-A	17	1/26/16	1430	SO11	Bag	1				X						X														X		
SGR-DU0004-B	18	1/26/16	1455	SO11	Bag	1				X						X														X		
SGR-DU0004-C	19	1/26/16	1515	SO11	Bag	1				X						X														X		
SGR-DU0006-A	20	1/26/16	1615	SO11	Bag	1				X						X														X		
SGR-DU0006-B	21	1/26/16	1625	SO11	Bag	1				X						X														X		
SGR-DU0006-C	22	1/26/16	1630	SO11	Bag	1				X						X														X		

RELINQUISHED BY: (Signature) DATE/TIME 1/26/16 / 1700 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 1/27/16 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: 21.1-3.20 THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **1/27/2016**

Work Order Number **1601247** Received by **JB**

Checklist completed by: Signature 1/27/2016 Date Reviewed by Initials 1/27/2016 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.1 °C 1.3.20
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-01
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 08:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.7	0.0870	0.261	0.130		mg/Kg-dry	5	02/11/16 03:29 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 03:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Fluoranthene	0.0570	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	02/10/16 07:22 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Pyrene	0.0517	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	02/10/16 07:22 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 07:22 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	02/10/16 07:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-01
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 08:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	02/10/16 07:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-02
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.3	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 03:31 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Acenaphthylene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[a]anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[a]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[b]fluoranthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[e]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[g,h,i]perylene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[j]fluoranthene	0.0780	0.0520	0.104	0.0780	NU	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[k]fluoranthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Chrysene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Dibenz[a,h]anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Fluoranthene	0.0570	0.0520	0.104	0.0780	J	mg/Kg-dry	10	02/10/16 08:02 PM
Fluorene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Indeno[1,2,3-cd]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Phenanthrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 08:02 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	02/10/16 08:02 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		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-02
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.1	0	58-133	0		%REC	10	02/10/16 08:02 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		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-03
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.9	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 03:33 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 03:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[a]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[a]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[b]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[e]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[g,h,i]perylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0963	0.0723	NU	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Chrysene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Fluoranthene	0.0529	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/10/16 11:18 PM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Indeno[1,2,3-cd]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Phenanthrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Pyrene	0.0491	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/10/16 11:18 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	02/10/16 11:18 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	02/10/16 11:18 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-03
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.2	0	58-133	0		%REC	10	02/10/16 11:18 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-04
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:00 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	32.0	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 03:35 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Anthracene	0.0657	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[a]anthracene	0.744	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[a]pyrene	0.969	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[b]fluoranthene	0.961	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[e]pyrene	0.792	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[g,h,i]perylene	0.797	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[j]fluoranthene	0.496	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[k]fluoranthene	0.450	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Chrysene	0.968	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Dibenz[a,h]anthracene	0.170	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Fluoranthene	1.32	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Indeno[1,2,3-cd]pyrene	0.644	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Phenanthrene	0.386	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Pyrene	1.21	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 11:58 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	02/10/16 11:58 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-04
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:00 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.1	0	58-133	0		%REC	10	02/10/16 11:58 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-05
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	29.0	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 03:37 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 03:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Anthracene	0.0649	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[a]anthracene	0.737	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[a]pyrene	0.999	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[b]fluoranthene	1.02	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[e]pyrene	0.826	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[g,h,i]perylene	0.824	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[j]fluoranthene	0.526	0.0487	0.0974	0.0730	N	mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[k]fluoranthene	0.469	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Chrysene	1.01	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Dibenz[a,h]anthracene	0.177	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Fluoranthene	1.38	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Indeno[1,2,3-cd]pyrene	0.669	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Phenanthrene	0.428	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Pyrene	1.27	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	02/11/16 12:38 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 12:38 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-05
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	02/11/16 12:38 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-06
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	30.2	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 03:39 PM
IS: Bismuth	98.8	0	30-120	0		%REC	5	02/11/16 03:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Anthracene	0.0575	0.0500	0.0999	0.0749	J	mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[a]anthracene	0.594	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[a]pyrene	0.784	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[b]fluoranthene	0.818	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[e]pyrene	0.665	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[g,h,i]perylene	0.665	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[j]fluoranthene	0.422	0.0500	0.0999	0.0749	N	mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[k]fluoranthene	0.382	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Chrysene	0.821	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Dibenz[a,h]anthracene	0.140	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Fluoranthene	1.13	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Indeno[1,2,3-cd]pyrene	0.537	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Phenanthrene	0.366	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Pyrene	1.03	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	02/11/16 01:19 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-06
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.9	0	58-133	0		%REC	10	02/11/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-07
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:10 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.7	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 03:41 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 03:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[a]anthracene	0.130	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[a]pyrene	0.178	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[b]fluoranthene	0.179	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[e]pyrene	0.150	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[g,h,i]perylene	0.151	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[j]fluoranthene	0.0926	0.0492	0.0984	0.0738	JN	mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[k]fluoranthene	0.0842	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	02/11/16 01:59 AM
Chrysene	0.183	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Fluoranthene	0.259	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Indeno[1,2,3-cd]pyrene	0.119	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Phenanthrene	0.0839	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	02/11/16 01:59 AM
Pyrene	0.236	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	02/11/16 01:59 AM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/11/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-07
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:10 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	02/11/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-08
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.0	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 03:43 PM
IS: Bismuth	96.5	0	30-120	0		%REC	5	02/11/16 03:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[a]anthracene	0.111	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[a]pyrene	0.152	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[b]fluoranthene	0.151	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[e]pyrene	0.130	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[g,h,i]perylene	0.133	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[j]fluoranthene	0.0810	0.0489	0.0978	0.0733	JN	mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[k]fluoranthene	0.0726	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/11/16 02:40 AM
Chrysene	0.156	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Dibenz[a,h]anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Fluoranthene	0.218	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Indeno[1,2,3-cd]pyrene	0.105	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Phenanthrene	0.0726	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/11/16 02:40 AM
Pyrene	0.198	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Naphthalene-d8	124	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Perylene-d12	123	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/11/16 02:40 AM
Surr: 2-Fluorobiphenyl	76.9	0	46-115	0		%REC	10	02/11/16 02:40 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-08
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/11/16 02:40 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-09
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:30 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.8	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 03:45 PM
IS: Bismuth	99.7	0	30-120	0		%REC	5	02/11/16 03:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Acenaphthylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[a]anthracene	0.136	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[a]pyrene	0.190	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[b]fluoranthene	0.182	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[e]pyrene	0.159	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[g,h,i]perylene	0.161	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[j]fluoranthene	0.0958	0.0483	0.0965	0.0724	JN	mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[k]fluoranthene	0.0908	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/11/16 03:20 AM
Chrysene	0.194	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Dibenz[a,h]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Fluoranthene	0.259	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Fluorene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Indeno[1,2,3-cd]pyrene	0.127	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Phenanthrene	0.0804	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/11/16 03:20 AM
Pyrene	0.238	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	02/11/16 03:20 AM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	02/11/16 03:20 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-09
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:30 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/11/16 03:20 AM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-10
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:25 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0862	0.259	0.129		mg/Kg-dry	5	02/11/16 04:16 PM
IS: Bismuth	96.1	0	30-120	0		%REC	5	02/11/16 04:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[a]anthracene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[a]pyrene	0.140	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[b]fluoranthene	0.137	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[e]pyrene	0.111	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[g,h,i]perylene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[j]fluoranthene	0.0714	0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[k]fluoranthene	0.0663	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Chrysene	0.140	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Fluoranthene	0.202	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Indeno[1,2,3-cd]pyrene	0.0854	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Phenanthrene	0.0790	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Pyrene	0.183	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
IS: Acenaphthene-d10	97.1	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Phenanthrene-d10	93.6	0	50-200	0		%REC	10	02/11/16 09:25 PM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	02/11/16 09:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-10
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:25 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.0	0	58-133	0		%REC	10	02/11/16 09:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-11
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	29.1	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:18 PM
IS: Bismuth	97.3	0	30-120	0		%REC	5	02/11/16 04:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[a]anthracene	0.113	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[a]pyrene	0.152	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[b]fluoranthene	0.147	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[e]pyrene	0.121	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[g,h,i]perylene	0.112	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[j]fluoranthene	0.0767	0.0495	0.0989	0.0742	JN	mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[k]fluoranthene	0.0716	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Chrysene	0.154	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Fluoranthene	0.215	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Indeno[1,2,3-cd]pyrene	0.0929	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Phenanthrene	0.0871	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Pyrene	0.194	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
IS: Acenaphthene-d10	91.4	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Phenanthrene-d10	90.0	0	50-200	0		%REC	10	02/11/16 10:06 PM
Surr: 2-Fluorobiphenyl	82.5	0	46-115	0		%REC	10	02/11/16 10:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-11
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	02/11/16 10:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-12
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 12:20 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 04:20 PM
IS: Bismuth	96.8	0	30-120	0		%REC	5	02/11/16 04:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[a]anthracene	0.135	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[a]pyrene	0.178	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[b]fluoranthene	0.175	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[e]pyrene	0.145	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[g,h,i]perylene	0.134	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[j]fluoranthene	0.0904	0.0498	0.0995	0.0746	JN	mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[k]fluoranthene	0.0835	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	02/11/16 10:46 PM
Chrysene	0.184	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Fluoranthene	0.274	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Indeno[1,2,3-cd]pyrene	0.110	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Phenanthrene	0.110	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Pyrene	0.245	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
IS: Acenaphthene-d10	92.0	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Phenanthrene-d10	89.4	0	50-200	0		%REC	10	02/11/16 10:46 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	02/11/16 10:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-12
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 12:20 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/11/16 10:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB-DU087
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-13
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:45 AM
Lab Order:	1601247	**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	02/11/16 12:36 PM
IS: Bismuth	101	0	30-120	0		%REC	1	02/11/16 12:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Acenaphthylene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[a]anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[a]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[b]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[e]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[g,h,i]perylene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[j]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	NU	mg/L	1	01/28/16 08:15 PM
Benzo[k]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Chrysene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Dibenz[a,h]anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Fluorene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Indeno[1,2,3-cd]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Phenanthrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
IS: Acenaphthene-d10	86.4	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Chrysene-d12	81.7	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Naphthalene-d8	85.5	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Perylene-d12	84.9	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Phenanthrene-d10	82.8	0	50-200	0		%REC	1	01/28/16 08:15 PM
Surr: 2-Fluorobiphenyl	54.9	0	53-106	0		%REC	1	01/28/16 08:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB-DU087
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-13
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:45 AM
Lab Order:	1601247	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	58.7	0	58-132	0		%REC	1	01/28/16 08:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-14
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	36.1	0.0901	0.270	0.135		mg/Kg-dry	5	02/11/16 04:22 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 04:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Acenaphthylene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Anthracene	0.0713	0.0480	0.0961	0.0720	J	mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[a]anthracene	0.808	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[a]pyrene	1.11	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[b]fluoranthene	1.12	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[e]pyrene	0.905	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[g,h,i]perylene	0.898	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[j]fluoranthene	0.571	0.0480	0.0961	0.0720	N	mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[k]fluoranthene	0.515	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Chrysene	1.11	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Dibenz[a,h]anthracene	0.188	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Fluoranthene	1.59	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Fluorene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Indeno[1,2,3-cd]pyrene	0.732	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Phenanthrene	0.532	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Pyrene	1.44	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
IS: Acenaphthene-d10	94.2	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Phenanthrene-d10	91.3	0	50-200	0		%REC	10	02/11/16 11:26 PM
Surr: 2-Fluorobiphenyl	71.4	0	46-115	0		%REC	10	02/11/16 11:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-14
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	02/11/16 11:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-15
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.8	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 04:24 PM
IS: Bismuth	99.2	0	30-120	0		%REC	5	02/11/16 04:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Anthracene	0.426	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[a]anthracene	0.644	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[a]pyrene	0.866	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[b]fluoranthene	0.874	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[e]pyrene	0.712	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[g,h,i]perylene	0.698	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[j]fluoranthene	0.449	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[k]fluoranthene	0.403	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Chrysene	0.885	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Dibenz[a,h]anthracene	0.147	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Fluoranthene	1.24	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Indeno[1,2,3-cd]pyrene	0.563	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Phenanthrene	0.410	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Pyrene	1.12	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Perylene-d12	124	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	02/12/16 12:06 AM
Surr: 2-Fluorobiphenyl	72.8	0	46-115	0		%REC	10	02/12/16 12:06 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-15
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	77.6	0	58-133	0		%REC	10	02/12/16 12:06 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-16
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:45 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	31.4	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 04:12 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Anthracene	0.0698	0.0487	0.0975	0.0731	J	mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[a]anthracene	0.796	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[a]pyrene	1.08	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[b]fluoranthene	1.09	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[e]pyrene	0.882	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[g,h,i]perylene	0.848	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[j]fluoranthene	0.561	0.0487	0.0975	0.0731	N	mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[k]fluoranthene	0.506	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Chrysene	1.10	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Dibenz[a,h]anthracene	0.178	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Fluoranthene	1.52	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Indeno[1,2,3-cd]pyrene	0.690	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Phenanthrene	0.505	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Pyrene	1.39	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
IS: Acenaphthene-d10	90.4	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Phenanthrene-d10	88.2	0	50-200	0		%REC	10	02/12/16 12:47 AM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	02/12/16 12:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-16
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:45 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/12/16 12:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-17
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.2	0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 04:26 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 04:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Anthracene	0.0573	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[a]anthracene	0.559	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[a]pyrene	0.765	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[b]fluoranthene	0.758	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[e]pyrene	0.627	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[g,h,i]perylene	0.617	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[j]fluoranthene	0.384	0.0493	0.0986	0.0740	N	mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[k]fluoranthene	0.346	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Chrysene	0.752	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Dibenz[a,h]anthracene	0.128	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Fluoranthene	1.07	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Indeno[1,2,3-cd]pyrene	0.494	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Phenanthrene	0.387	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Pyrene	0.962	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
IS: Acenaphthene-d10	95.8	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Perylene-d12	122	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	02/12/16 01:27 AM
Surr: 2-Fluorobiphenyl	73.4	0	46-115	0		%REC	10	02/12/16 01:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-17
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.3	0	58-133	0		%REC	10	02/12/16 01:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-18
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:55 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.0	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:28 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 04:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[a]anthracene	0.361	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[a]pyrene	0.491	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[b]fluoranthene	0.484	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[e]pyrene	0.406	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[g,h,i]perylene	0.389	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[j]fluoranthene	0.251	0.0482	0.0963	0.0723	N	mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[k]fluoranthene	0.226	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Chrysene	0.488	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Dibenz[a,h]anthracene	0.0823	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/12/16 02:07 AM
Fluoranthene	0.689	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Indeno[1,2,3-cd]pyrene	0.314	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Phenanthrene	0.239	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Pyrene	0.622	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
IS: Acenaphthene-d10	97.7	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Perylene-d12	124	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Phenanthrene-d10	94.1	0	50-200	0		%REC	10	02/12/16 02:07 AM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	02/12/16 02:07 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-18
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:55 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.7	0	58-133	0		%REC	10	02/12/16 02:07 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-19
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 03:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	23.6	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 04:30 PM
IS: Bismuth	99.7	0	30-120	0		%REC	5	02/11/16 04:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Anthracene	0.0585	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[a]anthracene	0.581	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[a]pyrene	0.811	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[b]fluoranthene	0.789	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[e]pyrene	0.656	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[g,h,i]perylene	0.651	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[j]fluoranthene	0.410	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[k]fluoranthene	0.372	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Chrysene	0.788	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Dibenz[a,h]anthracene	0.136	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Fluoranthene	1.08	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Indeno[1,2,3-cd]pyrene	0.527	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Phenanthrene	0.361	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Pyrene	0.983	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
IS: Acenaphthene-d10	93.3	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	10	02/12/16 02:47 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	02/12/16 02:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-19
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 03:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.2	0	58-133	0		%REC	10	02/12/16 02:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-20
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	28.5	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:32 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 04:32 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0498	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/12/16 03:28 AM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 03:28 AM
Anthracene	0.192	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[a]anthracene	1.72	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[a]pyrene	2.22	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[b]fluoranthene	2.15	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[e]pyrene	1.75	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[g,h,i]perylene	1.75	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[j]fluoranthene	1.13	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[k]fluoranthene	1.04	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Chrysene	2.21	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Dibenz[a,h]anthracene	0.378	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Fluoranthene	3.19	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 03:28 AM
Indeno[1,2,3-cd]pyrene	1.44	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Phenanthrene	1.11	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Pyrene	2.81	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Perylene-d12	123	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Phenanthrene-d10	98.1	0	50-200	0		%REC	10	02/12/16 03:28 AM
Surr: 2-Fluorobiphenyl	70.4	0	46-115	0		%REC	10	02/12/16 03:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-20
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:15 PM
Lab Order:	1601247	**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	02/12/16 03:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-21
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:25 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	33.5	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 04:48 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 04:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0591	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/12/16 06:46 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 06:46 AM
Anthracene	0.151	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[a]anthracene	1.53	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[a]pyrene	2.09	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[b]fluoranthene	2.05	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[e]pyrene	1.65	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[g,h,i]perylene	1.63	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[j]fluoranthene	1.05	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[k]fluoranthene	0.948	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Chrysene	2.02	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Dibenz[a,h]anthracene	0.351	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Fluoranthene	2.76	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 06:46 AM
Indeno[1,2,3-cd]pyrene	1.34	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Phenanthrene	0.912	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Pyrene	2.48	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
IS: Acenaphthene-d10	91.0	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Chrysene-d12	107	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Phenanthrene-d10	92.0	0	50-200	0		%REC	10	02/12/16 06:46 AM
Surr: 2-Fluorobiphenyl	71.3	0	46-115	0		%REC	10	02/12/16 06:46 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-21
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:25 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.2	0	58-133	0		%REC	10	02/12/16 06:46 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-22
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	31.6	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 04:50 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 04:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0741	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	02/12/16 07:27 AM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	02/12/16 07:27 AM
Anthracene	0.239	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[a]anthracene	2.26	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[a]pyrene	2.97	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[b]fluoranthene	2.92	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[e]pyrene	2.34	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[g,h,i]perylene	2.34	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[j]fluoranthene	1.50	0.0484	0.0968	0.0726	N	mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[k]fluoranthene	1.38	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Chrysene	2.95	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Dibenz[a,h]anthracene	0.507	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Fluoranthene	4.28	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	02/12/16 07:27 AM
Indeno[1,2,3-cd]pyrene	1.91	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Phenanthrene	1.42	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Pyrene	3.80	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
IS: Acenaphthene-d10	90.7	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Phenanthrene-d10	87.4	0	50-200	0		%REC	10	02/12/16 07:27 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	02/12/16 07:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-22
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	02/12/16 07:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

February 17, 2016

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

Order No.: 1601247

RE: Laredo Shotgun Range

Dear Alex Walter:

DHL Analytical, Inc. received 22 sample(s) on 1/27/2016 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: T104704211-15-15 & DoD-ELAP #L15-426

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GCMS6 Raw Data 92

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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

№ 70015

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 913-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: 1/26/2016 PAGE 1 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 1601247
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

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 8TEX ☐ 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 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU150-A	01	1/26/16	0850	soil	Bag	1				X						X													X		
SGR-DU150-B	02	1/26/16	0920	soil	Bag	1				X						X													X		
SGR-DU150-C	03	1/26/16	0945	soil	Bag	1				X						X													X		
SGR-DU005-A	04	1/26/16	0900	soil	Bag	1				X						X													X		
SGR-DU005-B	05	1/26/16	0920	soil	Bag	1				X						X													X		
SGR-DU005-C	06	1/26/16	0945	soil	Bag	1				X						X													X		
SGR-DU087-A	07	1/26/16	1110	soil	Bag	1				X						X													X		
SGR-DU087-B	08	1/26/16	1120	soil	Bag	1				X						X													X		
SGR-DU087-C	09	1/26/16	1130	soil	Bag	1				X						X													X		
SGR-DU060-A	10	1/26/16	1125	soil	Bag	1				X						X													X		
SGR-DU060-B	11	1/26/16	1150	soil	Bag	1				X						X													X		
SGR-DU060-C	12	1/26/16	1220	soil	Bag	1				X						X													X		
SGR-EB-DU087	13	1/26/16	1145	W	Glass/Poly	3		X		X						X													X		
SGR-DU003-A	14	1/26/16	1415	soil	Bag	1				X						X													X		
SGR-DU003-B	15	1/26/16	1430	soil	Bag	1				X						X													X		

RELINQUISHED BY: (Signature) DATE/TIME 1/26/16/1700 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 1/27/16 915 RECEIVED BY: (Signature) [signature]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.1.3.20 THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

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E-Mail: login@dhlanalytical.com

№ 70013

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 2929 Briar Park, Suite 300, Houston, TX 77042
PHONE: 713-645-3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Melissa.Osborne@arcadis.com

DATE: 1/26/16 PAGE 2 OF 2
PO #: 04285081.0000 DHL WORK ORDER #: 1601247
PROJECT LOCATION OR NAME: Laredo Shot Gun Range
CLENT PROJECT #: COLLECTOR: A. Gutierrez

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ☐	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 ☐	Lead	FIELD NOTES
SGR-DU0003-C	16	1/26/16	1445	SO11	Bag	1				X						X														X		
SGR-DU0004-A	17	1/26/16	1430	SO11	Bag	1				X						X														X		
SGR-DU0004-B	18	1/26/16	1455	SO11	Bag	1				X						X														X		
SGR-DU0004-C	19	1/26/16	1515	SO11	Bag	1				X						X														X		
SGR-DU0006-A	20	1/26/16	1615	SO11	Bag	1				X						X														X		
SGR-DU0006-B	21	1/26/16	1625	SO11	Bag	1				X						X														X		
SGR-DU0006-C	22	1/26/16	1630	SO11	Bag	1				X						X														X		

RELINQUISHED BY: (Signature) DATE/TIME 1/26/16 / 1700 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 1/27/16 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: 21.1-3.20 THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

ORIGIN ID:LRDA (915) 533-9025
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 26JAN16
ACTWGT: 77.60 LB
CAD: /POS1621
DIMS: 24x14x14 IN

BILL SENDER

TO

DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:

INV:

PO: DEPT:

FedEx Express

1 of 3

TRK# 0200 8093 9459 5130

MASTER

44 BSMA

WED - 27 JAN 10:30A
PRIORITY OVERNIGHT

78664
TX-US AUS

CUSTODY SEAL C
DATE 1/26/16
SIGNATURE

REC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 533-9025
ARCADIS
401 E MAIN DR STE 400
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TO

DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

3 of 3

MPS# 0681 7822 4675 5892

Mstr# 8093 9459 5130 0200

WED - 27 JAN 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 1/26/16
SIGNATURE

REC
Quality Environmental Containers
800-255-3959 • 304-255-3909

ORIGIN ID:LRDA (915
ARCADIS

401 E MAIN DR STE 400

EL PASO, TX 799011358
UNITED STATES US

SHIP DATE: 26JAN16
ACTWGT: 69.90 LB
CAD: /POS1621
DIMS: 24x14x13 IN

BILL SENDER

TO

DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

2 of 3

MPS# 0681 7822 4675 5881

Mstr# 8093 9459 5130 0200

44 BSMA

WED - 27 JAN 10:30A
PRIORITY OVERNIGHT

78664
TX-US AUS

CUSTODY SEAL
DATE
SIGNATURE

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **1/27/2016**

Work Order Number **1601247** Received by **JB**

Checklist completed by: Signature 1/27/2016 Date Reviewed by Initials 1/27/2016 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.1 °C 1.3.20
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo Shotgun Range	**Date:** 2/17/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1601247
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	X				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	X				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	X				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo Shotgun Range	**Date:** 2/17/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1601247

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature

02/17/16

Date

CLIENT: Arcadis
Project: Laredo Shotgun Range
Lab Order: 1601247

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 1/27/2016. A total of 22 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R10-01

For PAH Analysis, the samples were diluted due to observed color of extract; dilution meets project specifications.

An LCSD/MS/MSD are not required for Equipment Blank samples.

For all of the soil samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. This workorder included surface soil samples which are sieved to 250µ particle size as per project specs. Samples SGR-DU150-A, SGR-DU150-B, SGR-DU150-C, SGR-DU006-A, SGR-DU006-B and SGR-DU006-C were dried for an extended time, due to the moisture content. There was insufficient sample volume for these samples to perform the sub-sampling procedure as stated in the SOP. The entire sieved sample mass was used for the analysis.

A summary of project communication follows:

The bottlekit was requested from Garett Ferguson via telephone to Jennifer Barker/John DuPont on 1/11/2016. The 'ship to' address provided by G. Ferguson via email on 1/11/2016. DHL Bottle Order #6705 was sent on 1/20/2016 via Lonestar Overnight Ground to arrive by 1/21/2016. Additionally, DHL Bottle Order #6716 was sent on 2/28/2016 via Lonestar Overnight Ground to arrive by 2/29/2016.

CLIENT:	Arcadis
Project:	Laredo Shotgun Range
Lab Order:	1601247

CASE NARRATIVE

This sample delivery group arrives at DHL Analytical on and the Sample Summary was sent via email from Log-in to client on 1/27/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 2/1-2/2016 - from J. DuPont to L. Mott of Arcadis regarding request to dilute based on color of extract.

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT: Arcadis
Project: Laredo Shotgun Range
Lab Order: 1601247

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1601247-01	SGR-DU150-A		01/26/16 08:50 AM	1/27/2016
1601247-02	SGR-DU150-B		01/26/16 09:20 AM	1/27/2016
1601247-03	SGR-DU150-C		01/26/16 09:45 AM	1/27/2016
1601247-04	SGR-DU005-A		01/26/16 09:00 AM	1/27/2016
1601247-05	SGR-DU005-B		01/26/16 09:20 AM	1/27/2016
1601247-06	SGR-DU005-C		01/26/16 09:45 AM	1/27/2016
1601247-07	SGR-DU087-A		01/26/16 11:10 AM	1/27/2016
1601247-08	SGR-DU087-B		01/26/16 11:20 AM	1/27/2016
1601247-09	SGR-DU087-C		01/26/16 11:30 AM	1/27/2016
1601247-10	SGR-DU060-A		01/26/16 11:25 AM	1/27/2016
1601247-11	SGR-DU060-B		01/26/16 11:50 AM	1/27/2016
1601247-12	SGR-DU060-C		01/26/16 12:20 PM	1/27/2016
1601247-13	SGR-EB-DU087		01/26/16 11:45 AM	1/27/2016
1601247-14	SGR-DU003-A		01/26/16 02:15 PM	1/27/2016
1601247-15	SGR-DU003-B		01/26/16 02:30 PM	1/27/2016
1601247-16	SGR-DU003-C		01/26/16 02:45 PM	1/27/2016
1601247-17	SGR-DU004-A		01/26/16 02:30 PM	1/27/2016
1601247-18	SGR-DU004-B		01/26/16 02:55 PM	1/27/2016
1601247-19	SGR-DU004-C		01/26/16 03:15 PM	1/27/2016
1601247-20	SGR-DU006-A		01/26/16 04:15 PM	1/27/2016
1601247-21	SGR-DU006-B		01/26/16 04:25 PM	1/27/2016
1601247-22	SGR-DU006-C		01/26/16 04:30 PM	1/27/2016

DHL Analytical, Inc.

17-Feb-16

Lab Order: 1601247
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601247-01A	SGR-DU150-A	01/26/16 08:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU150-A	01/26/16 08:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-02A	SGR-DU150-B	01/26/16 09:20 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU150-B	01/26/16 09:20 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-03A	SGR-DU150-C	01/26/16 09:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU150-C	01/26/16 09:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-04A	SGR-DU005-A	01/26/16 09:00 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU005-A	01/26/16 09:00 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-05A	SGR-DU005-B	01/26/16 09:20 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU005-B	01/26/16 09:20 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-06A	SGR-DU005-C	01/26/16 09:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU005-C	01/26/16 09:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-07A	SGR-DU087-A	01/26/16 11:10 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU087-A	01/26/16 11:10 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-08A	SGR-DU087-B	01/26/16 11:20 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU087-B	01/26/16 11:20 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-09A	SGR-DU087-C	01/26/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/06/16 09:42 AM	73554
	SGR-DU087-C	01/26/16 11:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73600
1601247-10A	SGR-DU060-A	01/26/16 11:25 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU060-A	01/26/16 11:25 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-11A	SGR-DU060-B	01/26/16 11:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU060-B	01/26/16 11:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-12A	SGR-DU060-C	01/26/16 12:20 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU060-C	01/26/16 12:20 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-13A	SGR-EB-DU087	01/26/16 11:45 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	02/09/16 08:30 AM	73575
1601247-13B	SGR-EB-DU087	01/26/16 11:45 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	01/27/16 01:03 PM	73352
1601247-14A	SGR-DU003-A	01/26/16 02:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU003-A	01/26/16 02:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601

Lab Order: 1601247
Client: Arcadis
Project: Laredo Shotgun Range

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1601247-15A	SGR-DU003-B	01/26/16 02:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU003-B	01/26/16 02:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-16A	SGR-DU003-C	01/26/16 02:45 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU003-C	01/26/16 02:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-17A	SGR-DU004-A	01/26/16 02:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU004-A	01/26/16 02:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-18A	SGR-DU004-B	01/26/16 02:55 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU004-B	01/26/16 02:55 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-19A	SGR-DU004-C	01/26/16 03:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU004-C	01/26/16 03:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-20A	SGR-DU006-A	01/26/16 04:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU006-A	01/26/16 04:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-21A	SGR-DU006-B	01/26/16 04:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU006-B	01/26/16 04:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601
1601247-22A	SGR-DU006-C	01/26/16 04:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	02/09/16 10:41 AM	73598
	SGR-DU006-C	01/26/16 04:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	02/10/16 08:30 AM	73601

Lab Order: 1601247
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601247-01A	SGR-DU150-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 07:22 PM	GCMS6_160210A
	SGR-DU150-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:29 PM	ICP-MS4_160211F
1601247-02A	SGR-DU150-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 08:02 PM	GCMS6_160210A
	SGR-DU150-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:31 PM	ICP-MS4_160211F
1601247-03A	SGR-DU150-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 11:18 PM	GCMS6_160210A
	SGR-DU150-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:33 PM	ICP-MS4_160211F
1601247-04A	SGR-DU005-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/10/16 11:58 PM	GCMS6_160210A
	SGR-DU005-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:35 PM	ICP-MS4_160211F
1601247-05A	SGR-DU005-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/11/16 12:38 AM	GCMS6_160210A
	SGR-DU005-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:37 PM	ICP-MS4_160211F
1601247-06A	SGR-DU005-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/11/16 01:19 AM	GCMS6_160210A
	SGR-DU005-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:39 PM	ICP-MS4_160211F
1601247-07A	SGR-DU087-A	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/11/16 01:59 AM	GCMS6_160210A
	SGR-DU087-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:41 PM	ICP-MS4_160211F
1601247-08A	SGR-DU087-B	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/11/16 02:40 AM	GCMS6_160210A
	SGR-DU087-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:43 PM	ICP-MS4_160211F
1601247-09A	SGR-DU087-C	Soil	SW8270D-LL	PAHs: GC/MS	73554	10	02/11/16 03:20 AM	GCMS6_160210A
	SGR-DU087-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73600	5	02/11/16 03:45 PM	ICP-MS4_160211F
1601247-10A	SGR-DU060-A	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/11/16 09:25 PM	GCMS6_160211A
	SGR-DU060-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:16 PM	ICP-MS4_160211F
1601247-11A	SGR-DU060-B	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/11/16 10:06 PM	GCMS6_160211A
	SGR-DU060-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:18 PM	ICP-MS4_160211F
1601247-12A	SGR-DU060-C	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/11/16 10:46 PM	GCMS6_160211A
	SGR-DU060-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:20 PM	ICP-MS4_160211F
1601247-13A	SGR-EB-DU087	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	73575	1	02/11/16 12:36 PM	ICP-MS4_160211A
1601247-13B	SGR-EB-DU087	Equip Blank	SW8270D-LL	PAHs: GC/MS	73352	1	01/28/16 08:15 PM	GCMS6_160128B
1601247-14A	SGR-DU003-A	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/11/16 11:26 PM	GCMS6_160211A
	SGR-DU003-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:22 PM	ICP-MS4_160211F

Lab Order: 1601247
Client: Arcadis
Project: Laredo Shotgun Range

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1601247-15A	SGR-DU003-B	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 12:06 AM	GCMS6_160211A
	SGR-DU003-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:24 PM	ICP-MS4_160211F
1601247-16A	SGR-DU003-C	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 12:47 AM	GCMS6_160211A
	SGR-DU003-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:12 PM	ICP-MS4_160211F
1601247-17A	SGR-DU004-A	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 01:27 AM	GCMS6_160211A
	SGR-DU004-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:26 PM	ICP-MS4_160211F
1601247-18A	SGR-DU004-B	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 02:07 AM	GCMS6_160211A
	SGR-DU004-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:28 PM	ICP-MS4_160211F
1601247-19A	SGR-DU004-C	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 02:47 AM	GCMS6_160211A
	SGR-DU004-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:30 PM	ICP-MS4_160211F
1601247-20A	SGR-DU006-A	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 03:28 AM	GCMS6_160211A
	SGR-DU006-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:32 PM	ICP-MS4_160211F
1601247-21A	SGR-DU006-B	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 06:46 AM	GCMS6_160211A
	SGR-DU006-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:48 PM	ICP-MS4_160211F
1601247-22A	SGR-DU006-C	Soil	SW8270D-LL	PAHs: GC/MS	73598	10	02/12/16 07:27 AM	GCMS6_160211A
	SGR-DU006-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	73601	5	02/11/16 04:50 PM	ICP-MS4_160211F

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-01
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 08:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.7	0.0870	0.261	0.130		mg/Kg-dry	5	02/11/16 03:29 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 03:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	02/10/16 07:22 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Fluoranthene	0.0570	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	02/10/16 07:22 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	02/10/16 07:22 PM
Pyrene	0.0517	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	02/10/16 07:22 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/10/16 07:22 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/10/16 07:22 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	02/10/16 07:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-01
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 08:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	02/10/16 07:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-02
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.3	0.0885	0.265	0.133		mg/Kg-dry	5	02/11/16 03:31 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Acenaphthylene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[a]anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[a]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[b]fluoranthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[e]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[g,h,i]perylene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[j]fluoranthene	0.0780	0.0520	0.104	0.0780	NU	mg/Kg-dry	10	02/10/16 08:02 PM
Benzo[k]fluoranthene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Chrysene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Dibenz[a,h]anthracene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Fluoranthene	0.0570	0.0520	0.104	0.0780	J	mg/Kg-dry	10	02/10/16 08:02 PM
Fluorene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Indeno[1,2,3-cd]pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Phenanthrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
Pyrene	0.0780	0.0520	0.104	0.0780	U	mg/Kg-dry	10	02/10/16 08:02 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Chrysene-d12	121	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/10/16 08:02 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 08:02 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	02/10/16 08:02 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		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-02
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.1	0	58-133	0		%REC	10	02/10/16 08:02 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		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-03
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.9	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 03:33 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 03:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[a]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[a]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[b]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[e]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[g,h,i]perylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0963	0.0723	NU	mg/Kg-dry	10	02/10/16 11:18 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Chrysene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Fluoranthene	0.0529	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/10/16 11:18 PM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Indeno[1,2,3-cd]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Phenanthrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/10/16 11:18 PM
Pyrene	0.0491	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/10/16 11:18 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 11:18 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	02/10/16 11:18 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	02/10/16 11:18 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-03
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.2	0	58-133	0		%REC	10	02/10/16 11:18 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-04
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:00 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	32.0	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 03:35 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 03:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Anthracene	0.0657	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[a]anthracene	0.744	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[a]pyrene	0.969	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[b]fluoranthene	0.961	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[e]pyrene	0.792	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[g,h,i]perylene	0.797	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[j]fluoranthene	0.496	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	02/10/16 11:58 PM
Benzo[k]fluoranthene	0.450	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Chrysene	0.968	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Dibenz[a,h]anthracene	0.170	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Fluoranthene	1.32	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	02/10/16 11:58 PM
Indeno[1,2,3-cd]pyrene	0.644	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Phenanthrene	0.386	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
Pyrene	1.21	0.0490	0.0979	0.0735		mg/Kg-dry	10	02/10/16 11:58 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Perylene-d12	130	0	50-200	0		%REC	10	02/10/16 11:58 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	02/10/16 11:58 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	02/10/16 11:58 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-04
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:00 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.1	0	58-133	0		%REC	10	02/10/16 11:58 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-05
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	29.0	0.100	0.300	0.150		mg/Kg-dry	5	02/11/16 03:37 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 03:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Anthracene	0.0649	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[a]anthracene	0.737	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[a]pyrene	0.999	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[b]fluoranthene	1.02	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[e]pyrene	0.826	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[g,h,i]perylene	0.824	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[j]fluoranthene	0.526	0.0487	0.0974	0.0730	N	mg/Kg-dry	10	02/11/16 12:38 AM
Benzo[k]fluoranthene	0.469	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Chrysene	1.01	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Dibenz[a,h]anthracene	0.177	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Fluoranthene	1.38	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	02/11/16 12:38 AM
Indeno[1,2,3-cd]pyrene	0.669	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Phenanthrene	0.428	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
Pyrene	1.27	0.0487	0.0974	0.0730		mg/Kg-dry	10	02/11/16 12:38 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/11/16 12:38 AM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	02/11/16 12:38 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 12:38 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-05
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	02/11/16 12:38 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-06
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	30.2	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 03:39 PM
IS: Bismuth	98.8	0	30-120	0		%REC	5	02/11/16 03:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Anthracene	0.0575	0.0500	0.0999	0.0749	J	mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[a]anthracene	0.594	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[a]pyrene	0.784	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[b]fluoranthene	0.818	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[e]pyrene	0.665	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[g,h,i]perylene	0.665	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[j]fluoranthene	0.422	0.0500	0.0999	0.0749	N	mg/Kg-dry	10	02/11/16 01:19 AM
Benzo[k]fluoranthene	0.382	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Chrysene	0.821	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Dibenz[a,h]anthracene	0.140	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Fluoranthene	1.13	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	02/11/16 01:19 AM
Indeno[1,2,3-cd]pyrene	0.537	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Phenanthrene	0.366	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
Pyrene	1.03	0.0500	0.0999	0.0749		mg/Kg-dry	10	02/11/16 01:19 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Perylene-d12	133	0	50-200	0		%REC	10	02/11/16 01:19 AM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	02/11/16 01:19 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	02/11/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU005-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-06
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 09:45 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.9	0	58-133	0		%REC	10	02/11/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-07
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:10 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.7	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 03:41 PM
IS: Bismuth	95.8	0	30-120	0		%REC	5	02/11/16 03:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[a]anthracene	0.130	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[a]pyrene	0.178	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[b]fluoranthene	0.179	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[e]pyrene	0.150	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[g,h,i]perylene	0.151	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[j]fluoranthene	0.0926	0.0492	0.0984	0.0738	JN	mg/Kg-dry	10	02/11/16 01:59 AM
Benzo[k]fluoranthene	0.0842	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	02/11/16 01:59 AM
Chrysene	0.183	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Fluoranthene	0.259	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	02/11/16 01:59 AM
Indeno[1,2,3-cd]pyrene	0.119	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
Phenanthrene	0.0839	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	02/11/16 01:59 AM
Pyrene	0.236	0.0492	0.0984	0.0738		mg/Kg-dry	10	02/11/16 01:59 AM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Perylene-d12	129	0	50-200	0		%REC	10	02/11/16 01:59 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	02/11/16 01:59 AM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	02/11/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-07
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:10 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	02/11/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-08
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.0	0.0917	0.275	0.138		mg/Kg-dry	5	02/11/16 03:43 PM
IS: Bismuth	96.5	0	30-120	0		%REC	5	02/11/16 03:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[a]anthracene	0.111	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[a]pyrene	0.152	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[b]fluoranthene	0.151	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[e]pyrene	0.130	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[g,h,i]perylene	0.133	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[j]fluoranthene	0.0810	0.0489	0.0978	0.0733	JN	mg/Kg-dry	10	02/11/16 02:40 AM
Benzo[k]fluoranthene	0.0726	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/11/16 02:40 AM
Chrysene	0.156	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Dibenz[a,h]anthracene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Fluoranthene	0.218	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/11/16 02:40 AM
Indeno[1,2,3-cd]pyrene	0.105	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
Phenanthrene	0.0726	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/11/16 02:40 AM
Pyrene	0.198	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/11/16 02:40 AM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Naphthalene-d8	124	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Perylene-d12	123	0	50-200	0		%REC	10	02/11/16 02:40 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	02/11/16 02:40 AM
Surr: 2-Fluorobiphenyl	76.9	0	46-115	0		%REC	10	02/11/16 02:40 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-08
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:20 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/11/16 02:40 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-09
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:30 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.8	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 03:45 PM
IS: Bismuth	99.7	0	30-120	0		%REC	5	02/11/16 03:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Acenaphthylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[a]anthracene	0.136	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[a]pyrene	0.190	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[b]fluoranthene	0.182	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[e]pyrene	0.159	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[g,h,i]perylene	0.161	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[j]fluoranthene	0.0958	0.0483	0.0965	0.0724	JN	mg/Kg-dry	10	02/11/16 03:20 AM
Benzo[k]fluoranthene	0.0908	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/11/16 03:20 AM
Chrysene	0.194	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Dibenz[a,h]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Fluoranthene	0.259	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Fluorene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	02/11/16 03:20 AM
Indeno[1,2,3-cd]pyrene	0.127	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
Phenanthrene	0.0804	0.0483	0.0965	0.0724	J	mg/Kg-dry	10	02/11/16 03:20 AM
Pyrene	0.238	0.0483	0.0965	0.0724		mg/Kg-dry	10	02/11/16 03:20 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 03:20 AM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	02/11/16 03:20 AM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	02/11/16 03:20 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-09
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:30 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/11/16 03:20 AM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-10
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:25 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0862	0.259	0.129		mg/Kg-dry	5	02/11/16 04:16 PM
IS: Bismuth	96.1	0	30-120	0		%REC	5	02/11/16 04:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[a]anthracene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[a]pyrene	0.140	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[b]fluoranthene	0.137	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[e]pyrene	0.111	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[g,h,i]perylene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[j]fluoranthene	0.0714	0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	02/11/16 09:25 PM
Benzo[k]fluoranthene	0.0663	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Chrysene	0.140	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Fluoranthene	0.202	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	02/11/16 09:25 PM
Indeno[1,2,3-cd]pyrene	0.0854	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Phenanthrene	0.0790	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	02/11/16 09:25 PM
Pyrene	0.183	0.0496	0.0992	0.0744		mg/Kg-dry	10	02/11/16 09:25 PM
IS: Acenaphthene-d10	97.1	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 09:25 PM
IS: Phenanthrene-d10	93.6	0	50-200	0		%REC	10	02/11/16 09:25 PM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	02/11/16 09:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-10
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:25 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	81.0	0	58-133	0		%REC	10	02/11/16 09:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-11
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	29.1	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:18 PM
IS: Bismuth	97.3	0	30-120	0		%REC	5	02/11/16 04:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[a]anthracene	0.113	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[a]pyrene	0.152	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[b]fluoranthene	0.147	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[e]pyrene	0.121	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[g,h,i]perylene	0.112	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[j]fluoranthene	0.0767	0.0495	0.0989	0.0742	JN	mg/Kg-dry	10	02/11/16 10:06 PM
Benzo[k]fluoranthene	0.0716	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Chrysene	0.154	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Fluoranthene	0.215	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	02/11/16 10:06 PM
Indeno[1,2,3-cd]pyrene	0.0929	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Phenanthrene	0.0871	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	02/11/16 10:06 PM
Pyrene	0.194	0.0495	0.0989	0.0742		mg/Kg-dry	10	02/11/16 10:06 PM
IS: Acenaphthene-d10	91.4	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	02/11/16 10:06 PM
IS: Phenanthrene-d10	90.0	0	50-200	0		%REC	10	02/11/16 10:06 PM
Surr: 2-Fluorobiphenyl	82.5	0	46-115	0		%REC	10	02/11/16 10:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-11
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:50 AM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	02/11/16 10:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-12
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 12:20 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.3	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 04:20 PM
IS: Bismuth	96.8	0	30-120	0		%REC	5	02/11/16 04:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[a]anthracene	0.135	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[a]pyrene	0.178	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[b]fluoranthene	0.175	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[e]pyrene	0.145	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[g,h,i]perylene	0.134	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[j]fluoranthene	0.0904	0.0498	0.0995	0.0746	JN	mg/Kg-dry	10	02/11/16 10:46 PM
Benzo[k]fluoranthene	0.0835	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	02/11/16 10:46 PM
Chrysene	0.184	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Fluoranthene	0.274	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	02/11/16 10:46 PM
Indeno[1,2,3-cd]pyrene	0.110	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Phenanthrene	0.110	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
Pyrene	0.245	0.0498	0.0995	0.0746		mg/Kg-dry	10	02/11/16 10:46 PM
IS: Acenaphthene-d10	92.0	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/11/16 10:46 PM
IS: Phenanthrene-d10	89.4	0	50-200	0		%REC	10	02/11/16 10:46 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	02/11/16 10:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU060-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-12
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 12:20 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.2	0	58-133	0		%REC	10	02/11/16 10:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB-DU087
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-13
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:45 AM
Lab Order:	1601247	**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	02/11/16 12:36 PM
IS: Bismuth	101	0	30-120	0		%REC	1	02/11/16 12:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Acenaphthylene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[a]anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[a]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[b]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[e]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[g,h,i]perylene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Benzo[j]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	NU	mg/L	1	01/28/16 08:15 PM
Benzo[k]fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Chrysene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Dibenz[a,h]anthracene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Fluoranthene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Fluorene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Indeno[1,2,3-cd]pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Phenanthrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
Pyrene	0.0000670	0.0000419	0.0000838	0.0000670	U	mg/L	1	01/28/16 08:15 PM
IS: Acenaphthene-d10	86.4	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Chrysene-d12	81.7	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Naphthalene-d8	85.5	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Perylene-d12	84.9	0	50-200	0		%REC	1	01/28/16 08:15 PM
IS: Phenanthrene-d10	82.8	0	50-200	0		%REC	1	01/28/16 08:15 PM
Surr: 2-Fluorobiphenyl	54.9	0	53-106	0		%REC	1	01/28/16 08:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-EB-DU087
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-13
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 11:45 AM
Lab Order:	1601247	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	58.7	0	58-132	0		%REC	1	01/28/16 08:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-14
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	36.1	0.0901	0.270	0.135		mg/Kg-dry	5	02/11/16 04:22 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 04:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Acenaphthylene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Anthracene	0.0713	0.0480	0.0961	0.0720	J	mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[a]anthracene	0.808	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[a]pyrene	1.11	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[b]fluoranthene	1.12	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[e]pyrene	0.905	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[g,h,i]perylene	0.898	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[j]fluoranthene	0.571	0.0480	0.0961	0.0720	N	mg/Kg-dry	10	02/11/16 11:26 PM
Benzo[k]fluoranthene	0.515	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Chrysene	1.11	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Dibenz[a,h]anthracene	0.188	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Fluoranthene	1.59	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Fluorene	0.0720	0.0480	0.0961	0.0720	U	mg/Kg-dry	10	02/11/16 11:26 PM
Indeno[1,2,3-cd]pyrene	0.732	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Phenanthrene	0.532	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
Pyrene	1.44	0.0480	0.0961	0.0720		mg/Kg-dry	10	02/11/16 11:26 PM
IS: Acenaphthene-d10	94.2	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/11/16 11:26 PM
IS: Phenanthrene-d10	91.3	0	50-200	0		%REC	10	02/11/16 11:26 PM
Surr: 2-Fluorobiphenyl	71.4	0	46-115	0		%REC	10	02/11/16 11:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-14
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	02/11/16 11:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-15
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.8	0.0962	0.288	0.144		mg/Kg-dry	5	02/11/16 04:24 PM
IS: Bismuth	99.2	0	30-120	0		%REC	5	02/11/16 04:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Anthracene	0.426	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[a]anthracene	0.644	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[a]pyrene	0.866	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[b]fluoranthene	0.874	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[e]pyrene	0.712	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[g,h,i]perylene	0.698	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[j]fluoranthene	0.449	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/12/16 12:06 AM
Benzo[k]fluoranthene	0.403	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Chrysene	0.885	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Dibenz[a,h]anthracene	0.147	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Fluoranthene	1.24	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 12:06 AM
Indeno[1,2,3-cd]pyrene	0.563	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Phenanthrene	0.410	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
Pyrene	1.12	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 12:06 AM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Perylene-d12	124	0	50-200	0		%REC	10	02/12/16 12:06 AM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	02/12/16 12:06 AM
Surr: 2-Fluorobiphenyl	72.8	0	46-115	0		%REC	10	02/12/16 12:06 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-15
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	77.6	0	58-133	0		%REC	10	02/12/16 12:06 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-16
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:45 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	31.4	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 04:12 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Anthracene	0.0698	0.0487	0.0975	0.0731	J	mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[a]anthracene	0.796	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[a]pyrene	1.08	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[b]fluoranthene	1.09	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[e]pyrene	0.882	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[g,h,i]perylene	0.848	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[j]fluoranthene	0.561	0.0487	0.0975	0.0731	N	mg/Kg-dry	10	02/12/16 12:47 AM
Benzo[k]fluoranthene	0.506	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Chrysene	1.10	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Dibenz[a,h]anthracene	0.178	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Fluoranthene	1.52	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	02/12/16 12:47 AM
Indeno[1,2,3-cd]pyrene	0.690	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Phenanthrene	0.505	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
Pyrene	1.39	0.0487	0.0975	0.0731		mg/Kg-dry	10	02/12/16 12:47 AM
IS: Acenaphthene-d10	90.4	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	02/12/16 12:47 AM
IS: Phenanthrene-d10	88.2	0	50-200	0		%REC	10	02/12/16 12:47 AM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	02/12/16 12:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU003-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-16
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:45 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	02/12/16 12:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-17
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.2	0.0893	0.268	0.134		mg/Kg-dry	5	02/11/16 04:26 PM
IS: Bismuth	99.5	0	30-120	0		%REC	5	02/11/16 04:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Anthracene	0.0573	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[a]anthracene	0.559	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[a]pyrene	0.765	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[b]fluoranthene	0.758	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[e]pyrene	0.627	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[g,h,i]perylene	0.617	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[j]fluoranthene	0.384	0.0493	0.0986	0.0740	N	mg/Kg-dry	10	02/12/16 01:27 AM
Benzo[k]fluoranthene	0.346	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Chrysene	0.752	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Dibenz[a,h]anthracene	0.128	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Fluoranthene	1.07	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	02/12/16 01:27 AM
Indeno[1,2,3-cd]pyrene	0.494	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Phenanthrene	0.387	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
Pyrene	0.962	0.0493	0.0986	0.0740		mg/Kg-dry	10	02/12/16 01:27 AM
IS: Acenaphthene-d10	95.8	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Perylene-d12	122	0	50-200	0		%REC	10	02/12/16 01:27 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	02/12/16 01:27 AM
Surr: 2-Fluorobiphenyl	73.4	0	46-115	0		%REC	10	02/12/16 01:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-17
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.3	0	58-133	0		%REC	10	02/12/16 01:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-18
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:55 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.0	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:28 PM
IS: Bismuth	101	0	30-120	0		%REC	5	02/11/16 04:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[a]anthracene	0.361	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[a]pyrene	0.491	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[b]fluoranthene	0.484	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[e]pyrene	0.406	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[g,h,i]perylene	0.389	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[j]fluoranthene	0.251	0.0482	0.0963	0.0723	N	mg/Kg-dry	10	02/12/16 02:07 AM
Benzo[k]fluoranthene	0.226	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Chrysene	0.488	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Dibenz[a,h]anthracene	0.0823	0.0482	0.0963	0.0723	J	mg/Kg-dry	10	02/12/16 02:07 AM
Fluoranthene	0.689	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	02/12/16 02:07 AM
Indeno[1,2,3-cd]pyrene	0.314	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Phenanthrene	0.239	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
Pyrene	0.622	0.0482	0.0963	0.0723		mg/Kg-dry	10	02/12/16 02:07 AM
IS: Acenaphthene-d10	97.7	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Perylene-d12	124	0	50-200	0		%REC	10	02/12/16 02:07 AM
IS: Phenanthrene-d10	94.1	0	50-200	0		%REC	10	02/12/16 02:07 AM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	02/12/16 02:07 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-18
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 02:55 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.7	0	58-133	0		%REC	10	02/12/16 02:07 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-19
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 03:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	23.6	0.0980	0.294	0.147		mg/Kg-dry	5	02/11/16 04:30 PM
IS: Bismuth	99.7	0	30-120	0		%REC	5	02/11/16 04:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Anthracene	0.0585	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[a]anthracene	0.581	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[a]pyrene	0.811	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[b]fluoranthene	0.789	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[e]pyrene	0.656	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[g,h,i]perylene	0.651	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[j]fluoranthene	0.410	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/12/16 02:47 AM
Benzo[k]fluoranthene	0.372	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Chrysene	0.788	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Dibenz[a,h]anthracene	0.136	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Fluoranthene	1.08	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 02:47 AM
Indeno[1,2,3-cd]pyrene	0.527	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Phenanthrene	0.361	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
Pyrene	0.983	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 02:47 AM
IS: Acenaphthene-d10	93.3	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Perylene-d12	121	0	50-200	0		%REC	10	02/12/16 02:47 AM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	10	02/12/16 02:47 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	02/12/16 02:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-19
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 03:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.2	0	58-133	0		%REC	10	02/12/16 02:47 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-20
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:15 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	28.5	0.0935	0.280	0.140		mg/Kg-dry	5	02/11/16 04:32 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 04:32 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0498	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	02/12/16 03:28 AM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 03:28 AM
Anthracene	0.192	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[a]anthracene	1.72	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[a]pyrene	2.22	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[b]fluoranthene	2.15	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[e]pyrene	1.75	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[g,h,i]perylene	1.75	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[j]fluoranthene	1.13	0.0482	0.0964	0.0723	N	mg/Kg-dry	10	02/12/16 03:28 AM
Benzo[k]fluoranthene	1.04	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Chrysene	2.21	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Dibenz[a,h]anthracene	0.378	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Fluoranthene	3.19	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	02/12/16 03:28 AM
Indeno[1,2,3-cd]pyrene	1.44	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Phenanthrene	1.11	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
Pyrene	2.81	0.0482	0.0964	0.0723		mg/Kg-dry	10	02/12/16 03:28 AM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Perylene-d12	123	0	50-200	0		%REC	10	02/12/16 03:28 AM
IS: Phenanthrene-d10	98.1	0	50-200	0		%REC	10	02/12/16 03:28 AM
Surr: 2-Fluorobiphenyl	70.4	0	46-115	0		%REC	10	02/12/16 03:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-A
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-20
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:15 PM
Lab Order:	1601247	**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	02/12/16 03:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-21
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:25 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	33.5	0.0990	0.297	0.149		mg/Kg-dry	5	02/11/16 04:48 PM
IS: Bismuth	102	0	30-120	0		%REC	5	02/11/16 04:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0591	0.0489	0.0978	0.0733	J	mg/Kg-dry	10	02/12/16 06:46 AM
Acenaphthylene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 06:46 AM
Anthracene	0.151	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[a]anthracene	1.53	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[a]pyrene	2.09	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[b]fluoranthene	2.05	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[e]pyrene	1.65	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[g,h,i]perylene	1.63	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[j]fluoranthene	1.05	0.0489	0.0978	0.0733	N	mg/Kg-dry	10	02/12/16 06:46 AM
Benzo[k]fluoranthene	0.948	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Chrysene	2.02	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Dibenz[a,h]anthracene	0.351	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Fluoranthene	2.76	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Fluorene	0.0733	0.0489	0.0978	0.0733	U	mg/Kg-dry	10	02/12/16 06:46 AM
Indeno[1,2,3-cd]pyrene	1.34	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Phenanthrene	0.912	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
Pyrene	2.48	0.0489	0.0978	0.0733		mg/Kg-dry	10	02/12/16 06:46 AM
IS: Acenaphthene-d10	91.0	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Chrysene-d12	107	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	02/12/16 06:46 AM
IS: Phenanthrene-d10	92.0	0	50-200	0		%REC	10	02/12/16 06:46 AM
Surr: 2-Fluorobiphenyl	71.3	0	46-115	0		%REC	10	02/12/16 06:46 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-B
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-21
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:25 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.2	0	58-133	0		%REC	10	02/12/16 06:46 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: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-22
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	31.6	0.0952	0.286	0.143		mg/Kg-dry	5	02/11/16 04:50 PM
IS: Bismuth	100	0	30-120	0		%REC	5	02/11/16 04:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0741	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	02/12/16 07:27 AM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	02/12/16 07:27 AM
Anthracene	0.239	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[a]anthracene	2.26	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[a]pyrene	2.97	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[b]fluoranthene	2.92	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[e]pyrene	2.34	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[g,h,i]perylene	2.34	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[j]fluoranthene	1.50	0.0484	0.0968	0.0726	N	mg/Kg-dry	10	02/12/16 07:27 AM
Benzo[k]fluoranthene	1.38	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Chrysene	2.95	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Dibenz[a,h]anthracene	0.507	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Fluoranthene	4.28	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	02/12/16 07:27 AM
Indeno[1,2,3-cd]pyrene	1.91	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Phenanthrene	1.42	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
Pyrene	3.80	0.0484	0.0968	0.0726		mg/Kg-dry	10	02/12/16 07:27 AM
IS: Acenaphthene-d10	90.7	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	02/12/16 07:27 AM
IS: Phenanthrene-d10	87.4	0	50-200	0		%REC	10	02/12/16 07:27 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	02/12/16 07:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU006-C
Project:	Laredo Shotgun Range	**Lab ID:**	1601247-22
Project No:	04285081.0000.00043	**Collection Date:**	01/26/16 04:30 PM
Lab Order:	1601247	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	02/12/16 07:27 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160122B**

Sample ID	**DCS1-73242**	Batch ID:	**73242**	TestNo:	**SW6020A**	Units:	**mg/Kg**
SampType:	**DCS**	Run ID:	**ICP-MS4_160122B**	Analysis Date:	**1/22/2016 10:52:00 AM**	Prep Date:	**1/21/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.243	0.300	0.2500	0	97.0	80	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160202I**

Sample ID	**DCS1-73394**	Batch ID:	**73394**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**ICP-MS4_160202I**	Analysis Date:	**2/2/2016 4:05:00 PM**	Prep Date:	**1/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000440	0.00100	0.000500	0	88.0	80	120	0	0	

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211A**

The QC data in batch 73575 applies to the following samples: 1601247-13A

Sample ID	**MB-73575**	Batch ID:	**73575**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:20:00 PM**	Prep Date:	**2/9/2016**

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		105	30	120			

Sample ID	**LCS-73575**	Batch ID:	**73575**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:22:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.198	0.00100	0.200	0	98.8	88	115			
IS: Bismuth	0.200		0.200		102	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211A**

Sample ID	**ICV-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**ICV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 10:41:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0997	0.00100	0.100	0	99.7	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID	**LCVL-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 10:46:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000999	0.00100	0.00100	0	99.9	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV3-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:11:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.9	70	200			

Sample ID	**LCVL3-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:15:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000981	0.00100	0.00100	0	98.1	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV4-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:42:00 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		101	70	200			

Sample ID	**LCVL4-160211**	Batch ID:	**R84112**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211A**	Analysis Date:	**2/11/2016 12:46:00 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	70	130			
IS: Bismuth	0.200		0.200		102	70	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

The QC data in batch 73600 applies to the following samples: 1601247-01A, 1601247-02A, 1601247-03A, 1601247-04A, 1601247-05A, 1601247-06A, 1601247-07A, 1601247-08A, 1601247-09A

Sample ID **MB-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:20:00 PM** Prep Date: **2/10/2016**

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		103	30	120			

Sample ID **LCS-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:22:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.2	0.300	50.00	0	100	84	118			
IS: Bismuth	50.0		200.0		99.0	30	120			

Sample ID **LCSD-73600** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:24:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.8	0.300	50.00	0	99.6	84	118	0.768	20	
IS: Bismuth	50.0		200.0		101	30	120	0	0	

Sample ID **1601232-17A SD** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:30:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	17.9	1.40	0	18.09				1.25	10	
IS: Bismuth	234		186.9		106	30	120	0	0	

Sample ID **1601232-17A PDS** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:51:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.1	0.280	46.73	18.09	96.3	80	120			
IS: Bismuth	46.7		934.6		101	30	120			

Sample ID **1601232-17A MS** Batch ID: **73600** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 2:53:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.5	0.280	46.73	18.09	97.2	84	118			
IS: Bismuth	46.7		186.9		100	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**1601232-17A MSD**	Batch ID:	**73600**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:55:00 PM**	Prep Date:	**2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	60.5	0.252	42.02	18.09	101	84	118	4.82	20	
IS: Bismuth	42.0		168.1		98.1	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

The QC data in batch 73601 applies to the following samples: 1601247-10A, 1601247-11A, 1601247-12A, 1601247-14A, 1601247-15A, 1601247-16A, 1601247-17A, 1601247-18A, 1601247-19A, 1601247-20A, 1601247-21A, 1601247-22A

Sample ID **MB-73601** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:04:00 PM** Prep Date: **2/10/2016**

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		104	30	120			

Sample ID **LCS-73601** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:06:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.2	0.300	50.00	0	102	84	118			
IS: Bismuth	50.0		200.0		101	30	120			

Sample ID **LCSD-73601** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:08:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.1	0.300	50.00	0	102	84	118	0.124	20	
IS: Bismuth	50.0		200.0		100	30	120	0	0	

Sample ID **1601247-16A SD** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:14:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	30.5	1.43	0	31.37				2.74	10	
IS: Bismuth	238		190.5		106	30	120	0	0	

Sample ID **1601247-16A PDS** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:34:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	77.9	0.286	47.62	31.37	97.7	80	120			
IS: Bismuth	47.6		952.4		99.8	30	120			

Sample ID **1601247-16A MS** Batch ID: **73601** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160211F** Analysis Date: **2/11/2016 4:36:00 PM** Prep Date: **2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	79.9	0.286	47.62	31.37	102	84	118			
IS: Bismuth	47.6		190.5		99.1	30	120			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**1601247-16A MSD**	Batch ID:	**73601**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 4:38:00 PM**	Prep Date:	**2/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	75.3	0.256	42.74	31.37	103	84	118	5.98	20	
IS: Bismuth	42.7		170.9		96.0	30	120	0	0	

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**ICV-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**ICV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 10:41:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0997	0.00100	0.100	0	99.7	90	110			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID	**LCVL-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 10:46:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000999	0.00100	0.00100	0	99.9	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV6-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:09:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**LCVL6-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:15:00 PM**	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	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID	**CCV7-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 2:56:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		100	70	200			

Sample ID	**LCVL7-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 3:06:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000961	0.00100	0.00100	0	96.1	70	130			
IS: Bismuth	0.200		0.200		99.2	70	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160211F**

Sample ID	**CCV8-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 3:47:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		99.4	70	200			

Sample ID	**LCVL8-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 4:00:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000923	0.00100	0.00100	0	92.3	70	130			
IS: Bismuth	0.200		0.200		98.7	70	200			

Sample ID	**CCV9-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 4:40:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		97.6	70	200			

Sample ID	**LCVL9-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 4:44:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00102	0.00100	0.00100	0	102	70	130			
IS: Bismuth	0.200		0.200		98.3	70	200			

Sample ID	**CCV10-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 5:08:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		98.6	70	200			

Sample ID	**LCVL10-160211**	Batch ID:	**R84127**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCVL**	Run ID:	**ICP-MS4_160211F**	Analysis Date:	**2/11/2016 5:12:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000994	0.00100	0.00100	0	99.4	70	130			
IS: Bismuth	0.200		0.200		98.5	70	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160127A**

Sample ID	**DCS-73349**	Batch ID:	**73349**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**DCS**	Run ID:	**GCMS6_160127A**	Analysis Date:	**1/27/2016 4:31:00 PM**	Prep Date:	**1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00938	0.0100	0.01000	0	93.8	20	200	0	0	
Acenaphthylene	0.00855	0.0100	0.01000	0	85.5	20	200	0	0	
Anthracene	0.00875	0.0100	0.01000	0	87.5	20	200	0	0	
Benzo[a]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Benzo[a]pyrene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[b]fluoranthene	0.00903	0.0100	0.01000	0	90.3	20	200	0	0	
Benzo[e]pyrene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[g,h,i]perylene	0.00940	0.0100	0.01000	0	94.0	20	200	0	0	
Benzo[j]fluoranthene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	N
Benzo[k]fluoranthene	0.00922	0.0100	0.01000	0	92.2	20	200	0	0	
Chrysene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Dibenz[a,h]anthracene	0.00955	0.0100	0.01000	0	95.5	20	200	0	0	
Fluoranthene	0.0104	0.0100	0.01000	0	104	20	200	0	0	
Fluorene	0.00898	0.0100	0.01000	0	89.8	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00925	0.0100	0.01000	0	92.5	20	200	0	0	
Phenanthrene	0.00921	0.0100	0.01000	0	92.1	20	200	0	0	
Pyrene	0.0104	0.0100	0.01000	0	104	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

The QC data in batch 73352 applies to the following samples: 1601247-13B

Sample ID **LCS-73352** Batch ID: **73352** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 1:36:00 PM** Prep Date: **1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00229	0.0000500	0.00400	0	57.2	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00271	0.0000500	0.00400	0	67.8	53	119			
Benzo[a]anthracene	0.00303	0.0000500	0.00400	0	75.7	59	120			
Benzo[a]pyrene	0.00294	0.0000500	0.00400	0	73.6	53	120			
Benzo[b]fluoranthene	0.00301	0.0000500	0.00400	0	75.1	53	126			
Benzo[e]pyrene	0.00288	0.0000500	0.00400	0	71.9	40	140			
Benzo[g,h,i]perylene	0.00281	0.0000500	0.00400	0	70.2	44	128			
Benzo[j]fluoranthene	0.00299	0.0000500	0.00400	0	74.8	45	124			N
Benzo[k]fluoranthene	0.00306	0.0000500	0.00400	0	76.6	54	125			
Chrysene	0.00302	0.0000500	0.00400	0	75.5	57	120			
Dibenz[a,h]anthracene	0.00289	0.0000500	0.00400	0	72.2	44	131			
Fluoranthene	0.00289	0.0000500	0.00400	0	72.3	58	120			
Fluorene	0.00274	0.0000500	0.00400	0	68.6	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	71.0	48	130			
Phenanthrene	0.00274	0.0000500	0.00400	0	68.5	53	115			
Pyrene	0.00282	0.0000500	0.00400	0	70.5	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		81.4	50	200			
IS: Chrysene-d12	0.00800		0.00800		80.7	50	200			
IS: Naphthalene-d8	0.00800		0.00800		83.5	50	200			
IS: Perylene-d12	0.00800		0.00800		81.9	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		83.3	50	200			
Surr: 2-Fluorobiphenyl	4.32		8.000		54.0	53	106			
Surr: 4-Terphenyl-d14	5.90		8.000		73.7	58	132			

Sample ID **MB-73352** Batch ID: **73352** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 4:16:00 PM** Prep Date: **1/27/2016**

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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID	**MB-73352**	Batch ID:	**73352**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**GCMS6_160128B**	Analysis Date:	**1/28/2016 4:16:00 PM**	Prep Date:	**1/27/2016**

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		82.2	50	200			
IS: Chrysene-d12	0.00800		0.00800		80.4	50	200			
IS: Naphthalene-d8	0.00800		0.00800		81.8	50	200			
IS: Perylene-d12	0.00800		0.00800		80.9	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		80.9	50	200			
Surr: 2-Fluorobiphenyl	4.71		8.000		58.9	53	106			
Surr: 4-Terphenyl-d14	5.60		8.000		70.0	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID **ICV-160128** Batch ID: **R83871** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **ICV** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 12:53:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.87	0.0000500	2.00	0	93.7	80	120			
Acenaphthylene	1.92	0.0000500	2.00	0	95.9	80	120			
Anthracene	1.88	0.0000500	2.00	0	94.0	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	97.8	80	120			
Benzo[a]pyrene	1.92	0.0000500	2.00	0	95.8	80	120			
Benzo[b]fluoranthene	1.93	0.0000500	2.00	0	96.6	80	120			
Benzo[e]pyrene	1.87	0.0000500	2.00	0	93.5	80	120			
Benzo[g,h,i]perylene	1.78	0.0000500	2.00	0	89.1	80	120			
Benzo[j]fluoranthene	1.97	0.0000500	2.00	0	98.4	80	120			N
Benzo[k]fluoranthene	2.00	0.0000500	2.00	0	100	80	120			
Chrysene	1.93	0.0000500	2.00	0	96.3	80	120			
Dibenz[a,h]anthracene	1.84	0.0000500	2.00	0	91.8	80	120			
Fluoranthene	1.83	0.0000500	2.00	0	91.6	80	120			
Fluorene	1.93	0.0000500	2.00	0	96.7	80	120			
Indeno[1,2,3-cd]pyrene	1.82	0.0000500	2.00	0	91.0	80	120			
Phenanthrene	1.87	0.0000500	2.00	0	93.3	80	120			
Pyrene	1.81	0.0000500	2.00	0	90.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		85.7	50	200			
IS: Chrysene-d12	4.00		4.00		86.4	50	200			
IS: Naphthalene-d8	4.00		4.00		94.0	50	200			
IS: Perylene-d12	4.00		4.00		82.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		88.4	50	200			
Surr: 2-Fluorobiphenyl	1890		2000		94.3	65	120			
Surr: 4-Terphenyl-d14	1930		2000		96.5	65	120			

Sample ID **CCV1-160128** Batch ID: **R83871** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **CCV** Run ID: **GCMS6_160128B** Analysis Date: **1/28/2016 10:15:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.918	0.0000500	1.00	0	91.8	50	150			
Acenaphthylene	0.956	0.0000500	1.00	0	95.6	50	150			
Anthracene	0.932	0.0000500	1.00	0	93.2	50	150			
Benzo[a]anthracene	0.950	0.0000500	1.00	0	95.0	50	150			
Benzo[a]pyrene	0.919	0.0000500	1.00	0	91.9	50	150			
Benzo[b]fluoranthene	0.923	0.0000500	1.00	0	92.3	50	150			
Benzo[e]pyrene	0.906	0.0000500	1.00	0	90.6	50	150			
Benzo[g,h,i]perylene	0.921	0.0000500	1.00	0	92.1	50	150			
Benzo[j]fluoranthene	0.916	0.0000500	1.00	0	91.6	50	150			N
Benzo[k]fluoranthene	0.938	0.0000500	1.00	0	93.8	50	150			
Chrysene	0.933	0.0000500	1.00	0	93.3	50	150			
Dibenz[a,h]anthracene	0.926	0.0000500	1.00	0	92.6	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128B**

Sample ID	**CCV1-160128**	Batch ID:	**R83871**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**GCMS6_160128B**	Analysis Date:	**1/28/2016 10:15:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.906	0.0000500	1.00	0	90.6	50	150			
Fluorene	0.960	0.0000500	1.00	0	96.0	50	150			
Indeno[1,2,3-cd]pyrene	0.917	0.0000500	1.00	0	91.7	50	150			
Phenanthrene	0.920	0.0000500	1.00	0	92.0	50	150			
Pyrene	0.893	0.0000500	1.00	0	89.3	50	150			
IS: Acenaphthene-d10	4.00		4.00		91.9	50	200			
IS: Chrysene-d12	4.00		4.00		85.7	50	200			
IS: Naphthalene-d8	4.00		4.00		94.3	50	200			
IS: Perylene-d12	4.00		4.00		85.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		89.6	50	200			
Surr: 2-Fluorobiphenyl	924		1000		92.4	50	150			
Surr: 4-Terphenyl-d14	925		1000		92.5	50	150			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160128C**

The QC data in batch 73352 applies to the following samples: 1601247-13B

Sample ID	**DCS-73352**	Batch ID:	**73352**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**GCMS6_160128C**	Analysis Date:	**1/28/2016 3:36:00 PM**	Prep Date:	**1/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000257	0.0000500	0.0000400	0	64.2	20	170			
Acenaphthylene	0.0000243	0.0000500	0.0000400	0	60.7	20	170			
Anthracene	0.0000260	0.0000500	0.0000400	0	65.1	20	170			
Benzo[a]anthracene	0.0000260	0.0000500	0.0000400	0	64.9	20	170			
Benzo[a]pyrene	0.0000240	0.0000500	0.0000400	0	59.9	20	170			
Benzo[b]fluoranthene	0.0000244	0.0000500	0.0000400	0	61.0	20	170			
Benzo[e]pyrene	0.0000239	0.0000500	0.0000400	0	59.8	20	170			
Benzo[g,h,i]perylene	0.0000252	0.0000500	0.0000400	0	63.1	20	170			
Benzo[j]fluoranthene	0.0000241	0.0000500	0.0000400	0	60.2	20	170			N
Benzo[k]fluoranthene	0.0000247	0.0000500	0.0000400	0	61.8	20	170			
Chrysene	0.0000253	0.0000500	0.0000400	0	63.4	20	170			
Dibenz[a,h]anthracene	0.0000252	0.0000500	0.0000400	0	63.0	20	170			
Fluoranthene	0.0000258	0.0000500	0.0000400	0	64.4	20	170			
Fluorene	0.0000270	0.0000500	0.0000400	0	67.4	20	170			
Indeno[1,2,3-cd]pyrene	0.0000249	0.0000500	0.0000400	0	62.3	20	170			
Phenanthrene	0.0000274	0.0000500	0.0000400	0	68.4	20	170			
Pyrene	0.0000252	0.0000500	0.0000400	0	63.0	20	170			

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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160210A

The QC data in batch 73554 applies to the following samples: 1601247-01A, 1601247-02A, 1601247-03A, 1601247-04A, 1601247-05A, 1601247-06A, 1601247-07A, 1601247-08A, 1601247-09A

Sample ID **MB-73554** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 10:38:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		100	50	200			
IS: Chrysene-d12	4.00		4.000		115	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		123	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.4	50	200			
Surr: 2-Fluorobiphenyl	0.822		1.000		82.2	46	115			
Surr: 4-Terphenyl-d14	0.986		1.000		98.6	58	133			

Sample ID **LCS-73554** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 11:18:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.840	0.0100	1.000	0	84.0	44	111			
Acenaphthylene	0.873	0.0100	1.000	0	87.3	39	116			
Anthracene	0.842	0.0100	1.000	0	84.2	50	114			
Benzo[a]anthracene	0.896	0.0100	1.000	0	89.6	54	122			
Benzo[a]pyrene	0.811	0.0100	1.000	0	81.1	50	125			
Benzo[b]fluoranthene	0.893	0.0100	1.000	0	89.3	53	128			
Benzo[e]pyrene	0.875	0.0100	1.000	0	87.5	43	140			
Benzo[g,h,i]perylene	0.818	0.0100	1.000	0	81.8	49	127			
Benzo[j]fluoranthene	0.893	0.0100	1.000	0	89.3	45	125			N
Benzo[k]fluoranthene	0.954	0.0100	1.000	0	95.4	56	123			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **LCS-73554**	Batch ID: **73554**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 11:18:00 AM**	Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.909	0.0100	1.000	0	90.9	57	118			
Dibenz[a,h]anthracene	0.863	0.0100	1.000	0	86.3	50	129			
Fluoranthene	1.13	0.0100	1.000	0	113	55	119			
Fluorene	0.830	0.0100	1.000	0	83.0	47	114			
Indeno[1,2,3-cd]pyrene	0.844	0.0100	1.000	0	84.4	49	130			
Phenanthrene	0.879	0.0100	1.000	0	87.9	49	113			
Pyrene	1.14	0.0100	1.000	0	114	55	117			
IS: Acenaphthene-d10	4.00		4.000		95.6	50	200			
IS: Chrysene-d12	4.00		4.000		129	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		139	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.3	50	200			
Surr: 2-Fluorobiphenyl	0.884		1.000		88.4	46	115			
Surr: 4-Terphenyl-d14	1.07		1.000		107	58	133			

Sample ID **SB-160210**	Batch ID: **73554**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 10:38:00 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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **1601247-04AMS** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 4:01:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.807	0.0992	0.9921	0	81.4	44	111			
Acenaphthylene	0.776	0.0992	0.9921	0	78.2	39	116			
Anthracene	0.841	0.0992	0.9921	0.06572	78.2	50	114			
Benzo[a]anthracene	1.60	0.0992	0.9921	0.7439	86.4	54	122			
Benzo[a]pyrene	1.81	0.0992	0.9921	0.9686	85.3	50	125			
Benzo[b]fluoranthene	1.77	0.0992	0.9921	0.9612	81.1	53	128			
Benzo[e]pyrene	1.60	0.0992	0.9921	0.7923	81.7	43	140			
Benzo[g,h,i]perylene	1.65	0.0992	0.9921	0.7974	85.7	49	127			
Benzo[j]fluoranthene	1.28	0.0992	0.9921	0.4958	79.5	45	125			N
Benzo[k]fluoranthene	1.23	0.0992	0.9921	0.4500	78.6	56	123			
Chrysene	1.84	0.0992	0.9921	0.9679	88.0	57	118			
Dibenz[a,h]anthracene	0.969	0.0992	0.9921	0.1704	80.5	50	129			
Fluoranthene	2.27	0.0992	0.9921	1.324	95.8	55	119			
Fluorene	0.745	0.0992	0.9921	0	75.1	47	114			
Indeno[1,2,3-cd]pyrene	1.47	0.0992	0.9921	0.6445	83.5	49	130			
Phenanthrene	1.19	0.0992	0.9921	0.3864	81.3	49	113			
Pyrene	2.17	0.0992	0.9921	1.208	96.8	55	117			
IS: Acenaphthene-d10	39.7		3.968		105	50	200			
IS: Chrysene-d12	39.7		3.968		107	50	200			
IS: Naphthalene-d8	39.7		3.968		119	50	200			
IS: Perylene-d12	39.7		3.968		124	50	200			
IS: Phenanthrene-d10	39.7		3.968		97.7	50	200			
Surr: 2-Fluorobiphenyl	0.739		0.9921		74.5	46	115			
Surr: 4-Terphenyl-d14	0.795		0.9921		80.1	58	133			

Sample ID **1601247-04AMSD** Batch ID: **73554** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 4:41:00 AM** Prep Date: **2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.815	0.0988	0.9881	0	82.5	44	111	0.995	20	
Acenaphthylene	0.788	0.0988	0.9881	0	79.8	39	116	1.53	20	
Anthracene	0.863	0.0988	0.9881	0.06572	80.6	50	114	2.50	20	
Benzo[a]anthracene	1.62	0.0988	0.9881	0.7439	88.6	54	122	1.17	20	
Benzo[a]pyrene	1.84	0.0988	0.9881	0.9686	87.7	50	125	1.11	20	
Benzo[b]fluoranthene	1.81	0.0988	0.9881	0.9612	85.5	53	128	2.26	20	
Benzo[e]pyrene	1.62	0.0988	0.9881	0.7923	83.8	43	140	1.07	20	
Benzo[g,h,i]perylene	1.66	0.0988	0.9881	0.7974	87.5	49	127	0.854	20	
Benzo[j]fluoranthene	1.33	0.0988	0.9881	0.4958	84.1	45	125	3.27	20	N
Benzo[k]fluoranthene	1.24	0.0988	0.9881	0.4500	80.2	56	123	1.05	20	
Chrysene	1.83	0.0988	0.9881	0.9679	87.7	57	118	0.374	20	
Dibenz[a,h]anthracene	1.00	0.0988	0.9881	0.1704	84.0	50	129	3.22	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID	**1601247-04AMSD**	Batch ID:	**73554**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**GCMS6_160210A**	Analysis Date:	**2/11/2016 4:41:00 AM**	Prep Date:	**2/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.32	0.0988	0.9881	1.324	101	55	119	2.01	20	
Fluorene	0.754	0.0988	0.9881	0	76.3	47	114	1.10	20	
Indeno[1,2,3-cd]pyrene	1.51	0.0988	0.9881	0.6445	87.1	49	130	2.19	20	
Phenanthrene	1.23	0.0988	0.9881	0.3864	84.9	49	113	2.65	20	
Pyrene	2.21	0.0988	0.9881	1.208	102	55	117	2.04	20	
IS: Acenaphthene-d10	39.5		3.953		105	50	200	0	0	
IS: Chrysene-d12	39.5		3.953		109	50	200	0	0	
IS: Naphthalene-d8	39.5		3.953		117	50	200	0	0	
IS: Perylene-d12	39.5		3.953		125	50	200	0	0	
IS: Phenanthrene-d10	39.5		3.953		98.9	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.743		0.9881		75.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.808		0.9881		81.7	58	133	0	0	

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **ICV-160210**	Batch ID: **R84109**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 9:28:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.12	0.0100	2.000	0	106	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	105	80	120			
Anthracene	2.07	0.0100	2.000	0	103	80	120			
Benzo[a]anthracene	2.23	0.0100	2.000	0	111	80	120			
Benzo[a]pyrene	2.21	0.0100	2.000	0	110	80	120			
Benzo[b]fluoranthene	2.15	0.0100	2.000	0	108	80	120			
Benzo[e]pyrene	2.15	0.0100	2.000	0	107	80	120			
Benzo[g,h,i]perylene	2.00	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.22	0.0100	2.000	0	111	80	120			N
Benzo[k]fluoranthene	2.34	0.0100	2.000	0	117	80	120			
Chrysene	2.25	0.0100	2.000	0	112	80	120			
Dibenz[a,h]anthracene	2.16	0.0100	2.000	0	108	80	120			
Fluoranthene	2.36	0.0100	2.000	0	118	80	120			
Fluorene	2.00	0.0100	2.000	0	100	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0100	2.000	0	106	80	120			
Phenanthrene	2.12	0.0100	2.000	0	106	80	120			
Pyrene	2.36	0.0100	2.000	0	118	80	120			
IS: Acenaphthene-d10	4.00		4.000		126	50	200			
IS: Chrysene-d12	4.00		4.000		130	50	200			
IS: Naphthalene-d8	4.00		4.000		144	50	200			
IS: Perylene-d12	4.00		4.000		143	50	200			
IS: Phenanthrene-d10	4.00		4.000		113	50	200			
Surr: 2-Fluorobiphenyl	2.19		2.000		110	65	120			
Surr: 4-Terphenyl-d14	2.33		2.000		117	65	120			

Sample ID **ICV2-160210**	Batch ID: **R84109**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160210A**	Analysis Date: **2/10/2016 9:17:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	96.8	80	120			
Acenaphthylene	1.94	0.0100	2.000	0	97.0	80	120			
Anthracene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[a]anthracene	2.07	0.0100	2.000	0	104	80	120			
Benzo[a]pyrene	2.07	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.05	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	1.88	0.0100	2.000	0	94.1	80	120			
Benzo[j]fluoranthene	2.08	0.0100	2.000	0	104	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.08	0.0100	2.000	0	104	80	120			
Dibenz[a,h]anthracene	2.04	0.0100	2.000	0	102	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160210A**

Sample ID **ICV2-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160210A** Analysis Date: **2/10/2016 9:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.17	0.0100	2.000	0	109	80	120			
Fluorene	1.78	0.0100	2.000	0	89.2	80	120			
Indeno[1,2,3-cd]pyrene	2.00	0.0100	2.000	0	100	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.5	80	120			
Pyrene	2.16	0.0100	2.000	0	108	80	120			
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		138	50	200			
IS: Perylene-d12	4.00		4.000		129	50	200			
IS: Phenanthrene-d10	4.00		4.000		104	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	2.10		2.000		105	65	120			

Sample ID **CCV1-160210** Batch ID: **R84109** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160210A** Analysis Date: **2/11/2016 5:20:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.941	0.0100	1.000	0	94.1	50	150			
Acenaphthylene	0.984	0.0100	1.000	0	98.4	50	150			
Anthracene	0.914	0.0100	1.000	0	91.4	50	150			
Benzo[a]anthracene	0.978	0.0100	1.000	0	97.8	50	150			
Benzo[a]pyrene	0.974	0.0100	1.000	0	97.4	50	150			
Benzo[b]fluoranthene	0.981	0.0100	1.000	0	98.1	50	150			
Benzo[e]pyrene	0.971	0.0100	1.000	0	97.1	50	150			
Benzo[g,h,i]perylene	0.901	0.0100	1.000	0	90.1	50	150			
Benzo[j]fluoranthene	0.973	0.0100	1.000	0	97.3	50	150			N
Benzo[k]fluoranthene	0.933	0.0100	1.000	0	93.3	50	150			
Chrysene	0.990	0.0100	1.000	0	99.0	50	150			
Dibenz[a,h]anthracene	0.951	0.0100	1.000	0	95.1	50	150			
Fluoranthene	1.09	0.0100	1.000	0	109	50	150			
Fluorene	0.899	0.0100	1.000	0	89.9	50	150			
Indeno[1,2,3-cd]pyrene	0.929	0.0100	1.000	0	92.9	50	150			
Phenanthrene	0.937	0.0100	1.000	0	93.7	50	150			
Pyrene	1.10	0.0100	1.000	0	110	50	150			
IS: Acenaphthene-d10	4.00		4.000		111	50	200			
IS: Chrysene-d12	4.00		4.000		120	50	200			
IS: Naphthalene-d8	4.00		4.000		138	50	200			
IS: Perylene-d12	4.00		4.000		133	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.02		1.000		102	50	150			
Surr: 4-Terphenyl-d14	1.05		1.000		105	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

The QC data in batch 73598 applies to the following samples: 1601247-10A, 1601247-11A, 1601247-12A, 1601247-14A, 1601247-15A, 1601247-16A, 1601247-17A, 1601247-18A, 1601247-19A, 1601247-20A, 1601247-21A, 1601247-22A

Sample ID **LCS-73598** Batch ID: **73598** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160211A** Analysis Date: **2/11/2016 6:44:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.847	0.0100	1.000	0	84.7	44	111			
Acenaphthylene	0.871	0.0100	1.000	0	87.1	39	116			
Anthracene	0.855	0.0100	1.000	0	85.5	50	114			
Benzo[a]anthracene	0.918	0.0100	1.000	0	91.8	54	122			
Benzo[a]pyrene	0.880	0.0100	1.000	0	88.0	50	125			
Benzo[b]fluoranthene	0.928	0.0100	1.000	0	92.8	53	128			
Benzo[e]pyrene	0.930	0.0100	1.000	0	93.0	43	140			
Benzo[g,h,i]perylene	0.840	0.0100	1.000	0	84.0	49	127			
Benzo[j]fluoranthene	0.911	0.0100	1.000	0	91.1	45	125			N
Benzo[k]fluoranthene	0.938	0.0100	1.000	0	93.8	56	123			
Chrysene	0.935	0.0100	1.000	0	93.5	57	118			
Dibenz[a,h]anthracene	0.888	0.0100	1.000	0	88.8	50	129			
Fluoranthene	1.07	0.0100	1.000	0	107	55	119			
Fluorene	0.838	0.0100	1.000	0	83.8	47	114			
Indeno[1,2,3-cd]pyrene	0.874	0.0100	1.000	0	87.4	49	130			
Phenanthrene	0.872	0.0100	1.000	0	87.2	49	113			
Pyrene	1.08	0.0100	1.000	0	108	55	117			
IS: Acenaphthene-d10	4.00		4.000		84.6	50	200			
IS: Chrysene-d12	4.00		4.000		107	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		115	50	200			
IS: Phenanthrene-d10	4.00		4.000		87.4	50	200			
Surr: 2-Fluorobiphenyl	0.858		1.000		85.8	46	115			
Surr: 4-Terphenyl-d14	0.984		1.000		98.4	58	133			

Sample ID **MB-73598** Batch ID: **73598** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160211A** Analysis Date: **2/11/2016 8:05:00 PM** Prep Date: **2/9/2016**

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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

Sample ID	**MB-73598**	Batch ID:	**73598**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MBLK**	Run ID:	**GCMS6_160211A**	Analysis Date:	**2/11/2016 8:05:00 PM**	Prep Date:	**2/9/2016**

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		79.9	50	200			
IS: Chrysene-d12	4.00		4.000		97.9	50	200			
IS: Naphthalene-d8	4.00		4.000		101	50	200			
IS: Perylene-d12	4.00		4.000		104	50	200			
IS: Phenanthrene-d10	4.00		4.000		80.3	50	200			
Surr: 2-Fluorobiphenyl	0.886		1.000		88.6	46	115			
Surr: 4-Terphenyl-d14	1.02		1.000		102	58	133			

Sample ID	**SBLK2-160211**	Batch ID:	**73598**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160211A**	Analysis Date:	**2/12/2016 6:06:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

Sample ID	**SBLK2-160211**	Batch ID:	**73598**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**SBLK**	Run ID:	**GCMS6_160211A**	Analysis Date:	**2/12/2016 6:06:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.000730		0							
Surr: 4-Terphenyl-d14	0.000810		0							

Sample ID	**1601247-11AMS**	Batch ID:	**73598**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MS**	Run ID:	**GCMS6_160211A**	Analysis Date:	**2/12/2016 1:29:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.806	0.0984	0.9843	0	81.9	44	111			
Acenaphthylene	0.791	0.0984	0.9843	0	80.3	39	116			
Anthracene	0.800	0.0984	0.9843	0	81.3	50	114			
Benzo[a]anthracene	0.877	0.0984	0.9843	0.1131	77.6	54	122			
Benzo[a]pyrene	0.926	0.0984	0.9843	0.1520	78.6	50	125			
Benzo[b]fluoranthene	0.939	0.0984	0.9843	0.1473	80.4	53	128			
Benzo[e]pyrene	0.917	0.0984	0.9843	0.1215	80.8	43	140			
Benzo[g,h,i]perylene	0.851	0.0984	0.9843	0.1125	75.0	49	127			
Benzo[j]fluoranthene	0.884	0.0984	0.9843	0.07666	82.1	45	125			N
Benzo[k]fluoranthene	0.823	0.0984	0.9843	0.07161	76.3	56	123			
Chrysene	0.957	0.0984	0.9843	0.1539	81.6	57	118			
Dibenz[a,h]anthracene	0.774	0.0984	0.9843	0	78.7	50	129			
Fluoranthene	1.04	0.0984	0.9843	0.2147	84.2	55	119			
Fluorene	0.765	0.0984	0.9843	0	77.7	47	114			
Indeno[1,2,3-cd]pyrene	0.835	0.0984	0.9843	0.09288	75.4	49	130			
Phenanthrene	0.888	0.0984	0.9843	0.08714	81.4	49	113			
Pyrene	1.03	0.0984	0.9843	0.1937	85.4	55	117			
IS: Acenaphthene-d10	39.4		3.937		100	50	200			
IS: Chrysene-d12	39.4		3.937		108	50	200			
IS: Naphthalene-d8	39.4		3.937		123	50	200			
IS: Perylene-d12	39.4		3.937		116	50	200			
IS: Phenanthrene-d10	39.4		3.937		97.5	50	200			
Surr: 2-Fluorobiphenyl	0.746		0.9843		75.8	46	115			
Surr: 4-Terphenyl-d14	0.760		0.9843		77.3	58	133			

Sample ID	**1601247-11AMSD**	Batch ID:	**73598**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**GCMS6_160211A**	Analysis Date:	**2/12/2016 2:09:00 PM**	Prep Date:	**2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.806	0.0954	0.9542	0	84.4	44	111	0.071	20	
Acenaphthylene	0.779	0.0954	0.9542	0	81.7	39	116	1.47	20	
Anthracene	0.789	0.0954	0.9542	0	82.7	50	114	1.47	20	
Benzo[a]anthracene	0.889	0.0954	0.9542	0.1131	81.3	54	122	1.33	20	
Benzo[a]pyrene	0.925	0.0954	0.9542	0.1520	81.0	50	125	0.126	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: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

Sample ID **1601247-11AMSD** Batch ID: **73598** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160211A** Analysis Date: **2/12/2016 2:09:00 PM** Prep Date: **2/9/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.913	0.0954	0.9542	0.1473	80.2	53	128	2.83	20	
Benzo[e]pyrene	0.911	0.0954	0.9542	0.1215	82.7	43	140	0.726	20	
Benzo[g,h,i]perylene	0.856	0.0954	0.9542	0.1125	78.0	49	127	0.645	20	
Benzo[j]fluoranthene	0.877	0.0954	0.9542	0.07666	83.8	45	125	0.867	20	N
Benzo[k]fluoranthene	0.828	0.0954	0.9542	0.07161	79.2	56	123	0.610	20	
Chrysene	0.975	0.0954	0.9542	0.1539	86.0	57	118	1.89	20	
Dibenz[a,h]anthracene	0.758	0.0954	0.9542	0	79.5	50	129	2.09	20	
Fluoranthene	1.08	0.0954	0.9542	0.2147	90.9	55	119	3.57	20	
Fluorene	0.749	0.0954	0.9542	0	78.5	47	114	2.10	20	
Indeno[1,2,3-cd]pyrene	0.830	0.0954	0.9542	0.09288	77.2	49	130	0.633	20	
Phenanthrene	0.888	0.0954	0.9542	0.08714	84.0	49	113	0.019	20	
Pyrene	1.08	0.0954	0.9542	0.1937	92.5	55	117	3.96	20	
IS: Acenaphthene-d10	38.2		3.817		99.9	50	200	0	0	
IS: Chrysene-d12	38.2		3.817		107	50	200	0	0	
IS: Naphthalene-d8	38.2		3.817		126	50	200	0	0	
IS: Perylene-d12	38.2		3.817		117	50	200	0	0	
IS: Phenanthrene-d10	38.2		3.817		95.2	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.742		0.9542		77.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.773		0.9542		81.0	58	133	0	0	

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

Sample ID **ICV2-160126** Batch ID: **R84137** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160211A** Analysis Date: **2/11/2016 5:24:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	96.9	80	120			
Acenaphthylene	1.97	0.0100	2.000	0	98.4	80	120			
Anthracene	1.81	0.0100	2.000	0	90.7	80	120			
Benzo[a]anthracene	2.11	0.0100	2.000	0	105	80	120			
Benzo[a]pyrene	2.03	0.0100	2.000	0	102	80	120			
Benzo[b]fluoranthene	2.01	0.0100	2.000	0	100	80	120			
Benzo[e]pyrene	2.01	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	1.86	0.0100	2.000	0	93.2	80	120			
Benzo[j]fluoranthene	2.04	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Chrysene	2.11	0.0100	2.000	0	106	80	120			
Dibenz[a,h]anthracene	1.99	0.0100	2.000	0	99.7	80	120			
Fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Fluorene	1.85	0.0100	2.000	0	92.4	80	120			
Indeno[1,2,3-cd]pyrene	1.97	0.0100	2.000	0	98.5	80	120			
Phenanthrene	1.91	0.0100	2.000	0	95.6	80	120			
Pyrene	2.00	0.0100	2.000	0	100	80	120			
IS: Acenaphthene-d10	4.00		4.000		108	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		139	50	200			
IS: Perylene-d12	4.00		4.000		118	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	1.96		2.000		98.0	65	120			

Sample ID **ICV3-160211** Batch ID: **R84137** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160211A** Analysis Date: **2/12/2016 4:44:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.92	0.0100	2.000	0	95.8	80	120			
Acenaphthylene	1.95	0.0100	2.000	0	97.4	80	120			
Anthracene	1.85	0.0100	2.000	0	92.7	80	120			
Benzo[a]anthracene	2.11	0.0100	2.000	0	105	80	120			
Benzo[a]pyrene	2.09	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.05	0.0100	2.000	0	103	80	120			
Benzo[g,h,i]perylene	1.86	0.0100	2.000	0	93.0	80	120			
Benzo[j]fluoranthene	2.07	0.0100	2.000	0	104	80	120			N
Benzo[k]fluoranthene	2.09	0.0100	2.000	0	104	80	120			
Chrysene	2.10	0.0100	2.000	0	105	80	120			
Dibenz[a,h]anthracene	2.02	0.0100	2.000	0	101	80	120			

Qualifiers:

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

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160211A**

Sample ID **ICV3-160211** Batch ID: **R84137** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160211A** Analysis Date: **2/12/2016 4:44:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.09	0.0100	2.000	0	104	80	120			
Fluorene	1.83	0.0100	2.000	0	91.5	80	120			
Indeno[1,2,3-cd]pyrene	1.98	0.0100	2.000	0	98.9	80	120			
Phenanthrene	1.94	0.0100	2.000	0	97.1	80	120			
Pyrene	2.08	0.0100	2.000	0	104	80	120			
IS: Acenaphthene-d10	4.00		4.000		113	50	200			
IS: Chrysene-d12	4.00		4.000		109	50	200			
IS: Naphthalene-d8	4.00		4.000		141	50	200			
IS: Perylene-d12	4.00		4.000		120	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	2.06		2.000		103	65	120			
Surr: 4-Terphenyl-d14	2.03		2.000		101	65	120			

Sample ID **CCV-160211** Batch ID: **R84137** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160211A** Analysis Date: **2/12/2016 2:49:00 PM** 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	0.971	0.0100	1.000	0	97.1	50	150			
Anthracene	0.942	0.0100	1.000	0	94.2	50	150			
Benzo[a]anthracene	0.974	0.0100	1.000	0	97.4	50	150			
Benzo[a]pyrene	0.990	0.0100	1.000	0	99.0	50	150			
Benzo[b]fluoranthene	0.996	0.0100	1.000	0	99.6	50	150			
Benzo[e]pyrene	0.992	0.0100	1.000	0	99.2	50	150			
Benzo[g,h,i]perylene	0.884	0.0100	1.000	0	88.4	50	150			
Benzo[j]fluoranthene	0.992	0.0100	1.000	0	99.2	50	150			N
Benzo[k]fluoranthene	1.00	0.0100	1.000	0	100	50	150			
Chrysene	0.989	0.0100	1.000	0	98.9	50	150			
Dibenz[a,h]anthracene	0.935	0.0100	1.000	0	93.5	50	150			
Fluoranthene	1.07	0.0100	1.000	0	107	50	150			
Fluorene	0.889	0.0100	1.000	0	88.9	50	150			
Indeno[1,2,3-cd]pyrene	0.918	0.0100	1.000	0	91.8	50	150			
Phenanthrene	0.940	0.0100	1.000	0	94.0	50	150			
Pyrene	1.07	0.0100	1.000	0	107	50	150			
IS: Acenaphthene-d10	4.00		4.000		111	50	200			
IS: Chrysene-d12	4.00		4.000		117	50	200			
IS: Naphthalene-d8	4.00		4.000		150	50	200			
IS: Perylene-d12	4.00		4.000		125	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.02		1.000		102	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

DHL Analytical, Inc.

Date: *17-Feb-16*

CLIENT: Arcadis
Work Order: 1601247
Project: Laredo Shotgun Range

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
1601247

GCMS6_160128B
For

DHL Work Order
1601247

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_160128B
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			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	
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: 1/30/2016

Second-Level Review: Janice Whitt Date: 2/10/2016

REVIEWED BY
By Janice Whitt at 10:50:00 AM, 2/10/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160128B** **Run No.:** 83871

Analytical Run Date: 1/28/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160128	1	PAH_LL_WDOD1	TUNE	R83871	1/28/2016 12:17:00 PM		
ICV-160128	1	PAH_LL_WDOD1	ICV	R83871	1/28/2016 12:53:00 PM		
LCS-73352	1	PAH_LL_WDOD1	LCS	73352	1/28/2016 1:36:00 PM		Equipment blanks only. MB and LCS only QC required. See DCS in C folder. Includes benzo(j)fluoranthene.
MB-73352	1	PAH_LL_WDOD1	MBLK	73352	1/28/2016 4:16:00 PM		
1601190-07B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 4:56:00 PM	H	Hold time met.
1601205-19B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 5:35:00 PM		jw 2/10/2016
1601214-10B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 6:16:00 PM		
1601230-16B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 6:56:00 PM		
1601231-28B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 7:36:00 PM		
1601247-13B	1	PAH_LL_WDOD1	SAMP	73352	1/28/2016 8:15:00 PM		
CCV1-160128	1	PAH_LL_WDOD1	CCV	R83871	1/28/2016 10:15:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-04	4000 PPM INTERNAL STANDAR	ALL	03/28/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160128.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160128\
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	16012801	DFTPPPAH	DFTPP-160128
2	Sample	2	16012802	PP160126	ICV-160128
3	Sample	3	16012803	PP160126	LCS-73351
4	Sample	4	16012804	PP160126	LCSD-73351
5	Sample	5	16012805	PP160126	LQV-73352
6	Sample	6	16012806	PP160126	DCS-73352
7	Sample	7	16012807	PP160126	MB-73351
8	Sample	8	16012808	PP160126	1601190-07B
9	Sample	9	16012809	PP160126	1601205-19B
10	Sample	10	16012810	PP160126	1601214-10B
11	Sample	11	16012811	PP160126	1601230-16B
12	Sample	12	16012812	PP160126	1601231-28B
13	Sample	13	16012813	PP160126	1601247-13B
14	Sample	14	16012814	PP160126	1601213-09B
15	Sample	15	16012815	PP160126	1601213-10B
16	Sample	16	16012816	PP160126	CCV1-160128

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 1:03:17 PM**
Digestion:
Prep End Date: **1/27/2016 5:01:00 PM**

Prep Batch **73352** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601190-07B	Equip Blank	6	318.2	1	0.003	1 of 2
	~~0.127~~					
	see JD & Karyn before starting prep!					
1601205-19B	Equip Blank	6	317.7	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601214-10B	Equip Blank	6	311.5	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601230-16B	Equip Blank	6	317.2	1	0.003	1 of 2
1601231-28B	Equip Blank	6	297.9	1	0.003	1 of 2
	see JD & Karyn before starting prep!					
1601247-13B	Equip Blank	6	298.5	1	0.003	1 of 2
DCS-73352	Aqueous	6	500	1	0.002	of
LCS-73352	Aqueous	6	500	1	0.002	of
LQV-73352	Aqueous	6	500	1	0.002	of
	Spiked with 20 uL of PAHPREP160127-1					
MB-73352	Aqueous	6	500	1	0.002	of

Number	Reagent Name	Amt	Units	Exp. Date
7509	pH paper 0-14	1	paper	10/15/2025
9604	Purified Sodium Sulfate	10	g	09/03/2025
9889	Methylene Chloride	120	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS	0.01	04/25/2016
PAHPREP160127-1	2 PPM PAH SPIKE MIX	DCS	0.01	04/26/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.1	04/20/2016

REVIEWED/APPROVED

By Sherri Herschmann at 3:31:01 PM, 2/3/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 1:03:17 PM**
Digestion:
Prep End Date: 1/27/2016 5:01 PM

Prep Batch **73352** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	
1601190-07B	Equip Blank	6	500	1	0.002	1 of 2	530.0 - 211.8 = 318.2
0.127							
see JD & Karyn before starting prep!							
1601205-19B	Equip Blank	6	500	1	0.002	1 of 2	529.9 - 212.2 = 317.7
see JD & Karyn before starting prep!							
1601214-10B	Equip Blank	6	500	1	0.002	1 of 2	524.0 - 212.5 = 311.5
see JD & Karyn before starting prep!							
1601230-16B	Equip Blank	6	500	1	0.002	1 of 2	529.5 - 212.3 = 317.2
1601231-28B	Equip Blank	6	500	1	0.002	1 of 2	510.2 - 212.3 = 297.9
see JD & Karyn before starting prep!							
1601247-13B	Equip Blank	6	500	1	0.002	1 of 2	512.3 - 213.8 = 298.5
DCS-73352	Aqueous	6	500	1	0.002	of	777.1 - 277.1 = 500.0
LCS-73352	Aqueous	6	500	1	0.002	of	779.0 - 279.0 = 500.0
LQV-73352	Aqueous	6	500	1	0.002	of	778.9 - 278.9 = 500.0
Spiked with 20 uL of PAHPREP160127-1							
MB-73352	Aqueous	6	500	1	0.002	of	777.1 - 277.1 = 500.0

REVIEWED/APPROVED

By Sherri Herschmann at 3:32:11 PM, 2/3/2016

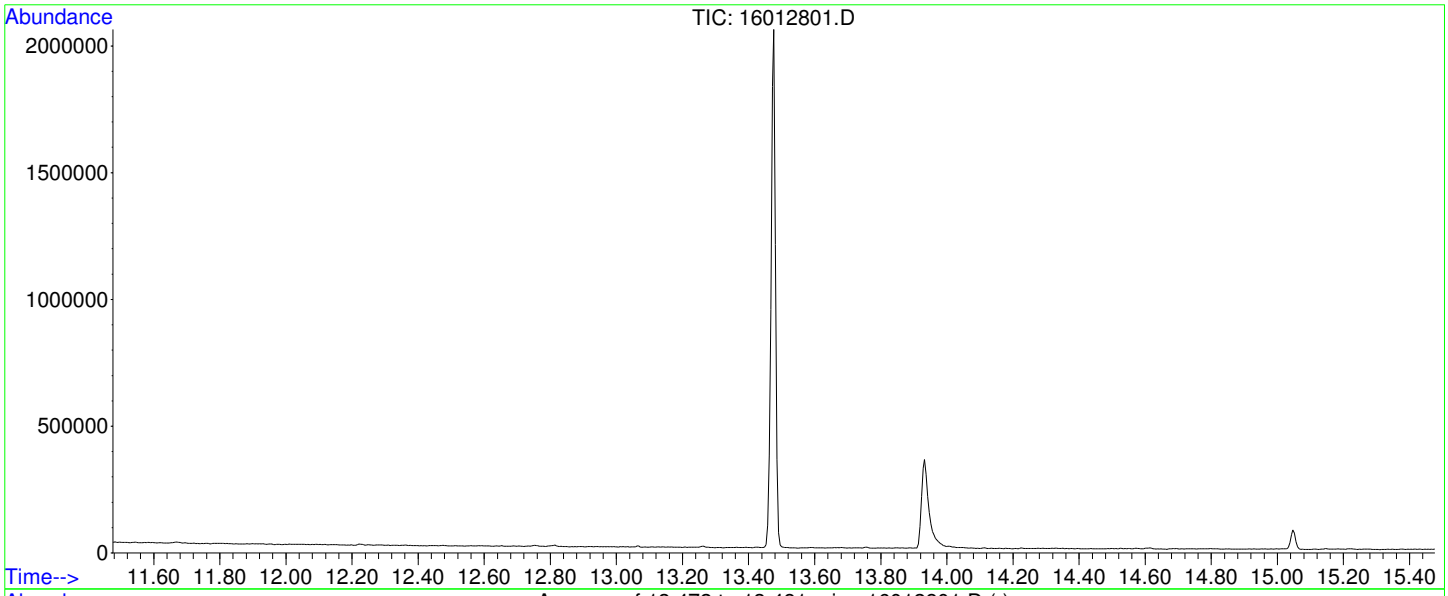
Number	Reagent Name	Amt	Units	Exp. Date
7509	pH paper 0-14	1	paper	10/15/2025
9604	Purified Sodium Sulfate	10	g	09/03/2025
9889	Methylene Chloride	120	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025

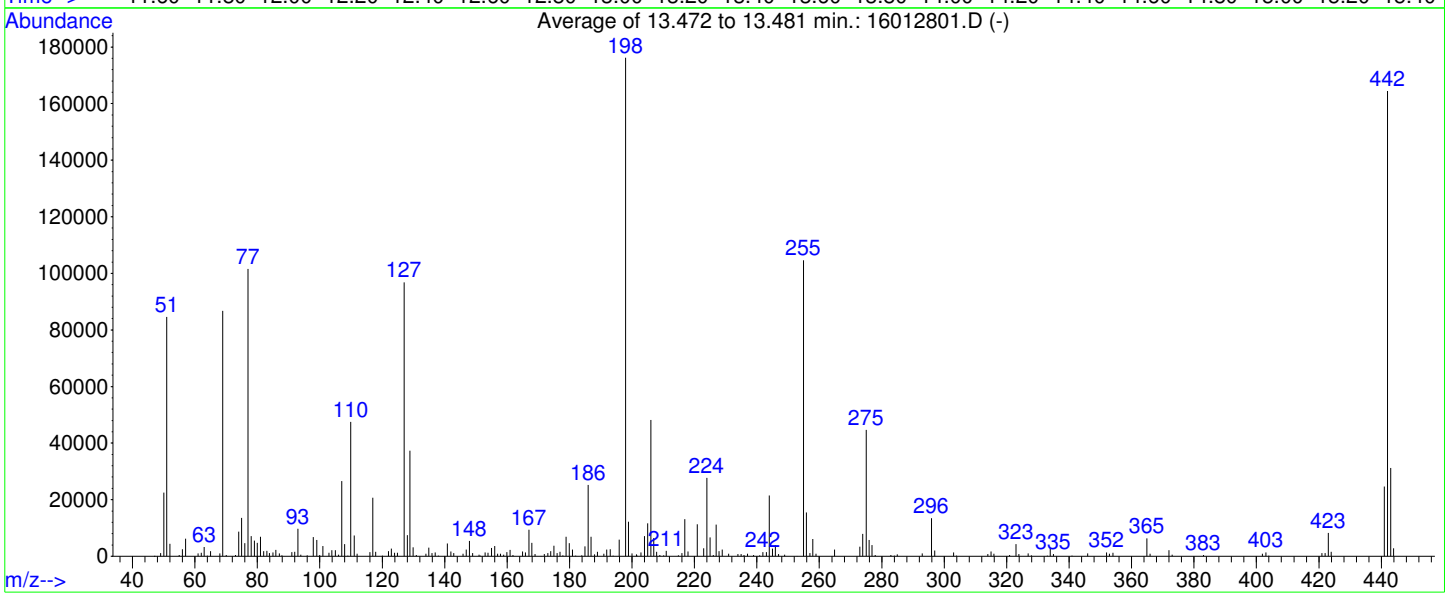
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/~~LCSD~~	0.01	04/25/2016
PAHPREP160127-1	2 PPM PAH SPIKE MIX	DCS	0.01	04/26/2016
SVPREP160121	40 PPM Surrogate Standard	ALL	0.1	04/20/2016

1/27/16

1/27/16

Data File : C:\HPCHEM\1\DATA\160128\16012801.D Vial: 1
Acq On : 28 Jan 2016 12:17 pm Operator:
Sample : DFTPP-160128 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 1570, 1571, 1572; Background Corrected with Scan 1563

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	48.0	84620	PASS
68	69	0.00	2	1.2	1020	PASS
69	198	0.00	100	49.2	86728	PASS
70	69	0.00	2	0.5	424	PASS
127	198	10	80	54.9	96829	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	176232	PASS
199	198	5	9	6.9	12239	PASS
275	198	10	60	25.4	44704	PASS
365	198	1	200	3.6	6345	PASS
441	442	0.01	24	15.0	24688	PASS
442	198	50	400	93.3	164456	PASS
443	442	15	24	19.0	31245	PASS

REVIEWED BY
By Janice Whitt at 8:19:36 AM, 2/1/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1972820	4000.00 ug/kg	94
5) Acenaphthene-d10	13.18	164	1561291	4000.00 ug/kg	86
11) Phenanthrene-d10	15.27	188	2891300	4000.00 ug/kg	88
17) Chrysene-d12	20.90	240	2494621	4000.00 ug/kg	86
20) Perylene-d12	25.99	264	1897321	4000.00 ug/kg	82

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.12	172	852661	1885.02 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.13%	
16) 4-Terphenyl-d14	17.70	244	932057	1929.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.24%	

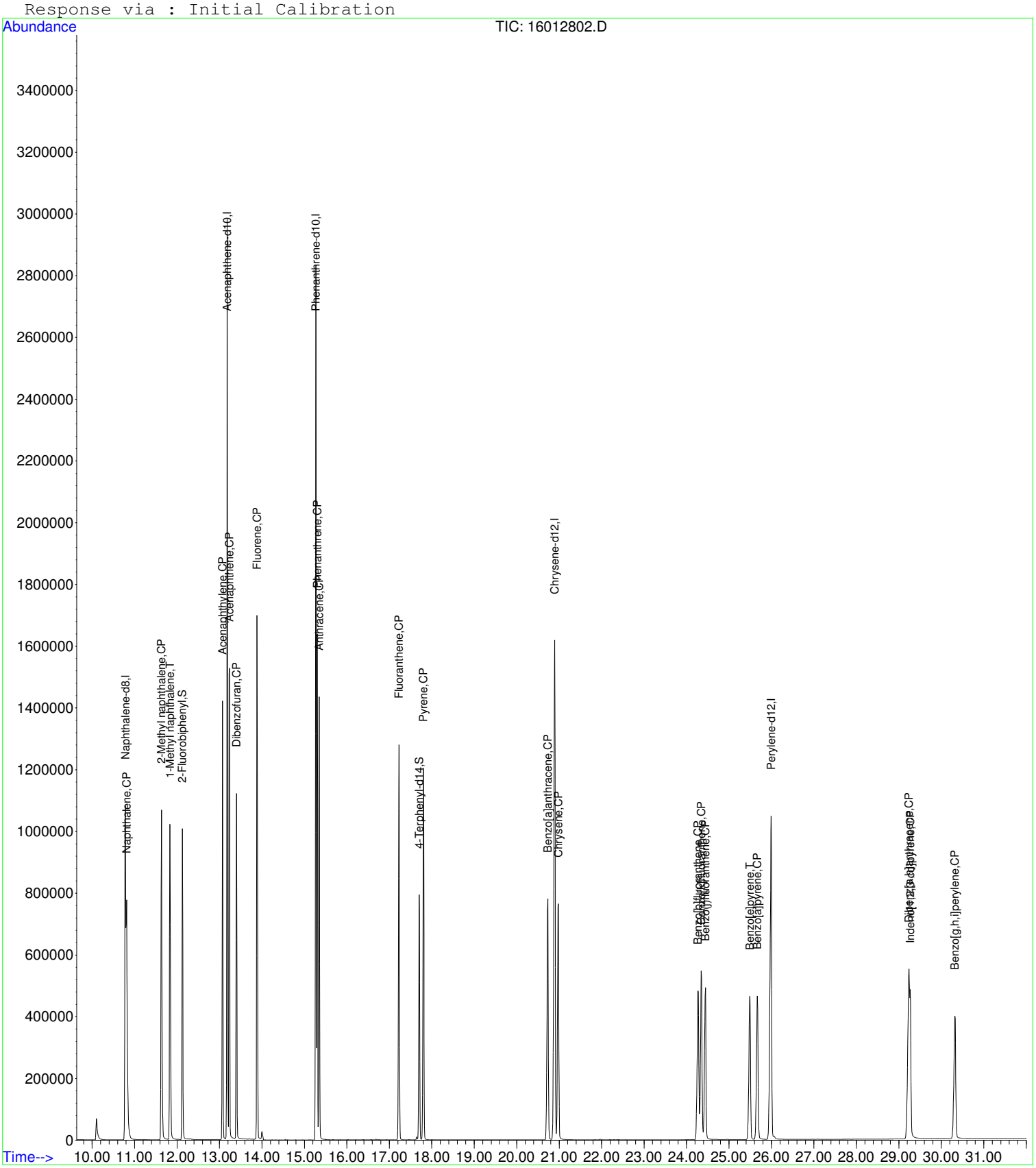
Target Compounds					Qvalue
2) Naphthalene	10.81	128	908353	1840.35 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	729918	1878.18 ug/kg	98
4) 1-Methyl naphthalene	11.83	142	672748	1834.31 ug/kg	95
6) Dibenzofuran	13.40	168	981134	1933.68 ug/kg	98
8) Acenaphthylene	13.07	152	1245456	1918.56 ug/kg	99
9) Acenaphthene	13.24	154	736924	1873.53 ug/kg	98
10) Fluorene	13.88	166	897787	1934.72 ug/kg	97
12) Phenanthrene	15.30	178	1281673	1866.70 ug/kg	100
13) Anthracene	15.35	178	1262658	1879.60 ug/kg	100
14) Fluoranthene	17.23	202	1247854	1832.80 ug/kg	99
15) Pyrene	17.80	202	1254396	1808.84 ug/kg	100
18) Benzo[a]anthracene	20.73	228	1125337	1956.42 ug/kg	99
19) Chrysene	20.98	228	1054962	1926.27 ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	976903	1931.20 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	899712	2002.26 ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	830738	1968.10 ug/kg	98
24) Benzo[e]pyrene	25.49	252	883400	1870.49 ug/kg	98
25) Benzo[a]pyrene	25.67	252	880496	1915.39 ug/kg	99
26) Dibenz[a,h]anthracene	29.23	278	780739	1835.94 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	943365	1820.90 ug/kg	99
28) Benzo[g,h,i]perylene	30.32	276	774946	1782.75 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

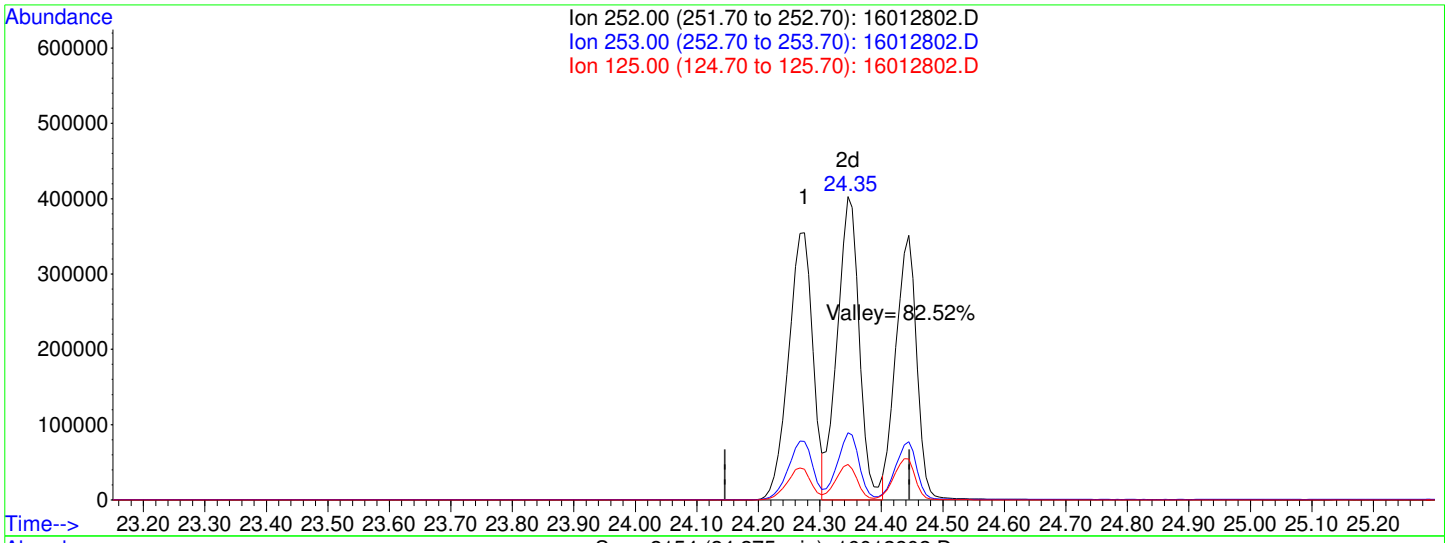
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration

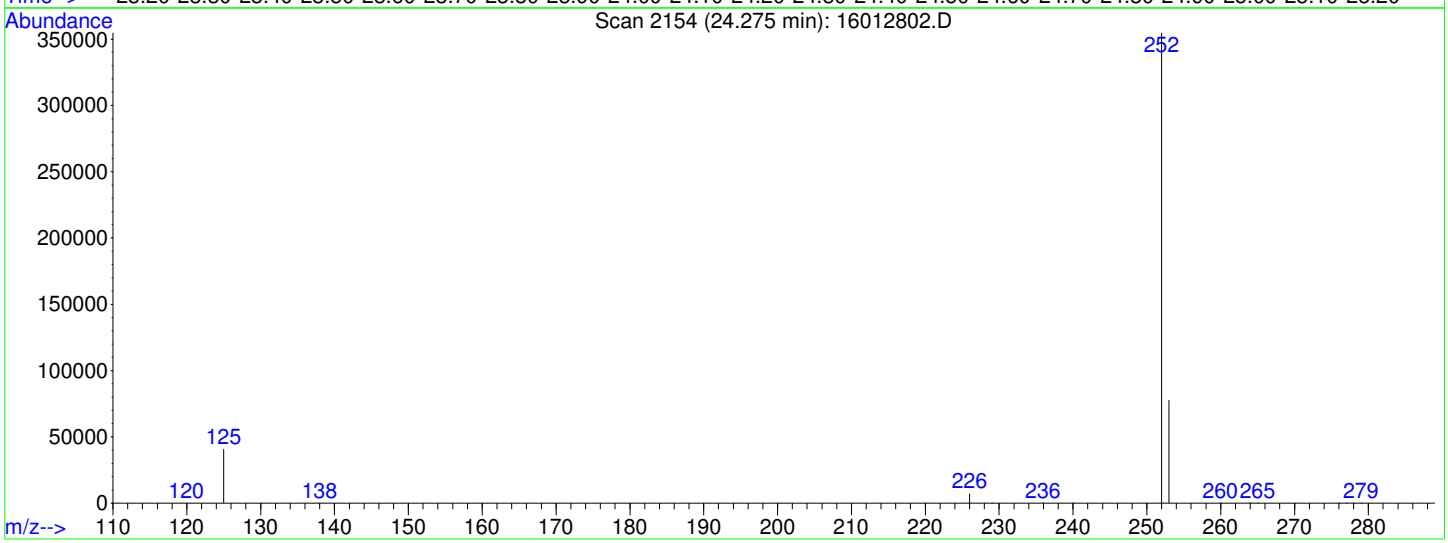


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160128\16012802.D Vial: 2
Acq On : 28 Jan 2016 12:53 pm Operator:
Sample : ICV-160128 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 28 13:25 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Multiple Level Calibration





TIC: 16012802.D

(21) Benzo[b]fluoranthene (CP)

24.27min 1931.20ug/kg

response 976903

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.75
125.00	10.50	11.47
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012803.D Vial: 3
Acq On : 28 Jan 2016 1:36 pm Operator:
Sample : Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1751471	4000.00 ug/kg	83
5) Acenaphthene-d10	13.18	164	1483267	4000.00 ug/kg	81
11) Phenanthrene-d10	15.27	188	2723951	4000.00 ug/kg	83
17) Chrysene-d12	20.90	240	2331537	4000.00 ug/kg	81
20) Perylene-d12	25.99	264	1893102	4000.00 ug/kg	82

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	928857	2161.49 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.04%	
16) 4-Terphenyl-d14	17.71	244	1341506	2947.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	73.70%	

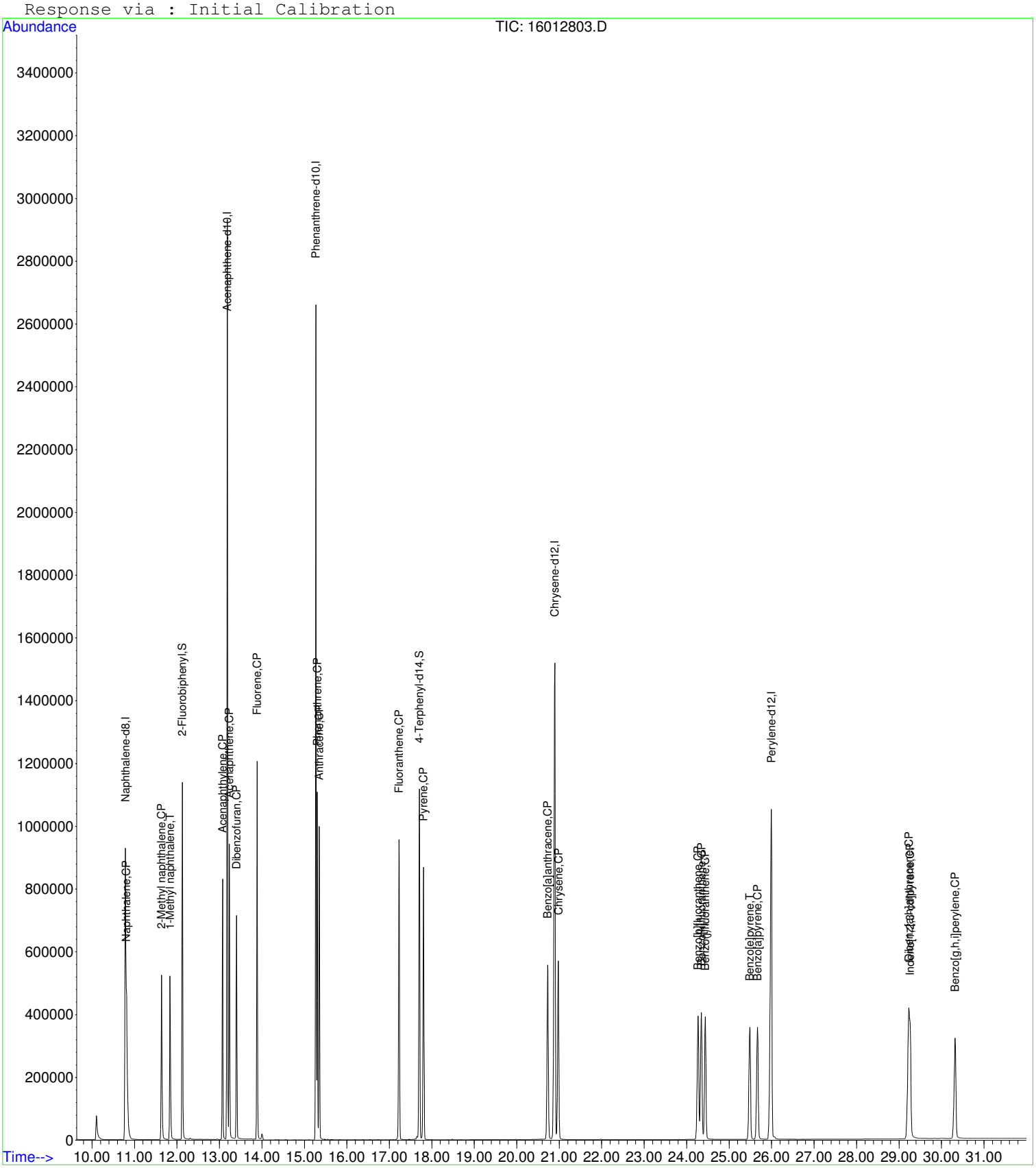
Target Compounds					Qvalue
2) Naphthalene	10.81	128	453504	1034.93 ug/kg	100
3) 2-Methyl naphthalene	11.63	142	343711	996.19 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	321869	988.51 ug/kg	94
6) Dibenzofuran	13.40	168	629679	1306.29 ug/kg	97
8) Acenaphthylene	13.07	152	732855	1188.31 ug/kg	98
9) Acenaphthene	13.23	154	427671	1144.49 ug/kg	95
10) Fluorene	13.89	166	605015	1372.38 ug/kg	96
12) Phenanthrene	15.30	178	886227	1370.05 ug/kg	99
13) Anthracene	15.35	178	857559	1355.00 ug/kg	100
14) Fluoranthene	17.23	202	927631	1446.17 ug/kg	99
15) Pyrene	17.80	202	920692	1409.20 ug/kg	100
18) Benzo[a]anthracene	20.73	228	814310	1514.72 ug/kg	100
19) Chrysene	20.98	228	772643	1509.46 ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	758442	1502.68 ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	686550	1531.29 ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	630290	1496.55 ug/kg	98
24) Benzo[e]pyrene	25.48	252	677938	1438.65 ug/kg	99
25) Benzo[a]pyrene	25.67	252	675248	1472.18 ug/kg	100
26) Dibenz[a,h]anthracene	29.22	278	612345	1443.17 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.27	276	734443	1420.79 ug/kg	98
28) Benzo[g,h,i]perylene	30.32	276	608578	1403.14 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012803.D Vial: 3
Acq On : 28 Jan 2016 1:36 pm Operator:
Sample : Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012807.D Vial: 7
Acq On : 28 Jan 2016 4:16 pm Operator:
Sample : MB-73352 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1716455	4000.00	ug/kg	82
5) Acenaphthene-d10	13.18	164	1497557	4000.00	ug/kg	82
11) Phenanthrene-d10	15.27	188	2645713	4000.00	ug/kg	81
17) Chrysene-d12	20.90	240	2320452	4000.00	ug/kg	80
20) Perylene-d12	25.99	264	1869220	4000.00	ug/kg	81

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	1022662	2357.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.93%			
16) 4-Terphenyl-d14	17.71	244	1236808	2798.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 69.96%			

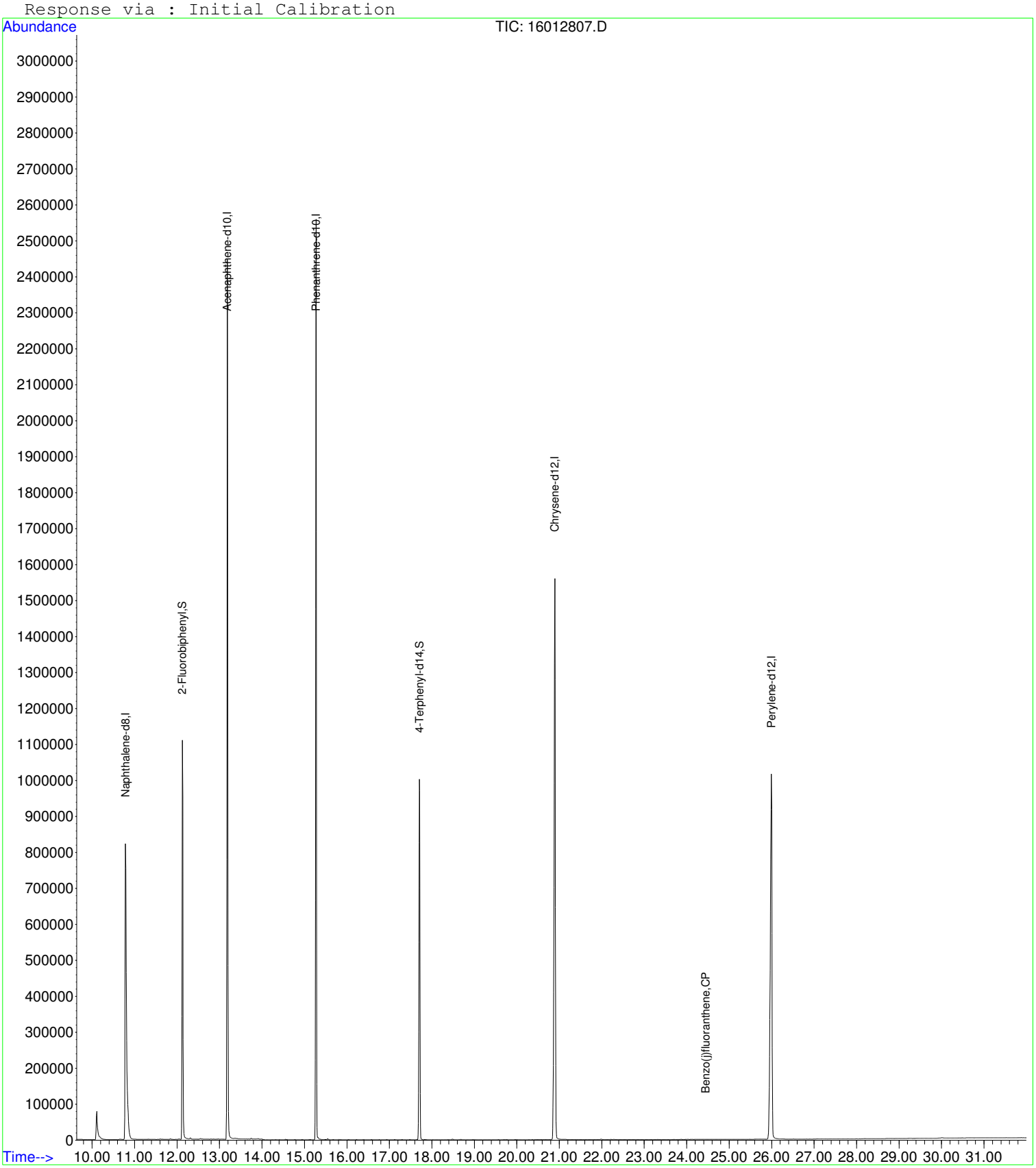
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.44	252	92	0.22	ug/kg	74

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012807.D Vial: 7
Acq On : 28 Jan 2016 4:16 pm Operator:
Sample : MB-73352 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:33 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012813.D Vial: 13
Acq On : 28 Jan 2016 8:15 pm Operator:
Sample : 1601247-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:23 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.79	136	1794431	4000.00	ug/kg	86
5) Acenaphthene-d10	13.18	164	1573375	4000.00	ug/kg	86
11) Phenanthrene-d10	15.27	188	2706618	4000.00	ug/kg	83
17) Chrysene-d12	20.89	240	2358298	4000.00	ug/kg	82
20) Perylene-d12	25.99	264	1962827	4000.00	ug/kg	85

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.13	172	1001374	2196.78	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.92%			
16) 4-Terphenyl-d14	17.71	244	1061847	2348.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.71%			

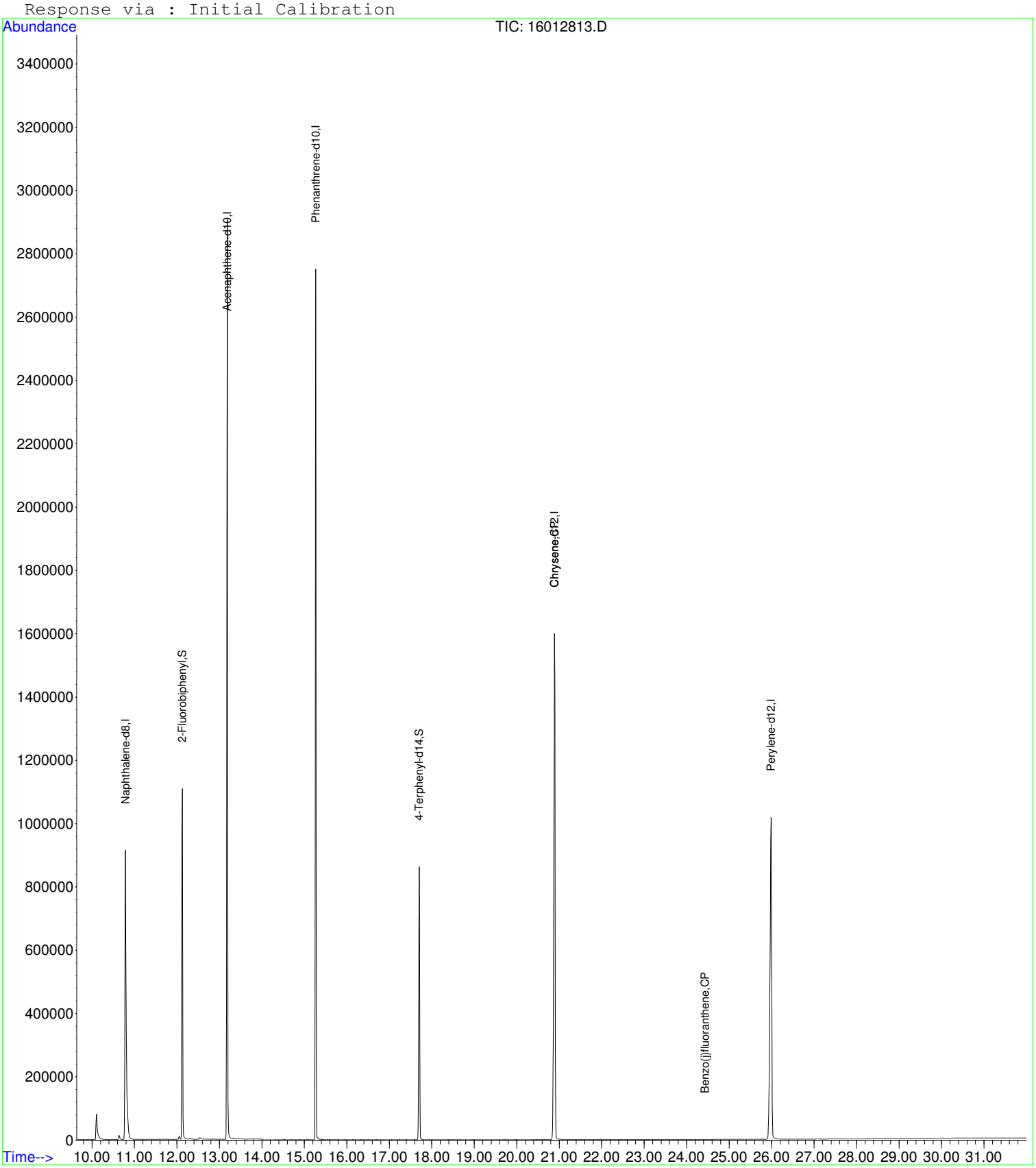
Target Compounds						Qvalue
19) Chrysene	20.89	228	5620	10.85	ug/kg	75
23) Benzo(j)fluoranthene	24.43	252	35	0.08	ug/kg#	1

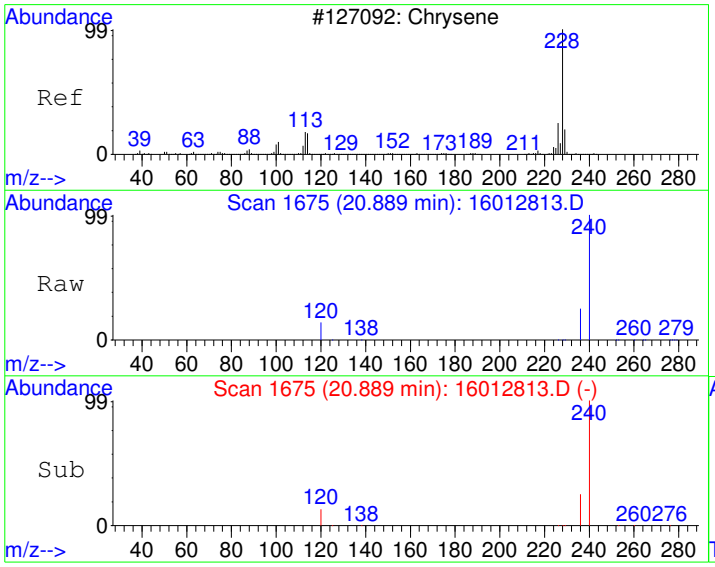
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012813.D Vial: 13
Acq On : 28 Jan 2016 8:15 pm Operator:
Sample : 1601247-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:23 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration

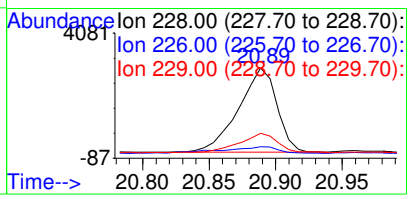


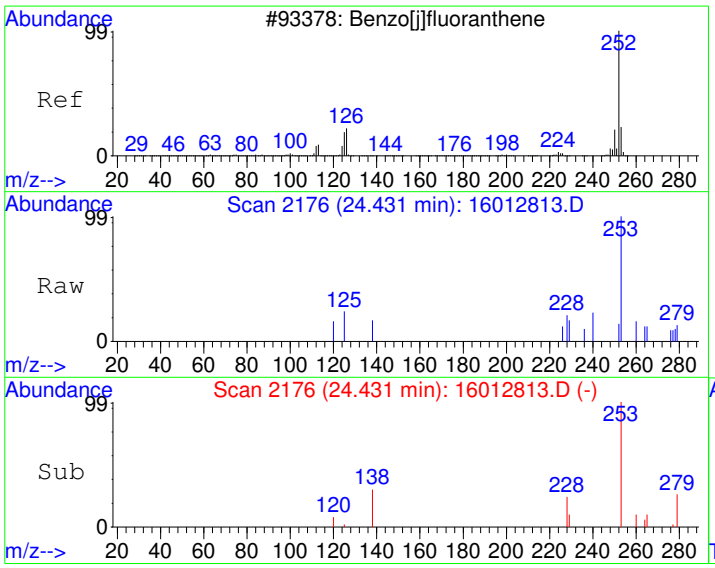


#19
Chrysene
Concen: 10.85 ug/kg
RT: 20.89 min Scan# 1675
Delta R.T. -0.10 min
Lab File: 16012813.D
Acq: 28 Jan 2016 8:15 pm

Tgt Ion:228 Resp: 5620

Ion	Ratio	Lower	Upper
228	100		
226	8.0	0.0	58.5
229	23.1	0.0	50.1

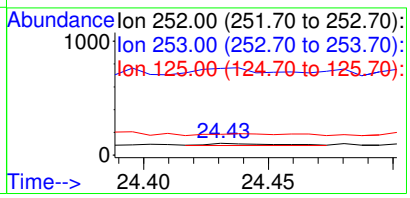




#23
Benzo(j)fluoranthene
Concen: 0.08 ug/kg
RT: 24.43 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16012813.D
Acq: 28 Jan 2016 8:15 pm

Tgt Ion:252 Resp: 35

Ion	Ratio	Lower	Upper
252	100		
253	250.0	2.3	42.3#
125	81.3	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160128\16012816.D Vial: 16
Acq On : 28 Jan 2016 10:15 pm Operator:
Sample : CCV1-160128 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

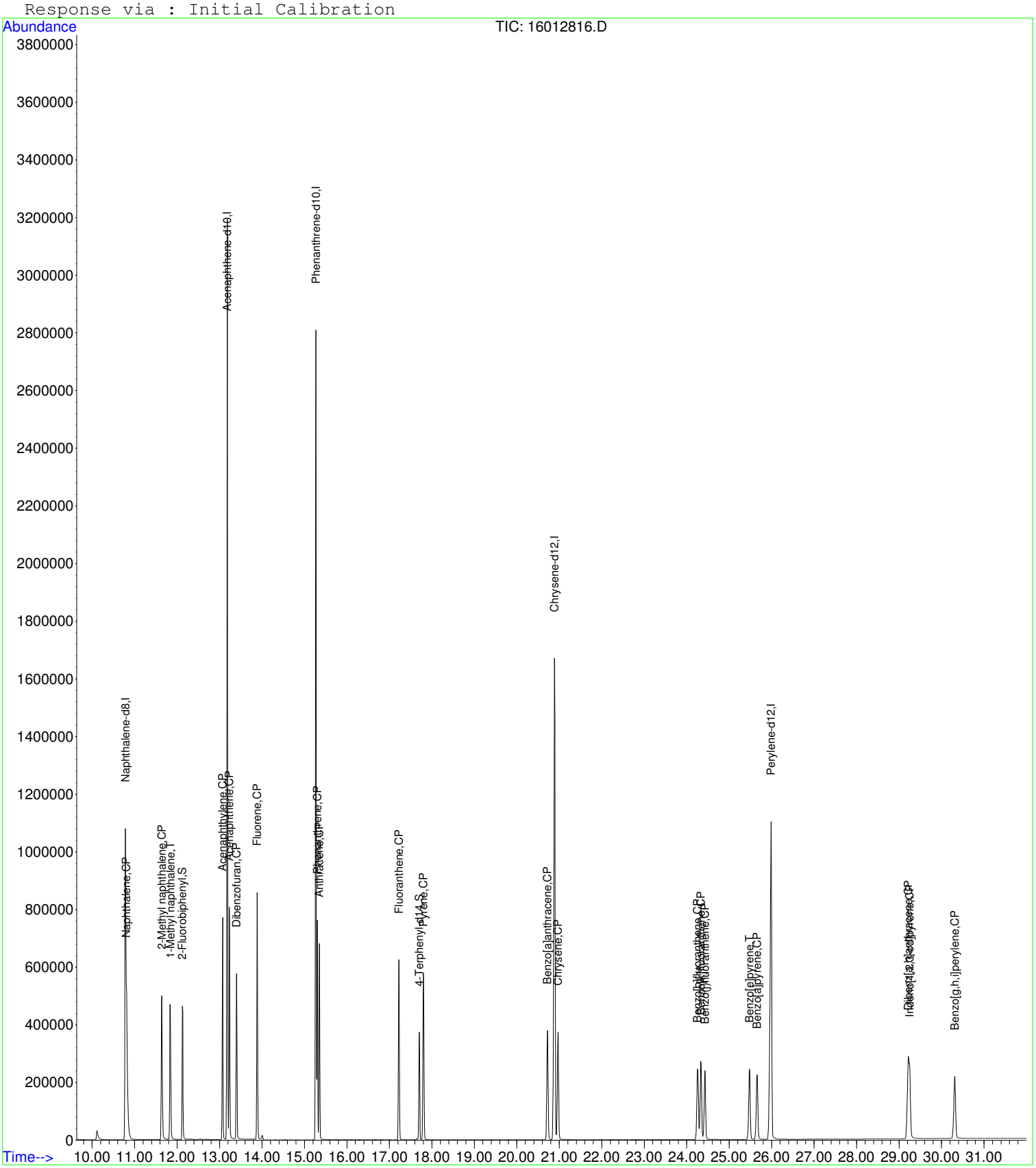
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.78	136	1978034	4000.00 ug/kg	94
5) Acenaphthene-d10	13.18	164	1672948	4000.00 ug/kg	92
11) Phenanthrene-d10	15.27	188	2930087	4000.00 ug/kg	90
17) Chrysene-d12	20.89	240	2476069	4000.00 ug/kg	86
20) Perylene-d12	25.99	264	1967114	4000.00 ug/kg	85
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	447709	923.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.09%#		
16) 4-Terphenyl-d14	17.70	244	452665	924.74 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.12%#		
Target Compounds					Qvalue
2) Naphthalene	10.81	128	465574	940.78 ug/kg	99
3) 2-Methyl naphthalene	11.64	142	378526	971.43 ug/kg	98
4) 1-Methyl naphthalene	11.84	142	346232	941.54 ug/kg	97
6) Dibenzofuran	13.40	168	519163	954.91 ug/kg	96
8) Acenaphthylene	13.07	152	664900	955.88 ug/kg	99
9) Acenaphthene	13.24	154	386917	918.03 ug/kg	98
10) Fluorene	13.88	166	477239	959.80 ug/kg	96
12) Phenanthrene	15.30	178	640105	919.95 ug/kg	99
13) Anthracene	15.35	178	634304	931.73 ug/kg	99
14) Fluoranthene	17.23	202	625285	906.24 ug/kg	99
15) Pyrene	17.80	202	627908	893.46 ug/kg	99
18) Benzo[a]anthracene	20.72	228	542348	949.95 ug/kg	100
19) Chrysene	20.97	228	507139	932.93 ug/kg	99
21) Benzo[b]fluoranthene	24.25	252	484330	923.48 ug/kg	99
22) Benzo[k]fluoranthene	24.33	252	436769	937.52 ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	400900	916.07 ug/kg	99
24) Benzo[e]pyrene	25.48	252	443405	905.54 ug/kg	99
25) Benzo[a]pyrene	25.66	252	437966	918.93 ug/kg	99
26) Dibenz[a,h]anthracene	29.22	278	408292	926.05 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.25	276	492672	917.22 ug/kg	99
28) Benzo[g,h,i]perylene	30.31	276	415007	920.84 ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160128\16012816.D Vial: 16
Acq On : 28 Jan 2016 10:15 pm Operator:
Sample : CCV1-160128 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 30 11:18 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Thu Jan 28 14:20:17 2016
Response via : Initial Calibration



GCMS6_160210A
For

DHL Work Order
1601247

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_160210A
Batch Number(s): See Run Log.	SOP: ORGANICS-PAH-01
Matrix: See Run Log.	

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	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	
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)	X Accept data
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

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

All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.

Analyst: Karyn Lane Date: REVIEWED/APPROVED 2/11/2016

Second-Level Review: Date: By Sherri Herschmann at 11:18:49 AM, 2/16/2016 02/16/2016

DHL Analytical, Inc.

Run ID: GCMS6_160210A **Run No.:** 84109

Analytical Run Date: 2/10/2016 **InstrumentID:** GCMS6

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

Calibration ID: 621 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160210	1	PAH_LL_SDOD1	TUNE	R84109	2/10/2016 8:52:00 AM		
ICV-160210	1	PAH_LL_SDOD1	ICV	R84109	2/10/2016 9:28:00 AM		
MB-73554	1	PAH_LL_SDOD1	MBLK	73554	2/10/2016 10:38:00 AM		
LCS-73554	1	PAH_LL_SDOD1	LCS	73554	2/10/2016 11:18:00 AM		
1601232-17A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:59:00 AM		All samples in this analytical run and project are diluted at 10x due to brown color. 10x dilution meets project requirements and is approved by project manager.
1601232-18A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 12:39:00 PM		
1601232-19A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 1:19:00 PM		
1601232-20A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 1:59:00 PM		
1601232-21A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 2:40:00 PM		
1601232-22A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 3:20:00 PM		
1601232-23A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 4:01:00 PM		
1601232-24A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 4:40:00 PM		
1601232-25A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 5:21:00 PM		
1601232-26A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 6:01:00 PM		
1601232-27A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 6:41:00 PM		
1601247-01A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 7:22:00 PM		
1601247-02A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 8:02:00 PM		
DFTPP2-160210	1	PAH_LL_SDOD1	TUNE	R84109	2/10/2016 8:40:00 PM		
ICV2-160210	1	PAH_LL_SDOD1	ICV	R84109	2/10/2016 9:17:00 PM		
SB-160210	1	PAH_LL_SDOD1	SBLK	73554	2/10/2016 10:38:00 PM		
1601247-03A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:18:00 PM		
1601247-04A	10	PAH_LL_SDOD1	SAMP	73554	2/10/2016 11:58:00 PM		
1601247-05A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 12:38:00 AM		
1601247-06A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 1:19:00 AM		
1601247-07A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 1:59:00 AM		
1601247-08A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 2:40:00 AM		
1601247-09A	10	PAH_LL_SDOD1	SAMP	73554	2/11/2016 3:20:00 AM		
1601247-04AMS	10	PAH_LL_SDOD1	MS	73554	2/11/2016 4:01:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

REVIEWED/APPROVED

By Sherri Herschmann at 11:18:54 AM, 2/16/2016

DHL Analytical, Inc.

Run ID: **GCMS6_160210A** **Run No.:** 84109

1601247-04AMSD	10	PAH_LL_SDOD1	MSD	73554	2/11/2016 4:41:00 AM		
CCV1-160210	1	PAH_LL_SDOD1	CCV	R84109	2/11/2016 5:20:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP151203	2.5 PPM 525 TUNE STD.	TUNE	12/02/2016
PAHICV160127	2 PPM PAH ICV STANDARD	ICV	04/26/2016
SVI150810-05	4000 PPM INTERNAL STANDAR	ALL	05/02/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160210.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160210\
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	16021001	DFTPPPAH	DFTPP-160210
2	Sample	2	16021002	PP160126	ICV-160210
3	Sample	3	16021003	PP160126	MB-73554
4	Sample	4	16021004	PP160126	LCS-73554
5	Sample	5	16021005	PP160126	1601232-17A
6	Sample	6	16021006	PP160126	1601232-18A
7	Sample	7	16021007	PP160126	1601232-19A
8	Sample	8	16021008	PP160126	1601232-20A
9	Sample	9	16021009	PP160126	1601232-21A
10	Sample	10	16021010	PP160126	1601232-22A
11	Sample	11	16021011	PP160126	1601232-23A
12	Sample	12	16021012	PP160126	1601232-24A
13	Sample	13	16021013	PP160126	1601232-25A
14	Sample	14	16021014	PP160126	1601232-26A
15	Sample	15	16021015	PP160126	1601232-27A
16	Sample	16	16021016	PP160126	1601247-01A
17	Sample	17	16021017	PP160126	1601247-02A
18	Sample	18	16021018	DFTPPPAH	DFTPP2-160210
19	Sample	19	16021019	PP160126	ICV2-160210
20	Sample	20	16021020	PP160126	SB-160210
21	Sample	21	16021021	PP160126	SB-160210
22	Sample	22	16021022	PP160126	1601247-03A
23	Sample	23	16021023	PP160126	1601247-04A
24	Sample	24	16021024	PP160126	1601247-05A
25	Sample	25	16021025	PP160126	1601247-06A
26	Sample	26	16021026	PP160126	1601247-07A
27	Sample	27	16021027	PP160126	1601247-08A
28	Sample	28	16021028	PP160126	1601247-09A
29	Sample	29	16021029	PP160126	1601247-04AMS
30	Sample	30	16021030	PP160126	1601247-04AMSD
31	Sample	31	16021031	PP160126	CCV1-160210

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-01A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample. Needed two days to dry. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	The preparation for PAH & metals must wait til sieve completed.					
1601232-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
	Sieved sample will be in 2-oz glass jar					
1601232-03A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-04A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-05A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-06A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-07A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-08A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-09A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-10A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-11A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-12A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-13A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-14A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
	/					
1601232-15A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-16A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-17A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-18A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 1/30/15					
1601232-19A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-20A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-21A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Wet sample Processed 1/30/15					
1601232-22A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-23A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-24A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-25A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/27/2016 4:00:00 PM**
Digestion: **Start: 1/27/2016 5:00:00 PM / Stop: 1/30/2016 5:00:00 PM**
Prep End Date: **1/30/2016 5:30:00 PM**

Prep Batch **73358** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601232-26A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					
1601232-27A	Soil		0	0	#Num!	1 of 1
	Processed 1/30/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/30/2016 2:19:55 PM**
Digestion: **Start: 1/28/2016 5:00:00 PM / Stop: 2/3/2016 3:00:00 PM**
Prep End Date: **2/3/2016 3:01:10 PM**

Prep Batch **73414** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601247-01A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15 The preparation for PAH & metals must wait til sieve completed.					
1601247-02A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15 Sieved sample will be in 2-oz glass jar					
1601247-03A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-04A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 2/3/15					
1601247-05A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-06A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-07A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-08A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-09A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-10A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-11A	Soil		0	0	#Num!	1 of 1
	Extra Mass for MS/MSD Processed 2/3/15					
1601247-12A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-14A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/30/2016 2:19:55 PM**
Digestion: **Start: 1/28/2016 5:00:00 PM / Stop: 2/3/2016 3:00:00 PM**
Prep End Date: **2/3/2016 3:01:10 PM**

Prep Batch **73414** Prep Code: **ISM250_PREP** Technician: **Mike Brown**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1601247-15A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-16A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-17A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-18A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-19A	Soil		0	0	#Num!	1 of 1
	Processed 2/3/15					
1601247-20A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-21A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					
1601247-22A	Soil		0	0	#Num!	1 of 1
	Wet sample. Insufficent yield for multiple subsampling. Sieved sample taken as a whole. Processed 2/3/15					

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/6/2016 9:42:27 AM**
Digestion:
Prep End Date: **2/6/2016 2:42:48 PM**

Prep Batch **73554** Prep Code: **3550_PAHDOD** Technician: **Karyn Lane**

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 #
1601232-17A	Soil		10.21	10	0.979	1 of 1
1601232-18A	Soil		10.48	10	0.954	1 of 1
1601232-19A	Soil		10.28	10	0.973	1 of 1
1601232-20A	Soil		10.29	10	0.972	1 of 1
1601232-21A	Soil		10.12	10	0.988	1 of 1
1601232-22A	Soil		10.69	10	0.935	1 of 1
1601232-23A	Soil		10.25	10	0.976	1 of 1
1601232-24A	Soil		10.29	10	0.972	1 of 1
1601232-25A	Soil		10.1	10	0.990	1 of 1
1601232-26A	Soil		10.23	10	0.978	1 of 1
1601232-27A	Soil		10.47	10	0.955	1 of 1
1601247-01A	Soil		10.18	10	0.982	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601247-02A	Soil		9.62	10	1.040	1 of 1
Sieved sample will be in 2-oz glass jar						
1601247-03A	Soil		10.38	10	0.963	1 of 1
1601247-04A	Soil		10.21	10	0.979	1 of 1
1601247-04AMS	Soil		10.08	10	0.992	of
1601247-04AMSD	Soil		10.12	10	0.988	of
1601247-05A	Soil		10.27	10	0.974	1 of 1
1601247-06A	Soil		10.01	10	0.999	1 of 1
1601247-07A	Soil		10.16	10	0.984	1 of 1
1601247-08A	Soil		10.23	10	0.978	1 of 1
1601247-09A	Soil		10.36	10	0.965	1 of 1
LCS-73554	Soil		10	10	1.000	of
MB-73554	Soil		10	10	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

REVIEWED/APPROVED

By Sherri Herschmann at 11:19:57 AM, 2/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **2/6/2016 9:42:27 AM**
Digestion:
Prep End Date:

Prep Batch **73554** Prep Code: **3550_PAHDOD** Technician: **Karyn Lane** 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 #
1601232-17A	Soil		10.21	10	1.000	1 of 1
1601232-18A	Soil		10.48	10	1.000	1 of 1
1601232-19A	Soil		10.28	10	1.000	1 of 1
1601232-20A	Soil		10.29	10	1.000	1 of 1
1601232-21A	Soil		10.12	10	1.000	1 of 1
1601232-22A	Soil		10.69	10	1.000	1 of 1
1601232-23A	Soil		10.25	10	1.000	1 of 1
1601232-24A	Soil		10.29	10	1.000	1 of 1
1601232-25A	Soil		10.10	10	1.000	1 of 1
1601232-26A	Soil		10.23	10	1.000	1 of 1
1601232-27A	Soil		10.47	10	1.000	1 of 1
1601247-01A	Soil		10.18	10	1.000	1 of 1
The preparation for PAH & metals must wait til sieve completed.						
1601247-02A	Soil		~~10~~ 9.62	10	1.000	1 of 1
Sieved sample will be in 2-oz glass jar						
1601247-03A	Soil		10.38	10	1.000	1 of 1
1601247-04A	Soil		10.21	10	1.000	1 of 1
1601247-04AMS	Soil		10.08	10	1.000	of
1601247-04AMSD	Soil		10.12	10	1.000	of
1601247-05A	Soil		10.27	10	1.000	1 of 1
1601247-06A	Soil		10.01	10	1.000	1 of 1
1601247-07A	Soil		10.16	10	1.000	1 of 1
1601247-08A	Soil		10.23	10	1.000	1 of 1
1601247-09A	Soil		10.30	10	1.000	1 of 1
LCS-73554	Soil		10	10	1.000	of
MB-73554	Soil		10	10	1.000	of

filter paper broke during drain – refiltered to remove salt

Number	Reagent Name	Amt	Units	Exp. Date
9862	1:1 MeCl2/Acetone	120	ml	12/16/2025
9889	Methylene Chloride	8	ml	12/22/2025
9890	Whatman 41 Filter	1	filter	12/22/2025
9927	purified sodium sulfate	10	g	07/04/2016

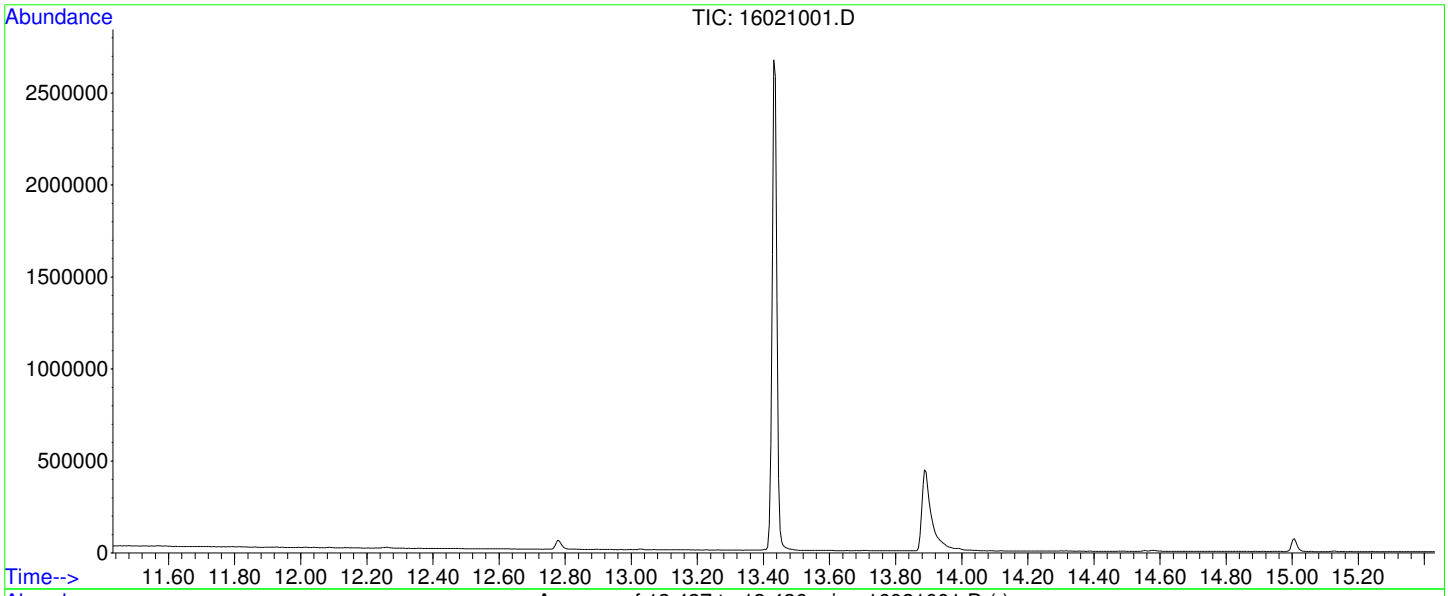
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160126	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	04/25/2016
SVPREP160129	40 PPM Surrogate Standard	ALL	0.25	04/28/2016

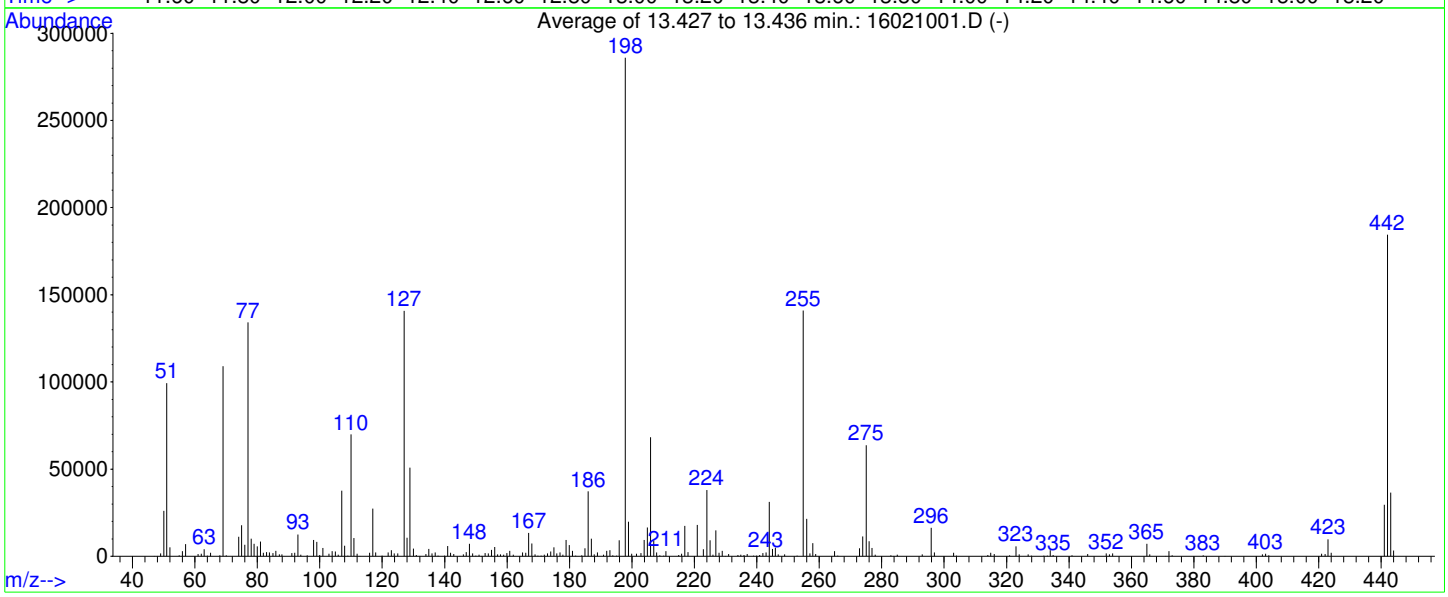
REVIEWED/APPROVED
By Sherri Herschmann at 11:19:53 AM, 2/16/2016

KL 2.16.16

DFTPP

Data File : C:\HPCHEM\1\DATA\160210\16021001.D Vial: 1
Acq On : 10 Feb 2016 8:52 am Operator:
Sample : DFTPP-160210 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 1560, 1561, 1562; Background Corrected with Scan 1554

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.7	99301	PASS
68	69	0.00	2	0.5	533	PASS
69	198	0.00	100	38.1	109003	PASS
70	69	0.00	2	0.6	619	PASS
127	198	10	80	49.2	140773	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	286016	PASS
199	198	5	9	6.9	19801	PASS
275	198	10	60	22.3	63643	PASS
365	198	1	200	2.5	7096	PASS
441	442	0.01	24	16.1	29630	PASS
442	198	50	400	64.5	184544	PASS
443	442	15	24	19.8	36479	PASS

REVIEWED/APPROVED

By Sherri Herschmann at 11:20:17 AM, 2/16/2016

16021001.D DFTPPPAH.M Thu Feb 11 08:48:48 2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021002.D Vial: 2
Acq On : 10 Feb 2016 9:28 am Operator:
Sample : ICV-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.75	136	3018630	4000.00 ug/kg	144
5) Acenaphthene-d10	13.14	164	2298252	4000.00 ug/kg	126
11) Phenanthrene-d10	15.22	188	3695743	4000.00 ug/kg	113
17) Chrysene-d12	20.78	240	3766068	4000.00 ug/kg	130
20) Perylene-d12	25.85	264	3301045	4000.00 ug/kg	143

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	1461283	2194.62 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	54.87%	
16) 4-Terphenyl-d14	17.63	244	1439480	2331.45 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	58.29%	

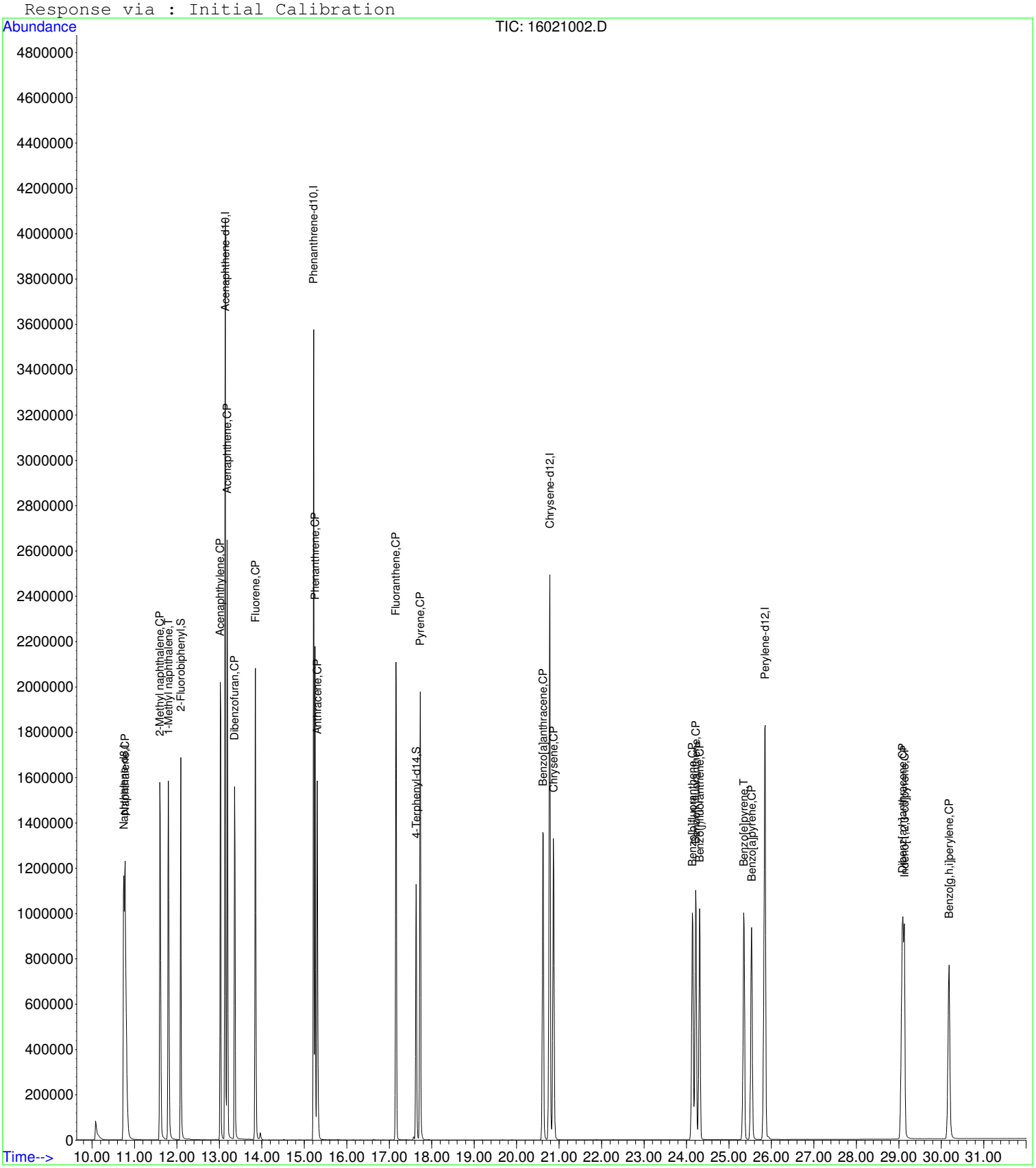
Target Compounds					Qvalue
2) Naphthalene	10.78	128	1654211	2190.35 ug/kg	99
3) 2-Methyl naphthalene	11.60	142	1251068	2103.89 ug/kg	98
4) 1-Methyl naphthalene	11.80	142	1151088	2051.19 ug/kg	97
6) Dibenzofuran	13.36	168	1597248	2138.53 ug/kg	100
8) Acenaphthylene	13.02	152	2015208	2108.89 ug/kg	99
9) Acenaphthene	13.18	154	1227295	2119.69 ug/kg	96
10) Fluorene	13.85	166	1367453	2001.90 ug/kg	98
12) Phenanthrene	15.25	178	1862538	2122.24 ug/kg	98
13) Anthracene	15.30	178	1776293	2068.65 ug/kg	100
14) Fluoranthene	17.16	202	2052379	2358.31 ug/kg	97
15) Pyrene	17.73	202	2089615	2357.35 ug/kg	99
18) Benzo[a]anthracene	20.62	228	1933594	2226.70 ug/kg	99
19) Chrysene	20.87	228	1857598	2246.72 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	1892990	2150.87 ug/kg	97
22) Benzo[k]fluoranthene	24.22	252	1827585	2337.68 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	1629924	2219.42 ug/kg	97
24) Benzo[e]pyrene	25.35	252	1764417	2147.28 ug/kg	97
25) Benzo[a]pyrene	25.53	252	1766186	2208.29 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	1597769	2159.52 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.13	276	1910556	2119.61 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	1516373	2005.00 ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021002.D Vial: 2
Acq On : 10 Feb 2016 9:28 am Operator:
Sample : ICV-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

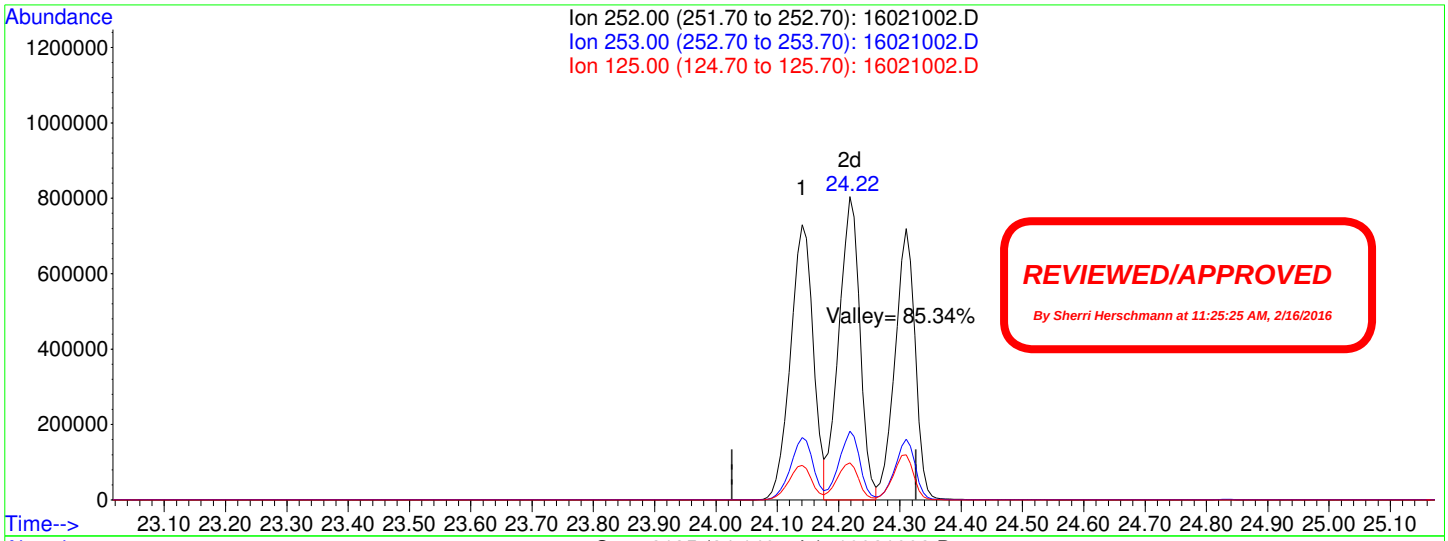
Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Qedit)

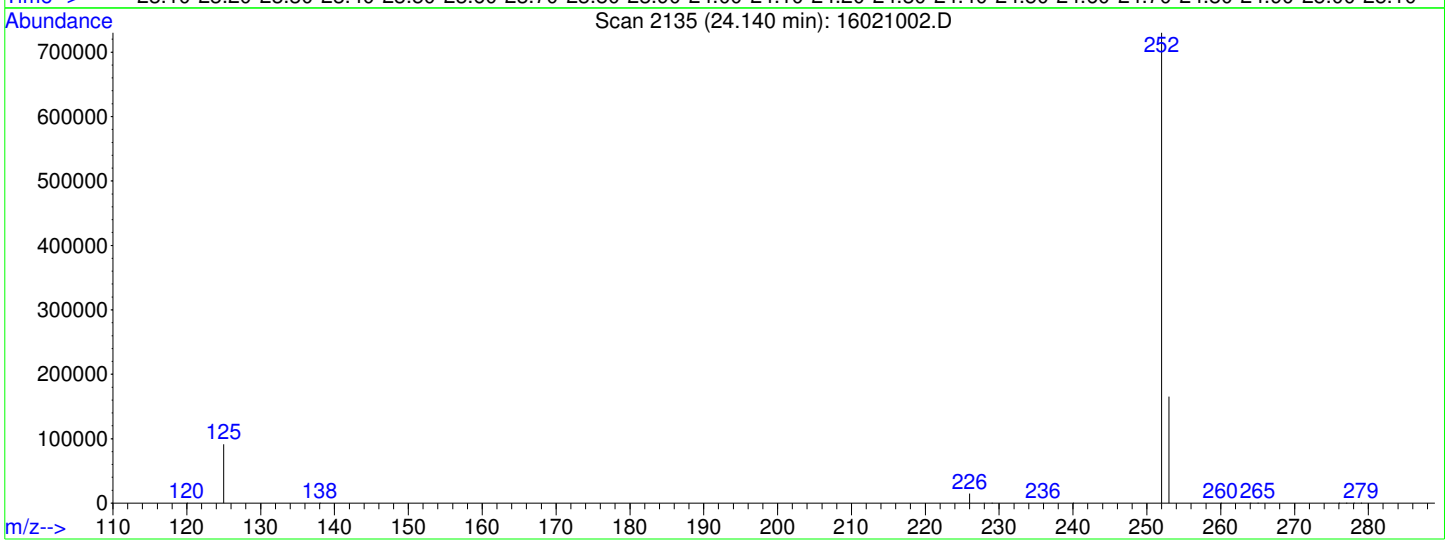
```
Data File : C:\HPCHEM\1\DATA\160210\16021002.D          Vial: 2
Acq On    : 10 Feb 2016   9:28 am                   Operator:
Sample    : ICV-160210                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 10 10:00 2016             Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Feb 05 08:16:01 2016
Response via : Multiple Level Calibration
```



REVIEWED/APPROVED

By Sherri Herschmann at 11:25:25 AM, 2/16/2016



TIC: 16021002.D

(21) Benzo[b]fluoranthene (CP)

24.14min 2150.87ug/kg

response 1892990

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.55
125.00	10.50	12.53
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021003.D Vial: 3
Acq On : 10 Feb 2016 10:38 am Operator:
Sample : MB-73554 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.79	136	2336626	4000.00 ug/kg	111
5) Acenaphthene-d10	13.15	164	1825833	4000.00 ug/kg	100
11) Phenanthrene-d10	15.22	188	3217245	4000.00 ug/kg	98
17) Chrysene-d12	20.78	240	3309290	4000.00 ug/kg	115
20) Perylene-d12	25.85	264	2832370	4000.00 ug/kg	123

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.11	172	434617	821.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.54%#		
16) 4-Terphenyl-d14	17.64	244	529794	985.70 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.64%#		

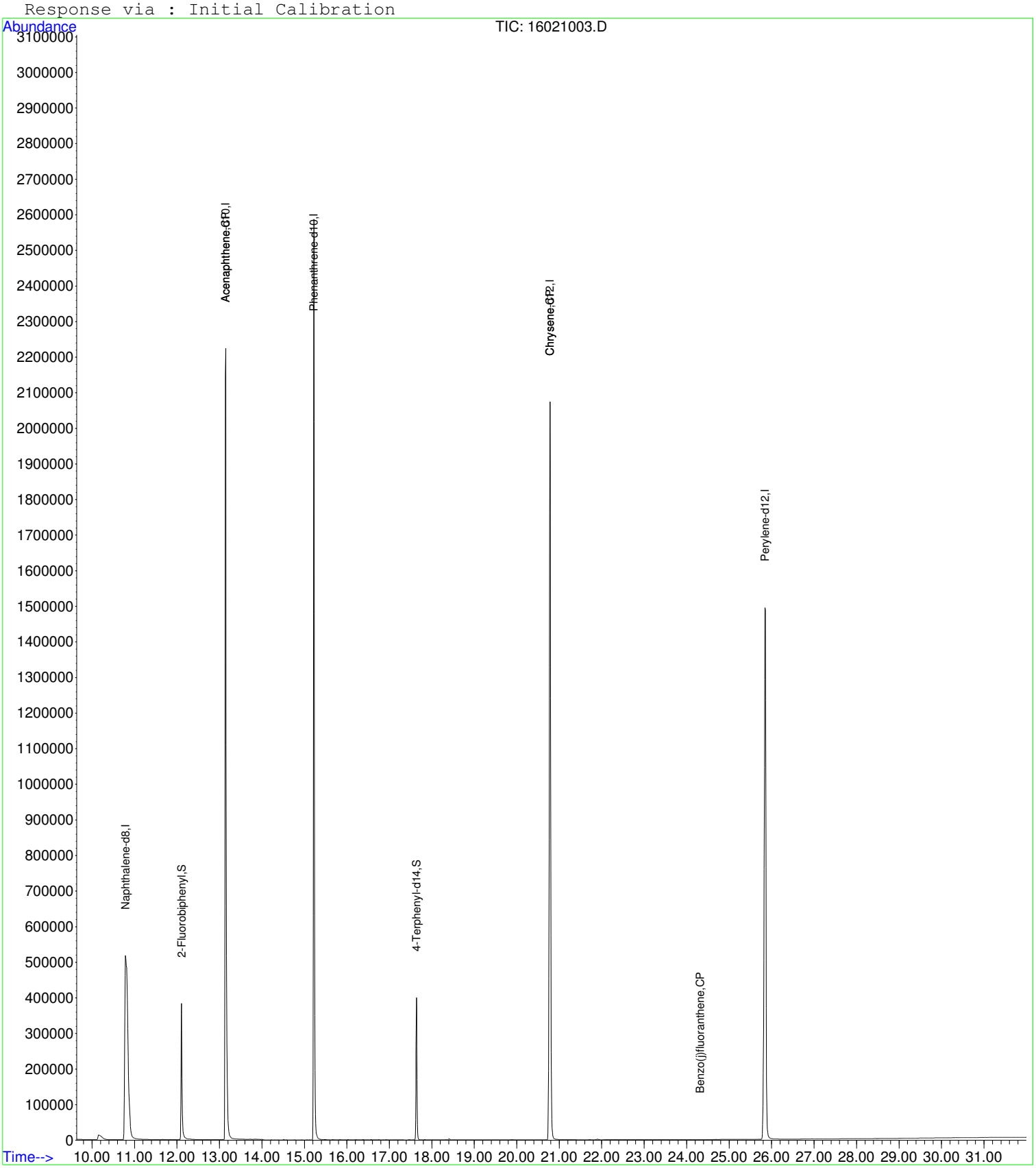
Target Compounds					Qvalue
9) Acenaphthene	13.14	154	6578	14.30 ug/kg#	10
19) Chrysene	20.78	228	7646	10.52 ug/kg	76
23) Benzo(j)fluoranthene	24.33	252	89	0.14 ug/kg#	58

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021003.D Vial: 3
Acq On : 10 Feb 2016 10:38 am Operator:
Sample : MB-73554 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021004.D Vial: 4
Acq On : 10 Feb 2016 11:18 am Operator:
Sample : LCS-73554 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.77	136	2427663	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1741984	4000.00 ug/kg	96
11) Phenanthrene-d10	15.22	188	3084006	4000.00 ug/kg	94
17) Chrysene-d12	20.78	240	3728984	4000.00 ug/kg	129
20) Perylene-d12	25.85	264	3207417	4000.00 ug/kg	139

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.11	172	446309	884.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.11%#		
16) 4-Terphenyl-d14	17.64	244	549665	1066.86 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.67%#		

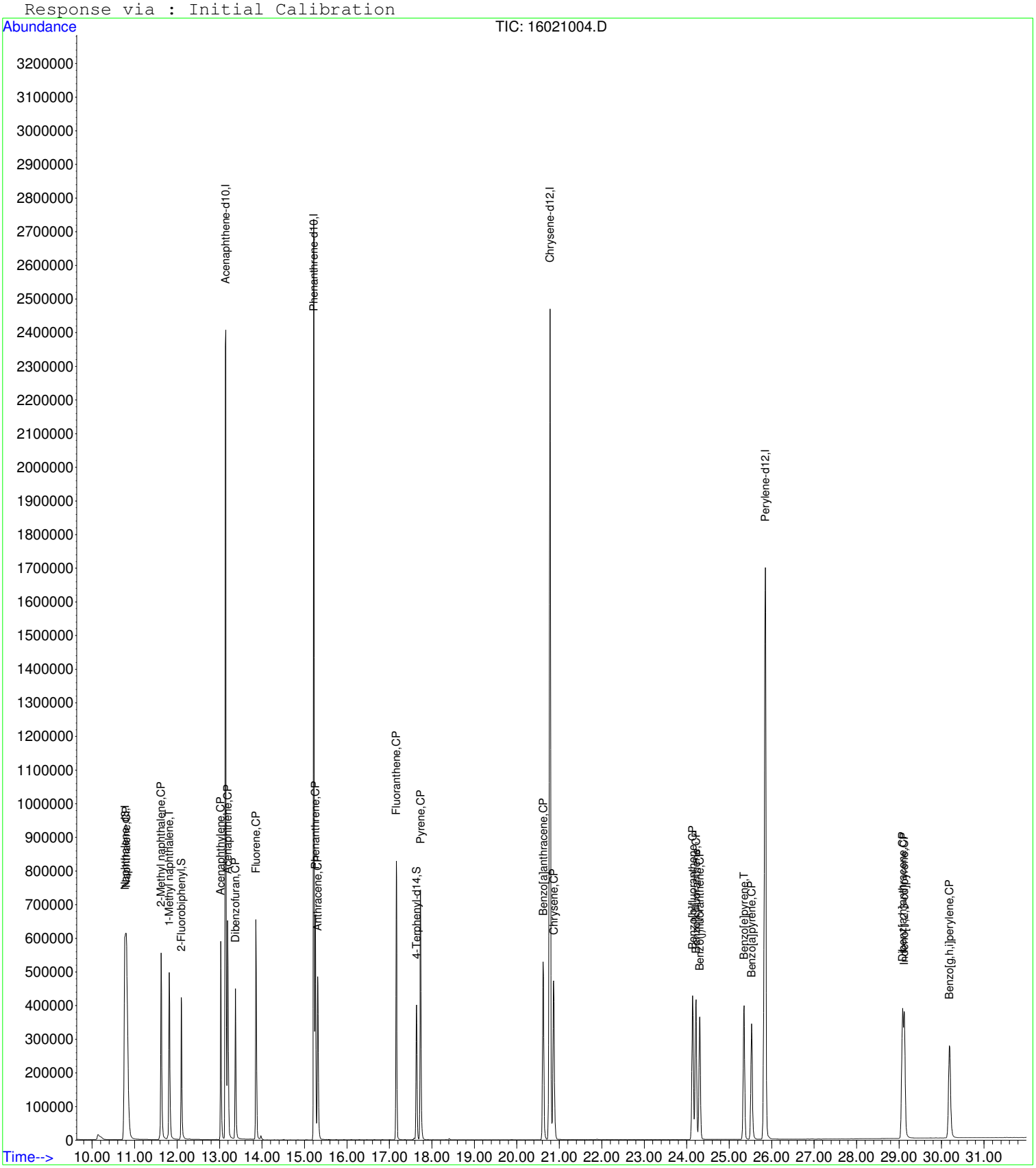
Target Compounds					Qvalue
2) Naphthalene	10.81	128	542781	893.65 ug/kg	100
3) 2-Methyl naphthalene	11.62	142	412800	863.18 ug/kg	99
4) 1-Methyl naphthalene	11.81	142	376685	834.64 ug/kg	94
6) Dibenzofuran	13.37	168	498184	880.01 ug/kg	99
8) Acenaphthylene	13.03	152	632650	873.47 ug/kg	99
9) Acenaphthene	13.19	154	368499	839.68 ug/kg	96
10) Fluorene	13.86	166	429534	829.63 ug/kg	97
12) Phenanthrene	15.25	178	643639	878.86 ug/kg	99
13) Anthracene	15.31	178	603152	841.75 ug/kg	99
14) Fluoranthene	17.16	202	819321	1128.19 ug/kg	98
15) Pyrene	17.73	202	843487	1140.31 ug/kg	99
18) Benzo[a]anthracene	20.62	228	770564	896.19 ug/kg	100
19) Chrysene	20.87	228	744404	909.29 ug/kg	99
21) Benzo[b]fluoranthene	24.14	252	763277	892.57 ug/kg	99
22) Benzo[k]fluoranthene	24.22	252	724339	953.55 ug/kg	99
23) Benzo(j)fluoranthene	24.31	252	637121	892.87 ug/kg	98
24) Benzo[e]pyrene	25.35	252	698450	874.82 ug/kg	98
25) Benzo[a]pyrene	25.53	252	630231	810.99 ug/kg	98
26) Dibenz[a,h]anthracene	29.08	278	620190	862.71 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.13	276	739397	844.25 ug/kg	98
28) Benzo[g,h,i]perylene	30.19	276	601441	818.46 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021004.D Vial: 4
Acq On : 10 Feb 2016 11:18 am Operator:
Sample : LCS-73554 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021016.D Vial: 16
Acq On : 10 Feb 2016 7:22 pm Operator:
Sample : 1601247-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2519860	4000.00 ug/kg	120
5) Acenaphthene-d10	13.15	164	1938453	4000.00 ug/kg	106
11) Phenanthrene-d10	15.23	188	3269160	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3440581	4000.00 ug/kg	119
20) Perylene-d12	25.86	264	2989701	4000.00 ug/kg	129

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.12	172	44133	78.58 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	
16) 4-Terphenyl-d14	17.65	244	46804	85.70 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6891	14.11 ug/kg#	10
14) Fluoranthene	17.21	202	4463	5.80 ug/kg	98
15) Pyrene	17.78	202	4126	5.26 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	1503	2.26 ug/kg	87

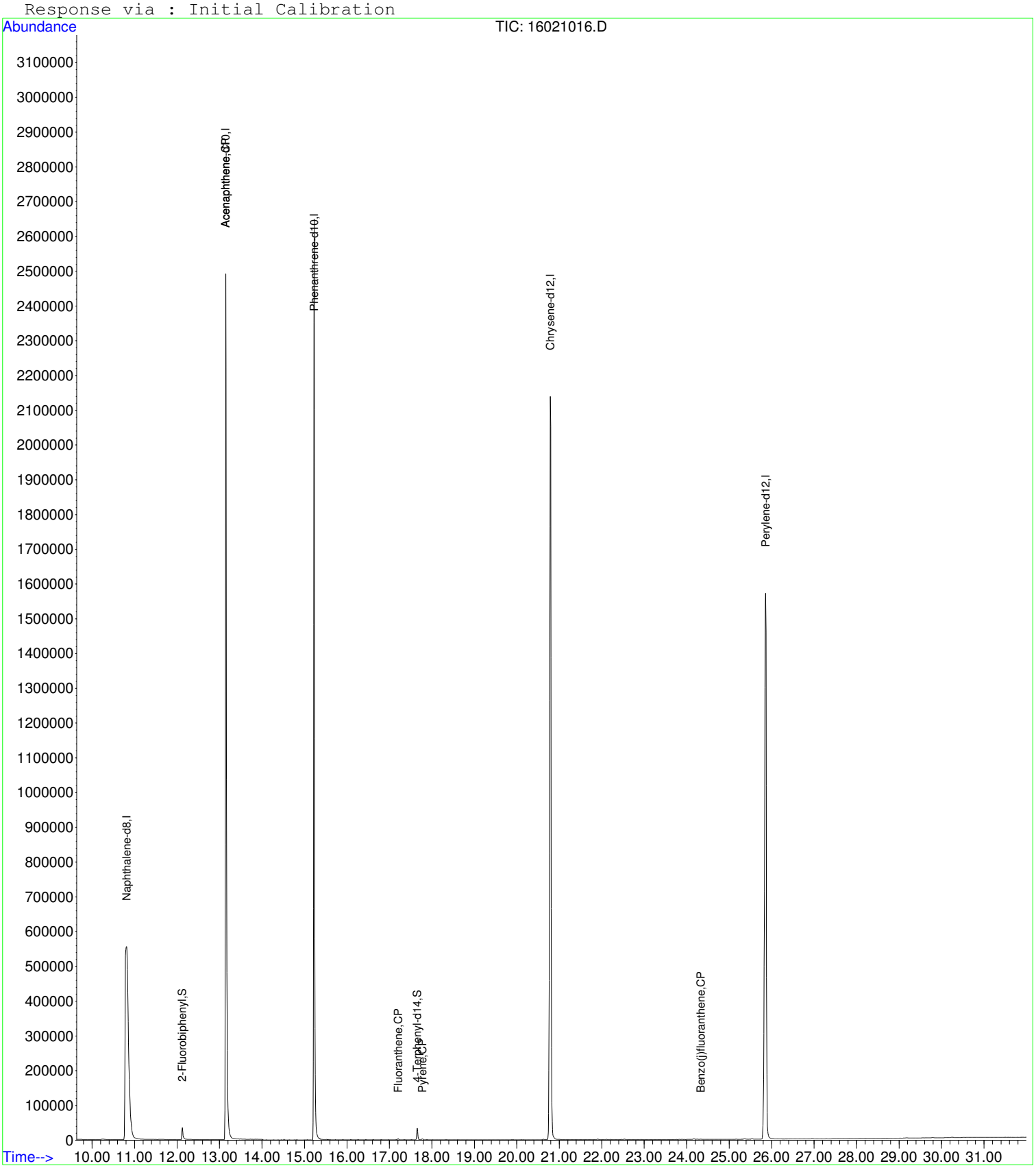
CONFIRMED
By Sherri Herschmann at 11:32:07 AM, 2/16/2016

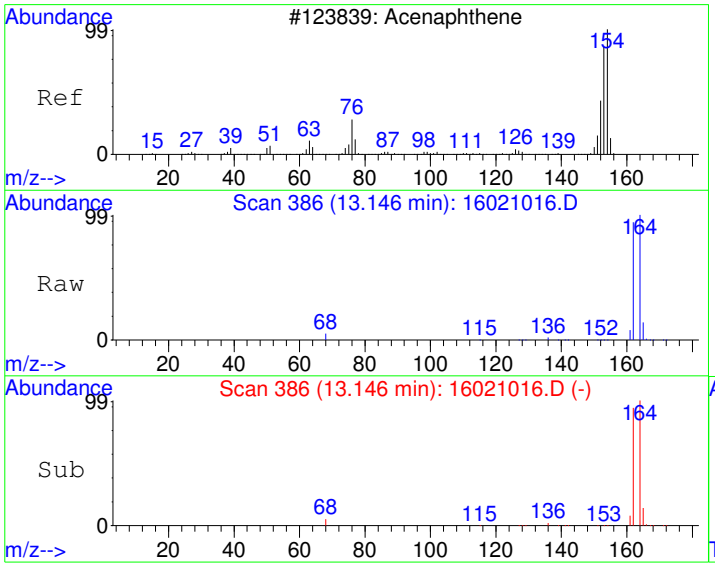
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021016.D Vial: 16
Acq On : 10 Feb 2016 7:22 pm Operator:
Sample : 1601247-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:53 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

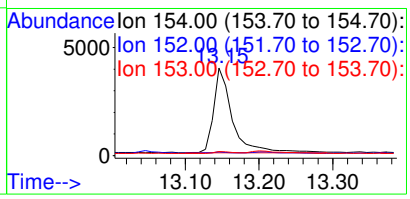


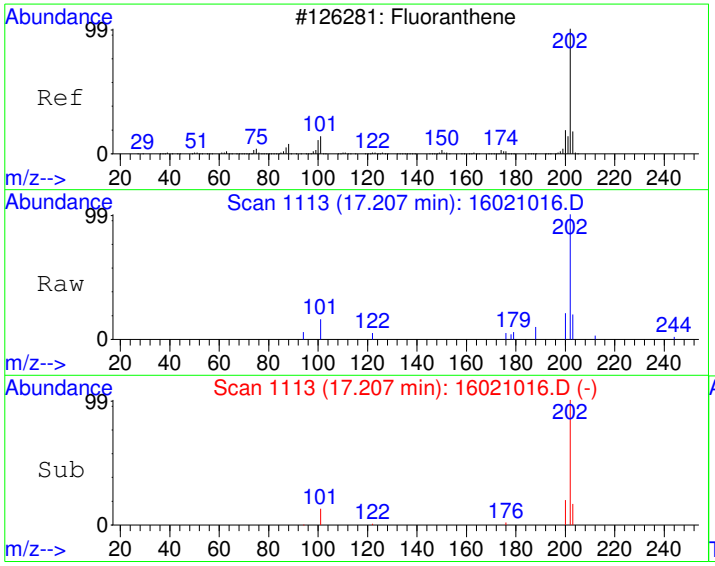


#9
Acenaphthene
Concen: 14.11 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021016.D
Acq: 10 Feb 2016 7:22 pm

Tgt Ion:154 Resp: 6891

Ion	Ratio	Lower	Upper
154	100		
152	1.6	18.7	78.7#
153	2.0	74.4	134.4#

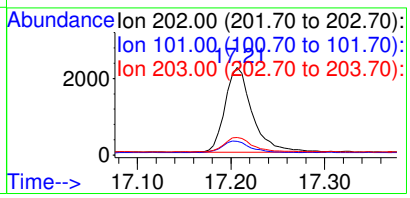


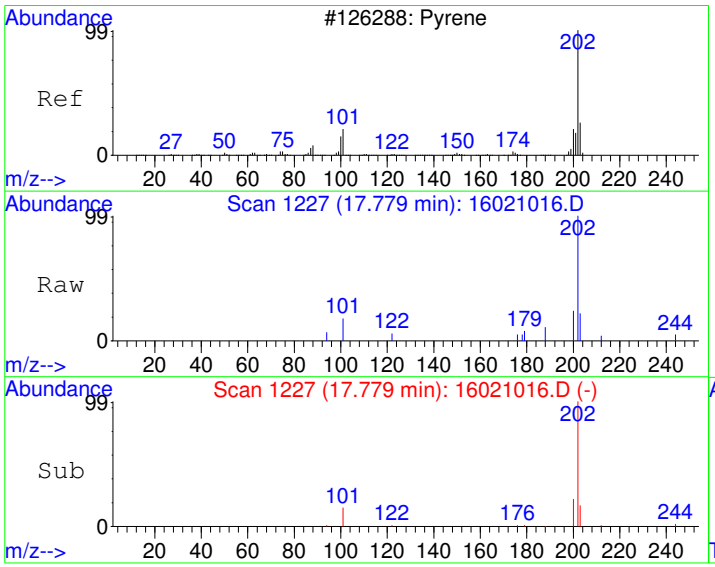


#14
Fluoranthene
Concen: 5.80 ug/kg
RT: 17.21 min Scan# 1113
Delta R.T. 0.03 min
Lab File: 16021016.D
Acq: 10 Feb 2016 7:22 pm

Tgt Ion:202 Resp: 4463

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	42.5
203	16.9	0.0	48.0

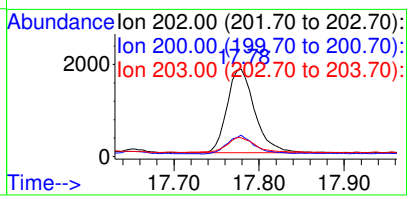


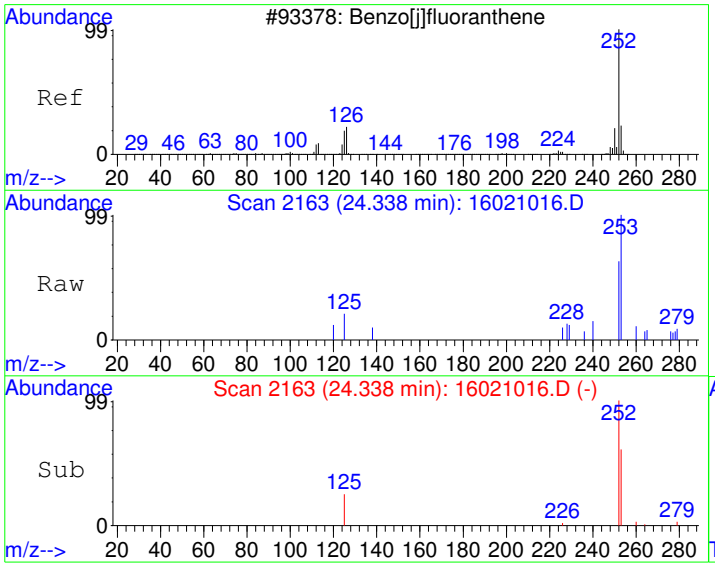


#15
Pyrene
Concen: 5.26 ug/kg
RT: 17.78 min Scan# 1227
Delta R.T. 0.03 min
Lab File: 16021016.D
Acq: 10 Feb 2016 7:22 pm

Tgt Ion:202 Resp: 4126

Ion	Ratio	Lower	Upper
202	100		
200	21.9	0.0	50.0
203	17.7	0.0	48.0

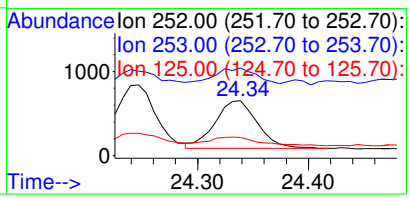




#23
Benzo(j)fluoranthene
Concen: 2.26 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16021016.D
Acq: 10 Feb 2016 7:22 pm

Tgt Ion:252 Resp: 1503

Ion	Ratio	Lower	Upper
252	100		
253	30.1	2.3	42.3
125	16.9	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021017.D Vial: 17
Acq On : 10 Feb 2016 8:02 pm Operator:
Sample : 1601247-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2509890	4000.00 ug/kg	120
5) Acenaphthene-d10	13.15	164	1896762	4000.00 ug/kg	104
11) Phenanthrene-d10	15.23	188	3286290	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3499988	4000.00 ug/kg	121
20) Perylene-d12	25.86	264	3073957	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	41697	75.88 ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#	
16) 4-Terphenyl-d14	17.65	244	44519	81.09 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6674	13.97 ug/kg#	10
14) Fluoranthene	17.21	202	4243	5.48 ug/kg	96
23) Benzo(j)fluoranthene	24.33	252	1320	1.93 ug/kg	93

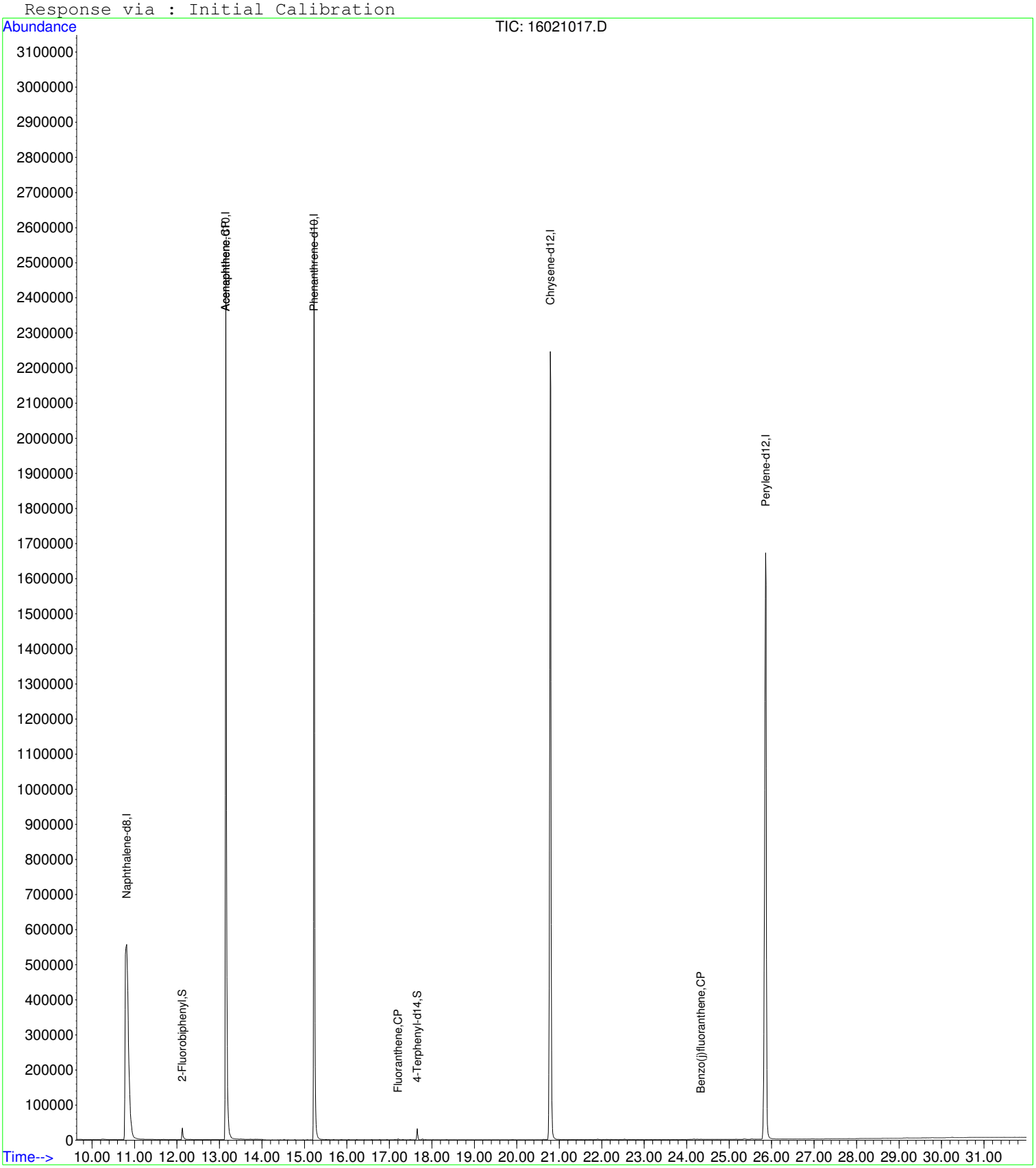
CONFIRMED
By Sherri Herschmann at 11:32:25 AM, 2/16/2016

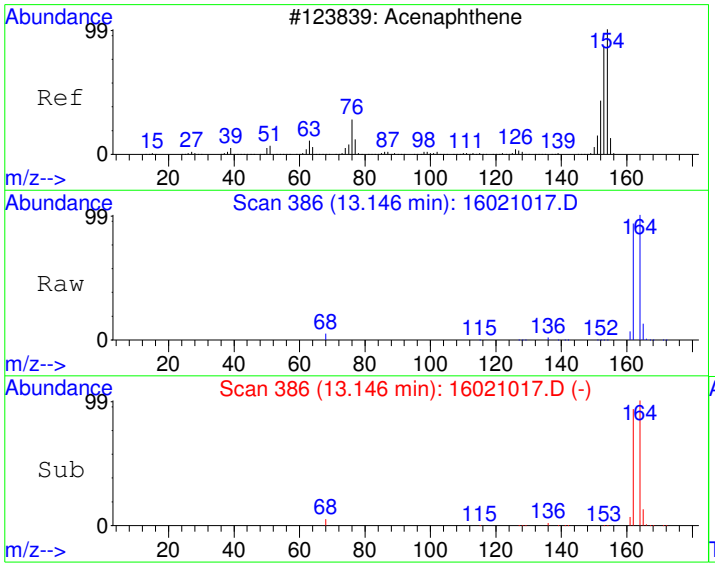
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021017.D Vial: 17
Acq On : 10 Feb 2016 8:02 pm Operator:
Sample : 1601247-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

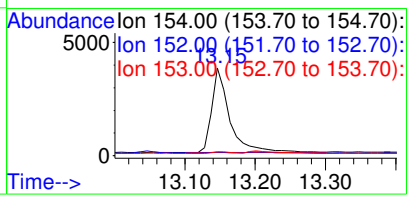


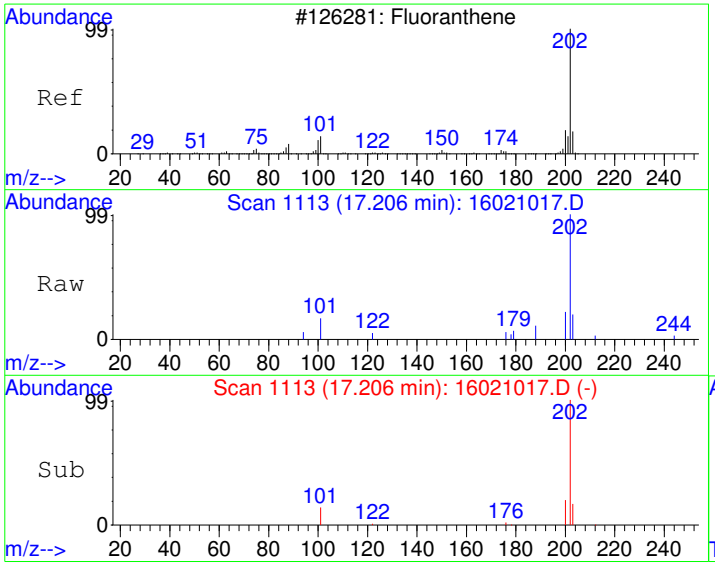


#9
Acenaphthene
Concen: 13.97 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021017.D
Acq: 10 Feb 2016 8:02 pm

Tgt Ion:154 Resp: 6674

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.0	74.4	134.4#

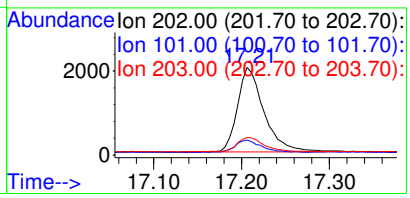


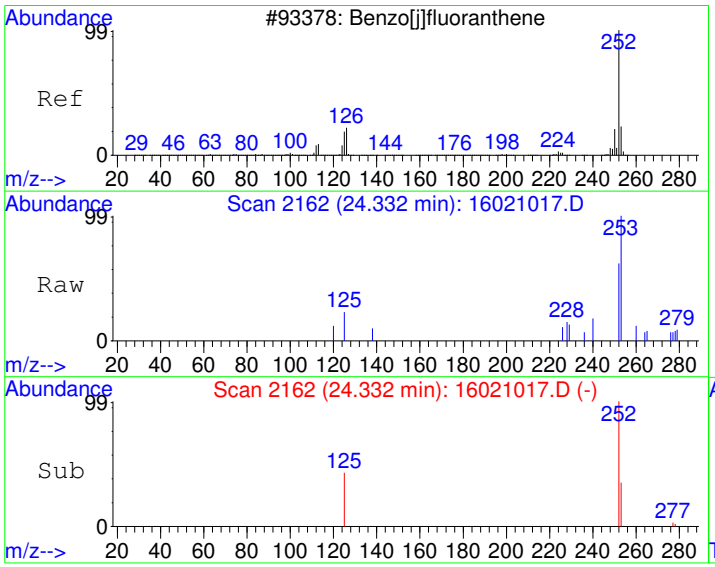


#14
Fluoranthene
Concen: 5.48 ug/kg
RT: 17.21 min Scan# 1113
Delta R.T. 0.03 min
Lab File: 16021017.D
Acq: 10 Feb 2016 8:02 pm

Tgt Ion:202 Resp: 4243

Ion	Ratio	Lower	Upper
202	100		
101	14.5	0.0	42.5
203	16.7	0.0	48.0

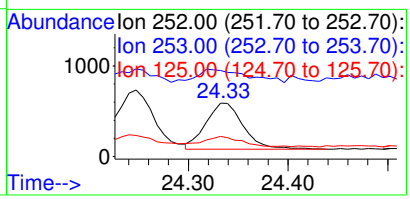




#23
Benzo(j)fluoranthene
Concen: 1.93 ug/kg
RT: 24.33 min Scan# 2162
Delta R.T. -0.01 min
Lab File: 16021017.D
Acq: 10 Feb 2016 8:02 pm

Tgt Ion:252 Resp: 1320

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.3	42.3
125	20.2	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021019.D Vial: 19
Acq On : 10 Feb 2016 9:17 pm Operator:
Sample : ICV2-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.76	136	2894822	4000.00 ug/kg	138
5) Acenaphthene-d10	13.15	164	2140153	4000.00 ug/kg	118
11) Phenanthrene-d10	15.22	188	3416275	4000.00 ug/kg	104
17) Chrysene-d12	20.79	240	3395827	4000.00 ug/kg	118
20) Perylene-d12	25.86	264	2985525	4000.00 ug/kg	129

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	1263548	2037.84 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.95%	
16) 4-Terphenyl-d14	17.64	244	1197359	2097.95 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	52.45%	

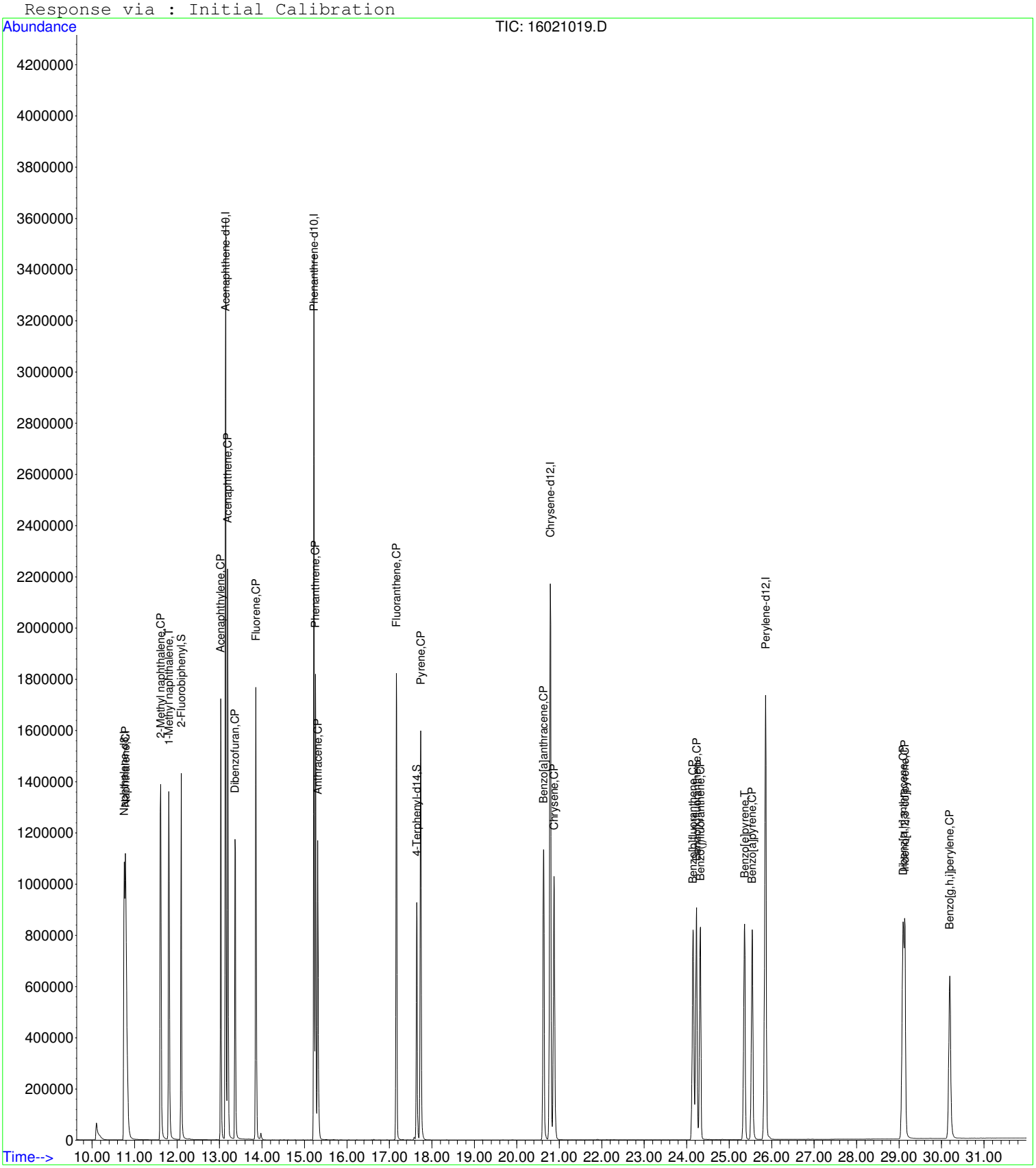
Target Compounds					Qvalue
2) Naphthalene	10.79	128	1462628	2019.51 ug/kg	99
3) 2-Methyl naphthalene	11.61	142	1104226	1936.37 ug/kg	98
4) 1-Methyl naphthalene	11.81	142	1011242	1879.06 ug/kg	96
6) Dibenzofuran	13.37	168	1302408	1872.59 ug/kg	98
8) Acenaphthylene	13.03	152	1725713	1939.34 ug/kg	99
9) Acenaphthene	13.19	154	1044157	1936.61 ug/kg	96
10) Fluorene	13.86	166	1135048	1784.42 ug/kg	98
12) Phenanthrene	15.26	178	1566487	1930.92 ug/kg	99
13) Anthracene	15.31	178	1453591	1831.32 ug/kg	100
14) Fluoranthene	17.17	202	1747410	2172.13 ug/kg	98
15) Pyrene	17.74	202	1768912	2158.80 ug/kg	99
18) Benzo[a]anthracene	20.63	228	1624232	2074.37 ug/kg	99
19) Chrysene	20.87	228	1547957	2076.34 ug/kg	99
21) Benzo[b]fluoranthene	24.15	252	1636629	2056.11 ug/kg	97
22) Benzo[k]fluoranthene	24.23	252	1427124	2018.36 ug/kg	99
23) Benzo(j)fluoranthene	24.32	252	1383184	2082.49 ug/kg	98
24) Benzo[e]pyrene	25.36	252	1521901	2047.88 ug/kg	99
25) Benzo[a]pyrene	25.54	252	1498582	2071.72 ug/kg	99
26) Dibenz[a,h]anthracene	29.10	278	1367024	2042.91 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.14	276	1632837	2002.94 ug/kg	99
28) Benzo[g,h,i]perylene	30.19	276	1286986	1881.54 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021019.D Vial: 19
Acq On : 10 Feb 2016 9:17 pm Operator:
Sample : ICV2-160210 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021021.D Vial: 21
Acq On : 10 Feb 2016 10:38 pm Operator:
Sample : SB-160210 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2136665	4000.00 ug/kg	102
5) Acenaphthene-d10	13.15	164	1588594	4000.00 ug/kg	87
11) Phenanthrene-d10	15.23	188	2697052	4000.00 ug/kg	82
17) Chrysene-d12	20.79	240	2757243	4000.00 ug/kg	95
20) Perylene-d12	25.86	264	2417445	4000.00 ug/kg	105

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.14	172	187	0.41 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	
16) 4-Terphenyl-d14	17.69	244	185	0.41 ug/kg	0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#	

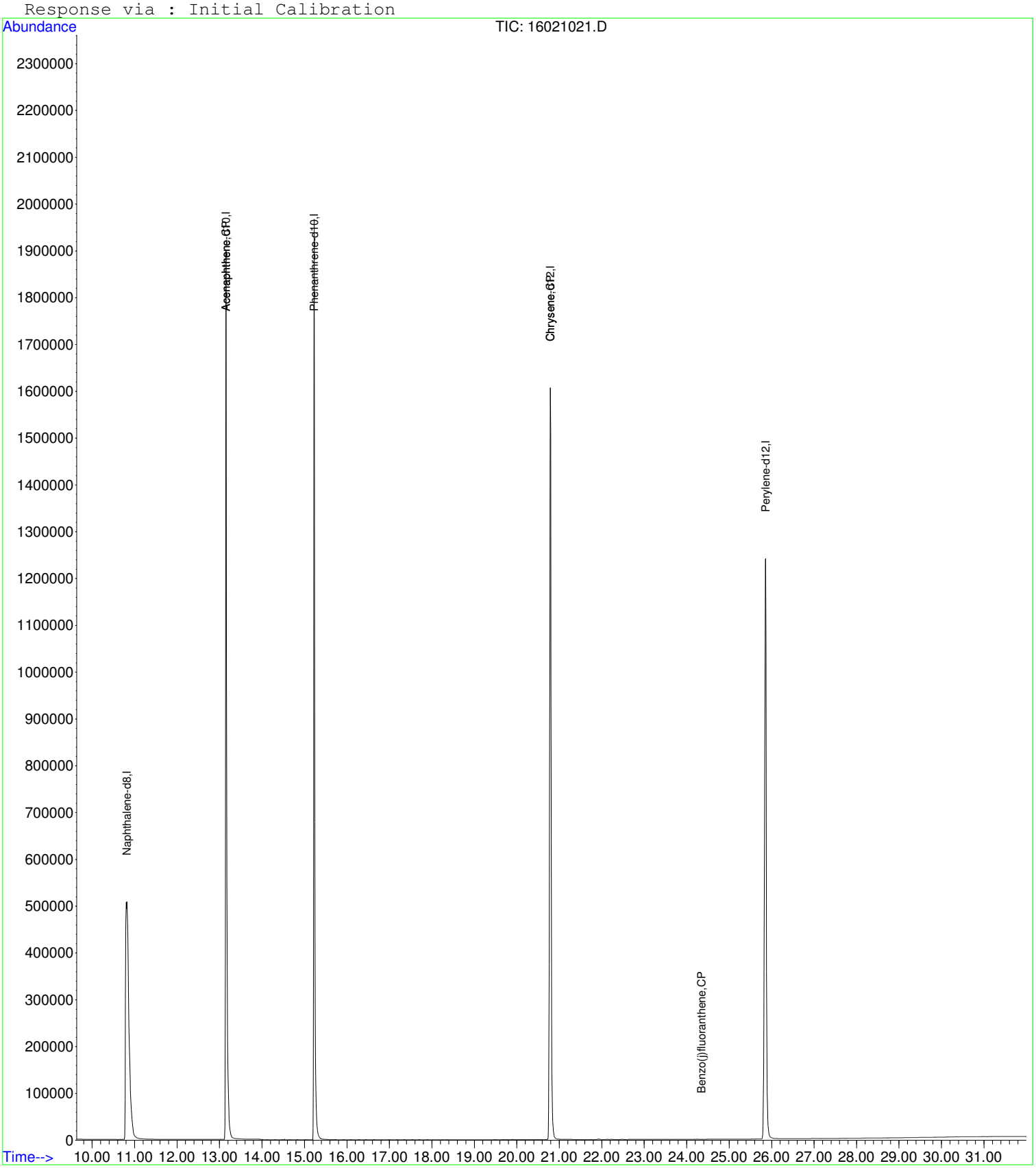
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	5632	14.07 ug/kg#	10
19) Chrysene	20.79	228	6141	10.14 ug/kg	74
23) Benzo(j)fluoranthene	24.35	252	26	0.05 ug/kg#	58

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021021.D Vial: 21
Acq On : 10 Feb 2016 10:38 pm Operator:
Sample : SB-160210 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:49 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021022.D Vial: 22
Acq On : 10 Feb 2016 11:18 pm Operator:
Sample : 1601247-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2358086	4000.00 ug/kg	112
5) Acenaphthene-d10	13.15	164	1877380	4000.00 ug/kg	103
11) Phenanthrene-d10	15.23	188	3261504	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3425932	4000.00 ug/kg	119
20) Perylene-d12	25.86	264	3013767	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	40542	74.54 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#	
16) 4-Terphenyl-d14	17.66	244	43679	80.16 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6616	13.99 ug/kg#	10
14) Fluoranthene	17.21	202	4213	5.49 ug/kg	95
15) Pyrene	17.79	202	3992	5.10 ug/kg	98
23) Benzo(j)fluoranthene	24.34	252	1391	2.07 ug/kg	85

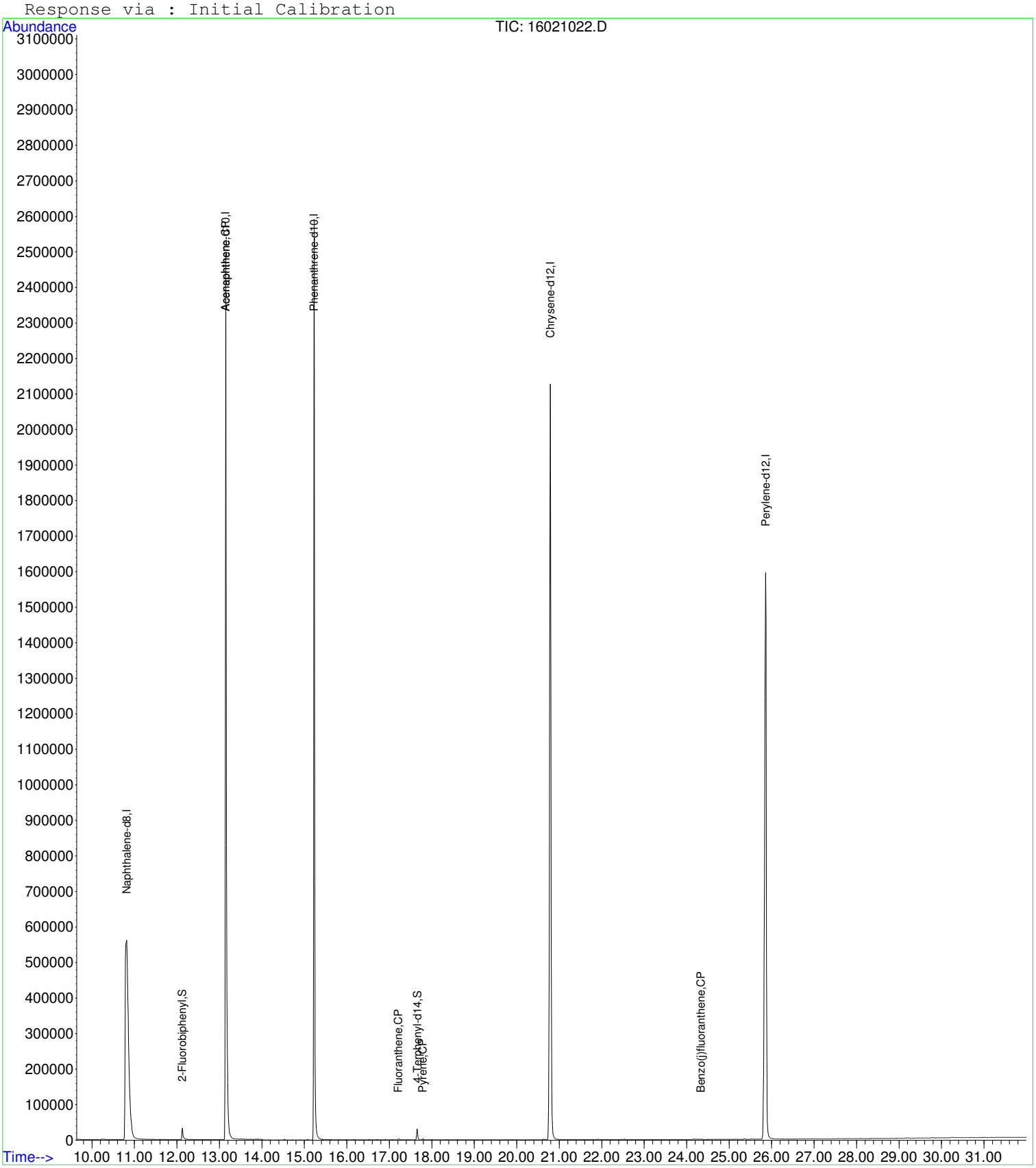
CONFIRMED
By Sherri Herschmann at 11:33:17 AM, 2/16/2016

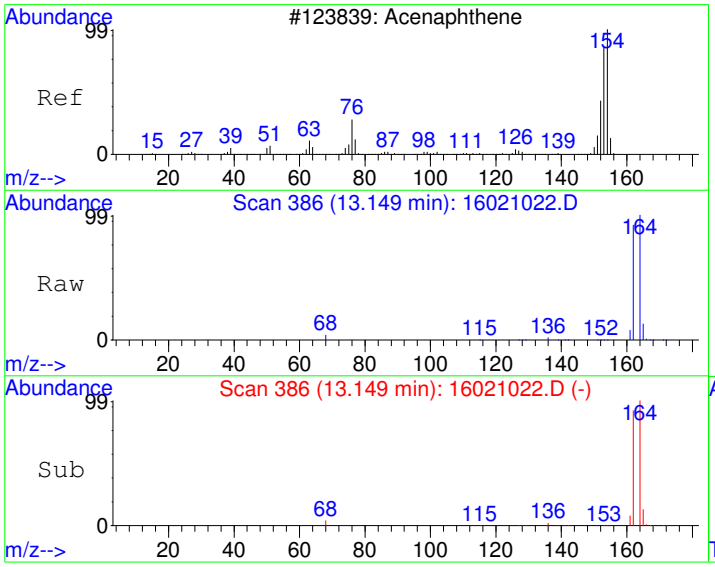
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021022.D Vial: 22
Acq On : 10 Feb 2016 11:18 pm Operator:
Sample : 1601247-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

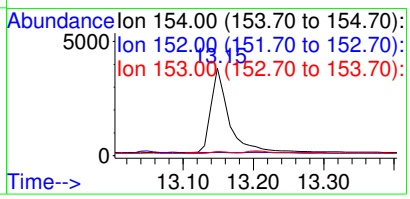


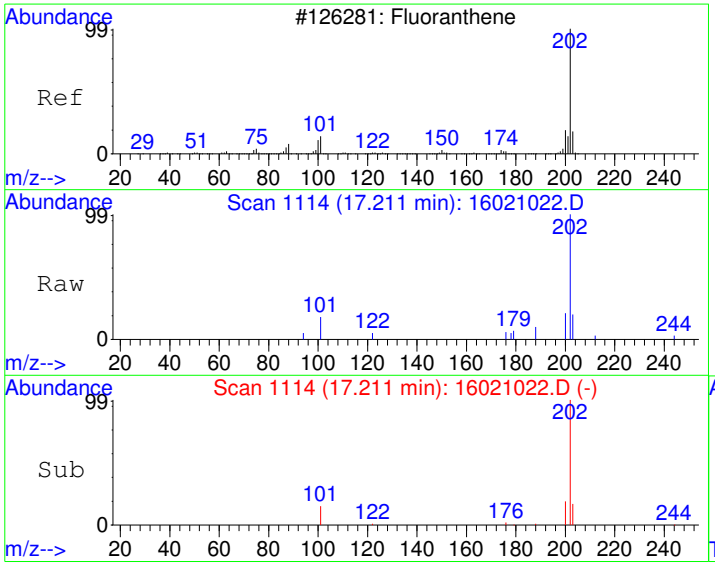


#9
Acenaphthene
Concen: 13.99 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021022.D
Acq: 10 Feb 2016 11:18 pm

Tgt Ion:154 Resp: 6616

Ion	Ratio	Lower	Upper
154	100		
152	1.2	18.7	78.7#
153	2.3	74.4	134.4#

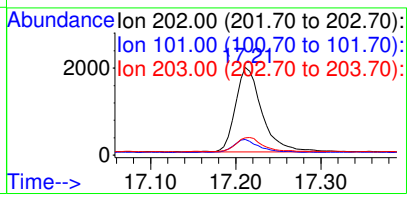


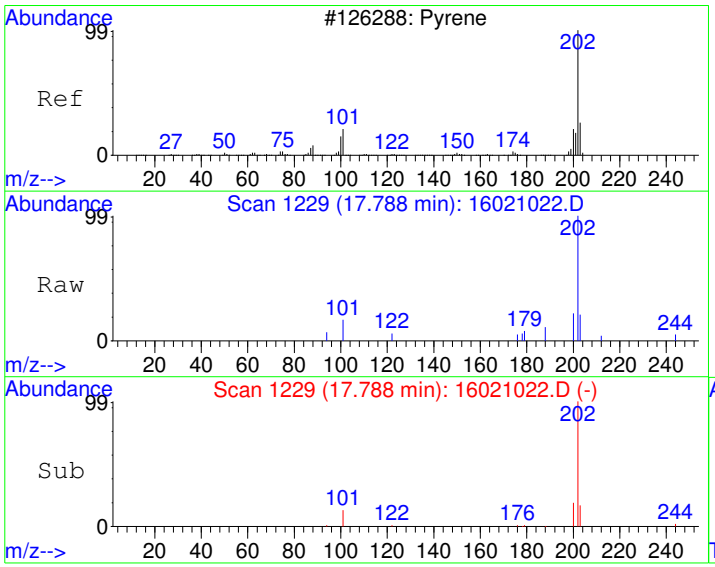


#14
Fluoranthene
Concen: 5.49 ug/kg
RT: 17.21 min Scan# 1114
Delta R.T. 0.04 min
Lab File: 16021022.D
Acq: 10 Feb 2016 11:18 pm

Tgt Ion:202 Resp: 4213

Ion	Ratio	Lower	Upper
202	100		
101	15.1	0.0	42.5
203	16.6	0.0	48.0

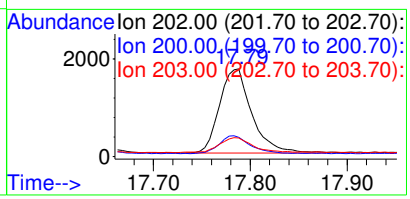


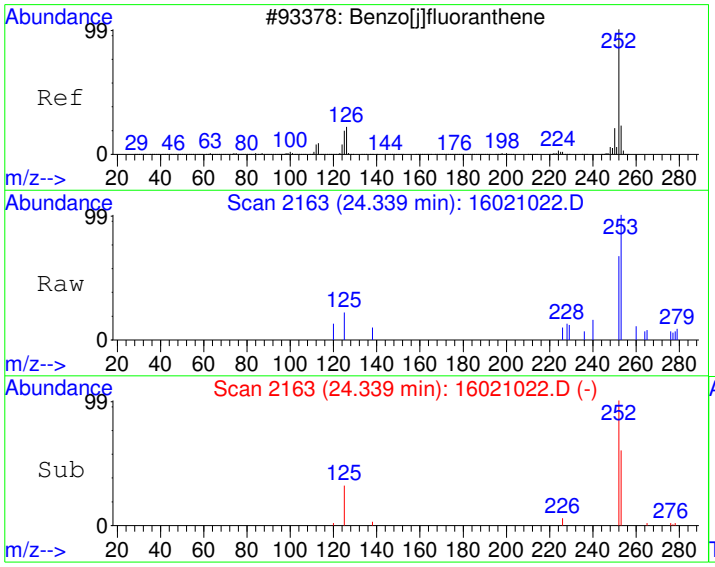


#15
Pyrene
Concen: 5.10 ug/kg
RT: 17.79 min Scan# 1229
Delta R.T. 0.04 min
Lab File: 16021022.D
Acq: 10 Feb 2016 11:18 pm

Tgt Ion:202 Resp: 3992

Ion	Ratio	Lower	Upper
202	100		
200	18.8	0.0	50.0
203	17.2	0.0	48.0

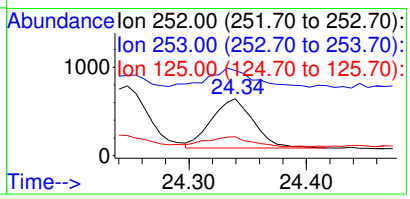




#23
Benzo(j)fluoranthene
Concen: 2.07 ug/kg
RT: 24.34 min Scan# 2163
Delta R.T. -0.01 min
Lab File: 16021022.D
Acq: 10 Feb 2016 11:18 pm

Tgt Ion:252 Resp: 1391

Ion	Ratio	Lower	Upper
252	100		
253	29.9	2.3	42.3
125	19.5	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021023.D Vial: 23
Acq On : 10 Feb 2016 11:58 pm Operator:
Sample : 1601247-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.81	136	2326886	4000.00 ug/kg	111
5) Acenaphthene-d10	13.15	164	1947488	4000.00 ug/kg	107
11) Phenanthrene-d10	15.23	188	3304075	4000.00 ug/kg	101
17) Chrysene-d12	20.79	240	3246467	4000.00 ug/kg	112
20) Perylene-d12	25.86	264	2997951	4000.00 ug/kg	130

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	42552	75.42 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#	
16) 4-Terphenyl-d14	17.65	244	46401	84.06 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6258	12.76 ug/kg#	10
12) Phenanthrene	15.26	178	30951	39.45 ug/kg	99
13) Anthracene	15.33	178	5150	6.71 ug/kg	97
14) Fluoranthene	17.18	202	105193	135.20 ug/kg	97
15) Pyrene	17.75	202	97708	123.29 ug/kg	99
18) Benzo[a]anthracene	20.63	228	56856	75.95 ug/kg	99
19) Chrysene	20.88	228	70434	98.82 ug/kg	99
21) Benzo[b]fluoranthene	24.16	252	78439	98.14 ug/kg	98
22) Benzo[k]fluoranthene	24.23	252	32618	45.94 ug/kg	97
23) Benzo(j)fluoranthene	24.33	252	33762	50.62 ug/kg	88
24) Benzo[e]pyrene	25.36	252	60365	80.89 ug/kg	97
25) Benzo[a]pyrene	25.54	252	71828	98.89 ug/kg	99
26) Dibenz[a,h]anthracene	29.11	278	11695	17.40 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.15	276	53867	65.80 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	55915	81.41 ug/kg	97

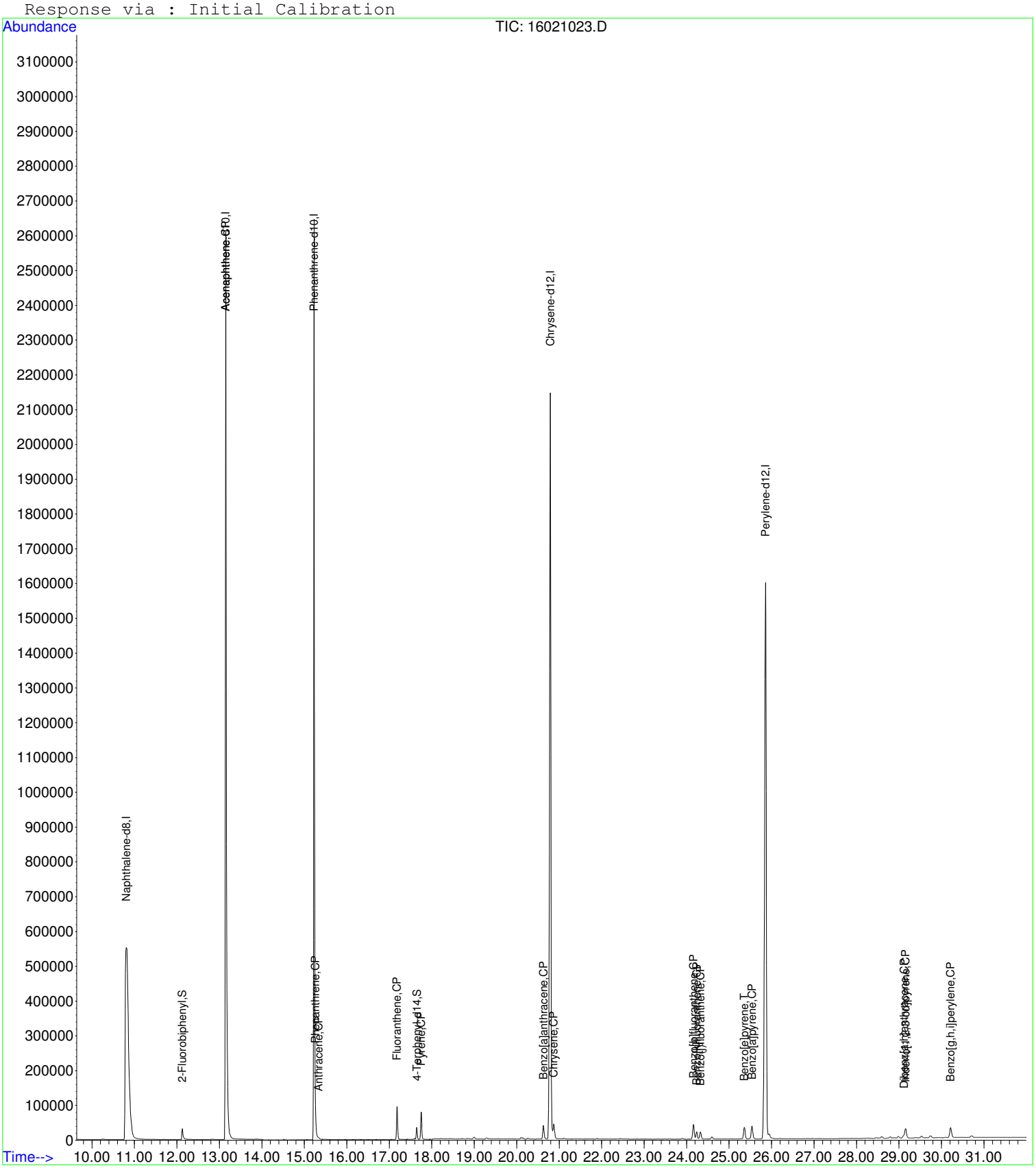
CONFIRMED
By Sherri Herschmann at 11:33:28 AM, 2/16/2016

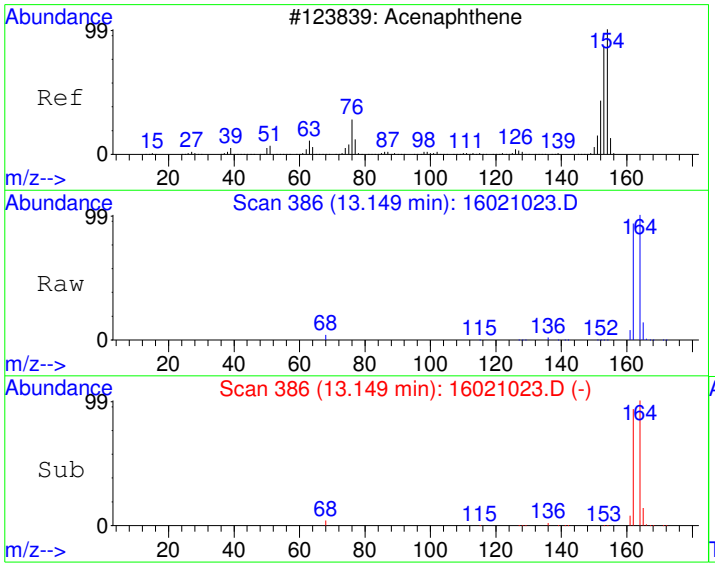
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021023.D Vial: 23
Acq On : 10 Feb 2016 11:58 pm Operator:
Sample : 1601247-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

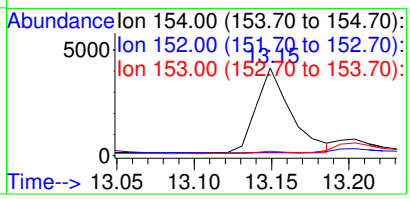


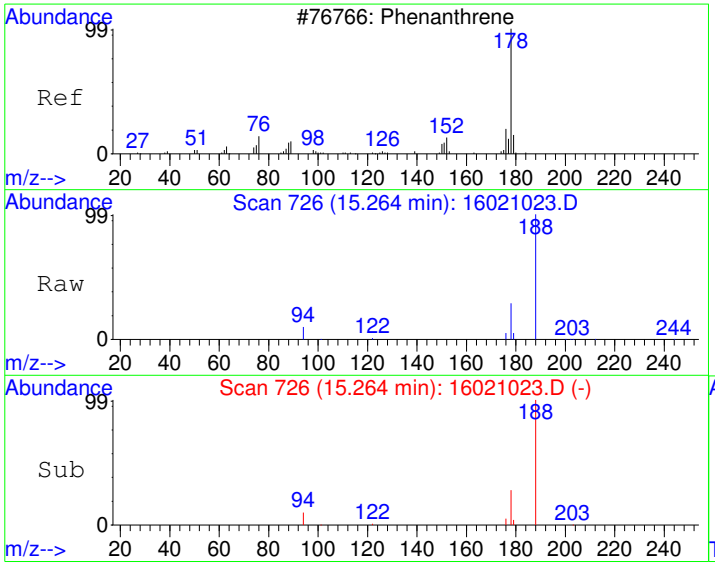


#9
Acenaphthene
Concen: 12.76 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:154 Resp: 6258

Ion	Ratio	Lower	Upper
154	100		
152	0.7	18.7	78.7#
153	2.4	74.4	134.4#

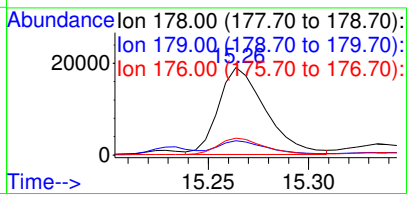


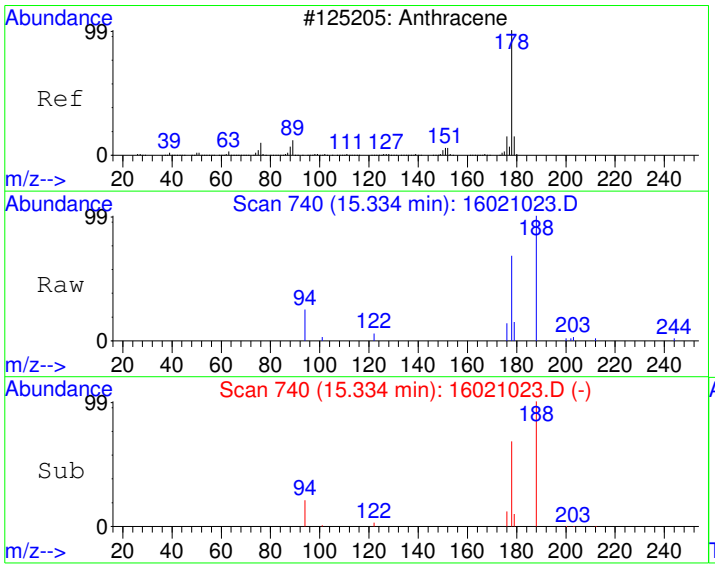


#12
Phenanthrene
Concen: 39.45 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:178 Resp: 30951

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	46.1
176	19.2	0.0	49.0

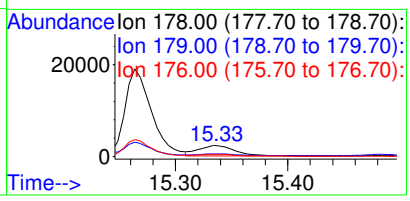


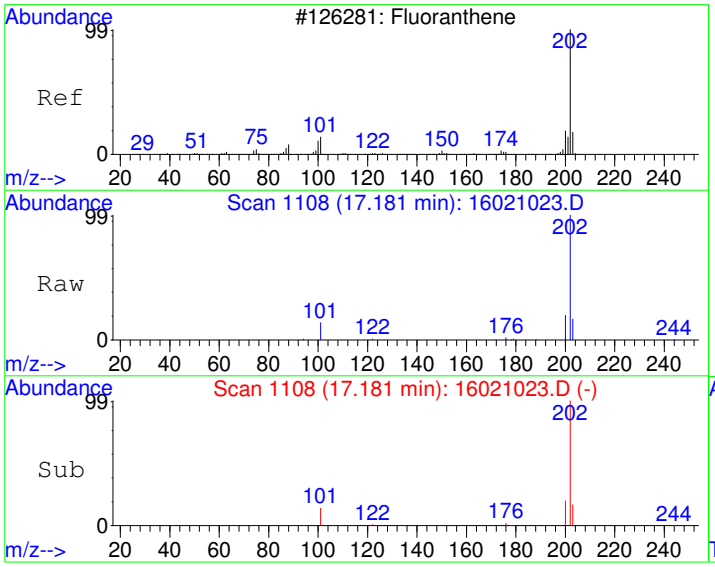


#13
Anthracene
Concen: 6.71 ug/kg
RT: 15.33 min Scan# 740
Delta R.T. 0.02 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:178 Resp: 5150

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	46.0
176	17.8	0.0	48.6

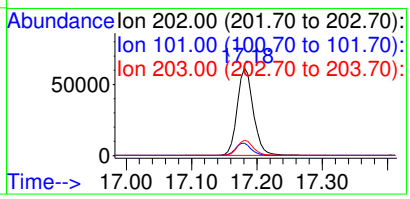


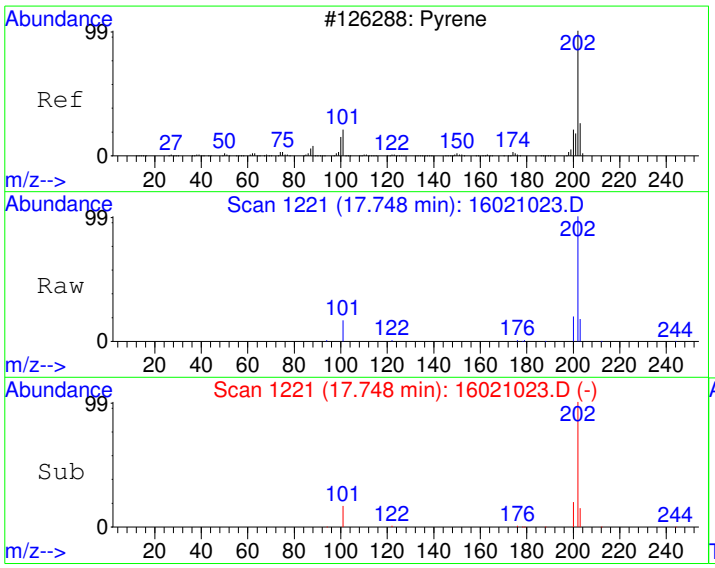


#14
Fluoranthene
Concen: 135.20 ug/kg
RT: 17.18 min Scan# 1108
Delta R.T. 0.00 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:202 Resp: 105193

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	42.5
203	17.2	0.0	48.0

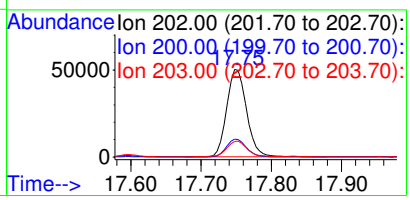


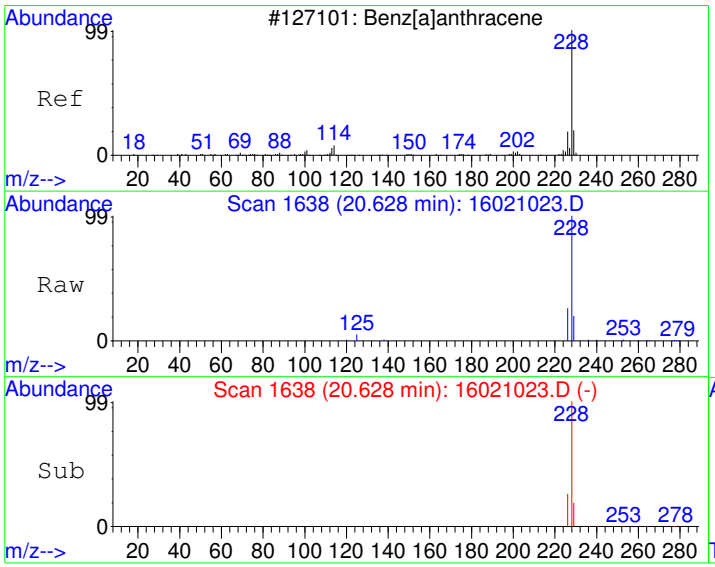


#15
Pyrene
Concen: 123.29 ug/kg
RT: 17.75 min Scan# 1221
Delta R.T. -0.00 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:202 Resp: 97708

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.7	0.0	48.0

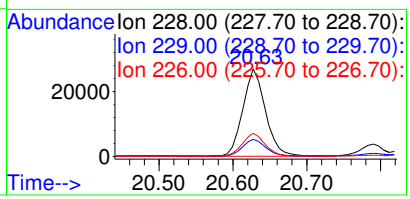


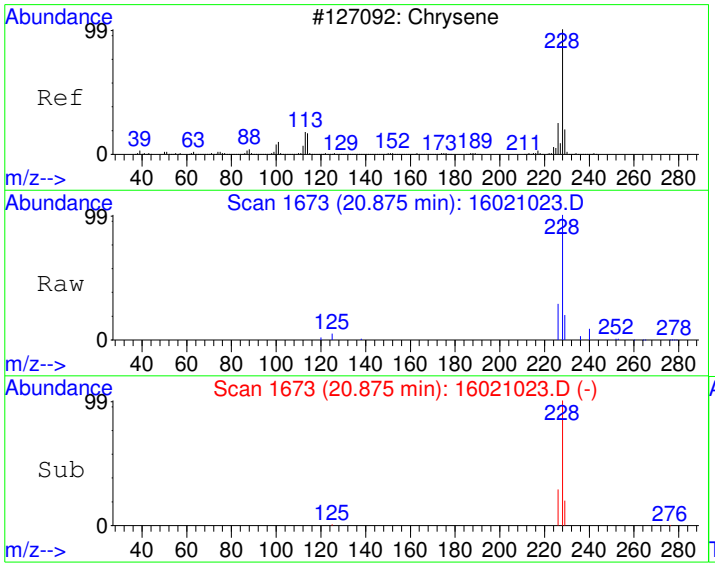


#18
Benzo[a]anthracene
Concen: 75.95 ug/kg
RT: 20.63 min Scan# 1638
Delta R.T. -0.02 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:228 Resp: 56856

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	50.0
226	26.2	0.0	56.4

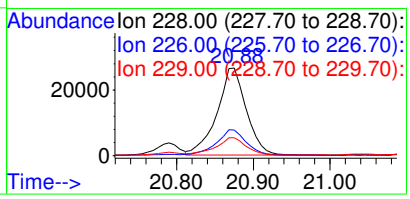


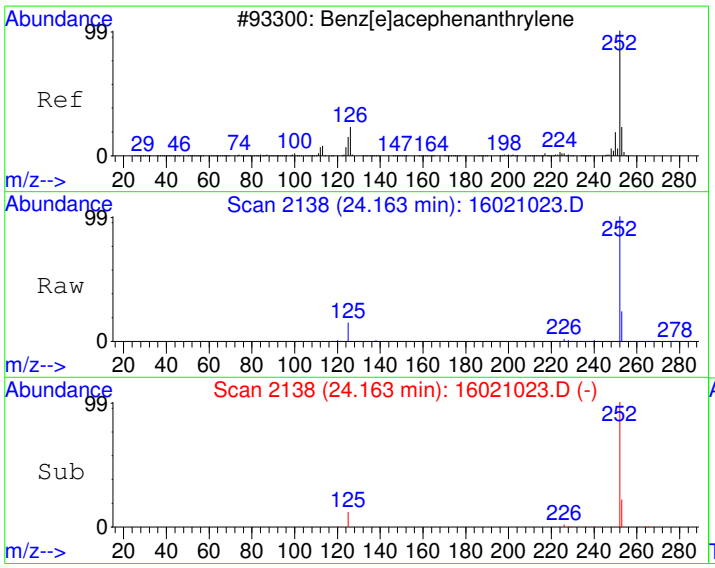


#19
Chrysene
Concen: 98.82 ug/kg
RT: 20.88 min Scan# 1673
Delta R.T. -0.02 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:228 Resp: 70434

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.5
229	19.9	0.0	50.1

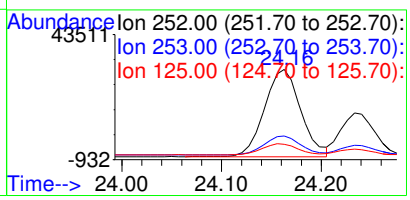


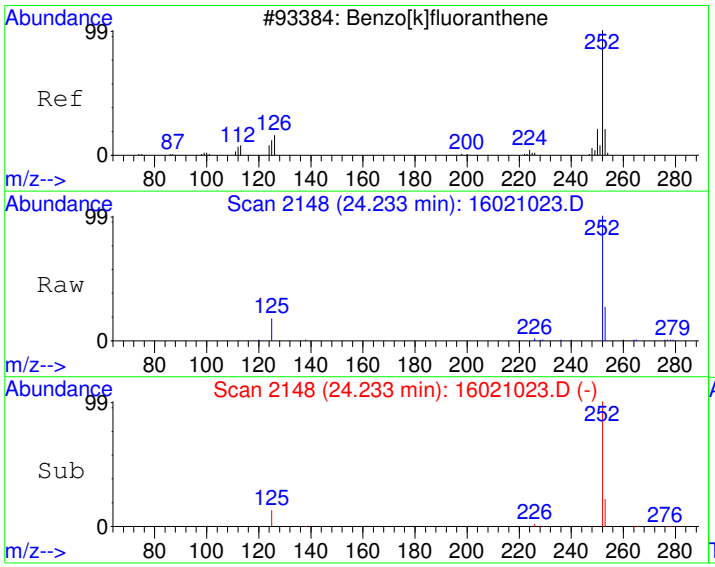


#21
Benzo[b]fluoranthene
Concen: 98.14 ug/kg
RT: 24.16 min Scan# 2138
Delta R.T. -0.01 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:252 Resp: 78439

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	52.0
125	12.2	0.0	40.5

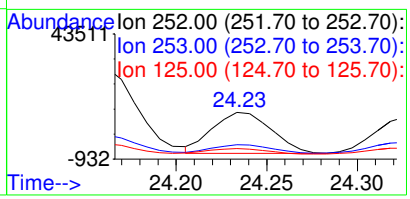


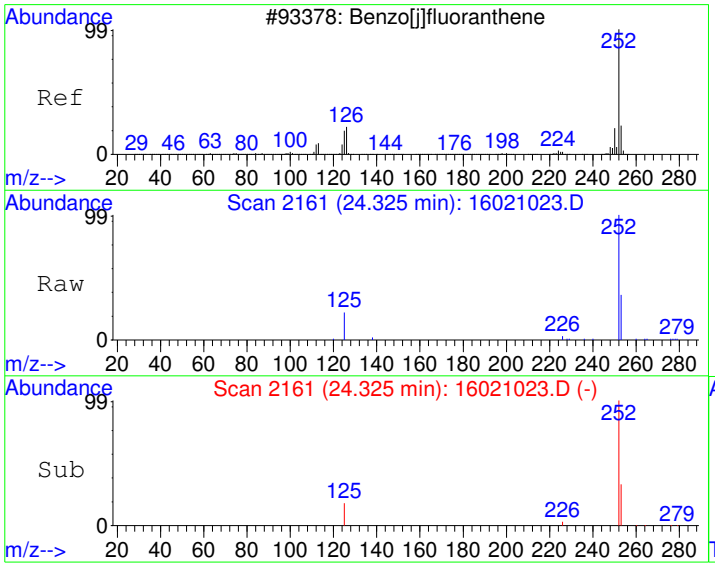


#22
Benzo[k]fluoranthene
Concen: 45.94 ug/kg
RT: 24.23 min Scan# 2148
Delta R.T. -0.02 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:252 Resp: 32618

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.2	42.2
125	12.7	0.0	31.8

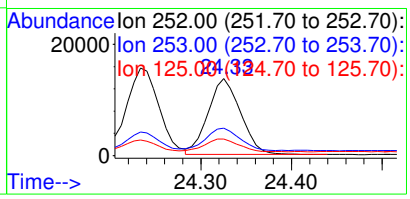


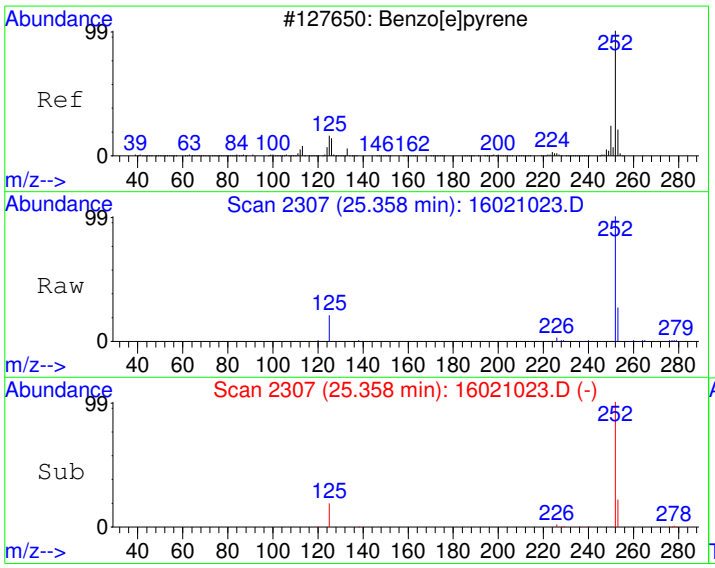


#23
Benzo(j)fluoranthene
Concen: 50.62 ug/kg
RT: 24.33 min Scan# 2161
Delta R.T. -0.02 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:252 Resp: 33762

Ion	Ratio	Lower	Upper
252	100		
253	29.8	2.3	42.3
125	16.7	0.0	34.0

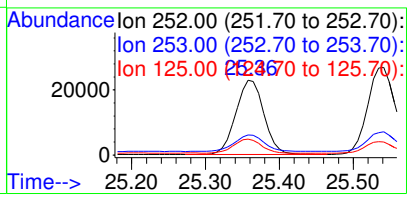


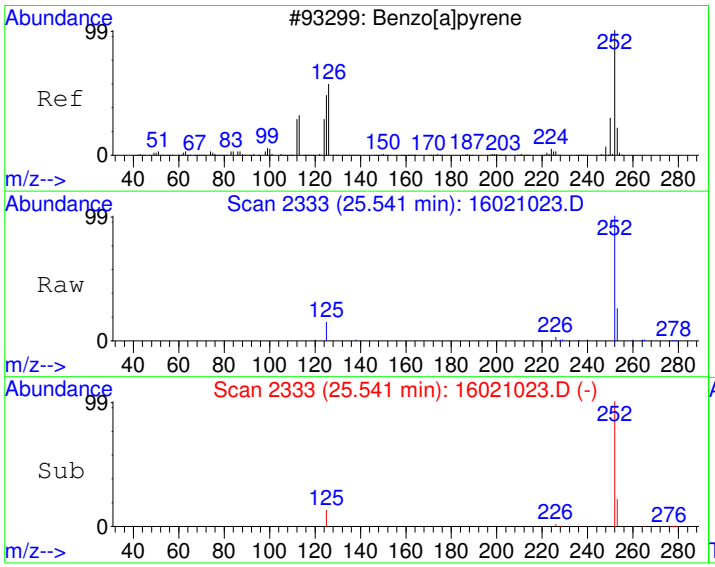


#24
Benzo[e]pyrene
Concen: 80.89 ug/kg
RT: 25.36 min Scan# 2307
Delta R.T. -0.04 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:252 Resp: 60365

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	18.7	0.0	36.0

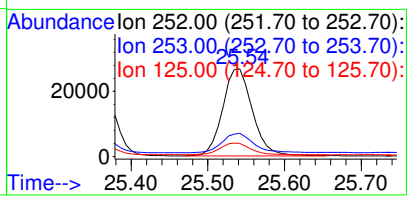


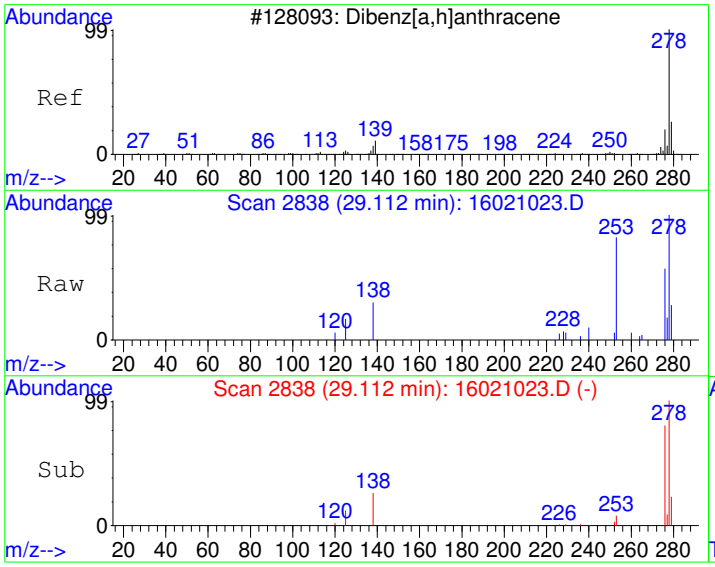


#25
Benzo[a]pyrene
Concen: 98.89 ug/kg
RT: 25.54 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:252 Resp: 71828

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	12.9	0.0	32.3

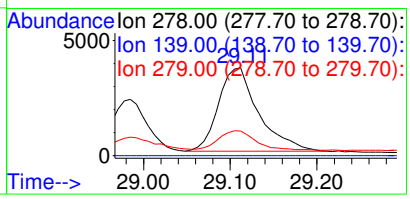


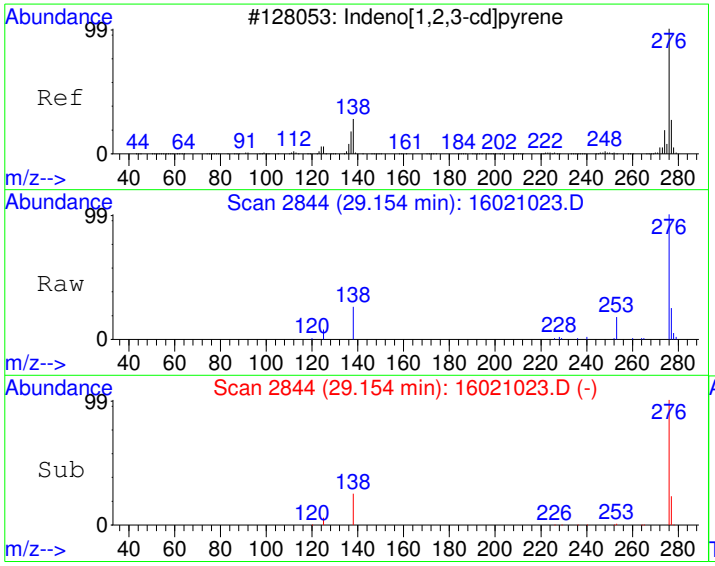


#26
Dibenz[a,h]anthracene
Concen: 17.40 ug/kg
RT: 29.11 min Scan# 2838
Delta R.T. -0.01 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:278 Resp: 11695

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	3.8	43.8

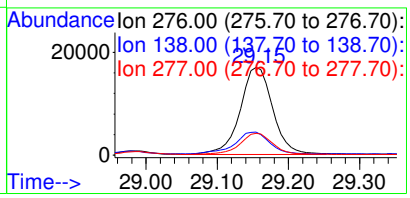


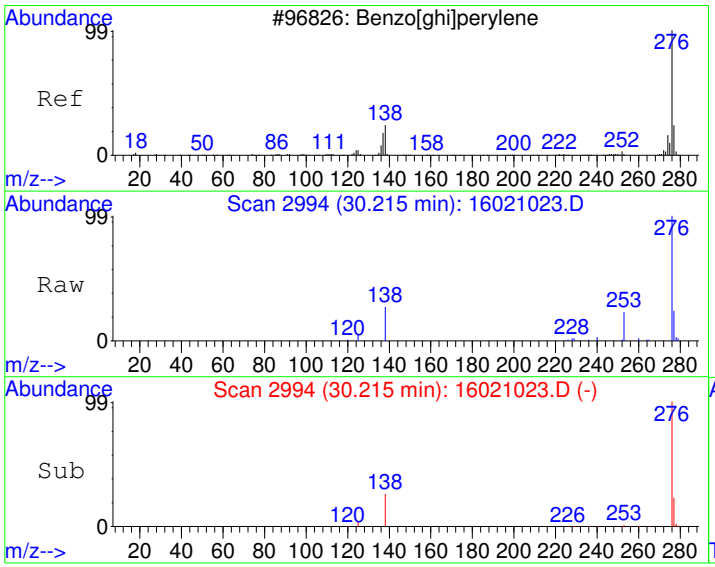


#27
Indeno[1,2,3-cd]pyrene
Concen: 65.80 ug/kg
RT: 29.15 min Scan# 2844
Delta R.T. -0.01 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:276 Resp: 53867

Ion	Ratio	Lower	Upper
276	100		
138	25.1	2.1	42.1
277	24.2	4.2	44.2

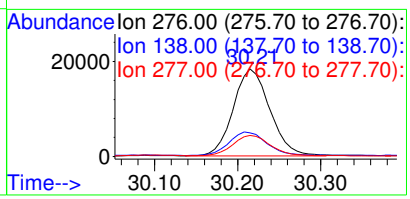




#28
Benzo[g,h,i]perylene
Concen: 81.41 ug/kg
RT: 30.21 min Scan# 2994
Delta R.T. 0.00 min
Lab File: 16021023.D
Acq: 10 Feb 2016 11:58 pm

Tgt Ion:276 Resp: 55915

Ion	Ratio	Lower	Upper
276	100		
138	26.1	3.9	43.9
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160210\16021024.D Vial: 24
Acq On : 11 Feb 2016 12:38 am Operator:
Sample : 1601247-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration
DataAcq Meth : PP160126

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.82	136	2437750	4000.00 ug/kg	116
5) Acenaphthene-d10	13.15	164	1919132	4000.00 ug/kg	105
11) Phenanthrene-d10	15.23	188	3253083	4000.00 ug/kg	100
17) Chrysene-d12	20.79	240	3436583	4000.00 ug/kg	119
20) Perylene-d12	25.86	264	3079813	4000.00 ug/kg	133

System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.13	172	44413	79.88 ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#	
16) 4-Terphenyl-d14	17.66	244	46404	85.39 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#	

Target Compounds					Qvalue
9) Acenaphthene	13.15	154	6089	12.59 ug/kg#	10
12) Phenanthrene	15.26	178	33920	43.91 ug/kg	99
13) Anthracene	15.35	178	5044	6.67 ug/kg	97
14) Fluoranthene	17.19	202	108685	141.88 ug/kg	97
15) Pyrene	17.76	202	101680	130.32 ug/kg	99
18) Benzo[a]anthracene	20.63	228	59999	75.72 ug/kg	99
19) Chrysene	20.87	228	78049	103.45 ug/kg	98
21) Benzo[b]fluoranthene	24.16	252	86122	104.88 ug/kg	98
22) Benzo[k]fluoranthene	24.24	252	35101	48.12 ug/kg	97
23) Benzo(j)fluoranthene	24.32	252	37006	54.01 ug/kg	86
24) Benzo[e]pyrene	25.36	252	65067	84.87 ug/kg	97
25) Benzo[a]pyrene	25.53	252	76543	102.58 ug/kg	98
26) Dibenz[a,h]anthracene	29.10	278	12532	18.15 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.15	276	57768	68.69 ug/kg	97
28) Benzo[g,h,i]perylene	30.21	276	59724	84.64 ug/kg	96

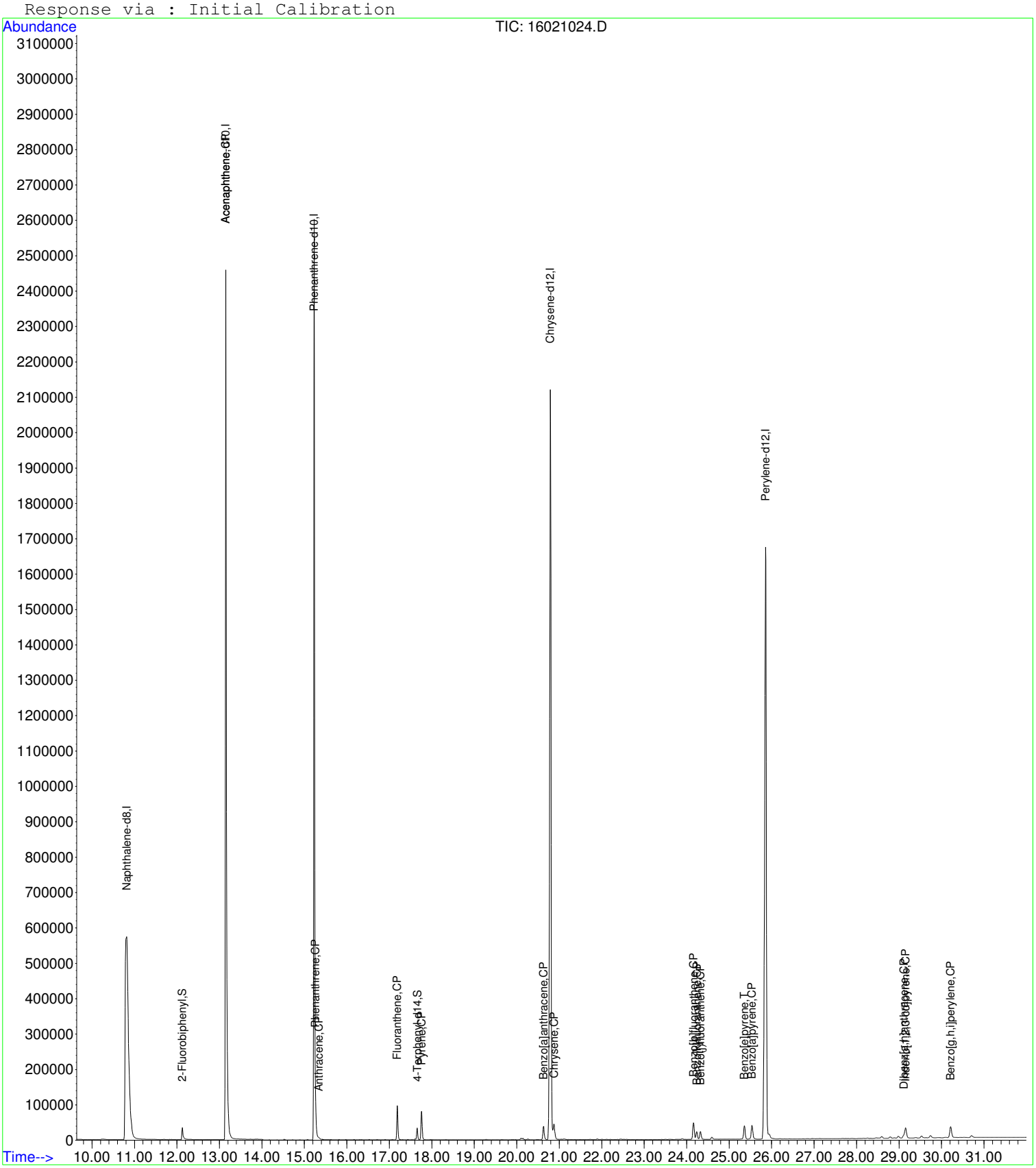
CONFIRMED
By Sherri Herschmann at 11:34:11 AM, 2/16/2016

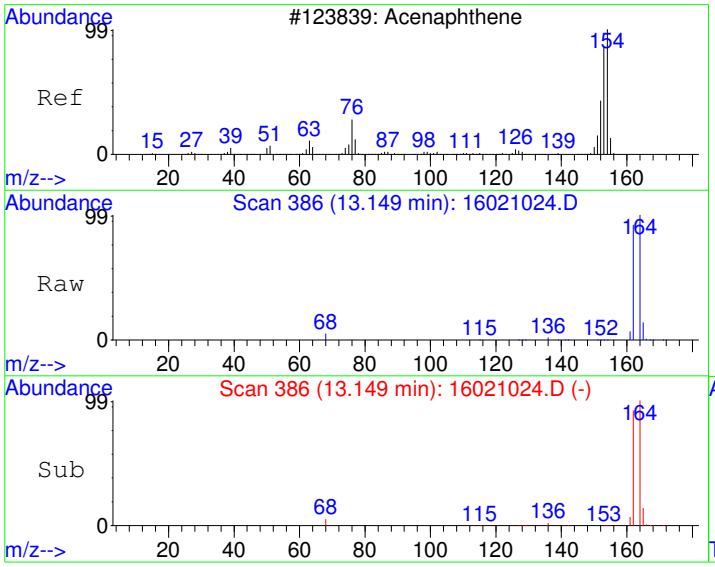
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160210\16021024.D Vial: 24
Acq On : 11 Feb 2016 12:38 am Operator:
Sample : 1601247-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Feb 11 8:54 2016 Quant Results File: PP160126.RES

Method : C:\HPCHEM\1\METHODS\PP160126.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Feb 05 08:16:01 2016
Response via : Initial Calibration

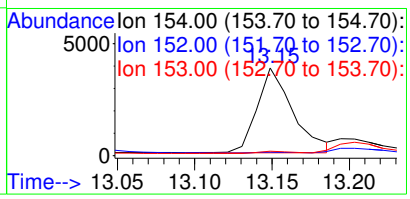


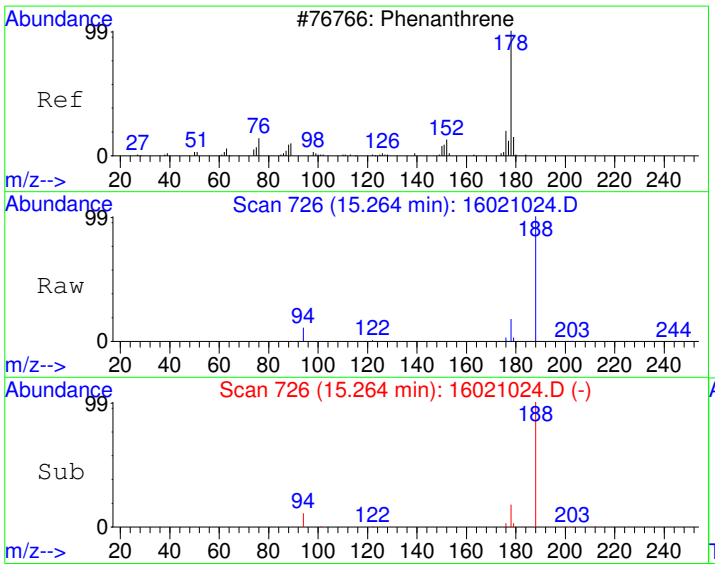


#9
Acenaphthene
Concen: 12.59 ug/kg
RT: 13.15 min Scan# 386
Delta R.T. -0.05 min
Lab File: 16021024.D
Acq: 11 Feb 2016 12:38 am

Tgt Ion:154 Resp: 6089

Ion	Ratio	Lower	Upper
154	100		
152	0.8	18.7	78.7#
153	2.7	74.4	134.4#

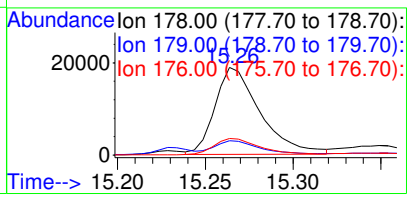


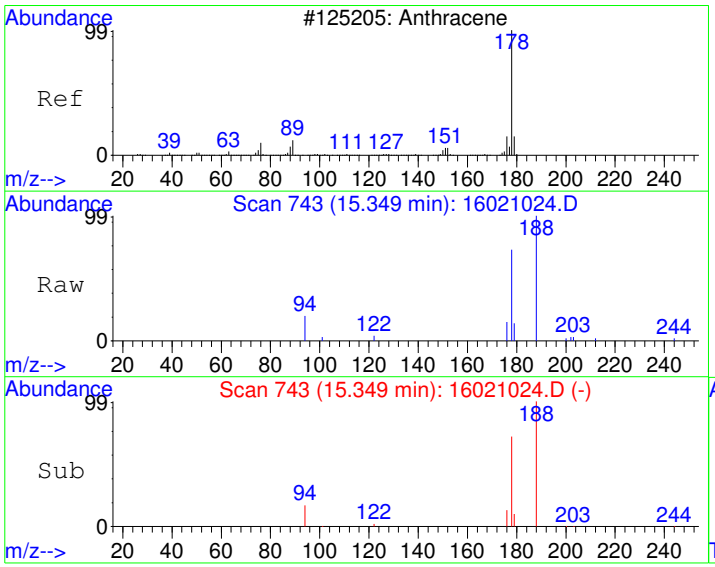


#12
Phenanthrene
Concen: 43.91 ug/kg
RT: 15.26 min Scan# 726
Delta R.T. -0.00 min
Lab File: 16021024.D
Acq: 11 Feb 2016 12:38 am

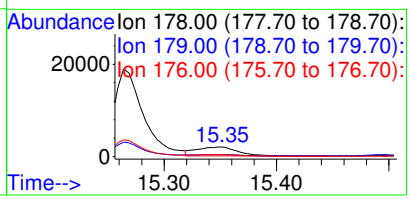
Tgt Ion:178 Resp: 33920

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	46.1
176	19.2	0.0	49.0





#13
Anthracene
Concen: 6.67 ug/kg
RT: 15.35 min Scan# 743
Delta R.T. 0.04 min
Lab File: 16021024.D
Acq: 11 Feb 2016 12:38 am

Tgt Ion:178 Resp: 5044

Ion	Ratio	Lower	Upper
178	100		
179	13.4	0.0	46.0
176	18.2	0.0	48.6