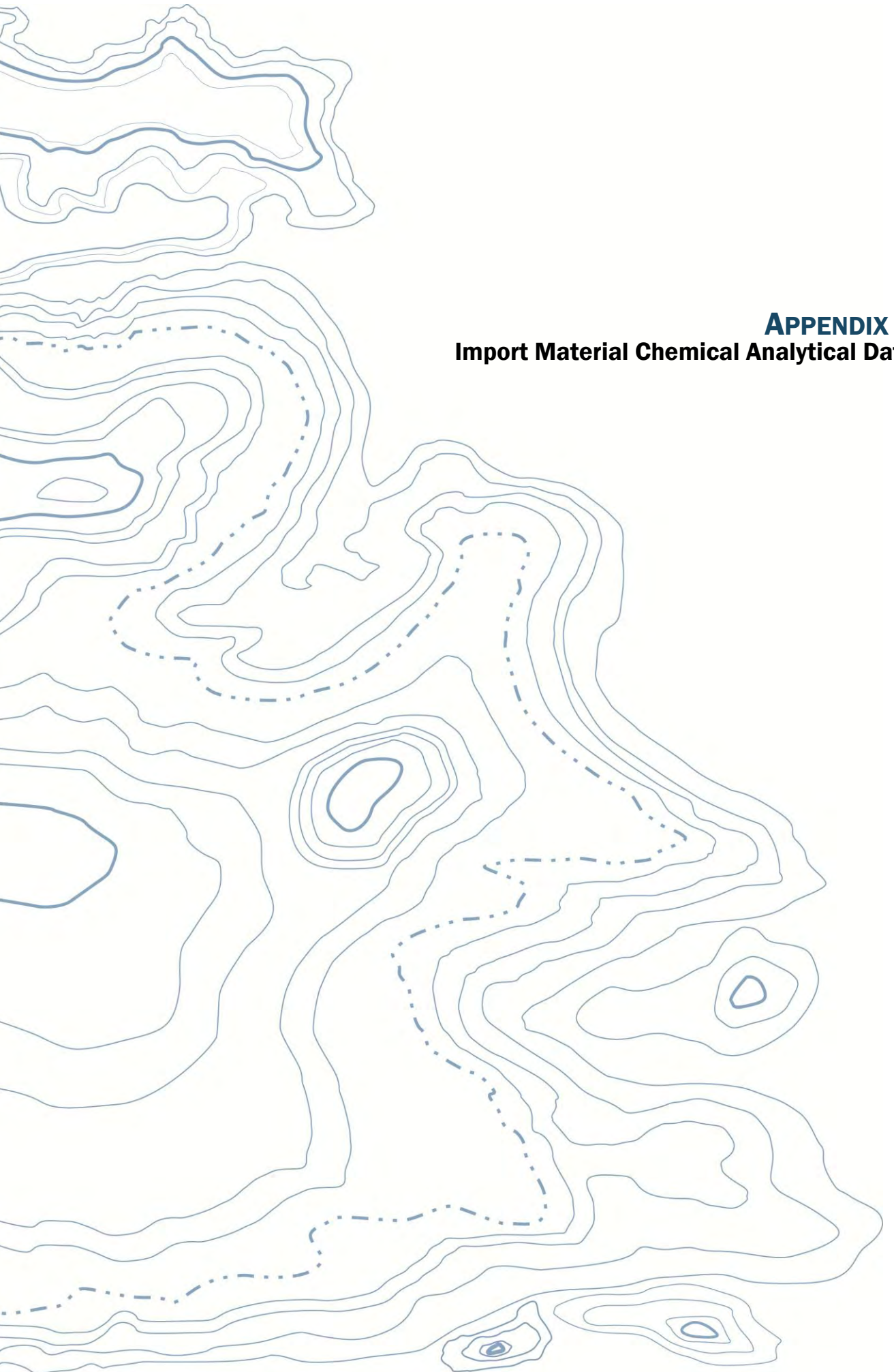


APPENDIX C
Import Material Chemical Analytical Data

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 12, 2013

Dear Client,

This letter is to inform you that we have discovered miscalculated data results for one or more of your data reports for semivolatile work. Our software was erroneously set to quantitate results using the continuing calibration instead of initial calibration on one instrument. This occurred by a senior chemist and was purely accidental. ARI has corrected the mistake in the software and is currently following through with corrective actions by revising any effected data reports.

We sincerely apologize for any inconvenience this has caused you. Please discuss any concerns with your Project Manager.

Sincerely,

Analytical Resources, Inc. Quality Assurance Department

Sandra Mead

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Table of Contents: ARI Job XI87

Client: GeoEngineers

Project: 0356-114-06 T2600 R.G Haley Site Interim Action

BC

Signature

October-15-2013

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 22, 2013

Abhijit Joshi
GeoEngineers, Inc.
1101 Fawcett, Suite 200
Tacoma, WA 98402

RE: R.G. Haley Site Interim Action, 0356-114-06 T2600
ARI Job No.: XI87

Dear Abhijit:

Please find enclosed the Chain-of-Custody record (COC), sample receipt documentation, and the data package for samples from the project referenced above.

Sample receipt and analytical details are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile XI87

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: XI87

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XI87	Turn-around Requested: STD
ARI Client Company: GeoEngineers, Inc.	Phone: 206-728-2674
Client Contact: ABHIJIT JOSHI / IAIN WINGARD	
Client Project Name: R.G. HALEY SITE INTERIM ACTION	
Client Project #: 0356-114-06 T2600	Samplers: ABHIJIT JOSHI

Page: 1 of 1

Date: 10/07/13 | Ice Present?

No. of Coolers: | Cooler Temps:

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	NWTPH-Dx w/ silica gel cleanup	Dioxin AND Furans BY EPA 1613 Modified	SVOCs BY EPA 8270D	Metals (SMS)	PCBs by EPA 8082B				Notes/Comments
					Analysis Requested								
VANBURENPIT-100713	10/07/13	1155	SOIL	4	X	X	X	X	X				PLEASE PROVIDE PRELIM RESULTS AS SOON AS POSSIBLE

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: ABHIJIT JOSHI	Printed Name: Rick Hudson	Printed Name:	Printed Name:
	Company: GeoEngineers, Inc.	Company: ARI	Company:	Company:
	Date & Time: 10/08/13 1050	Date & Time: 10/8/13 1050	Date & Time:	Date & Time:

XI87 : 00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client. GeoEngineers — Project Name: K.G Haley Site Interim Action

COC No(s): _____ (NA) — Delivered by: Fed-Ex UPS Courier Hand Delivered Other. _____

Assigned ARI Job No. XI887 — Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? (YES) NO

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc.) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) .8

Time: 1150

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90077952

Cooler Accepted by: _____ Date: 10/8/13 Time: 1050

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other. _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs). (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI... (NA) _____

Was Sample Split by ARI. (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

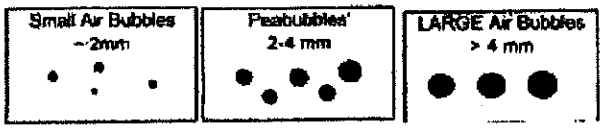
Samples Logged by AV Date: 10/8/13 Time: 1215

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: XI87

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: GeoEngineers
Project: R. G. Haley Site Interim Action, 0356-114-06 T2600
ARI Job No.: XI87 - Revised

Sample Receipt

One soil sample was received on October 8, 2013 under ARI job XI87. The cooler temperature measured by IR thermometer following ARI SOP was 0.8°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Semivolatiles by SW8270D

The sample was extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. The internal standard areas were within accepted limits.

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limits.

The LCSD percent recoveries of Benzyl Alcohol, N-Nitrosodiphenylamine, and Di-n-Octylphthalate were outside the control limits with a wide RPD for Benzyl Alcohol for **LCS-101113**. All other percent recoveries were within control limits. No corrective action was taken.

Semivolatiles by SW8270-SIM

The sample was extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. The internal standard areas were within accepted limits.

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limits.

The LCS RPD of Benzyl Alcohol was outside the control limits wide for **LCS-101113.** All percent recoveries were within control limits. No corrective action was taken.

11/13/13

XI87: 000006R

Dioxin/Furans by EPA 1613B

The sample was extracted and analyzed within the method recommended holding times.

Analysis was performed using the application specific RTX-Dioxin 2 column, which has a unique isomer separation for the 2378-TCDF, eliminating the need for second column confirmation.

Initial and continuing calibration results were within method requirements.

Both extraction and cleanup surrogates had recoveries within control limits.

The method blank contained reportable responses below the reporting limit for several compounds. "B" qualifiers were applied to associated results that were less than ten times the levels found in the method blank. No further corrective action was taken.

The OPR (Ongoing Precision and Accuracy or LCS) percent recovery of 1,2,3,4,6,7,8-HpcDF was outside the control limits high for **OPR-101013**. All other percent recoveries were within control limits. No corrective action was taken.

Specific results have been "EMPC"-flagged indicating a response not meeting requirements of positive identification. The EMPC values are treated as undetects under some programs and as hits under programs with more conservative protocols.

The TEQ is presented with WHO2005 with ND=0 for undetects and ND=1/2 for undetects, with EMPCs included as hits.

Pesticides by SW8081

The sample was extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. The internal standard areas were within accepted limits.

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

PCB Aroclors by SW8082

The sample was extracted and analyzed within the method recommended holding times.

a 1c123lrs

Initial and continuing calibrations were within method requirements. The internal standard areas were within accepted limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within the control limits.

NWTPH-Dx

The sample was extracted and analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements. The internal standard areas were within accepted limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS and LCSD percent recoveries were within the control limits.

Metals/Mercury by SW6010C/7471A

The sample and associated laboratory QC were digested and analyzed within method recommended holding times.

The method blanks were clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike percent recoveries and duplicate RPDs were within control limits.

General Chemistry Parameters

The sample and associated laboratory QC were prepared and analyzed within method recommended holding times.

The method blanks were clean at the reporting limits. The LCS percent recovery was within control limits.

The SRM percent recovery was within control limits.

The matrix spike percent recovery and replicate RPDs were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XI87
Client: GeoEngineers
Project Event: 0356-114-06 T2600
Project Name: R.G Haley Site Interim Action

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	VANBURENPIT-100713	XI87A	13-21758	Soil	10/07/13 11:55	10/08/13 10:50

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
M2	The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

DL1 LOD1, LOQ1 and Control Limits Summary
GC - MS - SVOA Analysis of Sediment
EPA Method 8270 Full Scan & SIM

Microwave Extraction (EPA Method 3546, Bench Sheet 3093F) - 10 g sample with extract concentrated to 1 mL final volume

LOD Spike level = LOQ (unless otherwise noted)

Analyte	Full Scan Analysis (µg/kg)			SIM Analysis (µg/kg)			LCS, MS Control Limits (%)2, 12		RPD4
	DL	LOD	LOQ	DL	LOD	LOQ	Full Scan	SIM	
Phenol	8.23	10	20	3.67	5	5	34 - 120	30 - 1603	≤ 30
bis-(2-Chloroethyl)ether	6.78	10	20	--	--	--	36 - 120	--	≤ 30
2-Chlorophenol	6.47	10	20	--	--	--	39 - 120	--	≤ 30
1,3-Dichlorobenzene	5.07	10	20	1.30	2.5	5	40 - 120	30 - 120	≤ 30
1,4-Dichlorobenzene	4.39	10	20	1.91	2.5	5	39 - 120	36 - 120	≤ 30
1,2-Dichlorobenzene	4.66	10	20	1.32	2.5	5	40 - 120	36 - 120	≤ 30
Benzyl alcohol	14.9	20	20	12.1	15	205	19 - 120	25 - 123	≤ 30
2,2'-oxy-*bis*-(1-Chloropropane)	5.67	10	20	--	--	--	32 - 120	--	≤ 30
2-Methylphenol	7.84	10	20	1.92	2.5	5	28 - 120	26 - 120	≤ 30
Hexachloroethane	5.65	10	20	--	--	--	38 - 120	--	≤ 30
N-Nitroso-di-n-propylamine	10.8	15	20	15.1	20	205	34 - 120	30 - 1603	≤ 30
4-Methylphenol 8	14.7	15	20	2.53	5	5	29 - 120	30 - 1603	≤ 30
Nitrobenzene	7.95	10	20	--	--	--	36 - 120	--	≤ 30
Isophorone	7.75	10	20	--	--	--	37 - 120	--	≤ 30
2-Nitrophenol	6.92	10	20	--	--	--	30 - 120	--	≤ 30
2,4-Dimethylphenol	26.8 13	50	100	10.2	12.5	25	10 - 120	10 - 120	≤ 30
bis-(2-Chloroethoxy) methane	6.34	10	20	--	--	--	39 - 120	--	≤ 30
2,4-Dichlorophenol	32.0	50	100	--	--	--	28 - 120	--	≤ 30
1,2,4-Trichlorobenzene	5.96	10	20	1.51	2.5	5	35 - 120	35 - 120	≤ 30
Naphthalene	5.25	10	20	--	--	--	43 - 120	--	≤ 30
Benzoic acid	59.1	100	200	--	--	--	10 - 120	--	≤ 30
4-Chloroaniline	33.7	50	100	--	--	--	11 - 120	--	≤ 30
Hexachlorobutadiene	5.01	10	20	1.42	2.5	5	37 - 120	34 - 120	≤ 30
4-Chloro-3-methylphenol	28.9	50	100	--	--	--	32 - 120	--	≤ 30
2-Methylnaphthalene	5.67	10	20	--	--	--	43 - 120	--	≤ 30
Hexachlorocyclopentadiene	41.3	50	100	--	--	--	10 - 120	--	≤ 30
2,4,6-Trichlorophenol	25.4	50	100	--	--	--	30 - 120	--	≤ 30
2,4,5-Trichlorophenol	26.9	50	100	--	--	--	28 - 120	--	≤ 30
2-Chloronaphthalene	4.44	10	20	--	--	--	40 - 120	--	≤ 30
2-Nitroaniline	30.2	50	100	--	--	--	31 - 126	--	≤ 30
Acenaphthylene	4.77	10	20	--	--	--	42 - 120	--	≤ 30
Dimethylphthalate	6.44	10	20	1.21	2.5	5	43 - 120	38 - 120	≤ 30
2,6-Dinitrotoluene	26.7	50	100	--	--	--	33 - 123	--	≤ 30

Full Scan and SIM DL Revised 7/24/13
DL effective 7/21/13
Full Scan Control limits effective 4/12/13
Sim Control Limits effective 5/22/13

DL[1] LOD[1], LOQ[1] and Control Limits Summary
GC - MS - SVOA Analysis of Sediment
EPA Method 8270 Full Scan & SIM

Microwave Extraction (EPA Method 3546, Bench Sheet 3093F) - 10 g sample with extract concentrated to 1 mL final volume

LOD Spike level = LOQ (unless otherwise noted)

Analyte	Full Scan Analysis (µg/kg)			SIM Analysis (µg/kg)			LCS, MS Control Limits (%)[2, 12]		RPD[4]
	DL	LOD	LOQ	DL	LOD	LOQ	Full Scan	SIM	
Acenaphthene	5.13	10	**20**	--	--	--	45 - **120**	--	≤ 30
3-Nitroaniline	37.7	50	**100**	--	--	--	22 - **120**	--	≤ 30
2,4-Dinitrophenol	41.3	100	**200**	--	--	--	**10 - 120**	--	≤ 30
Dibenzofuran	4.61	10	**20**	--	--	--	43 - **120**	--	≤ 30
4-Nitrophenol	44.4	50	**100**	--	--	--	15 - 138	--	≤ 30
2,4-Dinitrotoluene	22.9	50	**100**	--	--	--	35 - 127	--	≤ 30
Fluorene	4.95	10	**20**	--	--	--	45 - **120**	--	≤ 30
4-Chlorophenyl-phenylether	6.96	10	**20**	--	--	--	32 - **120**	--	≤ 30
Diethylphthalate	17.7	20	**20**	19.9	20	**20[5]**	50 - 120	55 - **120**	≤ 30
4-Nitroaniline	34.9	50	**100**	--	--	--	24 - 125	--	≤ 30
4,6-Dinitro-2-methylphenol	50.5	100	**200**	--	--	--	24 - **120**	--	≤ 30
N-Nitrosodiphenylamine	9.57	10	**20**	2.31	2.5	**5**	36 - **120**	27 - **120**	≤ 30
4-Bromophenyl-phenylether	6.07	10	**20**	--	--	--	39 - **120**	--	≤ 30
Hexachlorobenzene	4.74	10	**20**	2.11	2.5	**5**	33 - **120**	32 - **120**	≤ 30
Pentachlorophenol	31.3	50	**100**	10.4	15	**20[5]**	16 - 120	26 - **120**	≤ 30
Phenanthrene	4.69	10	**20**	--	--	--	49 - **120**	--	≤ 30
Anthracene	5.93	10	**20**	--	--	--	45 - **120**	--	≤ 30
Carbazole	7.37	10	**20**	--	--	--	43 - 135	--	≤ 30
Di-n-butylphthalate	5.31	10	**20**	--	--	--	48 - 126	--	≤ 30
Fluoranthene	4.52	10	**20**	--	--	--	53 - **120**	--	≤ 30
Pyrene	5.55	10	**20**	--	--	--	48 - 121	--	≤ 30
Butylbenzylphthalate	8.05	10	**20**	2.18	2.5	**5**	45 - 132	32 - 142	≤ 30
Benzo(a)anthracene	5.18	10	**20**	--	--	--	49 - **120**	--	≤ 30
3,3'-Dichlorobenzidine	31.2	50	**100**	--	--	--	**10 - 120**	--	≤ 30
Chrysene	5.22	10	**20**	--	--	--	47 - **120**	--	≤ 30
bis-(2-Ethylhexyl)phthalate	28.8	40	**50[6]**	--	--	--	34 - 130	--	≤ 30
Di-n-octylphthalate	8.72	10	**20**	--	--	--	28 - 124	--	≤ 30
Benzo(b)fluoranthene [9]	7.02	10	**20**	--	--	--	42 - 132	--	≤ 30
Benzo(k)fluoranthene [9]	5.01	10	**20**	--	--	--	39 - 129	--	≤ 30
Benzofluoranthene-Total [10]	10.2	20	**40**	--	--	--	30 - 160[3]	--	≤ 30
Benzo(a)pyrene	6.48	10	**20**	--	--	--	42 - **120**	--	≤ 30
Indeno(1,2,3-cd)pyrene	5.99	10	**20**	--	--	--	42 - 123	--	≤ 30
Dibenzo(a,h)anthracene	6.16	10	**20**	1.38	2.5	**5**	30 - 133	28 - 125	≤ 30
Benzo(g,h,i)perylene	5.82	10	**20**	--	--	--	38 - 126	--	≤ 30

DL_1 LOD_1, LOQ_1 and Control Limits Summary
GC - MS - SVOA Analysis of Sediment
EPA Method 8270 Full Scan & SIM

Microwave Extraction (EPA Method 3546, Bench Sheet 3093F) - 10 g sample with extract concentrated to 1 mL final volume

LOD Spike level = LOQ (unless otherwise noted)

Analyte	Full Scan Analysis (µg/kg)			SIM Analysis (µg/kg)			LCS, MS Control Limits (%)[2, 12]		RPD[4]
	DL	LOD	LOQ	DL	LOD	LOQ	Full Scan	SIM	
N-Nitrosodimethylamine	22.4	30	**40**[7]	3.15	10	**25**	17 - **120**	30 - 160[3]	≤ 30
Aniline	16.9	50	**100**	--	--	--	**10** - 134	--	≤ 30
Pyridine	86.6	100	**100**	--	--	--	**10** - 147	--	≤ 30
1-Methylnaphthalene	5.95	10	**20**	--	--	--	42 - **120**	--	≤ 30
Azobenzene (1,2-DP-Hydrazine)	4.61	10	**20**	--	--	--	35 - **120**	--	≤ 30
Retene [11]	4.01	10	**20**	--	--	--	30 - 160[3]	--	≤ 30
Perylene	4.90	10	**20**	--	--	--	30 - 160[3]	--	≤ 30
2,3,4,6 Tetrachlorophenol	5.37	10	**20**	--	--	--	30 - 160[3]	--	≤ 30
Surrogate Standards									
2-Fluorophenol							32 - **120**	27 - **120**	≤ 30
Phenol-d_5							32 - **120**	29 - **120**	≤ 30
2-Chlorophenol-d_4							36 - **120**	31 - **120**	≤ 30
1,2-Dichlorobenzene-d_4							37 - **120**	32 - **120**	≤ 30
Nitrobenzene-d_5							33 -**120**	30 - **120**	≤ 30
2-Fluorobiphenyl							35 -**120**	35 - **120**	≤ 30
2,4,6-Tribromophenol							23 - 133	24 - 134	≤ 30
p-Terphenyl-d_{14}							42 - 124	37 - **120**	≤ 30

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) are defined in ARI SOP 1018S
(2) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 120 for the upper limit
(3) 30 - 160 are default values used when there is insufficient data to calculate historic control limits.
(4) Relative Percent Difference between analytes in replicate analyzes. If C_o and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_D|}{\frac{C_o + C_D}{2}} x100$$

(5) Spiked at 5 ppb
(6) Spiked at 20 ppb
(7) Spiked at 100 ppb
(8) 3-Methylphenol (not calibrated) co-elutes with 4-Methylphenol (calibrated)
(9) Benzo(b)fluoranthene and Benzo(k)fluoranthene are reported as separate analytes only when the height of the valley between the isomer peaks is less than than 50% of the average of the two peak heights, otherwise total Benzofluoranthenes are reported.
(10) Benzo(b)fluoranthene + Benzo(k)fluoranthene
(11) LOD study WC15 (2/5/13)
(12) Control limits calculated using spike recovery data from 3/1/11 through 4/1/13
(13) The DL for 2,4-Dimethylphenol is calculated at a 95% confidence interval, opposed to 99% confidence as for all other analytes. At 99% confidence, the DL for 2,4-Dimethylphenol is 38.6 ug/kg.

DL[1], LOD[1], LOQ[1] and Control Limits Summary
Analysis of Soil Samples for Dioxins & Furans
EPA Method 1613B

Soxhlet (EPA Method 3540C) Extraction using 10 g sample with extract concentrated to 0.02 mL final volume. ARI Bench Sheet 3083F

LOD Spike level = LOQ = 0.1 ppt (ng/kg) = 1 pg/g

Analyte	DL[1] pg/g	LOD[1] pg/g	LOQ[1] pg/g	OPR Control Limit[2,3]	Sample Replicate RPD[3,4]
2,3,7,8-TCDF	0.230	**0.5**	**1**	75 – 158	≤ 25
2,3,7,8-TCDD	0.274	**0.5**	**1**	67 – 158	≤ 25
1,2,3,7,8-PeCDF	0.832	**2.5**	**5**	80 – 134	≤ 25
2,3,4,7,8-PeCDF	1.076	**2.5**	**5**	68 – 160	≤ 25
1,2,3,7,8-PeCDD	0.647	**2.5**	**5**	70 – 142	≤ 25
1,2,3,4,7,8-HxCDF	0.991	**2.5**	**5**	72 – 134	≤ 25
1,2,3,6,7,8-HxCDF	0.769	**2.5**	**5**	84 – 130	≤ 25
2,3,4,6,7,8-HxCDF	0.904	**2.5**	**5**	70 – 156	≤ 25
1,2,3,7,8,9-HxCDF	0.857	**2.5**	**5**	78 – 130	≤ 25
1,2,3,4,7,8-HxCDD	0.481	**2.5**	**5**	70 – 164	≤ 25
1,2,3,6,7,8-HxCDD	0.561	**2.5**	**5**	76 – 134	≤ 25
1,2,3,7,8,9-HxCDD	0.886	**2.5**	**5**	64 – 162	≤ 25
1,2,3,4,6,7,8-HpCDF	1.165	**2.5**	**5**	82 – 122	≤ 25
1,2,3,4,7,8,9-HpCDF	0.688	**2.5**	**5**	78 – 138	≤ 25
1,2,3,4,6,7,8-HpCDD	0.828	**2.5**	**5**	70 – 140	≤ 25
OCDF	2.176	**5.0**	**10**	63 – 170	≤ 25
OCDD	7.452	**5.0**	**10**	78 – 144	≤ 25

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation (LOQ) are defined in ARI SOP 1018S

(2) Ongoing precision and recovery (OPR) analyzes as specified in the referenced method.

(3) Method specified control limits.

(4) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

4

DL[1], LOD[1], LOQ[1] and Control Limits Summary
Analysis of Soil/Sediment Samples for Chlorinated Pesticides
EPA Method 8081B

Microwave (EPA Method 3546) Extraction using 12.5g (dry weight) sample with extract concentrated to 2.5 mL final volume. ARI Bench Sheet 3046F

LOD Spike level = LOQ Concentration

Analyte	DL[1,2] µg/kg	LOD[1] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
alpha-BHC	0.081	0.25	**0.5**	68 – 115	≤ 40
beta-BHC	0.139	0.25	**0.5**	60 – 126	≤ 40
gamma-BHC (Lindane)	0.048	0.25	**0.5**	68 – 134	≤ 40
delta-BHC	0.082	0.25	**0.5**	71 – 154	≤ 40
Heptachlor	0.132	0.25	**0.5**	66 – 115	≤ 40
Aldrin	0.055	0.25	**0.5**	66 – 115	≤ 40
Heptachlor Epoxide	0.085	0.25	**0.5**	65 – 127	≤ 40
trans-Chlordane (*beta*-Chlordane, *gamma*-Chlordane)	0.077	0.25	**0.5**	73 – 136	≤ 40
cis-Chlordane (*alpha*-chlordane)	0.051	0.25	**0.5**	77 – 124	≤ 40
Endosulfan I	0.072	0.25	**0.5**	28 – **100**	≤ 40
4,4'-DDE	0.124	0.5	**1.0**	71 – 149	≤ 40
Dieldrin	0.100	0.5	**1.0**	74 – 131	≤ 40
Endrin	0.215	0.5	**1.0**	72 – 135	≤ 40
Endosulfan II	0.116	0.5	**1.0**	37 – 110	≤ 40
4,4'-DDD	0.135	0.5	**1.0**	76 – 137	≤ 40
Endrin Aldehyde	0.218	0.5	**1.0**	38 – 109	≤ 40
4,4'-DDT	0.192	0.5	**1.0**	58 – 144	≤ 40
Endosulfan Sulfate	0.192	0.5	**1.0**	47 – 148	≤ 40
Endrin Ketone	0.119	0.5	**1.0**	29 – 165	≤ 40
Methoxychlor	0.698	2.5	**5.0**	65 – 123	≤ 40
Hexachlorobutadiene	0.138	0.5	**1.0**	43 – 104	≤ 40
Hexachlorobenzene	0.094	0.5	**1.0**	62 – 119	≤ 40
Surrogate Standard Recovery			**MB / LCS**	**Samples**	**RPD**
Tetrachloro-*m*-xylene (TCMX)			47 – 124	34 – 169	≤ 40
Decachlorobiphenyl			60 – 149	36 – 182	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation as defined in ARI SOP 1018S.
(2) MDL study QZ38
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/12 through 7/31/12.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

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Quality Control Criteria for Analysis of Solid Matrix Samples for Aroclors (Polychlorinated Biphenyls – PCB) EPA Method 8082A

Extraction Bench Sheet	Extraction	DL[1] (ppb)	LOD[1] (ppb)	LOQ[1] (ppb)	Analyte	Spike Recovery Control Limits (%)[2,3,5]			RPD[4]
						LCS	MB/LCS Surrogate	Sample Surrogate	
PCB 15-3067F	12g to 4 mL	10.69	17	33	Aroclor 1016	62 – 111	--	--	≤ 40
		14.42	17	33	Aroclor 1260	59 – 118	--	--	
PCB 08-3025F		--	--	--	TCMX	--	58 – 112	53 – 116	
		--	--	--	DCBP	--	59 – 115	35 – 133	
PCB 05-3017F	5 g to 5 mL[6]	8.00	10	20	Aroclor 1016	56 – 115	--	--	≤ 40
		9.28	10	20	Aroclor 1260	58 – 120	--	--	
PCB 06-3026F		--	--	--	TCMX	--	52 – 117	57 – 109	
		--	--	--	DCBP	--	61 – 114	54 – 115	
PCB 18-3098F	5 g to 2.5 mL[6]	4.61	5	10	Aroclor 1016	66 – 114	--	--	≤ 40
		4.97	5	10	Aroclor 1260	63 – 120	--	--	
PCB06-3026F		--	--	--	TCMX	--	57 – 114	71 – 108	
		--	--	--	DCBP	--	59 – 118	53 – 126	
PCB 19-3099F	12.5 g to 2.5 mL[6]	1.56	2	4	Aroclor 1016	64 – **100**	--	--	≤ 40
		0.589	2	4	Aroclor 1260	64 – 107	--	--	
PCB 06-3026F		--	--	--	TCMX	--	54 – **100**	45 – 102	
		--	--	--	DCBP	--	64 – 105	37 – 128	
PCB 12-3019F	5 g to 40 mL	38.2	400	800	Aroclor 1016	30 – 160	--	--	≤ 40
		73.1	400	800	Aroclor 1260	30 – 160	--	--	
		--	--	--	TCMX	--	30 – 160	30 – 160	
		--	--	--	DCBP	--	30 – 160	30 – 160	

(1) Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) are defined in ARI SOP 1018S.
(2) Highlighted control limits **(bold font)** are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(3) 30 – 160 are default limits used when there is insufficient data to calculate historic control limits
(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(5) Control Limits calculated usng all data generated between 6/1/12 and 12/31/12

Analytical Resources, Incorporated
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Quality Control Criteria
Total Petroleum Hydrocarbons
(Diesel & Motor Oil)

Analysis Code	Analyte[5]	DL[1] ppm	LOD[1] ppm	LOQ[2] ppm	Spike % Recovery Control Limits[3]			RPD[4]
					LCS	MB/LCS Surrogate	Sample Surrogate	
HCIWVX	NWTPH-HCID – Water Samples	--	--	0.50 [7]	--	--	50-150	≤ 40
HCISVX	NWTPH-HCID – Solid Samples	--	--	50 [7]	--	--	50-150	
DIESWI	DRO – NWTPH-Dext (C_{12}-C_{24})	0.022	0.05	0.1	64 –112	50 –150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.022	0.05	0.1	75 –125 [6]	60 –120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.044	0.1	0.2	30 – 160 [8]	50 –150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [9]	0.1	0.2	60 –120 [6]	60 –120	50-150	
DIESWI	DRO – NWTPH-Dext (C_{12}-C_{24})	0.039	0.05	0.1	61 – 104	50 –150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.042	0.05	0.1	75 –125 [6]	60 –120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.010	0.1	0.2	30 – 160 [8]	50 –150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [8]	0.1	0.2	60 –120 [6]	60 –120	50-150	
DIESMI	DRO – NWTPH-Dext (C_{12}-C_{24})	1.35	2.5	5	62 – 119	50 –150	50-150	≤ 40
DIESMI	DRO – NWTPH-Dext Jet A	2.22 [11]	2.5	5	30 – 160 [8]	50 –150	50-150	
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.43	2.5	5	75 –125 [6]	60 –120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{38})	2.48	5	10	30 – 160 [8]	50 –150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [9]	5	10	60– 120 [6]	60 –120	50-150	
DIESMI	DRO – NWTPH-Dext (C_{12}-C_{24})	1.28	2.5	5	60 – 108	50 –150	50-150	≤ 40
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.06	2.5	5	75 –125 [8]	60 –120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{38})	1.57	5	10	30 – 160 [8]	50 –150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [10]	5	10	60 –120 [6]	60 –120	50-150	

(1) DL (Detection Limit) and LOD (Limit of Detection) as defined in ARI SOP 1018S.
(2) Limit of Quantitation as defined in ARI SOP 1018S. The spike concentration used to determine the DL and the concentration of the lowest standard used to calibrate the GC-FID instrument.
(3) All surrogate recovery limits are specified in the published methods (AK102, AK103 & NWTPH-Dext). The surrogate standard is o-Terphenyl.
(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(5) DRO = Diesel Range Organics and RRO = Residual Range Organics as defined in the methods referenced in footnote 3.
(6) Method specified LCS acceptance limits.
(7) Method specified reporting limits
(8) Default LCS control limits pending calculation of historic limits
(9) MDL study QD55 completed 2/12/10
(10) MDL study QD35 completed 1/29/10
(11) LOD Study UI44 completed 2/28/12

X197:00019

Quality Control Parameters for Metals Analysis-ICP-OES EPA Methods 200.7 and 6010C

	Aqueous Samples[2]			Spike Recovery		RPD[5]	Solids[3]	Tissue[4]
Analyte	DL[1] µg/L	LOD[1] µg/L	LOQ[1] µg/L	Matrix Spike	LCS		LOQ mg/kg	LOQ mg/kg
Aluminum	7.57	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Antimony	6.28	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Arsenic	3.33	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Barium	1.33	1.5	**3.0**	75 – 125	80 – 120	≤ 20	**0.3**	**0.06**
Beryllium	0.16	0.5	**1.0**	75 – 125	80 – 120	≤ 20	**0.1**	**0.02**
Boron	7.39	10	**20**	75 – 125	80 – 120	≤ 20	**2.0**	**0.4**
Cadmium	0.18	0.5	**2.0**	75 – 125	80 – 120	≤ 20	**0.2**	**0.04**
Calcium	11.27	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Chromium	1.24	2.5	**5.0**	75 – 125	80 – 120	≤ 20	**0.5**	**0.1**
Cobalt	0.27	1.5	**3.0**	75 – 125	80 – 120	≤ 20	**0.3**	**0.06**
Copper	0.92	1.0	**2.0**	75 – 125	80 – 120	≤ 20	**0.2**	**0.04**
Iron	7.50	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Lead	1.55	10	**20**	75 – 125	80 – 120	≤ 20	**2.0**	**0.4**
Magnesium	9.61	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Manganese	0.28	0.5	**1.0**	75 – 125	80 – 120	≤ 20	**0.1**	**0.02**
Molybdenum	0.79	2.5	**5.0**	75 – 125	80 – 120	≤ 20	**0.5**	**0.1**
Nickel	3.86	5.0	**10**	75 – 125	80 – 120	≤ 20	**1.0**	**0.2**
Potassium	65.70	250	**500**	75 – 125	80 – 120	≤ 20	**50**	**10**
Selenium	4.99	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Silicon	8.17	30	**60**	75 – 125	80 – 120	≤ 20	**(6)**	**(6)**
Silver	0.43	1.5	**3.0**	75 – 125	80 – 120	≤ 20	**0.3**	**0.06**
Sodium	11.35	250	**500**	75 – 125	80 – 120	≤ 20	**50**	**10**
Strontium	0.09	1.0	**1.0**	75 – 125	80 – 120	≤ 20	**0.1**	**0.02**
Thallium	3.10	25	**50**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Tin	1.41	5.0	**10**	75 – 125	80 – 120	≤ 20	**1.0**	**0.2**
Titanium	2.11	2.5	**5.0**	75 – 125	80 – 120	≤ 20	**0.5**	**0.1**
Vanadium	0.27	1.5	**3.0**	75 – 125	80 – 120	≤ 20	**0.3**	**0.06**
Zinc	1.45	5.0	**10**	75 – 125	80 – 120	≤ 20	**1.0**	**0.2**

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) 50 mL sample and 50 mL final volume
(3) Solids LOQ based on 100% solids using 1.0 g sample with 100 mL final volume.
(4) Tissue is reported on an "as received" (wet weight) basis using 2.5 g sample with 50 mL final volume.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) ARI does not analyze for Silicon in solids or tissue samples

Quality Control Parameters for Mercury Analysis using CVAA
EPA Methods 7470A or 245.1 for Aqueous Samples
EPA Methods 7471B or 245.5 for Solid Samples

	Aqueous Samples[2]			Spike Recovery		RPD[5]
	DL[1] µg/L	LOD[1] µg/L	LOQ[1] µg/L	Matrix Spike	LCS	
Mercury	0.0069	0.05	**0.10**[2]	75 – 125	80 – 120	≤ 20
Mercury (low level)	0.0026	0.01	**0.02**[2]	75 – 125	80 – 120	≤ 20
	Soil / Sediment Samples			**Spike Recovery**		**RPD**[5]
	DL[1] mg/kg	LOD[1] mg/kg	LOQ[1] mg/kg	Matrix Spike	LCS	
Mercury	0.0021	0.0125	0.025[3]	75 – 125	80 – 120	≤ 20
	Tissue Samples			**Spike Recovery**		**RPD**[5]
	DL[1] mg/kg	LOD[1] mg/kg	LOQ[1] mg/kg	Matrix Spike	LCS	
Mercury	0.0004	0.0025	0.005[4]	75 – 125	80 – 120	≤ 20

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) 20 mL sample with 20 mL final volume
(3) 0.2 g sample with 50 mL final volume assuming 100% dry weight. Soil and sediment are reported on a dry weight basis.
(4) Tissue LOQ is 0.005 mg/kg as received (wet weight) based on 1 g sample with 50 mL final volume.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

X187 : 00021

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Spike Recovery Control Limits for Conventional Wet Chemistry

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI's Control Limits	
Sample Matrix:	Water	Soil / Sediment
Matrix Spike Recoveries	% Recovery	% Recovery
Ammonia	75 - 125	75 - 125
Bromide	75 125	75 - 125
Chloride	75 125	75 - 125
Cyanide	75 - 125	75 - 125
Ferrous Iron	75 - 125	75 - 125
Fluoride	75 - 125	75 - 125
Formaldehyde	75 - 125	75 - 125
Hexane Extractable Material	-- - --	78 - 114
Hexavalent Chromium	75 - 125	75 - 125
Nitrate/Nitrite	75 - 125	75 - 125
Oil and Grease	75 - 125	75 - 125
Phenol	75 - 125	75 - 125
Phosphorous	75 - 125	75 - 125
Sulfate	75 - 125	75 - 125
Sulfide	75 - 125	75 - 125
Total Kjeldahl Nitrogen	75 - 125	75 - 125
Total Organic Carbon	75 - 125	75 - 125
Duplicate RPDs		
Acidity	±20%	±20%
Alkalinity	±20%	±20%
BOD	±20%	±20%
Cation Exchange	±20%	±20%
COD	±20%	±20%
Conductivity	±20%	±20%
Salinity	±20%	±20%
Solids	±20%	±20%
Turbidity	±20%	±20%

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: VANBURENPIT-100713
SAMPLE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 11/12/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 16:19
Instrument/Analyst: NT10/VTS
GPC Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 5.4%

CAS Number	Analyte	RL	Result
108-95-2	Phenol	19	< 19 U
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	96	< 96 U
65-85-0	**Benzoic Acid**	**190**	**66 J**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	Naphthalene	19	< 19 U
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	96	< 96 U
85-01-8	Phenanthrene	19	< 19 U
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	Fluoranthene	19	< 19 U
129-00-0	Pyrene	19	< 19 U
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	Benzo(a)anthracene	19	< 19 U
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	Chrysene	19	< 19 U
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
TOTBFA	Total Benzofluoranthenes	38	< 38 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.6%	2-Fluorobiphenyl	75.6%
d14-p-Terphenyl	98.6%	d4-1,2-Dichlorobenzene	68.6%
d5-Phenol	66.8%	2-Fluorophenol	67.9%
2,4,6-Tribromophenol	72.0%	d4-2-Chlorophenol	73.3%

11/13/13

XI87: 606241K

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-101113	64.8%	77.8%	102%	70.4%	68.4%	68.7%	90.4%	75.2%	0
LCS-101113	64.6%	76.2%	93.0%	66.2%	68.0%	66.4%	88.1%	72.4%	0
LCSD-101113	76.2%	92.6%	107%	83.8%	82.8%	85.6%	95.2%	85.6%	0
VANBURENPIT-100713	67.6%	75.6%	98.6%	68.6%	66.8%	67.9%	72.0%	73.3%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(33-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(42-124)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(37-120)	(32-120)
(PHL) = d5-Phenol	(32-120)	(29-120)
(2FP) = 2-Fluorophenol	(32-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(23-133)	(24-134)
(2CP) = d4-2-Chlorophenol	(36-120)	(31-120)

Prep Method: SW3546
Log Number Range: 13-21758 to 13-21758

@ 11/13/13

XI87: 00695R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 2

Sample ID: LCS-101113
LCS/LCSD

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 11/12/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted LCS/LCSD: 10/11/13

Date Analyzed LCS: 10/14/13 15:08
LCSD: 10/14/13 15:44
Instrument/Analyst LCS: NT10/VTS
LCSD: NT10/VTS
GPC Cleanup: No

Sample Amount LCS: 10.00 g
LCSD: 10.00 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	374	500	74.8%	469	500	93.8%	22.5%
1,4-Dichlorobenzene	391	500	78.2%	478	500	95.6%	20.0%
Benzyl Alcohol	300	500	60.0%	62.0	500	12.4%	131%
1,2-Dichlorobenzene	390	500	78.0%	491	500	98.2%	22.9%
2-Methylphenol	351	500	70.2%	397	500	79.4%	12.3%
4-Methylphenol	731	1000	73.1%	878	1000	87.8%	18.3%
2,4-Dimethylphenol	1110	1500	74.0%	1330	1500	88.7%	18.0%
Benzoic Acid	1980	2750	72.0%	2090	2750	76.0%	5.4%
1,2,4-Trichlorobenzene	417	500	83.4%	511	500	102%	20.3%
Naphthalene	387	500	77.4%	463	500	92.6%	17.9%
Hexachlorobutadiene	484	500	96.8%	600	500	120%	21.4%
2-Methylnaphthalene	393	500	78.6%	481	500	96.2%	20.1%
Dimethylphthalate	484	500	96.8%	559	500	112%	14.4%
Acenaphthylene	448	500	89.6%	548	500	110%	20.1%
Acenaphthene	424	500	84.8%	519	500	104%	20.1%
Dibenzofuran	424	500	84.8%	509	500	102%	18.2%
Diethylphthalate	469	500	93.8%	527	500	105%	11.6%
Fluorene	438	500	87.6%	516	500	103%	16.4%
N-Nitrosodiphenylamine	589	500	118%	684	500	137%	14.9%
Hexachlorobenzene	455	500	91.0%	521	500	104%	13.5%
Pentachlorophenol	1580	1500	105%	1550	1500	103%	1.9%
Phenanthrene	494	500	98.8%	568	500	114%	13.9%
Anthracene	458	500	91.6%	548	500	110%	17.9%
Di-n-Butylphthalate	524	500	105%	607	500	121%	14.7%
Fluoranthene	488	500	97.6%	569	500	114%	15.3%
Pyrene	493	500	98.6%	558	500	112%	12.4%
Butylbenzylphthalate	501	500	100%	580	500	116%	14.6%
Benzo(a)anthracene	475	500	95.0%	550	500	110%	14.6%
bis(2-Ethylhexyl)phthalate	543	500	109%	632	500	126%	15.1%
Chrysene	473	500	94.6%	544	500	109%	14.0%
Di-n-Octyl phthalate	537	500	107%	623	500	125%	14.8%
Benzo(a)pyrene	467	500	93.4%	537	500	107%	13.9%
Indeno(1,2,3-cd)pyrene	425	500	85.0%	497	500	99.4%	15.6%
Dibenz(a,h)anthracene	320	500	64.0%	378	500	75.6%	16.6%

11/13/13

XI87: 000096

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCSD-101113
LCS/LCSD

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Date Analyzed LCS: 10/14/13 15:08
LCSD: 10/14/13 15:44

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzo(g,h,i)perylene	383	500	76.6%	445	500	89.0%	15.0%
Total Benzofluoranthenes	942	1000	94.2%	1090	1000	109%	14.6%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	64.6%	76.2%
2-Fluorobiphenyl	76.2%	92.6%
d14-p-Terphenyl	93.0%	107%
d4-1,2-Dichlorobenzene	66.2%	83.8%
d5-Phenol	68.0%	82.8%
2-Fluorophenol	66.4%	85.6%
2,4,6-Tribromophenol	88.1%	95.2%
d4-2-Chlorophenol	72.4%	85.6%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

as 11/13

XI87: 000727R

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

XI87MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No: XI87

Project: R.G HALEY SITE INTER

Lab File ID: XI87MB

Date Extracted: 10/11/13

Instrument ID: NT10

Date Analyzed: 10/14/13

Matrix: SOLID

Time Analyzed: 1433

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	XI87LCSS1	XI87LCSS1	XI87SB	10/14/13
02	XI87LCSDS1	XI87LCSDS1	XI87SBD	10/14/13
03	VANBURENPIT-1007	XI87A	XI87A	10/14/13
04				
05				
06				
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-101113
METHOD BLANK

Lab Sample ID: MB-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 11/12/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 14:33
Instrument/Analyst: NT10/VTS
GPC Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.8%	2-Fluorobiphenyl	77.8%
d14-p-Terphenyl	102%	d4-1,2-Dichlorobenzene	70.4%
d5-Phenol	68.4%	2-Fluorophenol	68.7%
2,4,6-Tribromophenol	90.4%	d4-2-Chlorophenol	75.2%

11/13/13

XI87: 00829 K

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

Instrument ID: NT10 Project: R.G HALEY SITE INTERIM ACT

DFTPP Injection Date: 08/23/13 DFTPP Injection Time: 1550

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	16.2
68	Less than 2.0% of mass 69	0.5 (1.8)1
69	Mass 69 relative abundance	30.0
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	42.0
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	28.8
365	Greater than 1.0% of mass 198	3.99
441	0.0 - 24.0% of mass 442	19.8 (15.4)2
442	50.0 - 200.0% of mass 198	128.7
443	15.0 - 24.0% of mass 442	24.7 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		IC0823A	IC0823A	08/23/13	1604
02		IC0823B	IC0823B	08/23/13	1641
03		IC0823C	IC0823C	08/23/13	1717
04		IC0823D	IC0823D	08/23/13	1753
05		IC0823E	IC0823E	08/23/13	1830
06		IC0823G	IC0823G	08/23/13	1943
07		IC0823H	IC0823H	08/23/13	2020
08					
09					
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

Instrument ID: NT10 Project: R.G HALEY SITE INTERIM ACT

DFTPP Injection Date: 10/14/13 DFTPP Injection Time: 1307

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	17.1
68	Less than 2.0% of mass 69	0.6 (2.0)1
69	Mass 69 relative abundance	30.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	42.5
197	Less than 2.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	29.2
365	Greater than 1.0% of mass 198	3.47
441	0.0 - 24.0% of mass 442	19.0 (14.6)2
442	50.0 - 200.0% of mass 198	129.8
443	15.0 - 24.0% of mass 442	24.9 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1014	CC1014	10/14/13	1322
02	XI87MBS1	XI87MBS1	XI87MB	10/14/13	1433
03	XI87LCSS1	XI87LCSS1	XI87SB	10/14/13	1508
04	XI87LCSDS1	XI87LCSDS1	XI87SBD	10/14/13	1544
05	VANBURENPIT-1007	XI87A	XI87A	10/14/13	1619
06					
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FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 Calibration Date: 08/23/13

Method = ABN.m
Cal levels = 7

LAB FILE ID: RRF0.2=IC0823C RRF0.5=IC0823G RRF1 =IC0823D
RRF2.5=IC0823H RRF5 =IC0823A RRF10 =IC0823E
RRF20 =IC0823B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	RRF	%RSD /R^2
Phenol	1.520	1.489	1.526	1.547	1.521	1.439	1.451	1.499	2.7
Bis(2-Chloroethyl)ether	1.055	1.171	1.108	1.249	1.086	1.038	1.010	1.102	7.5
2-Chlorophenol	1.275	1.284	1.245	1.288	1.204	1.183	1.192	1.239	3.7
1,3-Dichlorobenzene	1.474	1.405	1.372	1.362	1.281	1.214	1.214	1.332	7.4
1,4-Dichlorobenzene	1.455	1.295	1.307	1.332	1.235	1.217	1.191	1.290	6.9
1,2-Dichlorobenzene	1.334	1.352	1.281	1.289	1.192	1.141	1.128	1.245	7.3
Benzyl alcohol	0.592	0.522	0.552	0.696	0.720	0.698	0.712	0.642	13.0
2,2'-oxybis(1-Chloropropane)	0.464	0.410	0.374	0.405	0.363	0.364	0.358	0.391	9.8
2-Methylphenol	1.249	1.082	1.151	1.174	1.143	1.087	1.056	1.134	5.8
Hexachloroethane	0.592	0.530	0.536	0.525	0.498	0.488	0.482	0.522	7.2
N-Nitroso-di-n-propylamine	0.705	0.738	0.697	0.711	0.662	0.676	0.643	0.690	4.7
4-Methylphenol	1.077	1.073	1.175	1.210	1.186	1.145	1.097	1.138	4.9
Nitrobenzene	0.315	0.299	0.288	0.289	0.298	0.287	0.285	0.294	3.6
Isophorone	0.593	0.554	0.540	0.559	0.543	0.619	0.598	0.572	5.3
2-Nitrophenol	0.210	0.195	0.191	0.204	0.209	0.209	0.199	0.202	3.7
2,4-Dimethylphenol	0.330	0.330	0.348	0.344	0.341	0.328	0.307	0.332	4.1
Bis(2-Chloroethoxy)methane	0.358	0.355	0.351	0.335	0.338	0.331	0.313	0.340	4.7
2,4-Dichlorophenol	0.279	0.265	0.295	0.294	0.334	0.322	0.269	0.294	8.9
1,2,4-Trichlorobenzene	0.369	0.331	0.344	0.318	0.312	0.301	0.326	0.329	6.8
Naphthalene	0.988	0.900	0.904	0.893	0.878	0.877	0.868	0.901	4.5
Benzoic acid		0.114	0.173	0.244	0.255	0.272	0.249	0.218	0.998
4-Chloroaniline	0.337	0.329	0.308	0.374	0.392	0.414	0.325	0.354	11.1
Hexachlorobutadiene	0.214	0.215	0.192	0.202	0.193	0.191	0.206	0.202	5.1
4-Chloro-3-methylphenol	0.239	0.244	0.285	0.300	0.304	0.305	0.290	0.281	9.9
2-Methylnaphthalene	0.697	0.659	0.668	0.657	0.663	0.655	0.647	0.664	2.4
Hexachlorocyclopentadiene		0.398	0.426	0.413	0.434	0.427	0.430	0.421	3.2
2,4,6-Trichlorophenol	0.363	0.377	0.400	0.388	0.397	0.400	0.398	0.389	3.7
2,4,5-Trichlorophenol	0.369	0.377	0.403	0.418	0.436	0.430	0.419	0.407	6.3
2-Chloronaphthalene	1.021	0.988	1.028	0.939	0.962	0.972	0.964	0.982	3.3
2-Nitroaniline	0.226	0.197	0.244	0.240	0.248	0.243	0.235	0.233	7.5
Acenaphthylene	1.740	1.702	1.679	1.573	1.593	1.550	1.775	1.659	5.3
Dimethylphthalate	1.201	1.181	1.177	1.108	1.078	1.073	0.994	1.116	6.7
2,6-Dinitrotoluene	0.240	0.255	0.278	0.295	0.262	0.258	0.246	0.262	7.2
Acenaphthene	1.044	0.982	0.975	0.936	0.948	0.932	0.949	0.966	4.0
3-Nitroaniline	0.239	0.203	0.246	0.218	0.213	0.220	0.181	0.217	10.0
2,4-Dinitrophenol		0.078	0.148	0.193	0.222	0.233	0.232	0.184	0.999
Dibenzofuran	1.535	1.468	1.494	1.398	1.423	1.420	1.397	1.448	3.6

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 Calibration Date: 08/23/13

Method = ABN.m
Cal levels = 7

LAB FILE ID: RRF0.2=IC0823C RRF0.5=IC0823G RRF1 =IC0823D
RRF2.5=IC0823H RRF5 =IC0823A RRF10 =IC0823E
RRF20 =IC0823B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	RRF	%RSD /R^2
4-Nitrophenol		0.118	0.127	0.140	0.158	0.160	0.152	0.142	12.1
2,4-Dinitrotoluene	0.342	0.331	0.370	0.348	0.365	0.358	0.349	0.352	3.8
Fluorene	1.259	1.225	1.226	1.170	1.194	1.169	1.160	1.200	3.1
4-Chlorophenyl-phenylether	0.700	0.621	0.628	0.598	0.584	0.584	0.578	0.613	7.0
Diethylphthalate	1.182	1.140	1.209	1.084	1.177	1.042	0.988	1.117	7.3
4-Nitroaniline	0.230	0.218	0.259	0.254	0.243	0.270	0.247	0.246	7.3
4,6-Dinitro-2-methylphenol	0.090	0.146	0.144	0.178	0.168	0.168	0.158	0.150	19.4
N-Nitrosodiphenylamine (1)	0.452	0.426	0.435	0.425	0.409	0.399	0.363	0.416	7.0
4-Bromophenyl-phenylether	0.233	0.236	0.216	0.225	0.219	0.212	0.211	0.222	4.5
Hexachlorobenzene	0.281	0.307	0.310	0.292	0.277	0.267	0.246	0.283	8.0
Pentachlorophenol		0.136	0.164	0.173	0.187	0.179	0.174	0.169	10.4
Phenanthrene	0.956	0.898	0.918	0.880	0.881	0.885	0.877	0.899	3.2
Anthracene	1.024	0.972	0.961	0.939	0.929	0.965	0.917	0.958	3.7
Carbazole	0.800	0.739	0.749	0.688	0.628	0.663	0.616	0.698	9.8
Di-n-butylphthalate	1.058	1.003	1.013	1.009	1.024	1.037	0.979	1.018	2.5
Fluoranthene	1.197	1.181	1.152	1.132	1.140	1.169	1.131	1.157	2.2
Pyrene	1.170	1.109	1.123	1.086	1.118	1.070	1.092	1.110	2.9
Butylbenzylphthalate	0.454	0.394	0.419	0.394	0.408	0.386	0.376	0.404	6.4
Benzo(a)anthracene	1.160	1.101	1.085	1.021	1.034	0.982	1.020	1.058	5.8
3,3'-Dichlorobenzidine	0.628	0.558	0.569	0.403	0.374	0.454	0.489	0.496	18.7
Chrysene	0.946	0.899	0.951	0.897	0.913	0.888	0.895	0.913	2.8
bis(2-Ethylhexyl)phthalate	0.497	0.417	0.442	0.410	0.420	0.410	0.404	0.428	7.6
Di-n-octylphthalate	0.954	0.819	0.809	0.777	0.765	0.766	0.754	0.806	8.6
Benzo(b)fluoranthene	1.035	0.976	1.052	0.985	1.010	0.982	1.031	1.010	2.9
Benzo(k)fluoranthene	1.082	1.045	1.040	1.034	0.997	0.997	0.946	1.020	4.3
Benzo(a)pyrene	1.012	0.906	0.945	0.906	0.900	0.898	0.880	0.921	4.8
Indeno(1,2,3-cd)pyrene	1.176	1.094	1.174	1.125	1.109	1.115	1.097	1.127	3.0
Dibenzo(a,h)anthracene	0.939	0.864	0.905	0.896	0.854	0.844	0.834	0.876	4.3
Benzo(g,h,i)perylene	1.009	0.930	0.946	0.936	0.939	0.923	0.918	0.943	3.2
N-Nitrosodimethylamine	0.542	0.529	0.522	0.614	0.575	0.619	0.611	0.573	7.4
Aniline	2.944	3.009	2.474	2.766	2.849	3.039	2.960	2.863	6.8
Benzidine		0.322	0.306	0.166	0.139	0.162	0.186	0.214	0.995
Retene	0.466	0.428	0.453	0.431	0.447	0.429	0.443	0.442	3.2
Perylene	0.941	0.854	0.831	0.840	0.813	0.822	0.826	0.847	5.2
Pyridine	0.518	0.514	0.520	0.553	0.524	0.537	0.540	0.529	2.7
1-methylnaphthalene	0.627	0.621	0.599	0.617	0.609	0.599	0.588	0.608	2.3
Azobenzene (1,2-DP-Hydrazine	1.036	0.980	0.972	0.914	0.879	0.870	0.845	0.928	7.5

(1) Cannot be seperated from Diphenylamine
<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 Calibration Date: 08/23/13

Method = ABN.m
Cal levels = 7

LAB FILE ID: RRF0.2=IC0823C RRF0.5=IC0823G RRF1 =IC0823D
RRF2.5=IC0823H RRF5 =IC0823A RRF10 =IC0823E
RRF20 =IC0823B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	___ RRF	%RSD /R^2
2,3,4,6-Tetrachlorophenol	0.288	0.301	0.336	0.330	0.342	0.352	0.338	0.327	7.1
Total Benzofluoranthenes	1.066	1.000	1.032	0.988	0.978	0.969	0.962	0.999	3.8
2-Fluorophenol	1.195	1.146	1.234	1.178	1.142	1.138	1.123	1.165	3.3
Phenol-d5	1.400	1.520	1.477	1.561	1.522	1.520	1.561	1.509	3.7
2-Chlorophenol-d4	1.270	1.220	1.228	1.287	1.252	1.188	1.212	1.237	2.8
1,2-Dichlorobenzene-d4	1.020	0.964	0.966	0.956	0.888	0.853	0.836	0.926	7.4
Nitrobenzene-d5	0.386	0.348	0.342	0.353	0.345	0.350	0.339	0.352	4.5
2-Fluorobiphenyl	1.316	1.320	1.306	1.243	1.257	1.223	1.253	1.274	3.1
2,4,6-Tribromophenol	0.256	0.265	0.263	0.264	0.264	0.268	0.256	0.262	1.7
Terphenyl-d14	0.730	0.654	0.701	0.637	0.646	0.611	0.608	0.655	6.9

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 Cont. Calib. Date: 10/14/13

Init. Calib. Date: 08/23/13 Cont. Calib. Time: 1322

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.499	1.415	0.800	AVRG	-5.6
Bis(2-Chloroethyl)ether	1.102	1.020	0.700	AVRG	-7.4
2-Chlorophenol	1.239	1.248	0.800	AVRG	0.7
1,3-Dichlorobenzene	1.332	1.301	0.010	AVRG	-2.3
1,4-Dichlorobenzene	1.290	1.275	0.010	AVRG	-1.2
1,2-Dichlorobenzene	1.245	1.248	0.010	AVRG	0.2
Benzyl alcohol	0.642	0.554	0.010	AVRG	-13.7
2,2'-oxybis(1-Chloropropane)	0.391	0.377	0.010	AVRG	-3.6
2-Methylphenol	1.134	1.073	0.700	AVRG	-5.4
Hexachloroethane	0.522	0.486	0.300	AVRG	-6.9
N-Nitroso-di-n-propylamine	0.690	0.627	0.500	AVRG	-9.1
4-Methylphenol	1.138	1.115	0.600	AVRG	-2.0
Nitrobenzene	0.294	0.261	0.200	AVRG	-11.2
Isophorone	0.572	0.495	0.400	AVRG	-13.5
2-Nitrophenol	0.202	0.207	0.100	AVRG	2.5
2,4-Dimethylphenol	0.332	0.303	0.200	AVRG	-8.7
Bis(2-Chloroethoxy)methane	0.340	0.312	0.300	AVRG	-8.2
2,4-Dichlorophenol	0.294	0.301	0.200	AVRG	2.4
1,2,4-Trichlorobenzene	0.329	0.327	0.010	AVRG	-0.6
Naphthalene	0.901	0.896	0.700	AVRG	-0.6
Benzoic acid	20.00	18.14	0.010	2ORDR	-9.3
4-Chloroaniline	0.354	0.389	0.010	AVRG	9.9
Hexachlorobutadiene	0.202	0.198	0.010	AVRG	-2.0
4-Chloro-3-methylphenol	0.281	0.284	0.200	AVRG	1.1
2-Methylnaphthalene	0.664	0.650	0.400	AVRG	-2.1
Hexachlorocyclopentadiene	0.421	0.386	0.050	AVRG	-8.3
2,4,6-Trichlorophenol	0.389	0.397	0.200	AVRG	2.0
2,4,5-Trichlorophenol	0.407	0.437	0.200	AVRG	7.4
2-Chloronaphthalene	0.982	0.972	0.800	AVRG	-1.0
2-Nitroaniline	0.233	0.209	0.010	AVRG	-10.3
Acenaphthylene	1.659	1.603	0.900	AVRG	-3.4
Dimethylphthalate	1.116	1.079	0.010	AVRG	-3.3
2,6-Dinitrotoluene	0.262	0.268	0.200	AVRG	2.3
Acenaphthene	0.966	0.950	0.900	AVRG	-1.6
3-Nitroaniline	0.217	0.187	0.010	AVRG	-13.8
2,4-Dinitrophenol	20.00	20.74	0.010	2ORDR	3.7
Dibenzofuran	1.448	1.365	0.800	AVRG	-5.7

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 | Cont. Calib. Date: 10/14/13

Init. Calib. Date: 08/23/13 | Cont. Calib. Time: 1322

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.142	0.131	0.010	AVRG	-7.7	
2,4-Dinitrotoluene	0.352	0.354	0.200	AVRG	0.6	
Fluorene	1.200	1.179	0.900	AVRG	-1.8	
4-Chlorophenyl-phenylether	0.613	0.612	0.400	AVRG	-0.2	
Diethylphthalate	1.117	1.041	0.010	AVRG	-6.8	
4-Nitroaniline	0.246	0.192	0.010	AVRG	-22.0	<-
4,6-Dinitro-2-methylphenol	0.150	0.188	0.010	AVRG	25.3	<-
N-Nitrosodiphenylamine(1)	0.416	0.408	0.010	AVRG	-1.9	
4-Bromophenyl-phenylether	0.222	0.233	0.100	AVRG	5.0	
Hexachlorobenzene	0.283	0.250	0.100	AVRG	-11.7	
Pentachlorophenol	0.169	0.188	0.050	AVRG	11.2	
Phenanthrene	0.899	0.909	0.700	AVRG	1.1	
Anthracene	0.958	0.950	0.700	AVRG	-0.8	
Carbazole	0.698	0.692	0.010	AVRG	-0.8	
Di-n-butylphthalate	1.018	1.038	0.010	AVRG	2.0	
Fluoranthene	1.157	1.180	0.600	AVRG	2.0	
Pyrene	1.110	1.111	0.600	AVRG	0.1	
Butylbenzylphthalate	0.404	0.380	0.010	AVRG	-5.9	
Benzo(a)anthracene	1.058	1.031	0.800	AVRG	-2.6	
3,3'-Dichlorobenzidine	0.496	0.384	0.010	AVRG	-22.6	<-
Chrysene	0.913	0.921	0.700	AVRG	0.9	
bis(2-Ethylhexyl)phthalate	0.428	0.435	0.010	AVRG	1.6	
Di-n-octylphthalate	0.806	0.807	0.010	AVRG	0.1	
Benzo(b)fluoranthene	1.010	1.028	0.700	AVRG	1.8	
Benzo(k)fluoranthene	1.020	1.062	0.700	AVRG	4.1	
Benzo(a)pyrene	0.921	0.919	0.700	AVRG	-0.2	
Indeno(1,2,3-cd)pyrene	1.127	1.085	0.500	AVRG	-3.7	
Dibenzo(a,h)anthracene	0.876	0.837	0.400	AVRG	-4.4	
Benzo(g,h,i)perylene	0.943	0.917	0.500	AVRG	-2.8	
N-Nitrosodimethylamine	0.573	0.573	0.010	AVRG	0.0	
Aniline	2.863	2.859	0.010	AVRG	-0.1	
Benzidine	10.00	0.5934	0.010	2ORDR	-94.1	<-
Retene	0.442	0.452	0.010	AVRG	2.3	
Perylene	0.847	0.846	0.010	AVRG	-0.1	
Pyridine	0.529	0.480	0.010	AVRG	-9.3	
1-methylnaphthalene	0.608	0.589	0.010	AVRG	-3.1	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOENGINEERS

ARI Job No: XI87 — Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 — Cont. Calib. Date: 10/14/13

Init. Calib. Date: 08/23/13 — Cont. Calib. Time: 1322

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Azobenzene (1,2-DP-Hydrazine	0.928	0.760	0.010	AVRG	-18.1
2,3,4,6-Tetrachlorophenol	0.327	0.340	0.010	AVRG	4.0
Total Benzofluoranthenes	0.999	1.024	0.010	AVRG	2.5
2-Fluorophenol	1.165	1.126	0.010	AVRG	-3.3
Phenol-d5	1.509	1.464	0.010	AVRG	-3.0
2-Chlorophenol-d4	1.237	1.249	0.010	AVRG	1.0
1,2-Dichlorobenzene-d4	0.926	0.895	0.010	AVRG	-3.3
Nitrobenzene-d5	0.352	0.311	0.010	AVRG	-11.6
2-Fluorobiphenyl	1.274	1.246	0.010	AVRG	-2.2
2,4,6-Tribromophenol	0.262	0.272	0.010	AVRG	3.8
Terphenyl-d14	0.655	0.650	0.010	AVRG	-0.8

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Ical Midpoint ID: IC0823A | Ical Date: 08/23/13

Instrument ID: NT10 | Cont. Cal Date: 10/14/13

		IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	ICAL MIDPT	152867		8.64		536851		11.09		348566		14.66	
	UPPER LIMIT	305734				1073702				697132			
	LOWER LIMIT	76434				268426				174283			
	CCAL	132572		8.62		472430		11.06		316958		14.64	
	UPPER LIMIT			9.12				11.56				15.14	
	LOWER LIMIT			8.12				10.56				14.14	
01	XI87MBS1	127680		8.61		460617		11.06		290763		14.63	
02	XI87LCSS1	124730		8.60		431586		11.05		279002		14.63	
03	XI87LCSDS1	115735		8.60		405322		11.05		260264		14.63	
04	VANBURENPIT-	132227		8.61		464793		11.05		299969		14.63	
05													
06													
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Ical Midpoint ID: IC0823A | Ical Date: 08/23/13

Instrument ID: NT10 | Cont. Cal Date: 10/14/13

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	633376	17.72	651036	22.81	696727	25.26
	UPPER LIMIT	1266752		1302072		1393454	
	LOWER LIMIT	316688		325518		348364	
	CCAL	558749	17.70	609476	22.81	632351	25.25
	UPPER LIMIT		18.20		23.31		25.75
	LOWER LIMIT		17.20		22.31		24.75
01	XI87MBS1	511003	17.70	540221	22.80	576769	25.24
02	XI87LCSS1	494962	17.69	531808	22.80	583139	25.25
03	XI87LCSDS1	460418	17.70	496535	22.80	545668	25.25
04	VANBURENPIT-	527331	17.69	552477	22.80	586627	25.24
05							
06							
07							
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21							
22							
23							
24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Ical Midpoint ID: IC0823A | Ical Date: 08/23/13

Instrument ID: NT10 | Cont. Cal Date: 10/14/13

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	837259	23.92				
	UPPER LIMIT	1674518					
	LOWER LIMIT	418630					
	CCAL	742202	23.92				
	UPPER LIMIT		24.42				
	LOWER LIMIT		23.42				
01	XI87MBS1	622574	23.92				
02	XI87LCSS1	643380	23.92				
03	XI87LCSDS1	595101	23.92				
04	VANBURENPIT-	643983	23.92				
05							
06							
07							
08							
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23							
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25							

IS7 = Di-n-octylphthalate-d4

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

SIM Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: VANBURENPIT-100713**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/15/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
Event: 0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 16:19
Instrument/Analyst: NT10/YZ
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 5.4%

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
106-44-5	4-Methylphenol	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
84-66-2	Diethylphthalate	19	< 19 U
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	65.2%
d14-p-Terphenyl	97.4%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Client ID	FPH	TER	TOT OUT
MB-101113	65.5%	99.6%	0
LCS-101113	66.0%	94.2%	0
LCSD-101113	81.9%	106%	0
VANBURENPIT-100713	65.2%	97.4%	0

	LCS/MB LIMITS	QC LIMITS
(FPH) = 2-Fluorophenol	(32-120)	(27-120)
(TER) = d14-p-Terphenyl	(42-124)	(37-120)

Prep Method: SW3546
Log Number Range: 13-21758 to 13-21758

FORM-II SIM SW8270

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-101113**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/15/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
Event: 0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/11/13

Sample Amount LCS: 10.00 g-dry-wt
LCSD: 10.00 g-dry-wt

Date Analyzed LCS: 10/14/13 15:08
LCSD: 10/14/13 15:44
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL

Instrument/Analyst LCS: NT10/YZ
LCSD: NT10/YZ
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dibenz(a,h)anthracene	309	500	61.8%	357	500	71.4%	14.4%
1,4-Dichlorobenzene	369	500	73.8%	448	500	89.6%	19.3%
1,2,4-Trichlorobenzene	400	500	80.0%	475	500	95.0%	17.1%
Hexachlorobenzene	479	500	95.8%	564 E	500	113%	16.3%
Hexachlorobutadiene	394	500	78.8%	483	500	96.6%	20.3%
4-Methylphenol	726 E	1000	72.6%	881 E	1000	88.1%	19.3%
Dimethylphthalate	458	500	91.6%	522 E	500	104%	13.1%
Diethylphthalate	429	500	85.8%	488	500	97.6%	12.9%
Butylbenzylphthalate	512 E	500	102%	578 E	500	116%	12.1%
2-Methylphenol	368	500	73.6%	503	500	101%	31.0%
2,4-Dimethylphenol	1060 E	1500	70.7%	1260	1500	84.0%	17.2%
N-Nitrosodiphenylamine	515 E	500	103%	488	500	97.6%	5.4%
Benzyl Alcohol	361	500	72.2%	206	500	41.2%	54.7%
Pentachlorophenol	1380 E	1500	92.0%	1540 E	1500	103%	11.0%
1,2-Dichlorobenzene	376	500	75.2%	464	500	92.8%	21.0%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
2-Fluorophenol	66.0%	81.9%
d14-p-Terphenyl	94.2%	106%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

XI87MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No: XI87

Project: R.G HALEY SITE INTER

Lab File ID: XI87MB

Date Extracted: 10/11/13

Instrument ID: NT10

Date Analyzed: 10/14/13

Matrix: SOLID

Time Analyzed: 1433

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	XI87LCSS1	XI87LCSS1	XI87SB	10/14/13
02	XI87LCSDS1	XI87LCSDS1	XI87SBD	10/14/13
03	VANBURENPIT-1007	XI87A	XI87A	10/14/13
04				
05				
06				
07				
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-101113**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/15/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
Event: 0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 14:33
Instrument/Analyst: NT10/YZ
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
106-44-5	4-Methylphenol	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
84-66-2	Diethylphthalate	20	< 20 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	65.5%
dl4-p-Terphenyl	99.6%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

Instrument ID: NT10 Project: R.G HALEY SITE INTERIM ACT

DFTPP Injection Date: 08/23/13 DFTPP Injection Time: 1550

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	16.2
68	Less than 2.0% of mass 69	0.5 (1.8)1
69	Mass 69 relative abundance	30.0
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	42.0
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	28.8
365	Greater than 1.0% of mass 198	3.99
441	0.0 - 24.0% of mass 442	19.8 (15.4)2
442	50.0 - 200.0% of mass 198	128.7
443	15.0 - 24.0% of mass 442	24.7 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		IC0823A	IC0823A	08/23/13	1604
02		IC0823C	IC0823C	08/23/13	1717
03		IC0823D	IC0823D	08/23/13	1753
04		IC0823F	IC0823F	08/23/13	1907
05		IC0823G	IC0823G	08/23/13	1943
06		IC0823H	IC0823H	08/23/13	2020
07		IC0823I	IC0823I	08/23/13	2056
08					
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22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

Instrument ID: NT10 Project: R.G HALEY SITE INTERIM ACT

DFTPP Injection Date: 10/14/13 DFTPP Injection Time: 1307

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	17.1
68	Less than 2.0% of mass 69	0.6 (2.0)1
69	Mass 69 relative abundance	30.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	42.5
197	Less than 2.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	29.2
365	Greater than 1.0% of mass 198	3.47
441	0.0 - 24.0% of mass 442	19.0 (14.6)2
442	50.0 - 200.0% of mass 198	129.8
443	15.0 - 24.0% of mass 442	24.9 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1014A	CC1014A	10/14/13	1357
02	XI87MBS1	XI87MBS1	XI87MB	10/14/13	1433
03	XI87LCSS1	XI87LCSS1	XI87SB	10/14/13	1508
04	XI87LCSDS1	XI87LCSDS1	XI87SBD	10/14/13	1544
05	VANBURENPIT-1007	XI87A	XI87A	10/14/13	1619
06					
07					
08					
09					
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16					
17					
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21					
22					

FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 Calibration Date: 08/23/13

Method = SIM.b/SIMABN2.m
Cal levels = 7

LAB FILE ID: RRF0.05=IC0823F RRF0.1=IC0823I RRF0.2=IC0823C
RRF0.5=IC0823G RRF1 =IC0823D RRF2.5=IC0823H
RRF5 =IC0823A

COMPOUND	RRF 0.05	RRF 0.1	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	___ RRF	%RSD /R^2
Phenol	1.220	1.411	1.417	1.398	1.433	1.476	1.424	1.397	5.8
1,3-Dichlorobenzene	1.440	1.509	1.447	1.367	1.340	1.345	1.246	1.385	6.3
1,4-Dichlorobenzene	1.431	1.501	1.418	1.326	1.287	1.308	1.206	1.354	7.4
1,2-Dichlorobenzene	1.329	1.422	1.366	1.260	1.249	1.255	1.157	1.291	6.8
Benzyl alcohol	0.567	0.602	0.728	0.717	0.753	0.833	0.836	0.719	14.4
2-Methylphenol	0.927	1.108	1.202	1.162	1.195	1.204	1.168	1.138	8.7
N-Nitroso-di-n-propylamine	0.588	0.664	0.662	0.647	0.661	0.660	0.628	0.644	4.3
4-Methylphenol	1.024	1.133	1.188	1.166	1.220	1.229	1.206	1.166	6.1
2,4-Dimethylphenol	0.308	0.346	0.366	0.345	0.348	0.346	0.323	0.340	5.6
1,2,4-Trichlorobenzene	0.354	0.379	0.373	0.347	0.341	0.334	0.309	0.348	6.8
Hexachlorobutadiene	0.204	0.227	0.215	0.205	0.198	0.200	0.182	0.204	6.8
Dimethylphthalate	1.141	1.217	1.299	1.155	1.193	1.137	1.118	1.180	5.3
Diethylphthalate	1.551	1.551	1.538	1.378	1.397	1.325	1.273	1.430	8.1
N-Nitrosodiphenylamine (1)	0.395	0.435	0.431	0.416	0.427	0.404	0.391	0.414	4.3
Hexachlorobenzene	0.304	0.313	0.290	0.267	0.269	0.248	0.238	0.276	10.2
Pentachlorophenol	0.081	0.106	0.123	0.139	0.162	0.167	0.176	0.136	0.999
Butylbenzylphthalate	0.389	0.392	0.427	0.388	0.411	0.394	0.403	0.400	3.6
Dibenzo(a,h)anthracene	0.960	0.995	1.064	0.963	0.962	0.920	0.885	0.964	5.8
N-Nitrosodimethylamine	0.462	0.557	0.532	0.533	0.557	0.610	0.574	0.546	8.4
2-Fluorophenol	1.234	1.272	1.269	1.195	1.200	1.226	1.177	1.225	3.0
Terphenyl-d14	0.426	0.435	0.429	0.401	0.416	0.401	0.396	0.415	3.8

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOENGINEERS

ARI Job No: XI87 — Project: R.G HALEY SITE INTERIM ACT

Instrument ID: NT10 — Cont. Calib. Date: 10/14/13

Init. Calib. Date: 08/23/13 — Cont. Calib. Time: 1357

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.397	1.375	0.800	AVRG	-1.6
1,3-Dichlorobenzene	1.385	1.376	0.010	AVRG	-0.6
1,4-Dichlorobenzene	1.354	1.342	0.010	AVRG	-0.9
1,2-Dichlorobenzene	1.291	1.303	0.010	AVRG	0.9
Benzyl alcohol	0.719	0.584	0.010	AVRG	-18.8
2-Methylphenol	1.138	1.259	0.700	AVRG	10.6
N-Nitroso-di-n-propylamine	0.644	0.600	0.500	AVRG	-6.8
4-Methylphenol	1.166	1.203	0.600	AVRG	3.2
2,4-Dimethylphenol	0.340	0.321	0.200	AVRG	-5.6
1,2,4-Trichlorobenzene	0.348	0.360	0.010	AVRG	3.4
Hexachlorobutadiene	0.204	0.204	0.010	AVRG	0.0
Dimethylphthalate	1.180	1.232	0.010	AVRG	4.4
Diethylphthalate	1.430	1.398	0.010	AVRG	-2.2
N-Nitrosodiphenylamine(1)	0.414	0.465	0.010	AVRG	12.3
Hexachlorobenzene	0.276	0.300	0.100	AVRG	8.7
Pentachlorophenol	2.000	2.254	0.050	2ORDR	12.7
Butylbenzylphthalate	0.400	0.424	0.010	AVRG	6.0
Dibenzo(a,h)anthracene	0.964	0.931	0.400	AVRG	-3.4
N-Nitrosodimethylamine	0.546	0.559	0.010	AVRG	2.4
2-Fluorophenol	1.225	1.208	0.010	AVRG	-1.4
Terphenyl-d14	0.415	0.459	0.010	AVRG	10.6

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Ical Midpoint ID: IC0823D | Ical Date: 08/23/13

Instrument ID: NT10 | Cont. Cal Date: 10/14/13

		IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	ICAL MIDPT	160515		8.64		576038		11.09		314384		14.66	
	UPPER LIMIT	321030				1152076				628768			
	LOWER LIMIT	80258				288019				157192			
	CCAL	146803		8.61		523236		11.07		280588		14.63	
	UPPER LIMIT			9.11				11.57				15.13	
	LOWER LIMIT			8.11				10.57				14.13	
01	XI87MBS1	145612		8.60		525555		11.06		283789		14.63	
02	XI87LCSS1	139057		8.60		492644		11.06		270270		14.63	
03	XI87LCSDS1	131194		8.60		464940		11.06		252692		14.63	
04	VANBURENPIT-	148607		8.61		543589		11.06		286174		14.63	
05													
06													
07													
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No: XI87 | Project: R.G HALEY SITE INTERIM ACT

Ical Midpoint ID: IC0823D | Ical Date: 08/23/13

Instrument ID: NT10 | Cont. Cal Date: 10/14/13

		IS4(PHN) AREA	#	RT	#	IS5(CRY) AREA	#	RT	#	IS6(PRY) AREA	#	RT	#
	ICAL MIDPT	686356		17.72		741751		22.81		800926		25.26	
	UPPER LIMIT	1372712				1483502				1601852			
	LOWER LIMIT	343178				370876				400463			
	CCAL	594378		17.70		634099		22.80		686014		25.24	
	UPPER LIMIT			18.20				23.30				25.74	
	LOWER LIMIT			17.20				22.30				24.74	
01	XI87MBS1	602579		17.70		617928		22.80		666374		25.24	
02	XI87LCSS1	577462		17.70		608667		22.80		678602		25.25	
03	XI87LCSDS1	538936		17.70		571145		22.80		635170		25.24	
04	VANBURENPIT-	614107		17.70		638042		22.80		684257		25.24	
05													
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

Dioxin Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: VANBURENPIT-100713**

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/10/13
Date Analyzed: 10/18/13 18:44
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0419	0.998	< 0.0419	U
2,3,7,8-TCDD		0.65-0.89	0.0479	0.998	< 0.0479	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0778	0.998	< 0.0778	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0878	0.998	< 0.0878	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0818	0.998	< 0.0818	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.102	0.998	< 0.102	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0858	0.998	< 0.0858	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0978	0.998	< 0.0978	U
1,2,3,7,8,9-HxCDF		1.05-1.43	0.122	0.998	< 0.122	U
1,2,3,4,7,8-HxCDD	1.33	1.05-1.43		0.998	0.0595	BJ
1,2,3,6,7,8-HxCDD	0.97	1.05-1.43		0.998	0.196	BJEMPC
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0758	0.998	< 0.0758	U
1,2,3,4,6,7,8-HpCDF	1.06	0.88-1.20		0.998	1.99	
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0978	0.998	< 0.0978	U
1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20		0.998	5.98	B
OCDF	0.95	0.76-1.02		2.00	5.90	
OCDD	0.91	0.76-1.02		2.00	72.7	B

Homologue Group	EDL	RL	Result	
Total TCDF	0.0419	0.998	0.0671	EMPC
Total TCDD	0.0479	0.998	0.0910	EMPC
Total PeCDF	0.0878	2.00	0.183	
Total PeCDD	0.0818	0.998	0.0970	EMPC
Total HxCDF	0.122	2.00	1.34	
Total HxCDD		2.00	1.79	EMPC
Total HpCDF		2.00	5.75	
Total HpCDD		2.00	16.2	EMPC

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.13

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.23

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: VANBURENPIT-100713**
Page 1 of 1

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/10/13
Date Analyzed: 10/18/13 18:44
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.79	0.65-0.89	90.4	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	95.8	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	101	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	90.8	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	102	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	96.1	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	109	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	98.1	28-136	
13C-1,2,3,7,8,9-HxCDF	0.53	0.43-0.59	96.2	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	111	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	108	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	90.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.5	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	110	23-140	
13C-OCDD	0.90	0.76-1.02	83.9	17-157	
37Cl4-2,3,7,8-TCDD			99.8	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-101013**

Lab Sample ID: OPR-101013
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: MW
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/10/13
Date Analyzed: 10/17/13 13:16
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.72	0.65-0.89	1.00	24.3
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.8
1,2,3,7,8-PeCDF	1.49	1.32-1.78	1.00	112
2,3,4,7,8-PeCDF	1.48	1.32-1.78	1.00	113
1,2,3,7,8-PeCDD	1.57	1.32-1.78	1.00	108
1,2,3,4,7,8-HxCDF	1.16	1.05-1.43	1.00	108
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	109
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43	1.00	110
1,2,3,7,8,9-HxCDF	1.20	1.05-1.43	1.00	109
1,2,3,4,7,8-HxCDD	1.30	1.05-1.43	1.00	113
1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	1.00	110
1,2,3,7,8,9-HxCDD	1.25	1.05-1.43	1.00	111
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20	1.00	142
1,2,3,4,7,8,9-HpCDF	0.96	0.88-1.20	1.00	111
1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	1.00	116
OCDF	0.86	0.76-1.02	2.00	211
OCDD	0.89	0.76-1.02	2.00	238

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	30.2	EMPC
Total TCDD		1.00	22.8	EMPC
Total PeCDF		2.00	240	EMPC
Total PeCDD		1.00	110	EMPC
Total HxCDF		2.00	441	
Total HxCDD		2.00	337	EMPC
Total HpCDF		2.00	255	
Total HpCDD		2.00	123	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-101013**

Lab Sample ID: OPR-101013
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: MW
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/10/13
Date Analyzed: 10/17/13 13:16
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	90.6	22-152	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	97.0	20-175	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	103	21-192	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	92.5	13-328	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	101	21-227	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	97.9	19-202	
13C-1,2,3,6,7,8-HxCDF	0.53	0.43-0.59	111	21-159	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	94.6	22-176	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	84.2	17-205	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	21-193	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	107	25-163	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	83.8	21-158	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	88.2	20-186	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	98.0	26-166	
13C-OCDD	0.90	0.76-1.02	78.8	13-198	
37Cl4-2,3,7,8-TCDD			98.2	31-191	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-101013

Lab Sample ID: OPR-101013
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: MW
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/10/13
Date Analyzed: 10/17/13 13:16
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	24.3	20.0	122	75-158
2,3,7,8-TCDD	21.8	20.0	109	67-158
1,2,3,7,8-PeCDF	112	100	112	80-134
2,3,4,7,8-PeCDF	113	100	113	68-160
1,2,3,7,8-PeCDD	108	100	108	70-142
1,2,3,4,7,8-HxCDF	108	100	108	72-134
1,2,3,6,7,8-HxCDF	109	100	109	84-130
2,3,4,6,7,8-HxCDF	110	100	110	70-156
1,2,3,7,8,9-HxCDF	109	100	109	78-130
1,2,3,4,7,8-HxCDD	113	100	113	70-164
1,2,3,6,7,8-HxCDD	110	100	110	76-134
1,2,3,7,8,9-HxCDD	111	100	111	64-162
1,2,3,4,6,7,8-HpCDF	142	100	142	82-132
1,2,3,4,7,8,9-HpCDF	111	100	111	78-138
1,2,3,4,6,7,8-HpCDD	116	100	116	70-140
OCDF	211	200	106	63-170
OCDD	238	200	119	78-144

Reported in pg/g

4DF - FORM IV-HR CDD
CDD/CDF METHOD BLANK SUMMARY
HIGH RESOLUTION

Blank No.
XI87MB

Lab Name: ANALYTICAL RESOURCES, INC. Contract: GEOENGINEERS

Lab Code: XI87 Project: RG HALEY SITE

Matrix: (Soil/Water/Ash/Tissue/Oil) SOIL Lab Sample ID: DFBLK10

Sample wt/vol: 10 (g/ml) g Lab File ID: 13100704

Water Sample Prep: (sep/spe) Date Received: 08-OCT-13

GC Column: RTX-DIOXIN2 ID: 0.25 mm Date Extracted: 10-OCT-13

Instrument ID: AUTOSPEC1 Date Analyzed: 17-OCT-13

Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
XI87OPR	DLCS10	13101705	10/17/13
VANBURENPIT-100713	XI87A	13101811	10/18/13

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-101013**

Lab Sample ID: MB-101013
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: MW
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/10/13
Date Analyzed: 10/17/13 12:26
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0160	1.00	< 0.0160	U
2,3,7,8-TCDD	0.08	0.65-0.89		1.00	0.124	JEMPC
1,2,3,7,8-PeCDF	0.99	1.32-1.78		1.00	0.0300	JEMPC
2,3,4,7,8-PeCDF		1.32-1.78	0.0220	1.00	< 0.0220	U
1,2,3,7,8-PeCDD	1.59	1.32-1.78		1.00	0.0660	J
1,2,3,4,7,8-HxCDF	0.78	1.05-1.43		1.00	0.0200	JEMPC
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0280	1.00	< 0.0280	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0340	1.00	< 0.0340	U
1,2,3,7,8,9-HxCDF		1.05-1.43	0.0460	1.00	< 0.0460	U
1,2,3,4,7,8-HxCDD	1.20	1.05-1.43		1.00	0.0860	J
1,2,3,6,7,8-HxCDD	1.66	1.05-1.43		1.00	0.102	JEMPC
1,2,3,7,8,9-HxCDD	0.88	1.05-1.43		1.00	0.160	JEMPC
1,2,3,4,6,7,8-HpCDF	0.91	0.88-1.20		1.00	0.0800	J
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0580	1.00	< 0.0580	U
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		1.00	1.68	
OCDF		0.76-1.02	0.0500	2.00	< 0.0500	U
OCDD	0.94	0.76-1.02		2.00	8.89	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0160	1.00	< 0.0160	U
Total TCDD		1.00	0.311	EMPC
Total PeCDF		2.00	0.0291	EMPC
Total PeCDD		1.00	0.576	EMPC
Total HxCDF		2.00	0.0196	EMPC
Total HxCDD		2.00	2.13	EMPC
Total HpCDF		2.00	0.155	EMPC
Total HpCDD		2.00	4.90	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.25

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.26

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-101013**

Lab Sample ID: MB-101013
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: MW
Reported: 10/22/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/10/13
Date Analyzed: 10/17/13 12:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.79	0.65-0.89	93.8	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	97.8	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	104	24-185	
13C-2,3,4,7,8-PeCDF	1.59	1.32-1.78	90.2	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	98.7	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	93.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	110	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	92.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	82.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	108	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.46	0.37-0.51	84.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	88.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	101	23-140	
13C-OCDD	0.87	0.76-1.02	78.7	17-157	
37Cl4-2,3,7,8-TCDD			99.9	35-197	

Reported in Percent Recovery

5DFA - FORM V-HR CDD-1
CDD/CDF WINDOW DEFINING MIX (WDM) SUMMARY
HIGH RESOLUTION

Standard No.: CS3

Lab Name: ANALYTICAL RESOURCES, INC. Contract: GEOENGINEERS

Lab Code: XI87 Project: RG HALEY SITE

GC Column: RTX-DIOXIN2 ID: 0.25 mm Lab File ID: 13101702

Instrument ID: AUTOSPEC1 Date Analyzed: 17-OCT-13

Time Analyzed: 10:24

CDD/CDF	RT First Eluting	RT Last Eluting
TCDD	23.15	26.59
TCDF	21.89	26.83
PeCDD	28.36	31.46
PeCDF	26.69	31.83
HxCDD	33.54	36.25
HxCDF	32.75	36.70
HpCDD	39.29	40.49
HpCDF	38.76	41.34

5DFB - FORM V-HR CDD-2
CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
HIGH RESOLUTION

Standard No.

TETRA ISC

Lab Name: ANALYTICAL RESOURCES, INC.
Lab Code: XI87
GC Column: RTX-DIOXIN2 ID: .25 mm
Instrument: AUTOSPEC1

Contract: GEOENGINEERS
Project: RG HALEY SITE
Lab File ID: 13101703
Date Analyzed: 17-OCT-13
Time Analyzed: 11:15

Percent Valley determination for RTX-DIOXIN2 column -

1278-TCDD/2378-TCDD: 16.1

3467-TCDF/2378-TCDF: 15.5

QC Limits:
Percent Valley between TCDD/TCDF isomers must be less than or equal to 25%

5DFB - FORM V-HR CDD-3
CDD/CDF ANALTYICAL SEQUENCE SUMMARY
HIGH RESOLUTION

Lab Name: ANALYTICAL RESOURCES, INC. Contract: GEOENGINEERS

Lab Code: XI87 Project: RG HALEY SITE

GC Column: RTX-DIOXIN2 ID: 0.25 mm Instrument ID: AUTOSPEC1

Init. Calib. Date(s): 18-JUL-13

Init: Calib. Times: 12:34 to 19:02

The Analytical Sequence of standards, samples, blanks, and Laboratory Control Samples (LCS) is as follows:

Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
CS3	CS3	13101702	10/17/13	1024
ISC	ISC01	13101703	10/17/13	1115
XI87MB	DFBLK10	13101704	10/17/13	1226
XI87OPR	DLCS10	13101705	10/17/13	1316
CS3	CS3	13101713	10/17/13	2015

5DFB - FORM V-HR CDD-3
CDD/CDF ANALTYICAL SEQUENCE SUMMARY
HIGH RESOLUTION

Lab Name: ANALYTICAL RESOURCES, INC. Contract: GEOENGINEERS

Lab Code: XI87 Project: RG HALEY SITE

GC Column: RTX-DIOXIN2 ID: 0.25 mm Instrument ID: AUTOSPEC1

Init. Calib. Date(s): 18-JUL-13

Init: Calib. Times: 12:34 to 19:02

The Analytical Sequence of standards, samples, blanks, and Laboratory Control Samples (LCS) is as follows:

Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
CS3	CS3	13101802	10/18/13	1050
ISC	ISC01	13101803	10/18/13	1147
VANBURENPIT-100713	XI87A	13101811	10/18/13	1844
CS3	CS3	13101812	10/18/13	1936

6DFA - Form VI-HR CDD-1
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTX-DIOXIN2	ID (mm):	0.25mm
Instrument ID:	AUTOSPEC1		
Init.Calib.Date CSL:	18-Jul-13	Init.Calib.Time CSL:	12:34:52
Init.Calib.Date CS1:	18-Jul-13	Init.Calib.Time CS1:	15:34:58
Init.Calib.Date CS2:	18-Jul-13	Init.Calib.Time CS2:	16:25:18
Init.Calib.Date CS3:	18-Jul-13	Init.Calib.Time CS3:	17:17:44
Init.Calib.Date CS4:	18-Jul-13	Init.Calib.Time CS4:	18:09:59
Init.Calib.Date CS5:	18-Jul-13	Init.Calib.Time CS5:	19:02:18

Target Analytes	RR/RRF						Mean RR/RRF	% RSD	Limits (% +/-)
	CSL	CS1	CS2	CS3	CS4	CS5			
2378-TCDD	0.00	0.93	1.01	0.98	1.01	1.04	0.99	4.3	20.0
2378-TCDF	0.00	0.90	0.85	0.84	0.86	0.89	0.87	2.9	20.0
12378-PeCDF	0.89	0.84	0.85	0.86	0.88	0.91	0.87	2.9	20.0
12378-PeCDD	1.03	0.96	0.96	0.96	0.96	0.99	0.98	2.9	20.0
23478-PeCDF	0.86	0.85	0.86	0.88	0.90	0.93	0.88	3.2	20.0
123478-HxCDF	1.09	1.01	1.04	1.03	1.04	1.07	1.05	2.9	20.0
123678-HxCDF	1.04	1.00	1.02	1.00	1.03	1.06	1.02	2.4	20.0
123478-HxCDD	0.94	0.98	0.95	0.96	0.96	1.00	0.97	2.4	20.0
123678-HxCDD	0.92	0.85	0.91	0.90	0.91	0.91	0.90	3.1	20.0
123789-HxCDD[2]	0.92	0.94	0.88	0.91	0.90	0.93	0.91	2.2	20.0
234678-HxCDF	1.02	1.10	1.07	1.09	1.12	1.13	1.09	3.6	20.0
123789-HxCDF	0.94	0.94	0.97	0.95	0.97	0.99	0.96	2.1	20.0
1234678-HpCDF	1.18	1.24	1.19	1.22	1.22	1.24	1.21	2.3	20.0
1234678-HpCDD	1.04	1.01	0.96	0.99	0.99	1.00	1.00	2.6	20.0
1234789-HpCDF	1.17	1.18	1.17	1.21	1.23	1.25	1.20	2.8	20.0
OCDD	0.99	0.98	0.96	0.97	0.98	0.99	0.98	1.2	20.0
OCDF[1]	1.08	1.02	1.01	1.04	1.09	1.15	1.06	4.9	20.0
37CL-2378-TCDD	1.16	1.09	1.05	1.03	1.04	1.17	1.09	5.8	20.0

(1) The Relative Response (RR) is calculated based on the labeled analogs of the other two HxCDDs.
(2) The RR is calculated based on the labeled analog of OCDD.

Labeled Compounds	RR/RRF						Mean RR/RRF	% RSD	Limits (% +/-)
	CSL	CS1	CS2	CS3	CS4	CS5			
13C-2378-TCDD	0.97	0.93	0.94	0.95	0.94	1.04	0.96	4.0	35.0
13C-12378-PeCDD	0.74	0.70	0.72	0.70	0.72	0.90	0.75	10.5	35.0
13C-123478-HxCDD	0.97	0.99	1.00	1.01	1.02	1.02	1.00	2.0	35.0
13C-123678-HxCDD	1.00	1.06	1.07	1.05	1.06	1.07	1.05	2.4	35.0
13C-1234678-HpCDD	0.86	0.89	0.89	0.88	0.88	0.88	0.88	1.5	35.0
13C-OCDD	0.75	0.76	0.76	0.77	0.77	0.84	0.77	4.3	35.0
13C-2378-TCDF	1.48	1.38	1.38	1.40	1.41	1.47	1.42	3.2	35.0
13C-12378-PeCDF	1.14	1.08	1.12	1.08	1.11	1.41	1.16	10.9	35.0
13C-23478-PeCDF	1.10	1.05	1.10	1.05	1.08	1.37	1.13	10.9	35.0
13C-123478-HxCDF	1.17	1.21	1.22	1.20	1.22	1.21	1.21	1.4	35.0
13C-123678-HxCDF	1.22	1.26	1.28	1.27	1.28	1.28	1.27	1.9	35.0
13C-234678-HxCDF	1.20	1.16	1.14	1.15	1.13	1.16	1.16	1.9	35.0
13C-123789-HxCDF	1.09	1.12	1.11	1.13	1.12	1.15	1.12	1.7	35.0
13C-1234678-HpCDF	0.98	1.04	1.06	1.04	1.05	1.06	1.04	2.9	35.0
13C-1234789-HpCDF	0.78	0.78	0.79	0.80	0.78	0.80	0.79	1.4	35.0

6DFB - Form VI-HR CDD-2
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTX-DIOXIN2	ID (mm):	0.25mm
Instrument ID:	AUTOSPEC1		
Init.Calib.Date CSL:	18-Jul-13	Init.Calib.Time CSL:	12:34:52
Init.Calib.Date CS1:	18-Jul-13	Init.Calib.Time CS1:	15:34:56
Init.Calib.Date CS2:	18-Jul-13	Init.Calib.Time CS2:	16:25:18
Init.Calib.Date CS3:	18-Jul-13	Init.Calib.Time CS3:	17:17:44
Init.Calib.Date CS4:	18-Jul-13	Init.Calib.Time CS4:	18:09:59
Init.Calib.Date CS5:	18-Jul-13	Init.Calib.Time CS5:	19:02:18

Target Analytes	Selected Ions	Ion Abundance Ratio						Ratio Flag	Ratio QC Limits#
		CSL	CS1	CS2	CS3	CS4	CS5		
2378-TCDD	320/322	0.00	0.77	0.82	0.79	0.78	0.77		0.65 - 0.89
2378-TCDF	304/306	0.00	0.66	0.73	0.71	0.70	0.73		0.65 - 0.89
12378-PeCDF	340/342	1.46	1.40	1.37	1.45	1.51	1.50		1.32 - 1.78
12378-PeCDD	356/358	1.67	1.63	1.52	1.57	1.53	1.54		1.32 - 1.78
23478-PeCDF	340/342	1.57	1.48	1.42	1.45	1.48	1.49		1.32 - 1.78
123478-HxCDF	374/376	1.06	1.16	1.18	1.17	1.20	1.19		1.05 - 1.43
123678-HxCDF	374/376	1.17	1.20	1.17	1.18	1.18	1.20		1.05 - 1.43
123478-HxCDD	390/392	1.30	1.29	1.21	1.25	1.23	1.25		1.05 - 1.43
123678-HxCDD	390/392	1.19	1.28	1.26	1.24	1.25	1.24		1.05 - 1.43
123789-HxCDD	390/392	1.21	1.13	1.19	1.24	1.24	1.24		1.05 - 1.43
234678-HxCDF	374/376	1.29	1.14	1.17	1.18	1.21	1.18		1.05 - 1.43
123789-HxCDF	374/376	1.39	1.19	1.22	1.18	1.18	1.20		1.05 - 1.43
1234678-HpCDF	408/410	0.93	0.98	0.98	0.97	0.99	1.00		0.89 - 1.21
1234678-HpCDD	424/426	1.11	1.04	1.05	1.05	1.04	1.03		0.89 - 1.21
1234789-HpCDF	408/410	1.07	0.97	0.96	1.01	0.98	0.99		0.89 - 1.21
OCDD	458/460	0.85	0.87	0.91	0.88	0.90	0.89		0.76 - 1.02
OCDF	442/444	0.86	0.84	0.86	0.84	0.85	0.86		0.76 - 1.02

Labeled Compounds	Selected Ions	Ion Abundance Ratio						Ratio Flag	Ratio QC Limits
		CSL	CS1	CS2	CS3	CS4	CS5		
13C-2378-TCDD	332/334	0.77	0.77	0.79	0.78	0.78	0.78		0.65 - 0.89
13C-12378-PeCDD	368/370	1.58	1.55	1.54	1.59	1.57	1.57		1.32 - 1.78
13C-123478-HxCDD	402/404	1.28	1.26	1.25	1.26	1.24	1.26		1.05 - 1.43
13C-123678-HxCDD	402/404	1.23	1.24	1.23	1.24	1.22	1.24		1.05 - 1.43
13C-1234678-HpCDD	436/438	1.05	1.03	1.05	1.06	1.05	1.05		0.89 - 1.21
13C-OCDD	470/472	0.89	0.89	0.88	0.88	0.87	0.88		0.76 - 1.02
13C-2378-TCDF	316/318	0.78	0.78	0.78	0.77	0.77	0.78		0.65 - 0.89
13C-12378-PeCDF	352/354	1.56	1.55	1.56	1.58	1.55	1.57		1.32 - 1.78
13C-23478-PeCDF	352/354	1.57	1.55	1.57	1.56	1.57	1.57		1.32 - 1.78
13C-123478-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43 - 0.59
13C-123678-HxCDF	384/386	0.53	0.53	0.53	0.51	0.52	0.52		0.43 - 0.59
13C-234678-HxCDF	384/386	0.52	0.52	0.52	0.51	0.52	0.52		0.43 - 0.59
13C-123789-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.53		0.43 - 0.59
13C-1234678-HpCDF	418/420	0.44	0.45	0.45	0.45	0.45	0.45		0.37 - 0.51
13C-1234789-HpCDF	418/420	0.44	0.45	0.44	0.44	0.45	0.45		0.37 - 0.51

Internal Standards	Selected Ions	Ion Abundance Ratio						Ratio Flag	Ion Ratio QC Limits
		CSL	CS1	CS2	CS3	CS4	CS5		
13C-1234-TCDD	332/334	0.78	0.79	0.79	0.80	0.79	0.78		0.65 - 0.89
13C-123789-HxCDD	402/404	1.23	1.24	1.24	1.21	1.24	1.25		1.05 - 1.43

(#) Quality Control (QC) limits represent ±15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

7DFA - Form VII-HR CDD-1
CDD/CDF CONTINUING CALIBRATION SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code.	XI87	Case No..	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	25
Instrument ID:	AUTOSPEC1	Lab File ID.	13101702
Date Analysed	17-Oct-13	Time Analysed	10.24:46
Init.Calib.Date	18-JUL-13	Init.Calib.Time:	12.34

Target Analytes	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
2378-TCDD	320/322	1.01	0.99	1.9		0.78		0.65 - 0.89
2378-TCDF	304/306	0.89	0.87	2.1		0.72		0.65 - 0.89
12378-PeCDF	340/342	0.90	0.87	3.0		1.46		1.32 - 1.78
12378-PeCDD	356/358	0.97	0.98	-0.8		1.57		1.32 - 1.78
23478-PeCDF	340/342	0.95	0.88	8.4		1.51		1.32 - 1.78
123478-HxCDF	374/376	1.04	1.05	-0.6		1.17		1.05 - 1 43
123678-HxCDF	374/376	1.03	1.02	0.1		1.15		1.05 - 1.43
123478-HxCDD	390/392	1.02	0 97	5 9		1.25		1.05 - 1 43
123678-HxCDD	390/392	0.92	0 90	2 5		1.25		1.05 - 1 43
123789-HxCDD	390/392	0.94	0.91	3.3		1 26		1.05 - 1.43
234678-HxCDF	374/376	1.11	1 09	1.9		1 18		1.05 - 1 43
123789-HxCDF	374/376	0.96	0 96	0.3		1 15		1.05 - 1.43
1234678-HpCDF	408/410	1.21	1 21	-0.7		0.93		0 89 - 1 21
1234678-HpCDD	424/426	1.00	1.00	0.5		1 03		0.89 - 1.21
1234789-HpCDF	408/410	1.21	1 20	0.8		0.99		0 89 - 1 21
OCDD	458/460	1.00	0.98	2.5		0.91		0.76 - 1.02
OCDF	442/444	1 12	1.06	4.8		0.87		0.76 - 1.02

Labeled Compounds	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
13C-2378-TCDD	332/334	1.00	0.96	4.4		0.79		0.65 - 0.89
13C-12378-PeCDD	368/370	0.84	0.75	12.7		1.56		1.32 - 1.78
13C-123478-HxCDD	402/404	1 01	1.00	0.3		1.26		1.05 - 1.43
13C-123678-HxCDD	402/404	1.12	1.05	6 5		1.25		1.05 - 1 43
13C-1234678-HpCDD	436/438	1.05	0 88	19.5		1 06		0.89 - 1.21
13C-OCDD	470/472	0.87	0.77	12.7		0.89		0 76 - 1.02
13C-2378-TCDF	316/318	1.50	1 42	5.5		0.79		0 65 - 0.89
13C-12378-PeCDF	352/354	1.31	1 16	12.7		1.58		1.32 - 1.78
13C-23478-PeCDF	352/354	1.27	1.13	12.3		1.59		1.32 - 1.78
13C-123478-HxCDF	384/386	1.30	1.21	8.1		0.52		0.43 - 0.59
13C-123678-HxCDF	384/386	1.44	1.27	13.5		0.51		0.43 - 0.59
13C-234678-HxCDF	384/386	1.23	1.16	6.4		0.53		0.43 - 0.59
13C-123789-HxCDF	384/386	1.17	1.12	4.3		0.53		0.43 - 0.59
13C-1234678-HpCDF	418/420	1.12	1.04	8.0		0 44		0.37 - 0.51
13C-1234789-HpCDF	418/420	0 93	0.79	17.9		0.44		0.37 - 0.51

Clean-up	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
37CL-2378-TCDD	326	1.12	1.09	2.5		NA	NA	NA

Internal Standards	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ion Ratio Flag#	Ion Ratio QC Limits
13C-1234-TCDD	332/334	NA	NA	NA	NA	0.80		0 65 - 0 89
13C-123789-HxCDD	402/404	NA	NA	NA	NA	1.25		1 05 - 1.43

(#) The laboratory must flag any analyte which does not meet the criteria for Percentage Difference (%D) or ion abundance ratio by placing an asterisk in the appropriate flag column

7DFB - Form VII-HR CDD-2
CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	.25
Instrument ID:	AUTOSPEC1	Lab File ID:	13101702
Date Analysed	17-Oct-13	Time Analysed	10:24:46
Init.Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	RRT#	RT
2378-TCDD	1.00	25.99
2378-TCDF	1.00	25.36
12378-PeCDF	1.00	29.47
12378-PeCDD	1.00	31.07
23478-PeCDF	1.00	30.81
123478-HxCDF	1.00	34.47
123678-HxCDF	1.00	34.62
123478-HxCDD	1.00	35.70
123678-HxCDD	1.00	35.83
123789-HxCDD	1.01	36.25
234678-HxCDF	1.00	35.57
123789-HxCDF	1.00	36.71
1234678-HpCDF	1.00	38.76
1234678-HpCDD	1.00	40.49
1234789-HpCDF	1.00	41.34
OCDD	1.00	46.10
OCDF	1.01	46.36

Labeled Compounds	RRT#	RT
13C-2378-TCDD	1.03	25.97
13C-12378-PeCDD	1 23	31.04
13C-123478-HxCDD	0 98	35.68
13C-123678-HxCDD	0.99	35 81
13C-1234678-HpCDD	1 12	40.48
13C-OCDD	1.27	46.08
13C-2378-TCDF	1 01	25 35
13C-12378-PeCDF	1.17	29.45
13C-23478-PeCDF	1 22	30.80
13C-123478-HxCDF	0.95	34 45
13C-123678-HxCDF	0.95	34.60
13C-234678-HxCDF	0.98	35 55
13C-123789-HxCDF	1.01	36.69
13C-1234678-HpCDF	1.07	38.75
13C-1234789-HpCDF	1.14	41.31

Clean up Standard	RRT#	RT
37CL-2378-TCDD	1.03	25.99

Internal Standards	RRT#	RT
13C-1234-TCDD	0.00	25 15
13C-123789-HxCDD	0.00	36 24

(#) RRT = (RT of Analyte)/(RT of appropriate labeled compound).

7DFA - Form VII-HR CDD-1
CDD/CDF CONTINUING CALIBRATION SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code.	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	.25
Instrument ID:	AUTOSPEC1	Lab File ID:	13101713
Date Analysed	17-Oct-13	Time Analysed	20:15:06
Init.Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
2378-TCDD	320/322	1.02	0.99	2.6		0.81		0.65 - 0.89
2378-TCDF	304/306	0.93	0.87	7.3		0.71		0.65 - 0.89
12378-PeCDF	340/342	0.92	0.87	5.3		1.52		1.32 - 1.78
12378-PeCDD	356/358	0.99	0.98	1.2		1.57		1.32 - 1.78
23478-PeCDF	340/342	0.95	0.88	7.7		1.50		1.32 - 1.78
123478-HxCDF	374/376	1.07	1.05	2.4		1.18		1.05 - 1.43
123678-HxCDF	374/376	1.04	1.02	1.6		1.17		1.05 - 1.43
123478-HxCDD	390/392	1.00	0.97	3.0		1.24		1.05 - 1.43
123678-HxCDD	390/392	0.96	0.90	6.2		1.25		1.05 - 1.43
123789-HxCDD	390/392	0.99	0.91	8.3		1.23		1.05 - 1.43
234678-HxCDF	374/376	1.12	1.09	2.8		1.17		1.05 - 1.43
123789-HxCDF	374/376	1.00	0.96	4.3		1.18		1.05 - 1.43
1234678-HpCDF	408/410	1.24	1.21	1.9		0.98		0.89 - 1.21
1234678-HpCDD	424/426	1.03	1.00	3.3		1.04		0.89 - 1.21
1234789-HpCDF	408/410	1.25	1.20	4.1		0.96		0.89 - 1.21
OCDD	458/460	1.02	0.98	3.9		0.89		0.76 - 1.02
OCDF	442/444	1.14	1.06	6.7		0.87		0.76 - 1.02

Labeled Compounds	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
13C-2378-TCDD	332/334	0.98	0.96	1.8		0.79		0.65 - 0.89
13C-12378-PeCDD	368/370	0.92	0.75	22.8		1.57		1.32 - 1.78
13C-123478-HxCDD	402/404	1.01	1.00	0.6		1.27		1.05 - 1.43
13C-123678-HxCDD	402/404	1.04	1.05	-0.8		1.26		1.05 - 1.43
13C-1234678-HpCDD	436/438	0.96	0.88	9.3		1.06		0.89 - 1.21
13C-OCDD	470/472	0.86	0.77	10.6		0.88		0.76 - 1.02
13C-2378-TCDF	316/318	1.49	1.42	5.3		0.79		0.65 - 0.89
13C-12378-PeCDF	352/354	1.35	1.16	16.4		1.59		1.32 - 1.78
13C-23478-PeCDF	352/354	1.39	1.13	23.2		1.59		1.32 - 1.78
13C-123478-HxCDF	384/386	1.26	1.21	4.4		0.52		0.43 - 0.59
13C-123678-HxCDF	384/386	1.34	1.27	5.8		0.52		0.43 - 0.59
13C-234678-HxCDF	384/386	1.22	1.16	5.3		0.52		0.43 - 0.59
13C-123789-HxCDF	384/386	1.16	1.12	3.5		0.53		0.43 - 0.59
13C-1234678-HpCDF	418/420	1.10	1.04	6.1		0.45		0.37 - 0.51
13C-1234789-HpCDF	418/420	0.88	0.79	12.0		0.46		0.37 - 0.51

Clean-up	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
37CL-2378-TCDD	328	1.08	1.09	-1.4		NA	NA	NA

Internal Standards	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ion Ratio Flag#	Ion Ratio QC Limits
13C-1234-TCDD	332/334	NA	NA	NA	NA	0.81		0.65 - 0.89
13C-123789-HxCDD	402/404	NA	NA	NA	NA	1.25		1.05 - 1.43

(#) The laboratory must flag any analyte which does not meet the criteria for Percentage Difference (%D) or ion abundance ratio by placing an asterisk in the appropriate flag column.

7DFB - Form VII-HR CDD-2

CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY

HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	.25
Instrument ID:	AUTOSPEC1	Lab File ID:	13101713
Date Analysed	17-Oct-13	Time Analysed	20:15:06
Init.Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	RRT#	RT
2378-TCDD	1.00	25.97
2378-TCDF	1.00	25.33
12378-PeCDF	1.00	29.44
12378-PeCDD	1.00	31.05
23478-PeCDF	1.00	30.80
123478-HxCDF	1.00	34.45
123678-HxCDF	1.00	34.61
123478-HxCDD	1.00	35.69
123678-HxCDD	1.00	35.81
123789-HxCDD	1.01	36.24
234678-HxCDF	1.00	35.55
123789-HxCDF	1.00	36.69
1234678-HpCDF	1.00	38.75
1234678-HpCDD	1.00	40.49
1234789-HpCDF	1.00	41.33
OCDD	1.00	46.08
OCDF	1.01	46.34

Labeled Compounds	RRT#	RT
13C-2378-TCDD	1.03	25.94
13C-12378-PeCDD	1.23	31.03
13C-123478-HxCDD	0.98	35.67
13C-123678-HxCDD	0.99	35.80
13C-1234678-HpCDD	1.12	40.47
13C-OCDD	1.27	46.07
13C-2378-TCDF	1.01	25.32
13C-12378-PeCDF	1.17	29.43
13C-23478-PeCDF	1.22	30.78
13C-123478-HxCDF	0.95	34.44
13C-123678-HxCDF	0.95	34.58
13C-234678-HxCDF	0.98	35.54
13C-123789-HxCDF	1.01	36.68
13C-1234678-HpCDF	1.07	38.74
13C-1234789-HpCDF	1.14	41.30

Clean up Standard	RRT#	RT
37CL-2378-TCDD	1.03	25.97

Internal Standards	RRT#	RT
13C-1234-TCDD	0.00	25.14
13C-123789-HxCDD	0.00	36.22

(#) RRT = (RT of Analyte)/(RT of appropriate labeled compound).

7DFA - Form VII-HR CDD-1
CDD/CDF CONTINUING CALIBRATION SUMMARY
HIGH RESOLUTION

Lab Name.	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No :	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	25
Instrument ID.	AUTOSPEC1	Lab File ID:	13101802
Date Analysed	18-Oct-13	Time Analysed	10:50.10
Init Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
2378-TCDD	320/322	1 01	0.99	1.7		0 76		0.65 - 0 89
2378-TCDF	304/306	0.89	0 87	3.0		0 68		0.65 - 0 89
12378-PeCDF	340/342	0.92	0.87	5 7		1 48		1.32 - 1.78
12378-PeCDD	356/358	0.98	0.98	0 4		1.56		1.32 - 1.78
23478-PeCDF	340/342	0.93	0.88	5.7		1.48		1 32 - 1.78
123478-HxCDF	374/376	1.05	1.05	0.4		1.16		1.05 - 1.43
123678-HxCDF	374/376	0.98	1.02	-4.1		1.18		1.05 - 1.43
123478-HxCDD	390/392	1 01	0 97	4.3		1.26		1.05 - 1.43
123678-HxCDD	390/392	0.95	0 90	5.6		1 23		1.05 - 1.43
123789-HxCDD	390/392	0.93	0.91	2.0		1.25		1.05 - 1 43
234678-HxCDF	374/376	1.10	1 09	0.8		1.16		1.05 - 1.43
123789-HxCDF	374/376	0.97	0.96	1 1		1.18		1.05 - 1.43
1234678-HpCDF	408/410	1.22	1.21	0.6		0.97		0.89 - 1.21
1234678-HpCDD	424/426	1.02	1.00	1.8		1.01		0.89 - 1 21
1234789-HpCDF	408/410	1.22	1 20	1.3		0.95		0.89 - 1.21
OCDD	458/460	1.02	0.98	3.8		0.89		0.76 - 1 02
OCDF	442/444	1 15	1 06	7.9		0.85		0.76 - 1 02

Labeled Compounds	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
13C-2378-TCDD	332/334	1.01	0.96	4.7		0.79		0.65 - 0.89
13C-12378-PeCDD	368/370	0 82	0.75	9.9		1.52		1.32 - 1.78
13C-123478-HxCDD	402/404	1.01	1 00	0.6		1.25		1.05 - 1.43
13C-123678-HxCDD	402/404	1.13	1 05	7.3		1.23		1.05 - 1.43
13C-1234678-HpCDD	436/438	0.94	0.88	6.3		1.07		0.89 - 1.21
13C-OCDD	470/472	0.86	0.77	11.1		0 89		0.76 - 1.02
13C-2378-TCDF	316/318	1.52	1.42	6 8		0.77		0.65 - 0.89
13C-12378-PeCDF	352/354	1.30	1.16	12 5		1.53		1.32 - 1.78
13C-23478-PeCDF	352/354	1.26	1.13	12 0		1.59		1.32 - 1.78
13C-123478-HxCDF	384/386	1.24	1.21	3.0		0.52		0.43 - 0.59
13C-123678-HxCDF	384/386	1.40	1.27	10 6		0.52		0 43 - 0.59
13C-234678-HxCDF	384/386	1.21	1.16	4.9		0.52		0.43 - 0.59
13C-123789-HxCDF	384/386	1.15	1.12	2.8		0.53		0.43 - 0 59
13C-1234678-HpCDF	418/420	1 11	1.04	7.1		0.45		0.37 - 0 51
13C-1234789-HpCDF	418/420	0.89	0.79	13.1		0.44		0.37 - 0.51

Clean-up	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
37CL-2378-TCDD	328	1.11	1.09	1.9		NA	NA	NA

Internal Standards	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ion Ratio Flag#	Ion Ratio QC Limits
13C-1234-TCDD	332/334	NA	NA	NA	NA	0 79		0.65 - 0.89
13C-123789-HxCDD	402/404	NA	NA	NA	NA	1.24		1.05 - 1.43

(#) The laboratory must flag any analyte which does not meet the criteria for Percentage Difference (%D) or ion abundance ratio by placing an asterisk in the appropriate flag column.

7DFB - Form VII-HR CDD-2
CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTXDIOXIN-2	ID (mm):	.25
Instrument ID:	AUTOSPEC1	Lab File ID:	13101802
Date Analysed	18-Oct-13	Time Analysed	10:50:10
Init.Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	RRT#	RT
2378-TCDD	1.00	25.99
2378-TCDF	1.00	25.35
12378-PeCDF	1.00	29.45
12378-PeCDD	1.00	31.06
23478-PeCDF	1.00	30.81
123478-HxCDF	1.00	34.46
123678-HxCDF	1.00	34.61
123478-HxCDD	1.00	35.69
123678-HxCDD	1.00	35.82
123789-HxCDD	1 01	36.25
234678-HxCDF	1.00	35.56
123789-HxCDF	1.00	36.70
1234678-HpCDF	1.00	38.76
1234678-HpCDD	1 00	40.49
1234789-HpCDF	1.00	41.33
OCDD	1.00	46.09
OCDF	1.01	46.35

Labeled Compounds	RRT#	RT
13C-2378-TCDD	1.03	25.96
13C-12378-PeCDD	1.23	31.04
13C-123478-HxCDD	0.98	35.68
13C-123678-HxCDD	0.99	35.81
13C-1234678-HpCDD	1.12	40.47
13C-OCDD	1.27	46.07
13C-2378-TCDF	1.01	25.33
13C-12378-PeCDF	1 17	29.44
13C-23478-PeCDF	1.22	30.79
13C-123478-HxCDF	0.95	34.44
13C-123678-HxCDF	0.95	34.60
13C-234678-HxCDF	0.98	35.55
13C-123789-HxCDF	1.01	36.69
13C-1234678-HpCDF	1.07	38.74
13C-1234789-HpCDF	1.14	41 31

Clean up Standard	RRT#	RT
37CL-2378-TCDD	1 03	25.97

Internal Standards	RRT#	RT
13C-1234-TCDD	0.00	25 15
13C-123789-HxCDD	0 00	36.23

(#) RRT = (RT of Analyte)/(RT of appropriate labeled compound).

7DFA - Form VII-HR CDD-1
CDD/CDF CONTINUING CALIBRATION SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTX-DIOXIN2	ID (mm):	.25
Instrument ID.	AUTOSPEC1	Lab File ID:	13101812
Date Analysed	18-Oct-13	Time Analysed	19:36:41
Init.Calib.Date.	18-JUL-13	Init.Calib Time:	12.34

Target Analytes	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
2378-TCDD	320/322	1.05	0.99	5.8		0.76		0.65 - 0.89
2378-TCDF	304/306	0.89	0.87	3.2		0.72		0.65 - 0.89
12378-PeCDF	340/342	0.93	0.87	6.1		1.54		1.32 - 1.78
12378-PeCDD	356/358	1 02	0.98	4.1		1.59		1.32 - 1.78
23478-PeCDF	340/342	0 94	0 88	6 5		1.51		1.32 - 1.78
123478-HxCDF	374/376	1.08	1 05	3 4		1.19		1 05 - 1.43
123678-HxCDF	374/376	1.05	1.02	2.3		1.18		1.05 - 1.43
123478-HxCDD	390/392	1.01	0.97	4.6		1.25		1 05 - 1 43
123678-HxCDD	390/392	0.97	0.90	7.1		1.23		1.05 - 1 43
123789-HxCDD	390/392	0.99	0.91	8.3		1.26		1.05 - 1.43
234678-HxCDF	374/376	1.12	1.09	2.8		1.17		1.05 - 1.43
123789-HxCDF	374/376	0 98	0.96	2.4		1 16		1.05 - 1.43
1234678-HpCDF	408/410	1.25	1.21	2 6		0.98		0 89 - 1.21
1234678-HpCDD	424/426	1.03	1.00	3.5		1.03		0.89 - 1.21
1234789-HpCDF	408/410	1.24	1.20	3.5		0.99		0 89 - 1 21
OCDD	458/460	1.04	0.98	5.7		0.91		0.76 - 1.02
OCDF	442/444	1.24	1.06	17 0		0.87		0.76 - 1.02

Labeled Compounds	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
13C-2378-TCDD	332/334	0.99	0.96	3 3		0.80		0.65 - 0.89
13C-12378-PeCDD	368/370	0 87	0 75	16.2		1.58		1.32 - 1.78
13C-123478-HxCDD	402/404	1.00	1.00	-0.3		1.26		1.05 - 1 43
13C-123678-HxCDD	402/404	1.04	1.05	-1.0		1 24		1 05 - 1 43
13C-1234678-HpCDD	436/438	1.08	0 88	22.5		1.06		0.89 - 1.21
13C-OCDD	470/472	0.96	0.77	24 2		0.89		0.76 - 1 02
13C-2378-TCDF	316/318	1.52	1.42	7.0		0.78		0.65 - 0.89
13C-12378-PeCDF	352/354	1.36	1.16	17.2		1.58		1.32 - 1.78
13C-23478-PeCDF	352/354	1.35	1.13	19.6		1.59		1.32 - 1.78
13C-123478-HxCDF	384/386	1.23	1.21	1.6		0.52		0.43 - 0.59
13C-123678-HxCDF	384/386	1 30	1.27	2.5		0.52		0.43 - 0.59
13C-234678-HxCDF	384/386	1 18	1.16	2.3		0.52		0.43 - 0.59
13C-123789-HxCDF	384/386	1 24	1.12	10.5		0.53		0.43 - 0.59
13C-1234678-HpCDF	418/420	1.34	1.04	29.0		0.45		0.37 - 0.51
13C-1234789-HpCDF	418/420	0.96	0.79	22.2		0.45		0.37 - 0.51

Clean-up	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ratio Flag#	Ratio QC Limits
37CL-2378-TCDD	328	1.09	1.09	0.2		NA	NA	NA

Internal Standards	Selected Ions	RRF	Mean RRF	%D	%D Flag#	Ion Ratio	Ion Ratio Flag#	Ion Ratio QC Limits
13C-1234-TCDD	332/334	NA	NA	NA	NA	0.60		0.65 - 0.89
13C-123789-HxCDD	402/404	NA	NA	NA	NA	1.26		1.05 - 1.43

(#) The laboratory must flag any analyte which does not meet the criteria for Percentage Difference (%D) or Ion abundence ratio by placing an asterisk in the appropriate flag column.

7DFB - Form VII-HR CDD-2
CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY
HIGH RESOLUTION

Lab Name:	ANALYTICAL RESOURCES	Contract:	GEOENGINEERS
Lab Code:	XI87	Case No.:	RG HALEY SITE
TO No.:		SDG No.:	
GC Column:	RTX-DIOXIN2	ID (mm):	.25
Instrument ID:	AUTOSPEC1	Lab File ID:	13101812
Date Analysed	18-Oct-13	Time Analysed	19:36:41
Init.Calib.Date:	18-JUL-13	Init.Calib.Time:	12:34

Target Analytes	RRT#	RT
2378-TCDD	1.00	25.97
2378-TCDF	1 00	25.33
12378-PeCDF	1.00	29.44
12378-PeCDD	1.00	31.04
23478-PeCDF	1.00	30.80
123478-HxCDF	1.00	34.45
123678-HxCDF	1.00	34.61
123478-HxCDD	1 00	35.68
123678-HxCDD	1.00	35.81
123789-HxCDD	1.01	36.24
234678-HxCDF	1.00	35.55
123789-HxCDF	1.00	36.69
1234678-HpCDF	1.00	38.75
1234678-HpCDD	1.00	40 48
1234789-HpCDF	1.00	41.33
OCDD	1.00	46.09
OCDF	1 01	46.34

Labeled Compounds	RRT#	RT
13C-2378-TCDD	1.03	25.94
13C-12378-PeCDD	1.23	31.03
13C-123478-HxCDD	0.98	35.67
13C-123678-HxCDD	0.99	35.80
13C-1234678-HpCDD	1.12	40.47
13C-OCDD	1 27	46.08
13C-2378-TCDF	1.01	25.32
13C-12378-PeCDF	1.17	29.43
13C-23478-PeCDF	1.22	30.78
13C-123478-HxCDF	0.95	34.43
13C-123678-HxCDF	0.95	34.58
13C-234678-HxCDF	0.98	35.54
13C-123789-HxCDF	1.01	36.67
13C-1234678-HpCDF	1.07	38.74
13C-1234789-HpCDF	1.14	41.30

Clean up Standard	RRT#	RT
37CL-2378-TCDD	1.03	25 97

Internal Standards	RRT#	RT
13C-1234-TCDD	0 00	25.14
13C-123789-HxCDD	0 00	36.22

(#) RRT = (RT of Analyte)/(RT of appropriate labeled compound).

Pesticide Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: VANBURENPIT-100713
SAMPLE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 14:18
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: Yes

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 5.4%

CAS Number	Analyte	RL	Result
118-74-1	Hexachlorobenzene	0.94	< 0.94 U
87-68-3	Hexachlorobutadiene	0.94	< 0.94 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	83.0%
Tetrachlorometaxylene	74.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8081 PESTICIDE SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Client ID	DCBP	TCMX	TOT OUT
MB-101113	97.0%	82.2%	0
LCS-101113	85.2%	72.5%	0
LCSD-101113	86.0%	74.8%	0
VANBURENPIT-100713	83.0%	74.0%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(60-149)	(36-182)
(TCMX) = Tetrachlorometaxylene	(47-124)	(34-169)

Prep Method: SW3546
Log Number Range: 13-21758 to 13-21758

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-101113
LCS/LCSD

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized: [signature]
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted LCS/LCSD: 10/11/13

Date Analyzed LCS: 10/14/13 13:42
LCSD: 10/14/13 14:00
Instrument/Analyst LCS: ECD6/YZ
LCSD: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: Yes

Sample Amount LCS: 12.5 g-dry-wt
LCSD: 12.5 g-dry-wt
Final Extract Volume LCS: 2.5 mL
LCSD: 2.5 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Hexachlorobenzene	3.16	4.00	79.0%	3.22	4.00	80.5%	1.9%
Hexachlorobutadiene	2.98	4.00	74.5%	2.84	4.00	71.0%	4.8%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	85.2%	86.0%
Tetrachlorometaxylene	72.5%	74.8%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

FORM 4
PESTICIDE METHOD BLANK SUMMARY

BLANK NO.

XI87MBS1

Lab Name: ANALYTICAL RESOURCES INC
Client: GEOENGINEERS

ARI Job No.: XI87
Project: R.G HALEY SITE INTER

Lab Sample ID: XI87MBS1
Lab File ID: 1014A006

Date Extracted: 10/11/13
Matrix: SOLID

Date Analyzed: 10/14/13
Instrument ID: ECD6

Time Analyzed: 1324
GC Columns: STX-CLP1/STX-CLP2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	XI87LCSS1	XI87LCSS1	10/14/13
02	XI87LCSDS1	XI87LCSDS1	10/14/13
03	VANBURENPIT-100713	XI87A	10/14/13

ALL RUNS ARE DUAL COLUMN

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-101113
METHOD BLANK

Lab Sample ID: MB-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/11/13
Date Analyzed: 10/14/13 13:24
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: Yes

Sample Amount: 12.5 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	1.0	< 1.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	97.0%
Tetrachlorometaxylene	82.2%

6D

8081 INITIAL CALIBRATION RETENTION TIMES

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP1 ID: 0.53 (mm) Instrument ID: ECD6

Calibration Date: 10/08/13

COMPOUND	RT OF STANDARDS LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	MEAN RT	RT WINDOW FROM	TO
alpha-BHC	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.21	4.31
beta-BHC	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.56	4.66
delta-BHC	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.73	4.83
gamma-BHC (Lindane)	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.49	4.59
Heptachlor	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.93	5.03
Aldrin	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.22	5.32
Heptachlor epoxide b	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.80	5.90
Endosulfan I	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.17	6.27
Dieldrin	6.45	6.44	6.44	6.45	6.45	6.44	6.45	6.45	6.40	6.50
4,4'-DDE	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.10	6.20
Endrin	6.66	6.66	6.66	6.66	6.66	6.66	6.66	6.66	6.61	6.71
Endosulfan II	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.82	6.92
4,4'-DDD	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.65	6.75
Endosulfan sulfate	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.58	7.68
4,4'-DDT	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.91	7.01
Methoxychlor	7.39	7.39	7.39	7.39	7.39	7.39	7.39	7.39	7.34	7.44
Endrin ketone	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.84	7.94
Endrin aldehyde	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.19	7.29
cis-Chlordane	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.92	6.02
trans-Chlordane	6.09	6.09	6.09	6.09	6.09	6.09	6.09	6.09	6.04	6.14
Hexachlorobutadiene	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.25	2.35
Hexachlorobenzene	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.06	4.16
Tetrachloro-m-xylene	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.72	3.82
Decachlorobiphenyl	8.73	8.73	8.73	8.73	8.73	8.73	8.73	8.73	8.68	8.78

6D
8081 INITIAL CALIBRATION RETENTION TIMES

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP2 ID: 0.53 (mm) Instrument ID: ECD6

Calibration Date: 10/08/13

COMPOUND	RT OF STANDARDS							MEAN	RT WINDOW	
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	RT	FROM	TO
alpha-BHC	4.72	4.72	4.72	4.71	4.72	4.72	4.72	4.72	4.67	4.77
beta-BHC	5.15	5.15	5.15	5.15	5.15	5.15	5.15	5.15	5.10	5.20
delta-BHC	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.41	5.51
gamma-BHC (Lindane)	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.02	5.12
Heptachlor	5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.49	5.59
Aldrin	5.88	5.88	5.87	5.87	5.88	5.88	5.88	5.88	5.83	5.93
Heptachlor epoxide b	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.38	6.48
Endosulfan I	6.82	6.82	6.82	6.82	6.82	6.82	6.82	6.82	6.77	6.87
Dieldrin	7.08	7.08	7.08	7.08	7.08	7.08	7.08	7.08	7.03	7.13
4,4'-DDE	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.83	6.93
Endrin	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.32	7.42
Endosulfan II	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.51	7.61
4;4'-DDD	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.37	7.47
Endosulfan sulfate	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.05	8.15
4,4'-DDT	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.66	7.76
Methoxychlor	8.29	8.29	8.29	8.29	8.29	8.29	8.30	8.29	8.25	8.35
Endrin ketone	8.59	8.59	8.59	8.59	8.59	8.59	8.59	8.59	8.54	8.64
Endrin aldehyde	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.80	7.90
cis-Chlordane	6.61	6.61	6.61	6.61	6.61	6.61	6.62	6.61	6.57	6.66
trans-Chlordane	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.70	6.80
Hexachlorobutadiene	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.42	2.52
Hexachlorobenzene	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.54	4.64
Tetrachloro-m-xylene	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.08	4.18
Decachlorobiphenyl	9.75	9.74	9.75	9.74	9.75	9.74	9.75	9.75	9.70	9.80

6E
8081 PESTICIDE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP1 ID: 0.53 (mm) Instrument ID: ECD6

Calibration Date: 10/08/13

COMPOUND	CALIBRATION FACTORS LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	MEAN	R^2 %RSD
alpha-BHC	1.6644	1.5216	1.6262	1.6796	1.8346	1.5979	1.6074	1.6474	5.9
beta-BHC	0.7930	0.6760	0.6806	0.6647	0.6943	0.5828	0.5715	0.6661	11.1
delta-BHC	1.5192	1.3559	1.4544	1.5004	1.6298	1.4100	1.4126	1.4689	6.2
gamma-BHC (Lindane)	1.5757	1.4142	1.5052	1.5409	1.6684	1.4452	1.4476	1.5139	5.9
Heptachlor	1.6192	1.4274	1.5008	1.5149	1.6174	1.3752	1.3478	1.4861	7.3
Aldrin	1.5584	1.3925	1.4814	1.5040	1.6115	1.3859	1.3585	1.4703	6.5
Heptachlor epoxide b	1.5920	1.3877	1.4210	1.4308	1.4836	1.2561	1.2173	1.3984	9.2
Endosulfan I	1.4252	1.2542	1.3028	1.2981	1.3632	1.1536	1.1206	1.2740	8.5
Dieldrin	1.4596	1.3205	1.3963	1.4021	1.4879	1.2578	1.2327	1.3653	7.2
4,4'-DDE	1.1360	0.9958	1.0355	1.0316	1.1117	0.9681	0.9905	1.0384	6.1
Endrin	1.2362	1.0989	1.1205	1.1201	1.2480	1.0433	1.0080	1.1250	8.0
Endosulfan II	1.2904	1.1412	1.1393	1.1226	1.2183	1.0417	1.0203	1.1391	8.3
4,4'-DDD	1.1015	0.9920	1.0175	1.0287	1.1491	0.9886	0.9740	1.0359	6.3
Endosulfan sulfate	1.1118	0.9755	0.9791	0.9599	1.0469	0.8909	0.8760	0.9772	8.5
4,4'-DDT	1.0816	0.9269	0.9432	0.9524	1.0448	0.8793	0.8876	0.9594	8.0
Methoxychlor	0.6138	0.5266	0.5175	0.4969	0.5383	0.4630	0.4749	0.5187	9.6
Endrin ketone	1.4327	1.2287	1.2046	1.1768	1.2642	1.0898	1.0796	1.2109	9.9
Endrin aldehyde	1.0154	0.8978	0.8981	0.8818	0.9550	0.8120	0.7936	0.8934	8.6
cis-Chlordane	1.5329	1.3516	1.4166	1.4288	1.5279	1.3119	1.2934	1.4090	6.9
trans-Chlordane	1.5545	1.3437	1.3945	1.3849	1.4695	1.2567	1.2345	1.3769	8.2
Hexachlorobutadiene	2.0383	1.7363	1.7608	1.7487	1.8685	1.6014	1.5870	1.7630	8.8
Hexachlorobenzene	1.6216	1.3671	1.3481	1.3026	1.3531	1.1389	1.0350	1.3095	14.2
Tetrachloro-m-xylene	1.2838	1.1043	1.1185	1.1150	1.1763	0.9976	0.9847	1.1114	9.2
Decachlorobiphenyl	1.4018	1.1633	1.0994	1.0430	1.1117	0.9457	0.9260	1.0987	14.5

6E
8081 PESTICIDE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP2 ID: 0.53 (mm) Instrument ID: ECD6

Calibration Date: 10/08/13

	CALIBRATION FACTORS								R^2
COMPOUND	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	MEAN	%RSD
alpha-BHC	2.1586	1.8546	1.9041	1.9594	2.0755	1.7956	1.7970	1.9350	7.2
beta-BHC	0.8117	0.7107	0.7288	0.7443	0.7896	0.6822	0.6681	0.7336	7.2
delta-BHC	1.7691	1.6568	1.7032	1.7541	1.8524	1.5979	1.6026	1.7052	5.5
gamma-BHC (Lindane)	1.6312	1.5112	1.6234	1.7038	1.8240	1.5795	1.5992	1.6389	6.1
Heptachlor	1.6527	1.6243	1.6674	1.7005	1.7736	1.4949	1.4201	1.6191	7.5
Aldrin	1.6310	1.5086	1.5689	1.6115	1.6888	1.4444	1.3869	1.5486	6.9
Heptachlor epoxide b	1.5424	1.3751	1.4282	1.4735	1.5218	1.2783	1.2164	1.4051	8.7
Endosulfan I	1.3311	1.2375	1.3129	1.3498	1.4166	1.2105	1.1565	1.2878	7.0
Dieldrin	1.4101	1.2979	1.3682	1.3848	1.4072	1.1850	1.0902	1.3062	9.5
4,4'-DDE	1.3649	1.2660	1.3368	1.3495	1.3762	1.1747	1.0812	1.2785	8.8
Endrin	1.7458	1.5840	1.6398	1.6356	1.7976	1.4432	1.3480	1.5991	9.9
Endosulfan II	1.8590	1.7772	1.7768	1.7389	1.8866	1.5620	1.4854	1.7266	8.6
4,4'-DDD	1.6210	1.5405	1.5991	1.6309	1.7801	1.4786	1.4322	1.5832	7.2
Endosulfan sulfate	1.6762	1.5142	1.5066	1.4789	1.6086	1.3352	1.2828	1.4861	9.4
4,4'-DDT	1.7530	1.3660	1.3793	1.3904	1.4981	1.2178	1.2062	1.4015	13.2
Methoxychlor	0.7487	0.6808	0.6746	0.6214	0.6297	0.5062	0.3938	0.6079	19.7
Endrin ketone	1.8526	1.5430	1.5584	1.5637	1.6862	1.4113	1.3895	1.5721	10.1
Endrin aldehyde	1.3753	1.2233	1.2767	1.2520	1.3819	1.1645	1.1121	1.2551	8.0
cis-Chlordane	1.6114	1.4096	1.4500	1.4781	1.5517	1.3197	1.2807	1.4430	8.2
trans-Chlordane	1.3706	1.2636	1.3412	1.3793	1.4628	1.2526	1.2183	1.3269	6.5
Hexachlorobutadiene	1.6173	1.3284	1.4302	1.4351	1.4891	1.2560	1.2510	1.4010	9.5
Hexachlorobenzene	2.7352	2.2435	2.1592	2.1515	2.2196	1.8799	1.8424	2.1759	13.5
Tetrachloro-m-xylene	1.5662	1.3301	1.3632	1.3659	1.4023	1.1933	1.0521	1.3247	12.3
Decachlorobiphenyl	2.0226	1.7785	1.7553	1.7237	1.8715	1.6040	1.5985	1.7649	8.4

7E

8081 DDT/ENDRIN BREAKDOWN VERIFICATION SUMMARY 1/2

Lab ID: DS ARI Job No.:

Analysis Date: 14-OCT-2013 12:49 Init. Calib. Date: 08-OCT-2013

GC Column: STX-CLP1 ID: 0.53(mm)

COMPOUND	RT	AREA
4,4'-DDE	6.147	138013
Endrin	6.662	6159173
4,4'-DDD	6.702	183058
4,4'-DDT	6.959	5186866
Endrin ketone	7.886	232765
Endrin aldehyde	7.243	218240

DDT Percent Breakdown = 5.8 %
((138013+183058) * 100)/(138013+183058+5186866)

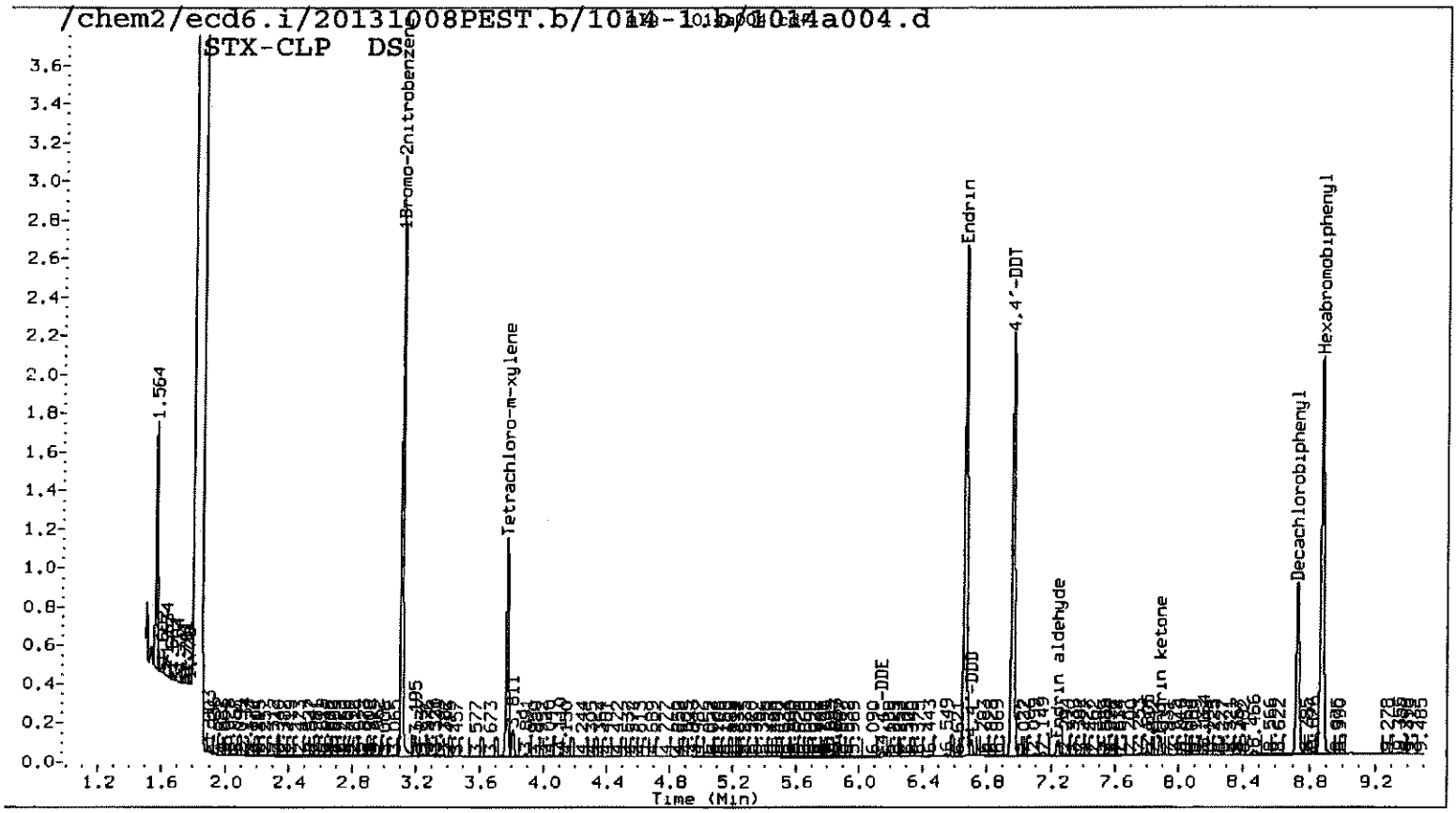
Endrin Percent Breakdown = 6.8 %
((218240+232765) * 100)/(218240+232765+6159173)

GC Column: STX-CLP2 ID: 0.53(mm)

COMPOUND	RT	AREA
4,4'-DDE	6.880	660291
Endrin	7.366	21956899
4,4'-DDD	7.417	809154
4,4'-DDT	7.708	17134323
Endrin ketone	8.590	685731
Endrin aldehyde	7.854	709705

DDT Percent Breakdown = 7.9 %
((660291+809154) * 100)/(660291+809154+17134323)

Endrin Percent Breakdown = 6.0 %
((709705+685731) * 100)/(709705+685731+21956899)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STX-CLP DS
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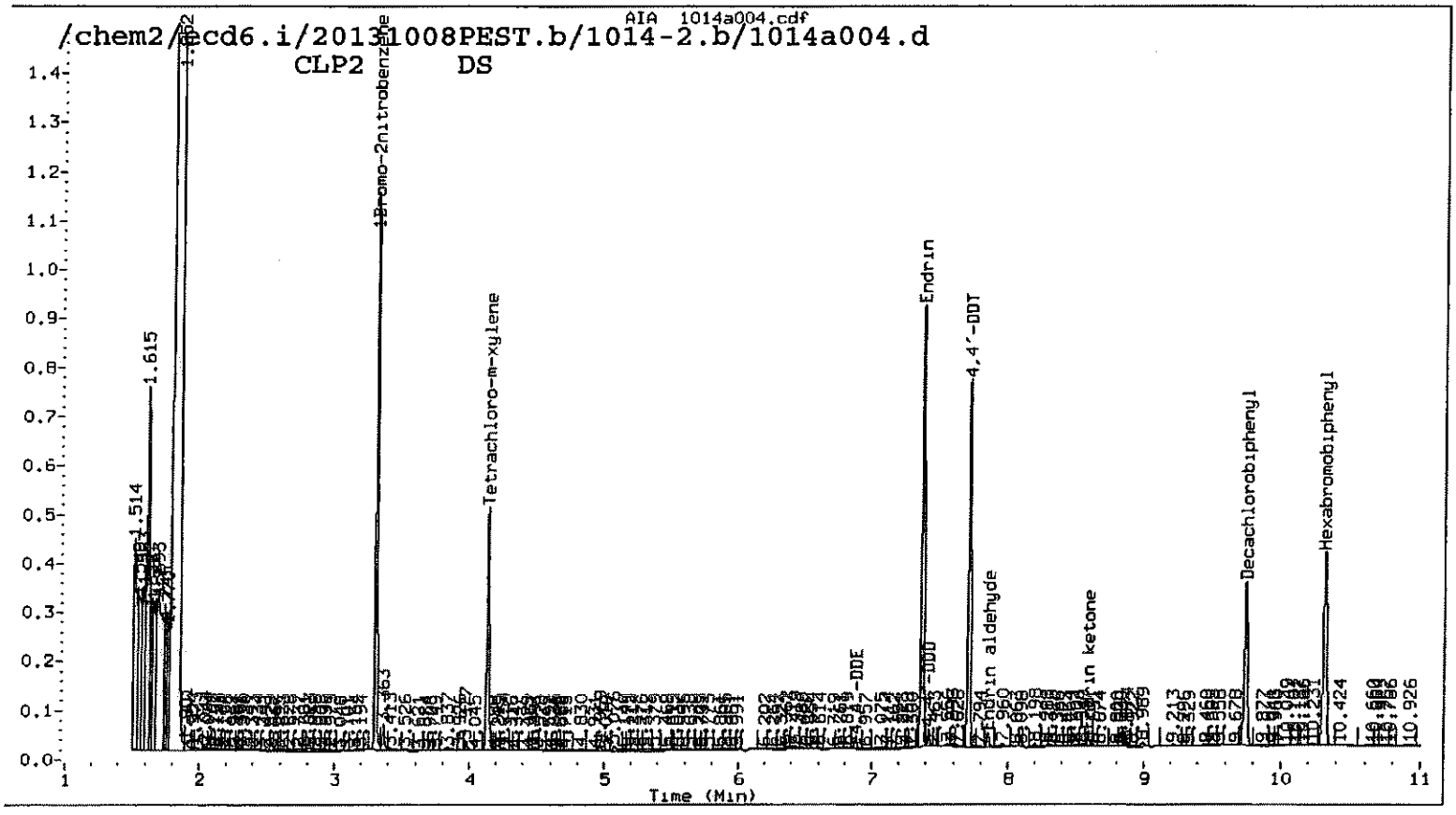
1Bromo-2nitrobenzene
Tetrachloro-m-xylene
Endrin
4,4'-DDT
Endrin aldehyde
Endrin ketone
Decachlorobiphenyl
Hexabromobiphenyl
Time (Min)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1.514
1.615
1Bromo-2nitrobenzene
Tetrachloro-m-xylene
Endrin
4,4'-DDT
Endrin aldehyde
Endrin ketone
Decachlorobiphenyl
Hexabromobiphenyl
Time (Min)

8081 PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP2 ID: 0.53 (mm)

Init. Calib. Date: 10/08/13

Lab Ccal ID: INDAE Date/Time Analyzed: 10/14/13,1306

PEST MIX COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
alpha-BHC	4.72	4.67	4.77	22.0	20.0	10.1
beta-BHC	5.15	5.10	5.20	22.7	20.0	13.3
delta-BHC	5.46	5.41	5.51	21.8	20.0	9.0
gamma-BHC (Lindane)	5.07	5.02	5.12	22.6	20.0	13.1
Heptachlor	5.54	5.49	5.59	22.2	20.0	11.2
Aldrin	5.88	5.83	5.93	22.3	20.0	11.5
Heptachlor epoxide b	6.43	6.38	6.48	23.6	20.0	18.0
Endosulfan I	6.82	6.77	6.87	22.5	20.0	12.6
Dieldrin	7.08	7.03	7.13	43.9	40.0	9.8
4,4'-DDE	6.88	6.83	6.93	43.7	40.0	9.2
Endrin	7.37	7.32	7.42	43.3	40.0	8.3
Endosulfan II	7.56	7.51	7.61	42.2	40.0	5.6
4,4'-DDD	7.42	7.37	7.47	44.0	40.0	10.0
Endosulfan sulfate	8.10	8.05	8.15	42.2	40.0	5.5
4,4'-DDT	7.71	7.66	7.76	37.1	40.0	-7.3
Methoxychlor	8.29	8.25	8.35	206.1	200.0	3.0
Endrin ketone	8.59	8.54	8.64	40.9	40.0	2.1
Endrin aldehyde	7.85	7.80	7.90	40.3	40.0	0.7
cis-Chlordane	6.61	6.57	6.66	21.6	20.0	8.1
trans-Chlordane	6.75	6.70	6.80	22.6	20.0	12.8
Hexachlorobutadiene	2.47	2.42	2.52	18.8	20.0	-6.0
Hexachlorobenzene	4.59	4.54	4.64	21.0	20.0	5.2
Tetrachloro-m-xylene	4.13	4.08	4.18	44.2	40.0	10.6
Decachlorobiphenyl	9.74	9.70	9.80	42.2	40.0	5.5

7E

8081 PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP1 ID: 0.53 (mm)

Init. Calib. Date: 10/08/13

Lab Ccal ID: INDAE Date/Time Analyzed: 10/14/13,1306

PEST MIX COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ug/L)	NOM AMOUNT (ug/L)	%D
alpha-BHC	4.26	4.21	4.31	22.6	20.0	13.1
beta-BHC	4.61	4.56	4.66	20.9	20.0	4.3
delta-BHC	4.78	4.73	4.83	22.0	20.0	9.8
gamma-BHC (Lindane)	4.54	4.49	4.59	22.3	20.0	11.6
Heptachlor	4.98	4.93	5.03	21.6	20.0	7.9
Aldrin	5.27	5.22	5.32	22.0	20.0	9.9
Heptachlor epoxide b	5.85	5.80	5.90	22.3	20.0	11.3
Endosulfan I	6.22	6.17	6.27	21.8	20.0	9.1
Dieldrin	6.44	6.40	6.50	44.2	40.0	10.6
4,4'-DDE	6.15	6.10	6.20	44.0	40.0	9.9
Endrin	6.66	6.61	6.71	42.7	40.0	6.6
Endosulfan II	6.87	6.82	6.92	38.7	40.0	-3.2
4,4'-DDD	6.70	6.65	6.75	42.3	40.0	5.8
Endosulfan sulfate	7.63	7.58	7.68	40.4	40.0	1.0
4,4'-DDT	6.96	6.91	7.01	39.3	40.0	-1.7
Methoxychlor	7.38	7.34	7.44	198.5	200.0	-0.8
Endrin ketone	7.89	7.84	7.94	39.7	40.0	-0.6
Endrin aldehyde	7.24	7.19	7.29	40.4	40.0	1.0
cis-Chlordane	5.97	5.92	6.02	21.9	20.0	9.3
trans-Chlordane	6.09	6.04	6.14	21.6	20.0	7.9
Hexachlorobutadiene	2.30	2.25	2.35	20.8	20.0	3.8
Hexachlorobenzene	4.11	4.06	4.16	18.9	20.0	-5.7
Tetrachloro-m-xylene	3.77	3.72	3.82	41.9	40.0	4.6
Decachlorobiphenyl	8.73	8.68	8.78	39.1	40.0	-2.2

7E

8081 DDT/ENDRIN BREAKDOWN VERIFICATION SUMMARY

Lab ID: DS ARI Job No.:

Analysis Date: 14-OCT-2013 14:36 Init. Calib. Date: 08-OCT-2013

GC Column: STX-CLP1 ID: 0.53(mm)

COMPOUND	RT	AREA
4,4'-DDE	6.147	142204
Endrin	6.663	6089469
4,4'-DDD	6.702	226172
4,4'-DDT	6.959	5830132
Endrin ketone	7.887	276921
Endrin aldehyde	7.244	265196

DDT Percent Breakdown = 5.9 %
((142204+226172) * 100)/(142204+226172+5830132)

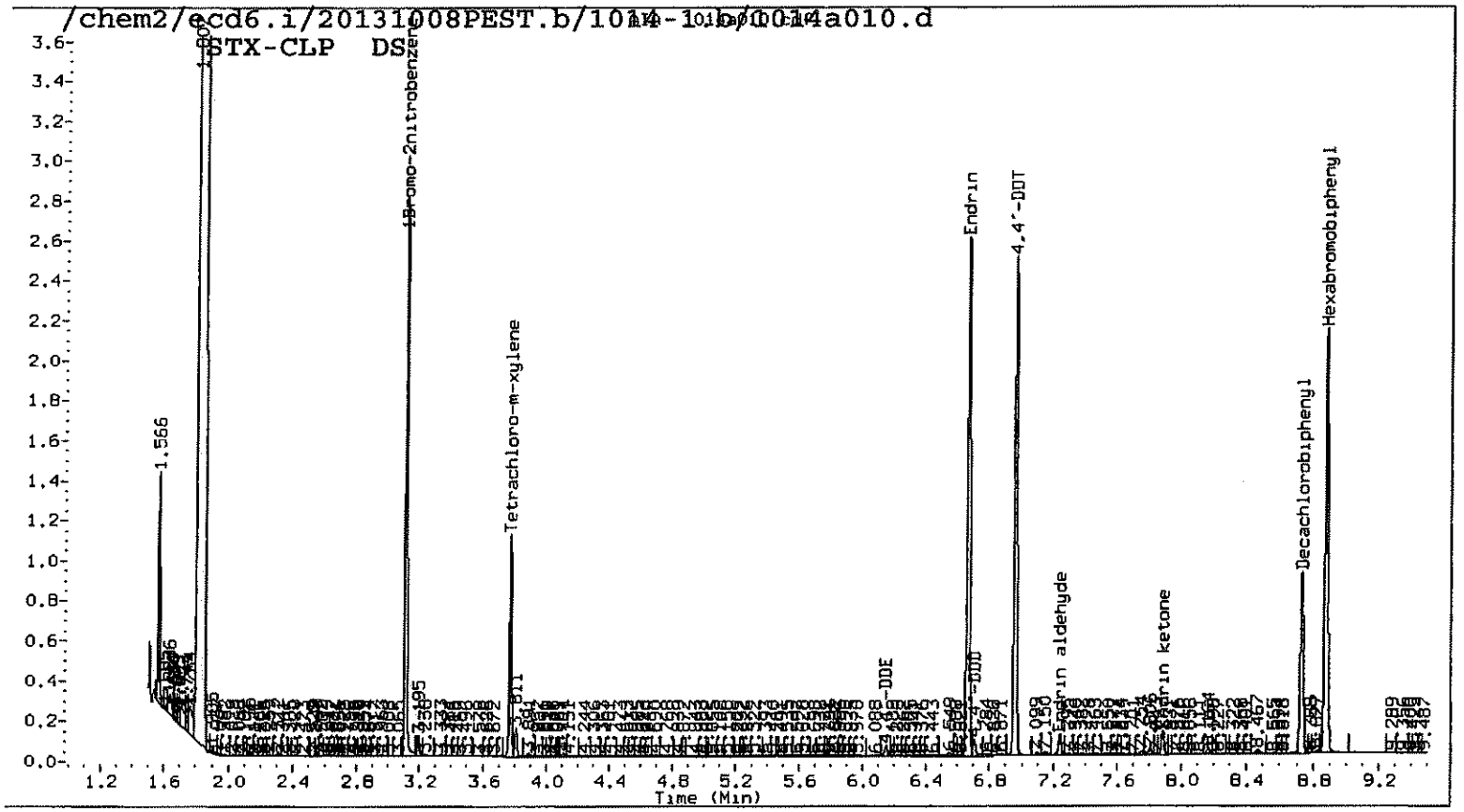
Endrin Percent Breakdown = 8.2 %
((265196+276921) * 100)/(265196+276921+6089469)

GC Column: STX-CLP2 ID: 0.53(mm)

COMPOUND	RT	AREA
4,4'-DDE	6.880	552930
Endrin	7.367	22789316
4,4'-DDD	7.418	1399490
4,4'-DDT	7.707	21794703
Endrin ketone	8.590	978964
Endrin aldehyde	7.854	1194276

DDT Percent Breakdown = 8.2 %
((552930+1399490) * 100)/(552930+1399490+21794703)

Endrin Percent Breakdown = 8.7 %
((1194276+978964) * 100)/(1194276+978964+22789316)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Bromo-2nitrobenzene
Tetrachloro-m-xylene
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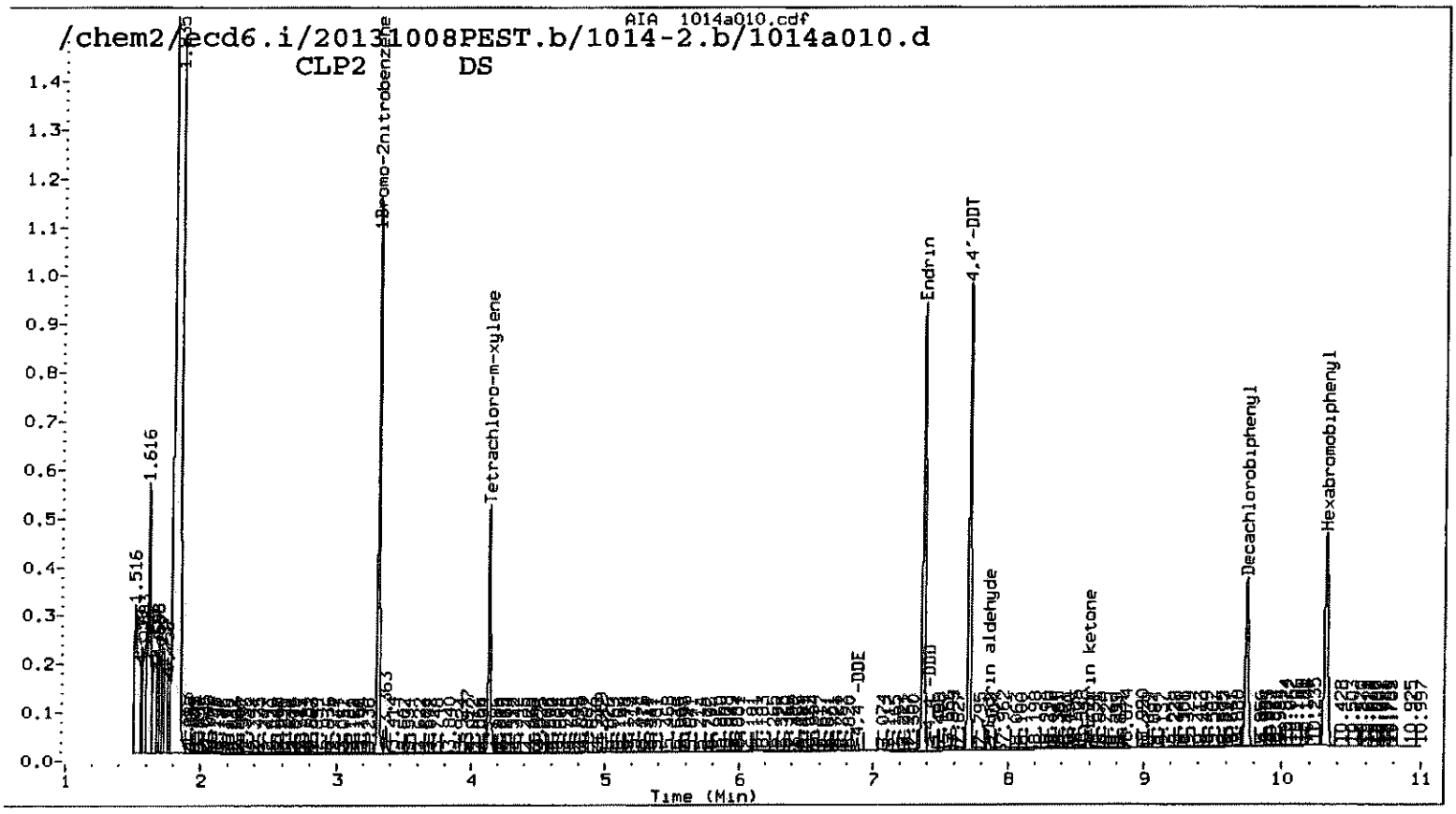
Endrin
4,4'-DDT
Endrin aldehyde
Endrin ketone
Decachlorobiphenyl
Hexabromobiphenyl
Time (Min)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Bromo-2nitrobenzene
Tetrachloro-m-xylene
4,4'-DDE
Endrin
4,4'-DDT
Endrin aldehyde
Endrin ketone
Decachlorobiphenyl
Hexabromobiphenyl
Time (Min)

7E

8081 PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP2 ID: 0.53 (mm)

Init. Calib. Date: 10/08/13

Lab Ccal ID: INDAE Date/Time Analyzed: 10/14/13,1453

PEST MIX COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
alpha-BHC	4.72	4.67	4.77	22.4	20.0	12.2
beta-BHC	5.15	5.10	5.20	22.8	20.0	13.8
delta-BHC	5.46	5.41	5.51	21.8	20.0	9.2
gamma-BHC (Lindane)	5.07	5.02	5.12	23.3	20.0	16.4
Heptachlor	5.54	5.49	5.59	22.5	20.0	12.6
Aldrin	5.87	5.83	5.93	23.4	20.0	16.8
Heptachlor epoxide b	6.43	6.38	6.48	23.8	20.0	19.2
Endosulfan I	6.82	6.77	6.87	23.6	20.0	18.2
Dieldrin	7.08	7.03	7.13	46.6	40.0	16.6
4,4'-DDE	6.88	6.83	6.93	46.1	40.0	15.3
Endrin	7.37	7.32	7.42	38.9	40.0	-2.7
Endosulfan II	7.56	7.51	7.61	38.8	40.0	-3.0
4,4'-DDD	7.42	7.37	7.47	41.2	40.0	3.0
Endosulfan sulfate	8.10	8.05	8.15	39.1	40.0	-2.3
4,4'-DDT	7.71	7.66	7.76	39.9	40.0	-0.3
Methoxychlor	8.29	8.25	8.35	192.2	200.0	-3.9
Endrin ketone	8.59	8.54	8.64	39.2	40.0	-2.0
Endrin aldehyde	7.85	7.80	7.90	39.5	40.0	-1.2
cis-Chlordane	6.61	6.57	6.66	23.1	20.0	15.3
trans-Chlordane	6.75	6.70	6.80	23.6	20.0	18.1
Hexachlorobutadiene	2.46	2.42	2.52	19.2	20.0	-4.0
Hexachlorobenzene	4.59	4.54	4.64	21.7	20.0	8.3
Tetrachloro-m-xylene	4.13	4.08	4.18	45.5	40.0	13.7
Decachlorobiphenyl	9.74	9.70	9.80	40.1	40.0	0.3

7E

8081 PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP1 ID: 0.53 (mm)

Init. Calib. Date: 10/08/13

Lab Ccal ID: INDAE Date/Time Analyzed: 10/14/13,1453

PEST MIX COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ug/L)	NOM AMOUNT (ug/L)	%D
alpha-BHC	4.26	4.21	4.31	23.2	20.0	16.2
beta-BHC	4.61	4.56	4.66	21.7	20.0	8.5
delta-BHC	4.78	4.73	4.83	22.0	20.0	10.1
gamma-BHC (Lindane)	4.54	4.49	4.59	22.9	20.0	14.4
Heptachlor	4.98	4.93	5.03	22.1	20.0	10.7
Aldrin	5.27	5.22	5.32	23.2	20.0	16.0
Heptachlor epoxide b	5.85	5.80	5.90	22.8	20.0	13.9
Endosulfan I	6.22	6.17	6.27	23.0	20.0	15.0
Dieldrin	6.44	6.40	6.50	46.6	40.0	16.5
4,4'-DDE	6.15	6.10	6.20	45.7	40.0	14.2
Endrin	6.66	6.61	6.71	39.6	40.0	-1.0
Endosulfan II	6.87	6.82	6.92	37.3	40.0	-6.7
4,4'-DDD	6.70	6.65	6.75	40.8	40.0	2.0
Endosulfan sulfate	7.63	7.58	7.68	38.8	40.0	-2.9
4,4'-DDT	6.96	6.91	7.01	41.2	40.0	2.9
Methoxychlor	7.38	7.34	7.44	191.8	200.0	-4.1
Endrin ketone	7.89	7.84	7.94	39.0	40.0	-2.6
Endrin aldehyde	7.24	7.19	7.29	39.3	40.0	-1.8
cis-Chlordane	5.97	5.92	6.02	23.1	20.0	15.7
trans-Chlordane	6.09	6.04	6.14	22.9	20.0	14.3
Hexachlorobutadiene	2.29	2.25	2.35	21.1	20.0	5.4
Hexachlorobenzene	4.11	4.06	4.16	19.2	20.0	-4.0
Tetrachloro-m-xylene	3.77	3.72	3.82	42.6	40.0	6.5
Decachlorobiphenyl	8.73	8.68	8.78	38.8	40.0	-3.0

FORM 8
PESTICIDE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP1 ID: 0.53(mm) Instrument ID: ECD6

Init. Calib. Date: 10/08/13

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	5094719	3.110	5047300	8.878
	UPPER LIMIT	10189438	3.160	10094600	8.928
	LOWER LIMIT	2547360	3.060	2523650	8.828

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		INDAE	10/08/13	1219	5094719	3.110	5047300	8.878
02		INDAA	10/08/13	1237	5513340	3.110	5448675	8.878
03		INDAB	10/08/13	1254	6246435	3.110	6130527	8.878
04		INDAC	10/08/13	1312	5919258	3.110	6053033	8.879
05		INDAD	10/08/13	1330	5912544	3.110	6054046	8.878
06		INDAF	10/08/13	1348	6252435	3.110	6170384	8.878
07		INDAG	10/08/13	1406	6156560	3.110	6162365	8.877
08		DS	10/14/13	1249	5016388	3.108	5105773	8.877
09		INDAE	10/14/13	1306	5104051	3.109	5387430	8.877
10	XI87MBS1	XI87MBS1	10/14/13	1324	5044322	3.109	5280717	8.878
11	XI87LCSS1	XI87LCSS1	10/14/13	1342	5504842	3.109	5851590	8.878
12	XI87LCSDS1	XI87LCSDS1	10/14/13	1400	5679821	3.109	6024341	8.878
13	VANBURENPIT-	XI87A	10/14/13	1418	5649478	3.109	6124497	8.878
14		DS	10/14/13	1436	4925571	3.109	5322792	8.878
15		INDAE	10/14/13	1453	4809367	3.108	5538140	8.878

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- .05 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PESTICIDE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE INTERIM ACT

GC Column: STX-CLP2 ID: 0.53(mm) Instrument ID: ECD6

Init. Calib. Date: 10/08/13

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	24817263	3.301	15191437	10.312
	UPPER LIMIT	49634526	3.351	30382874	10.362
	LOWER LIMIT	12408632	3.252	7595718	10.262

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		INDAE	10/08/13	1219	24817263	3.301	15191437	10.312
02		INDAA	10/08/13	1237	25938263	3.301	15953383	10.313
03		INDAB	10/08/13	1254	28378984	3.301	17783552	10.312
04		INDAC	10/08/13	1312	26821132	3.301	17088877	10.312
05		INDAD	10/08/13	1330	26346449	3.301	17124530	10.311
06		INDAF	10/08/13	1348	27296651	3.301	17276092	10.311
07		INDAG	10/08/13	1406	26602440	3.302	17179682	10.311
08		DS	10/14/13	1249	20687548	3.300	12989583	10.311
09		INDAE	10/14/13	1306	21647567	3.301	14497229	10.312
10	XI87MBS1	XI87MBS1	10/14/13	1324	21463734	3.301	14590535	10.311
11	XI87LCSS1	XI87LCSS1	10/14/13	1342	22990587	3.301	16602950	10.312
12	XI87LCSDS1	XI87LCSDS1	10/14/13	1400	23413509	3.301	16710255	10.311
13	VANBURENPIT-	XI87A	10/14/13	1418	22895283	3.301	16861748	10.312
14		DS	10/14/13	1436	21270624	3.301	14854495	10.313
15		INDAE	10/14/13	1453	20694347	3.300	15646769	10.311

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- .05 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

PCB Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: VANBURENPIT-100713
SAMPLE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted: 10/11/13
Date Analyzed: 10/12/13 18:56
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.68 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 5.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.8	< 8.8 U
53469-21-9	Aroclor 1242	8.8	< 8.8 U
12672-29-6	Aroclor 1248	8.8	< 8.8 U
11097-69-1	Aroclor 1254	8.8	< 8.8 U
11096-82-5	Aroclor 1260	8.8	< 8.8 U
11104-28-2	Aroclor 1221	8.8	< 8.8 U
11141-16-5	Aroclor 1232	8.8	< 8.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.5%
Tetrachlorometaxylene	86.0%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-101113	86.8%	59-118	84.0%	57-114	0
LCS-101113	100%	59-118	95.5%	57-114	0
LCSD-101113	99.8%	59-118	88.0%	57-114	0
VANBURENPIT-100713	92.5%	53-126	86.0%	71-108	0

Microwave (MARS) Control Limits PCBSMM
Prep Method: SW3546
Log Number Range: 13-21758 to 13-21758

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-101113
LCS/LCSD

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 10/11/13

Date Analyzed LCS: 10/12/13 18:12
LCSD: 10/12/13 18:34
Instrument/Analyst LCS: ECD7/JGR
LCSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Final Extract Volume LCS: 2.50 mL
LCSD: 2.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	221	252	87.7%	226	252	89.7%	2.2%
Aroclor 1260	236	252	93.7%	250	252	99.2%	5.8%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	100%	99.8%
Tetrachlorometaxylene	95.5%	88.0%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

PCB METHOD BLANK SUMMARY

BLANK NO.

XI87MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No.: XI87

Project: R.G HALEY SITE INTER

Lab Sample ID: XI87MBS1

Lab File ID: 1012A019

Date Extracted: 10/11/13

Matrix: SOLID

Date Analyzed: 10/12/13

Instrument ID: ECD7

Time Analyzed: 1750

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	XI87LCSS1	XI87LCSS1	10/12/13
02	XI87LCSDS1	XI87LCSDS1	10/12/13
03	VANBURENPIT-100713	XI87A	10/12/13

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-101113
METHOD BLANK

Lab Sample ID: MB-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/14/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Date Extracted: 10/11/13
Date Analyzed: 10/12/13 17:50
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.8%
Tetrachlorometaxylene	84.0%

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 08/16/13

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.63- 5.83	0.8903	0.9041	0.9498	0.9577	0.9444	0.9697	0.9360	3.4
DCB	14.49-14.69	1.2299	1.1917	1.2122	1.1523	1.0462	1.0926	1.1541	6.2

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.64- 7.84	0.0273	0.0265	0.0261	0.0246	0.0232	0.0231	0.0251	7.1
2	8.16- 8.36	0.0906	0.0870	0.0870	0.0838	0.0803	0.0805	0.0849	4.8
3	8.35- 8.55	0.0383	0.0356	0.0346	0.0327	0.0308	0.0309	0.0338	8.7
4	8.77- 8.97	0.0260	0.0224	0.0210	0.0192	0.0178	0.0176	0.0207	15.5

AROCLOR AVERAGE %RSD = 9.0

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.94-12.14	0.0878	0.0749	0.0729	0.0707	0.0628	0.0653	0.0724	12.2
2	12.26-12.46	0.0826	0.0740	0.0737	0.0726	0.0650	0.0680	0.0726	8.3
3	12.63-12.83	0.1765	0.1683	0.1746	0.1732	0.1555	0.1630	0.1685	4.8
4	13.02-13.22	0.0928	0.0881	0.0910	0.0911	0.0830	0.0875	0.0889	4.0
5	13.20-13.40	0.0411	0.0393	0.0402	0.0394	0.0356	0.0376	0.0389	5.0

AROCLOR AVERAGE %RSD = 6.9

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 08/16/13

SURROGATES

RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX 5.27- 5.47	1.0726	1.0294	1.0397	0.9954	0.9529	0.9926	1.0137	4.2
DCB 14.51-14.71	1.3928	1.3417	1.3533	1.2564	1.1110	1.1655	1.2701	8.9

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	6.52- 6.72	0.0231	0.0213	0.0204	0.0179	0.0163	0.0158	0.0191	15.2
2	7.40- 7.60	0.0524	0.0481	0.0461	0.0410	0.0371	0.0363	0.0435	14.8
3	8.21- 8.41	0.1076	0.0975	0.0947	0.0863	0.0802	0.0774	0.0906	12.6
4	8.81- 9.01	0.0342	0.0303	0.0286	0.0251	0.0228	0.0225	0.0272	16.9

AROCLOR AVERAGE %RSD = 14.9

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.83-12.03	0.1461	0.1322	0.1271	0.1165	0.1012	0.1044	0.1212	14.2
2	12.37-12.57	0.1149	0.1060	0.1026	0.0944	0.0815	0.0836	0.0972	13.5
3	12.64-12.84	0.2212	0.2039	0.2001	0.1872	0.1650	0.1722	0.1916	10.9
4	13.20-13.40	0.1505	0.1411	0.1367	0.1260	0.1098	0.1133	0.1296	12.4

AROCLOR AVERAGE %RSD = 12.8

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 08/16/13

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.191	6.09- 6.29	0.01047
2	6.400	6.30- 6.50	0.00882
3	6.523	6.42- 6.62	0.02581

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	6.523	6.42- 6.62	0.01676
2	7.745	7.64- 7.84	0.01009
3	8.265	8.16- 8.36	0.03326
4	8.451	8.35- 8.55	0.01329

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	7.737	7.64- 7.84	0.02024
2	8.258	8.16- 8.36	0.06803
3	8.444	8.34- 8.54	0.02662
4	9.409	9.31- 9.51	0.02526

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	8.256	8.16- 8.36	0.04241
2	8.873	8.77- 8.97	0.02784
3	9.411	9.31- 9.51	0.03930
4	9.881	9.78- 9.98	0.05027

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 08/16/13

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.223	10.12-10.32	0.05173
2	10.612	10.51-10.71	0.03215
3	10.753	10.65-10.85	0.06302
4	11.113	11.01-11.21	0.06473
5	11.809	11.71-11.91	0.06350

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.359	12.26-12.46	0.09418
2	12.730	12.63-12.83	0.21788
3	13.126	13.03-13.23	0.07113
4	13.305	13.20-13.40	0.08471
5	13.885	13.78-13.98	0.06554

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.237	13.14-13.34	0.23504
2	13.303	13.20-13.40	0.20825
3	13.649	13.55-13.75	0.17509
4	14.285	14.19-14.39	0.44546

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 08/16/13

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.198	6.10- 6.30	0.01384
2	6.496	6.40- 6.60	0.00800
3	6.630	6.53- 6.73	0.02437
4	7.522	7.42- 7.62	0.00820

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	6.630	6.53- 6.73	0.01693
2	7.511	7.41- 7.61	0.01908
3	8.320	8.22- 8.42	0.03634
4	8.921	8.82- 9.02	0.01209

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.614	6.51- 6.71	0.01624
2	7.492	7.39- 7.59	0.03391
3	8.304	8.20- 8.40	0.07149
4	9.374	9.27- 9.47	0.02836

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	7.497	7.40- 7.60	0.01676
2	8.304	8.20- 8.40	0.04624
3	8.909	8.81- 9.01	0.03391
4	10.318	10.22-10.42	0.04884

6G
8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOENGINEERS

ARI Job No.: XI87 | Project: RG HALEY SITE

GC Column: ZB35 | Instrument ID: ECD7

Calibration Date: 08/16/13

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.021	9.92-10.12	0.03166
2	10.207	10.11-10.31	0.04041
3	10.901	10.80-11.00	0.06762
4	11.156	11.06-11.26	0.06877
5	11.926	11.83-12.03	0.05003

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.480	12.38-12.58	0.11686
2	12.748	12.65-12.85	0.23160
3	13.255	13.15-13.35	0.10124
4	13.312	13.21-13.41	0.15309
5	13.941	13.84-14.04	0.07625

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.254	13.15-13.35	0.23853
2	13.317	13.22-13.42	0.22390
3	13.664	13.56-13.76	0.18010
4	14.316	14.22-14.42	0.46823

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No.: XI87

Project: RG HALEY SITE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1248

Time Analyzed :1433

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.26	8.16	8.36	254.9	250.0	2.0
Aroclor-1248-2	8.87	8.77	8.97	251.5	250.0	0.6
Aroclor-1248-3	9.41	9.31	9.51	252.4	250.0	1.0
Aroclor-1248-4	9.88	9.78	9.98	251.2	250.0	0.5

AVERAGE %D = 1.0

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No.: XI87

Project: RG HALEY SITE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1248

Time Analyzed :1433

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	7.50	7.40	7.60	250.1	250.0	0.0
Aroclor-1248-2	8.30	8.20	8.40	248.5	250.0	-0.6
Aroclor-1248-3	8.91	8.81	9.01	260.3	250.0	4.1
Aroclor-1248-4	10.32	10.22	10.42	263.7	250.0	5.5

AVERAGE %D = 2.5

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: GEOENGINEERS

ARI Job No.: XI87
Project: RG HALEY SITE

GC Column: ZB5
Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1455

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.74	7.64	7.84	240.2	250.0	-3.9
Aroclor-1016-2	8.26	8.16	8.36	238.6	250.0	-4.5
Aroclor-1016-3	8.45	8.35	8.55	235.6	250.0	-5.8
Aroclor-1016-4	8.87	8.77	8.97	227.3	250.0	-9.1

AVERAGE %D = 5.8

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1455

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	12.04	11.94	12.14	253.4	250.0	1.4
Aroclor-1260-2	12.36	12.26	12.46	259.1	250.0	3.6
Aroclor-1260-3	12.73	12.63	12.83	260.1	250.0	4.0
Aroclor-1260-4	13.12	13.02	13.22	257.3	250.0	2.9
Aroclor-1260-5	13.30	13.20	13.40	254.1	250.0	1.6

AVERAGE %D = 2.7

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: GEOENGINEERS

ARI Job No.: XI87
Project: RG HALEY SITE

GC Column: ZB35
Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1455

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.62	6.52	6.72	239.0	250.0	-4.4
Aroclor-1016-2	7.50	7.40	7.60	234.9	250.0	-6.0
Aroclor-1016-3	8.31	8.21	8.41	223.7	250.0	-10.5
Aroclor-1016-4	8.91	8.81	9.01	229.8	250.0	-8.1

AVERAGE %D = 7.2

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1455

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.93	11.83	12.03	257.7	250.0	3.1
Aroclor-1260-2	12.47	12.37	12.57	262.7	250.0	5.1
Aroclor-1260-3	12.74	12.64	12.84	256.6	250.0	2.6
Aroclor-1260-4	13.30	13.20	13.40	256.7	250.0	2.7

AVERAGE %D = 3.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOENGINEERS

ARI Job No.: XI87

Project: RG HALEY SITE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1254

Time Analyzed :1918

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.22	10.12	10.32	251.4	250.0	0.6
Aroclor-1254-2	10.61	10.51	10.71	249.2	250.0	-0.3
Aroclor-1254-3	10.75	10.65	10.85	252.2	250.0	0.9
Aroclor-1254-4	11.11	11.01	11.21	253.2	250.0	1.3
Aroclor-1254-5	11.81	11.71	11.91	243.6	250.0	-2.6

AVERAGE %D = 1.1

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1254 Time Analyzed :1918

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.02	9.92	10.12	256.6	250.0	2.6
Aroclor-1254-2	10.21	10.11	10.31	255.3	250.0	2.1
Aroclor-1254-3	10.90	10.80	11.00	259.0	250.0	3.6
Aroclor-1254-4	11.16	11.06	11.26	259.7	250.0	3.9
Aroclor-1254-5	11.92	11.83	12.03	260.1	250.0	4.0

AVERAGE %D = 3.2

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: GEOENGINEERS

ARI Job No.: XI87
Project: RG HALEY SITE

GC Column: ZB5
Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1940

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.74	7.64	7.84	239.7	250.0	-4.1
Aroclor-1016-2	8.26	8.16	8.36	238.3	250.0	-4.7
Aroclor-1016-3	8.45	8.35	8.55	235.1	250.0	-6.0
Aroclor-1016-4	8.87	8.77	8.97	226.2	250.0	-9.5

AVERAGE %D = 6.1

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1940

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	12.04	11.94	12.14	248.7	250.0	-0.5
Aroclor-1260-2	12.36	12.26	12.46	254.9	250.0	2.0
Aroclor-1260-3	12.73	12.63	12.83	256.7	250.0	2.7
Aroclor-1260-4	13.12	13.02	13.22	254.2	250.0	1.7
Aroclor-1260-5	13.30	13.20	13.40	250.7	250.0	0.3

AVERAGE %D = 1.4

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: GEOENGINEERS

ARI Job No.: XI87
Project: RG HALEY SITE

GC Column: ZB35
Intrument: ECD7

Init. Calib. Date: 08/16/13

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1940

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.62	6.52	6.72	240.2	250.0	-3.9
Aroclor-1016-2	7.50	7.40	7.60	234.7	250.0	-6.1
Aroclor-1016-3	8.31	8.21	8.41	223.5	250.0	-10.6
Aroclor-1016-4	8.91	8.81	9.01	230.2	250.0	-7.9

AVERAGE %D = 7.1

Date Analyzed :10/12/13

Lab Standard ID: AR1660
Time Analyzed :1940

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.93	11.83	12.03	255.0	250.0	2.0
Aroclor-1260-2	12.47	12.37	12.57	260.2	250.0	4.1
Aroclor-1260-3	12.74	12.64	12.84	255.5	250.0	2.2
Aroclor-1260-4	13.30	13.20	13.40	255.9	250.0	2.4

AVERAGE %D = 2.7

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/16/13

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	5152160	2.789	3127538	14.850
	UPPER LIMIT	10304320	2.889	6255076	14.950
	LOWER LIMIT	2576080	2.689	1563769	14.750

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		IB	08/16/13	1602	5185527	2.786	3155881	14.850
02		0.25PPMAR166	08/16/13	1624	5152160	2.789	3127538	14.850
03		0.02PPMAR166	08/16/13	1646	5264425	2.789	3295005	14.849
04		0.05PPMAR166	08/16/13	1708	5178793	2.786	3224361	14.850
05		1 PPM AR1660	08/16/13	1730	5527850	2.787	3445693	14.849
06		0.1PPMAR1660	08/16/13	1752	5263584	2.784	3283177	14.849
07		0.5PPMAR1660	08/16/13	1814	5358861	2.787	3481825	14.849
08		AR1242	08/16/13	1836	5400016	2.787	3365225	14.849
09		AR1248	08/16/13	1858	5136414	2.787	3172566	14.850
10		AR1254	08/16/13	1920	5382616	2.787	3353659	14.849
11		AR2162	08/16/13	1942	4964961	2.786	3172575	14.849
12		AR3268	08/16/13	2004	5247271	2.787	3294036	14.849
13	ZZZZZ	ZZZZZ	08/16/13	2026	5185886	2.788	3268437	14.849
14	ZZZZZ	ZZZZZ	08/16/13	2048	5186403	2.786	3247434	14.850
15	ZZZZZ	ZZZZZ	08/16/13	2110	5190835	2.785	3323969	14.849
16	ZZZZZ	ZZZZZ	08/16/13	2132	5148865	2.784	3337044	14.849
17	ZZZZZ	ZZZZZ	08/16/13	2154	5263832	2.788	3330081	14.849
18	ZZZZZ	ZZZZZ	08/16/13	2216	5294864	2.785	3429330	14.849
19		AR1248	10/12/13	1433	5190523	2.786	2833090	14.846
20		AR1660	10/12/13	1455	5213274	2.787	2945578	14.845
21	XI87MBS1	XI87MBS1	10/12/13	1750	5143033	2.786	3136390	14.846
22	XI87LCSS1	XI87LCSS1	10/12/13	1812	5115037	2.784	3117979	14.846
23	XI87LCSDS1	XI87LCSDS1	10/12/13	1834	5048311	2.787	3036277	14.846
24	VANBURENPIT-	XI87A	10/12/13	1856	5106916	2.788	3089542	14.845
25		AR1254	10/12/13	1918	5444798	2.785	3076665	14.846
26		AR1660	10/12/13	1940	5393871	2.784	3098093	14.845

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

ARI Job No.: XI87 Project: RG HALEY SITE

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/16/13

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			IS1 AREA	RT	IS2 AREA	RT
		ICAL MIDPT	9632630	3.190	5043723	15.214
		UPPER LIMIT	19265260	3.290	10087446	15.314
		LOWER LIMIT	4816315	3.090	2521862	15.114

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		IB	08/16/13	1602	9633105	3.189	5093248	15.214
02		0.25PPMAR166	08/16/13	1624	9632630	3.190	5043723	15.214
03		0.02PPMAR166	08/16/13	1646	9795148	3.190	5274126	15.213
04		0.05PPMAR166	08/16/13	1708	9612529	3.189	5155247	15.213
05		1 PPM AR1660	08/16/13	1730	9924788	3.187	5485487	15.213
06		0.1PPMAR1660	08/16/13	1752	9750145	3.187	5195633	15.214
07		0.5PPMAR1660	08/16/13	1814	9779170	3.188	5472977	15.214
08		AR1242	08/16/13	1836	9858115	3.190	5314232	15.213
09		AR1248	08/16/13	1858	9373785	3.189	5031942	15.213
10		AR1254	08/16/13	1920	9840275	3.189	5335172	15.213
11		AR2162	08/16/13	1942	8999005	3.188	5034651	15.213
12		AR3268	08/16/13	2004	9564571	3.189	5246838	15.213
13	ZZZZZ	ZZZZZ	08/16/13	2026	9543295	3.190	5237403	15.214
14	ZZZZZ	ZZZZZ	08/16/13	2048	9541523	3.188	5172773	15.214
15	ZZZZZ	ZZZZZ	08/16/13	2110	9624510	3.188	5282715	15.214
16	ZZZZZ	ZZZZZ	08/16/13	2132	9480451	3.188	5318679	15.213
17	ZZZZZ	ZZZZZ	08/16/13	2154	9519994	3.190	5261521	15.213
18	ZZZZZ	ZZZZZ	08/16/13	2216	9606135	3.188	5407995	15.213
19		AR1248	10/12/13	1433	9101386	3.181	4557607	15.205
20		AR1660	10/12/13	1455	9198852	3.182	4639187	15.205
21	XI87MBS1	XI87MBS1	10/12/13	1750	8954790	3.181	4884244	15.205
22	XI87LCSS1	XI87LCSS1	10/12/13	1812	8915531	3.180	4835643	15.205
23	XI87LCSDS1	XI87LCSDS1	10/12/13	1834	8775129	3.182	4694734	15.205
24	VANBURENPIT-	XI87A	10/12/13	1856	8884742	3.182	4717176	15.205
25		AR1254	10/12/13	1918	9816318	3.180	4779541	15.205
26		AR1660	10/12/13	1940	9377778	3.179	4820699	15.205

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: XI87

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method: SW3546
Page 1 of 1

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Matrix: Soil
Data Release Authorized: CB
Reported: 10/15/13

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-101113	Method Blank	10/11/13	10/11/13	1.00	Diesel Range	5.0	< 5.0 U
13-21758	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		88.8%
XI87A	VANBURENPIT-100713	10/11/13	10/11/13	1.00	Diesel Range	5.3	< 5.3 U
13-21758	HC ID: ---		FID3B	1.0	Motor Oil Range	11	< 11 U
					o-Terphenyl		87.8%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

pc
10/15/13

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid3b.i/20131011.b/1011b023.d
Method: /chem3/fid3b.i/20131011.b/ftphfid3b.m
Instrument: fid3b.i
Operator: JW
Report Date: 10/15/2013
Macro: FID:3B100413

ARI ID: XI87MBS1
Client ID: XI87MBS1
Injection: 11-OCT-2013 20:24
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.614	-0.001	2681	2265	WATPHG	(Tol-C12)	167001	9.45
C8	2.028	-0.003	854	440	WATPHD	(C12-C24)	164915	13.49
C10	3.965	0.002	779	223	WATPHM	(C24-C38)	319614	32.15
C12	4.890	0.000	778	256	AK102	(C10-C25)	223996	15.39
C14	5.570	-0.004	796	384	AK103	(C25-C36)	226341	28.65
C16	6.185	0.005	1109	230				
C18	6.806	-0.002	869	431				
C20	7.458	-0.001	589	158				
C22	8.108	0.001	415	95	MSPIRIT	(Tol-C12)	167001	12.16
C24	8.728	-0.002	316	101				
C25	9.023	-0.001	224	68	KEROSEN	(Tol-C18)	284648	18.45
C26	9.320	0.000	539	81				
C28	9.927	0.002	716	327	IT.DIES	(C10-C24)	221171	15.26
C32	11.227	-0.001	1365	745				
C34	11.899	0.001	1521	399				
Filter Peak	12.710	-0.001	2312	406				
C36	12.564	0.003	2214	1176	BUNKERC	(C10-C38)	540786	110.26
o-terph	6.997	-0.001	615701	589893	JET-A	(C10-C18)	173903	13.23
Triacon Surr	10.574	-0.003	369491	479016				

Range Times: NW Diesel(4.940 - 8.780) NW Gas(1.565 - 4.940) NW M.Oil(8.780 - 13.256)
AK102(3.912 - 8.974) AK103(8.974 - 12.611) Jet A(3.912 - 6.858)

Surrogate	Area	Amount	%Rec
o-Terphenyl	589893	40.0	88.8
Triacontane	479016	38.8	86.3

Analyte	RF	Curve Date
o-Terph Surr	14765.3	04-OCT-2013
Triacon Surr	12335.8	09-SEP-2013
Gas	17664.0	19-AUG-2013
Diesel	12221.5	04-OCT-2013
Motor Oil	9940.3	09-SEP-2013
AK102	14552.0	04-OCT-2013
AK103	7900.5	26-SEP-2013
JetA	13149.3	10-SEP-2013
Min Spirit	13738.6	xx-xxx-xx
Kerosene	15426.1	xx-xxx-xx
IT Diesel	14496.0	
Bunker C	4904.8	xx-xxx-xx

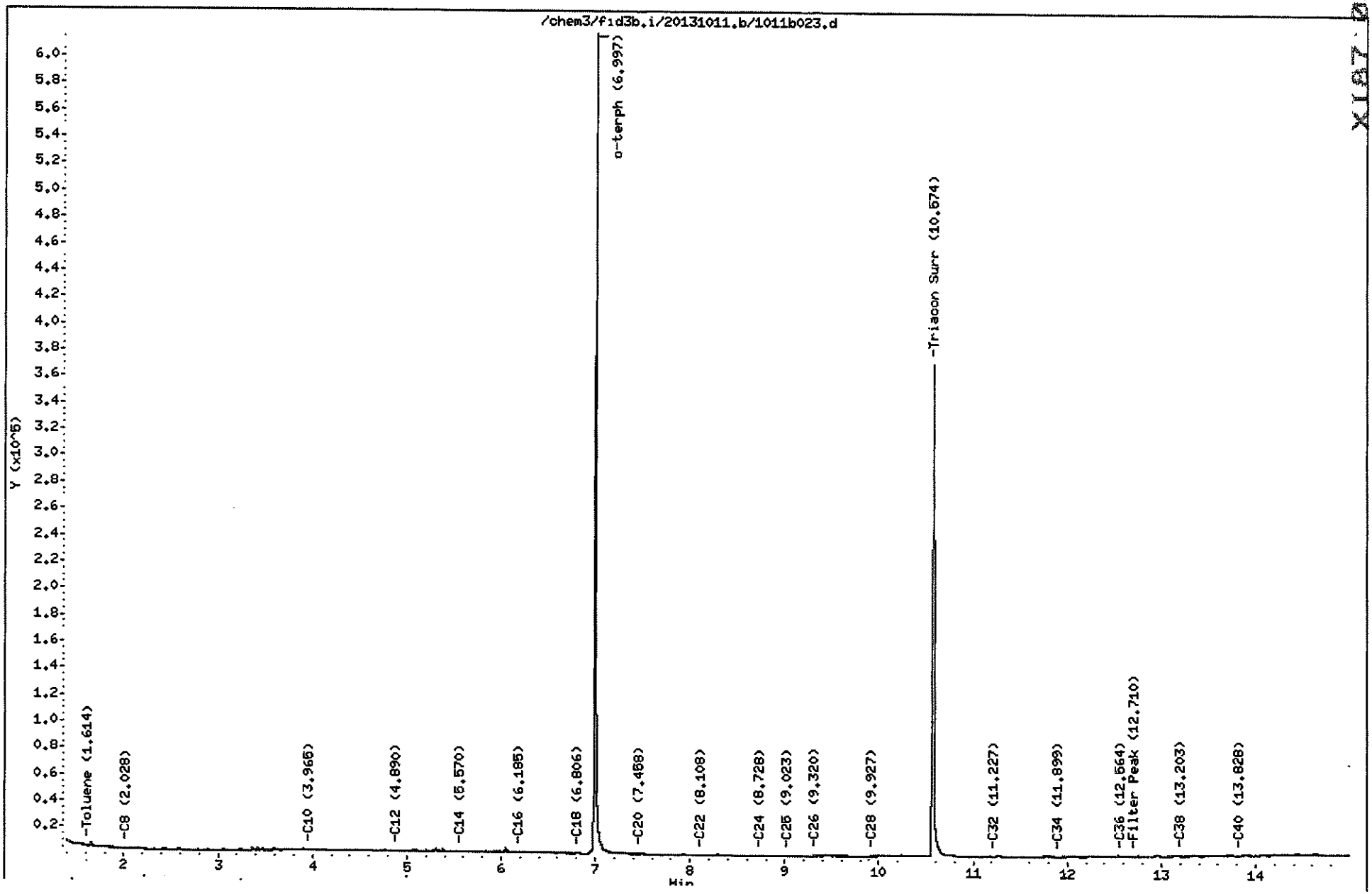
Data File: /chem3/fid3b.i/20131011.b/1011b023.d
Date : 11-OCT-2013 20:24
Client ID: XI87MBS1
Sample Info: XI87MBS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JW
Column diameter: 0.25

XI87-060121



KC 10/15/13

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid3b.i/20131011.b/1011b026.d
Method: /chem3/fid3b.i/20131011.b/ftphfid3b.m
Instrument: fid3b.i
Operator: JW
Report Date: 10/15/2013
Macro: FID:3B100413

ARI ID: XI87A
Client ID: VANBURENPIT-100713
Injection: 11-OCT-2013 21:38
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.617	0.002	2047	562	WATPHG	(Tol-C12)	133269	7.54
C8	2.031	0.001	653	356	WATPHD	(C12-C24)	127822	10.46
C10	3.960	-0.002	701	133	WATPHM	(C24-C38)	137173	13.80
C12	4.891	0.001	668	124	AK102	(C10-C25)	180918	12.43
C14	5.571	-0.003	611	320	AK103	(C25-C36)	100285	12.69
C16	6.182	0.002	633	61				
C18	6.807	-0.001	855	375				
C20	7.456	-0.002	560	146				
C22	8.107	-0.001	397	126	MSPIRIT	(Tol-C12)	133269	9.70
C24	8.731	0.001	341	78				
C25	9.025	0.001	208	47	KEROSEN	(Tol-C18)	216756	14.05
C26	9.321	0.001	341	57				
C28	9.926	0.001	457	79	IT.DIES	(C10-C24)	178381	12.31
C32	11.230	0.002	617	156				
C34	11.895	-0.002	517	288				
Filter Peak	12.711	0.001	784	277				
C36	12.561	0.000	838	467	BUNKERC	(C10-C38)	315554	64.34
o-terph	6.994	-0.003	595941	583102	JET-A	(C10-C18)	134046	10.19
Triacon Surr	10.571	-0.006	367724	463899				

Range Times: NW Diesel(4.940 - 8.780) NW Gas(1.565 - 4.940) NW M.Oil(8.780 - 13.256)
AK102(3.912 - 8.974) AK103(8.974 - 12.611) Jet A(3.912 - 6.858)

Surrogate	Area	Amount	%Rec
o-Terphenyl	583102	39.5	87.8
Triacontane	463899	37.6	83.6

Analyte	RF	Curve Date
o-Terph Surr	14765.3	04-OCT-2013
Triacon Surr	12335.8	09-SEP-2013
Gas	17664.0	19-AUG-2013
Diesel	12221.5	04-OCT-2013
Motor Oil	9940.3	09-SEP-2013
AK102	14552.0	04-OCT-2013
AK103	7900.5	26-SEP-2013
JetA	13149.3	10-SEP-2013
Min Spirit	13738.6	xx-xxx-xx
Kerosene	15426.1	xx-xxx-xx
IT Diesel	14496.0	
Bunker C	4904.8	xx-xxx-xx

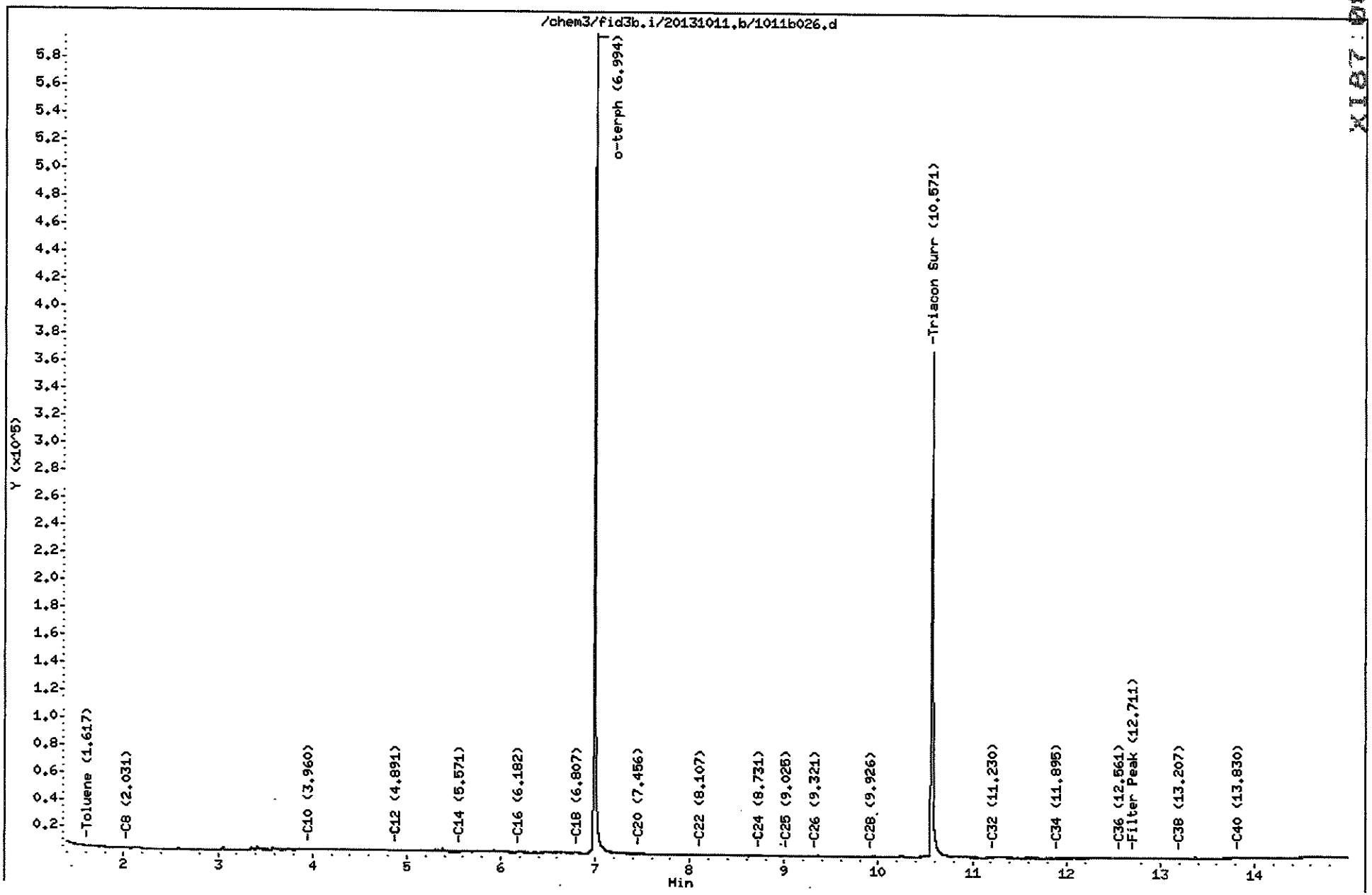
Data File: /chem3/fid3b.i/20131011.b/1011b026.d
Date : 11-OCT-2013 21:38
Client ID: VANBURENPIT-100713
Sample Info: XI87A

Column phase: RTX-1

Instrument: fid3b.i

Operator: JW
Column diameter: 0.25

XI87:00123



ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600

Client ID	OTER	TOT OUT
MB-101113	88.8%	0
LCS-101113	85.6%	0
LCSD-101113	85.7%	0
VANBURENPIT-100713	87.8%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terpheny1	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 13-21758 to 13-21758

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-101113**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-101113
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/15/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Date Extracted LCS/LCSD: 10/11/13

Date Analyzed LCS: 10/11/13 20:49
LCSD: 10/11/13 21:13
Instrument/Analyst LCS: FID/PKC
LCSD: FID/PKC

Sample Amount LCS: 10.0 g
LCSD: 10.0 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.0
LCSD: 1.0

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	110	150	73.3%	114	150	76.0%	3.6%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	85.6%	85.7%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

RC
10/15/13

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid3b.i/20131011.b/1011b024.d
Method: /chem3/fid3b.i/20131011.b/ftphfid3b.m
Instrument: fid3b.i
Operator: JW
Report Date: 10/15/2013
Macro: FID:3B100413

ARI ID: XI87LCSS1
Client ID: XI87LCSS1
Injection: 11-OCT-2013 20:49
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc	
Toluene	1.610	-0.005	2063	505	WATPHG	(Tol-C12)	3406314	192.84	
C8	2.037	0.006	5037	12287	WATPHD	(C12-C24)	13479607	1102.94	
C10	3.964	0.001	72730	50311	WATPHM	(C24-C38)	269231	27.08	
C12	4.892	0.002	131600	103620	AK102	(C10-C25)	15948270	1095.95	M
C14	5.575	0.001	260911	283455	AK103	(C25-C36)	180967	22.91	
C16	6.183	0.002	344557	372569					
C18	6.811	0.003	321847	338735					
C20	7.458	-0.001	177706	198880					
C22	8.104	-0.004	71317	82324	MSPIRIT	(Tol-C12)	3406314	247.94	
C24	8.728	-0.002	21492	29287					
C25	9.025	0.000	9799	17356	KEROSEN	(Tol-C18)	13187082	854.86	
C26	9.320	0.000	4681	7011					
C28	9.927	0.002	1119	413	IT.DIES	(C10-C24)	15894930	1096.50	
C32	11.227	-0.002	432	131					
C34	11.892	-0.006	418	241					
Filter Peak	12.713	0.003	695	155					
C36	12.562	0.001	848	220	BUNKERC	(C10-C38)	16164162	3295.58	
o-terph	7.000	0.002	688321	568802	JET-A	(C10-C18)	12196091	927.51	
Triacon Surr	10.572	-0.005	350803	450259					

Range Times: NW Diesel(4.940 - 8.780) NW Gas(1.565 - 4.940) NW M.Oil(8.780 - 13.256)
AK102(3.912 - 8.974) AK103(8.974 - 12.611) Jet A(3.912 - 6.858)

Surrogate	Area	Amount	%Rec
o-Terphenyl	568802	38.5	85.6
Triacontane	450259	36.5	81.1

Analyte	RF	Curve Date
o-Terph Surr	14765.3	04-OCT-2013
Triacon Surr	12335.8	09-SEP-2013
Gas	17664.0	19-AUG-2013
Diesel	12221.5	04-OCT-2013
Motor Oil	9940.3	09-SEP-2013
AK102	14552.0	04-OCT-2013
AK103	7900.5	26-SEP-2013
JetA	13149.3	10-SEP-2013
Min Spirit	13738.6	xx-xxx-xx
Kerosene	15426.1	xx-xxx-xx
IT Diesel	14496.0	
Bunker C	4904.8	xx-xxx-xx

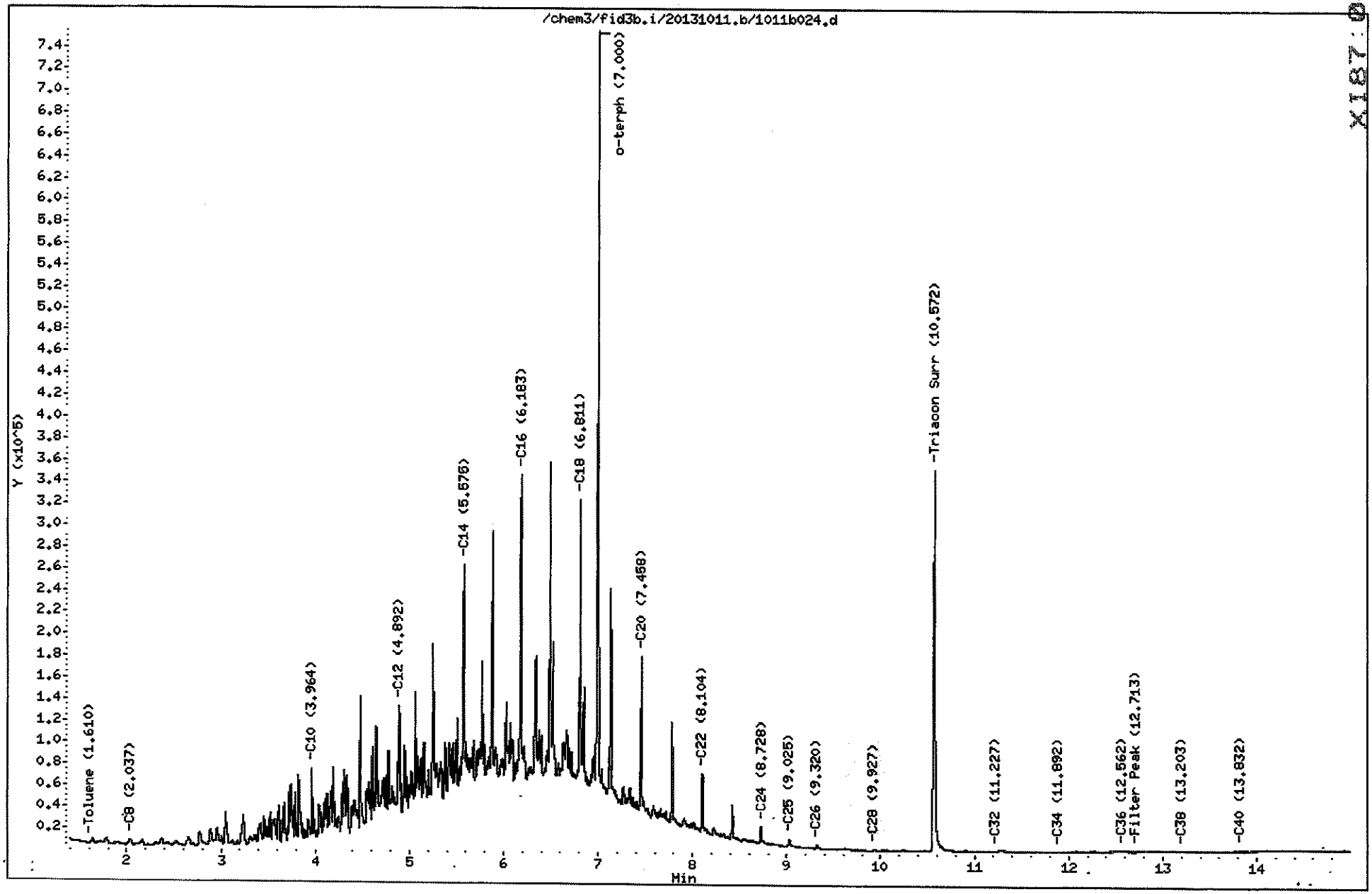
Data File: /chem3/fid3b.i/20131011.b/1011b024.d
Date : 11-OCT-2013 20:49
Client ID: XI87LCSS1
Sample Info: XI87LCSS1

Column phase: RTX-1

Instrument: fid3b.i

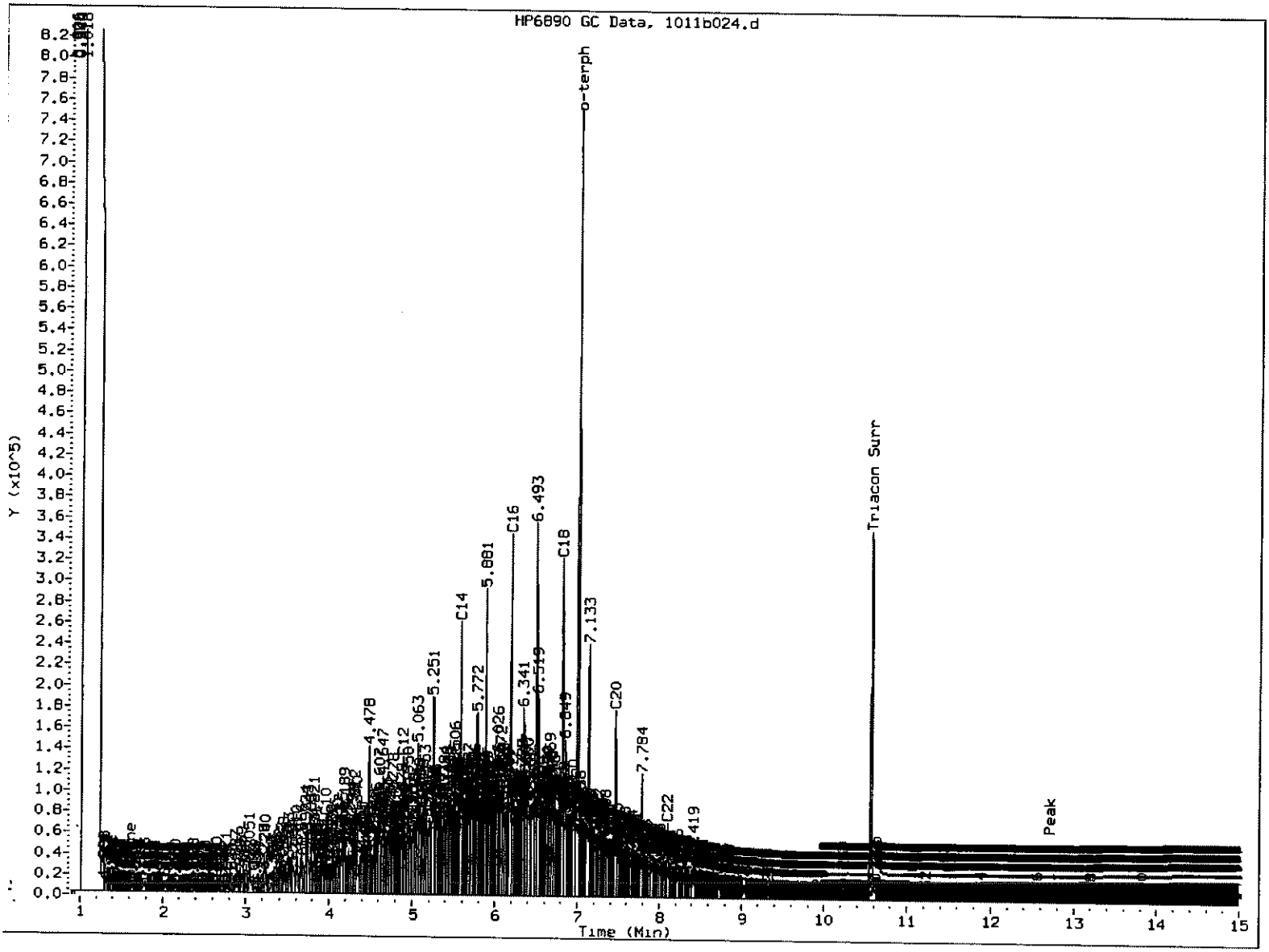
Operator: JW
Column diameter: 0.25

XI87:001127



FID:3B-2C/RTX-1 XI87LCSS1

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: YC Date: 10/15/13

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid3b.i/20131011.b/1011b025.d
Method: /chem3/fid3b.i/20131011.b/ftphfid3b.m
Instrument: fid3b.i
Operator: JW
Report Date: 10/15/2013
Macro: FID:3B100413

ARI ID: XI87LCSDS1
Client ID: XI87LCSDS1
Injection: 11-OCT-2013 21:13
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.601	-0.014	1880	393	WATPHG	(Tol-C12)	3307331	187.24
C8	2.030	-0.001	4607	7846	WATPHD	(C12-C24)	13978062	1143.73
C10	3.963	0.000	67136	48192	WATPHM	(C24-C38)	305639	30.75
C12	4.891	0.002	128628	107462	AK102	(C10-C25)	16445546	1130.12 M
C14	5.576	0.002	261703	281185	AK103	(C25-C36)	211019	26.71
C16	6.183	0.003	346494	378876				
C18	6.811	0.003	321154	350009				
C20	7.459	0.000	180866	209189				
C22	8.104	-0.003	75219	85458	MSPIRIT	(Tol-C12)	3307331	240.73
C24	8.727	-0.003	21965	34570				
C25	9.028	0.004	10706	19361	KEROSEN	(Tol-C18)	13415608	869.67
C26	9.321	0.002	4859	8909				
C28	9.928	0.003	1475	1690	IT.DIES	(C10-C24)	16384602	1130.28
C32	11.226	-0.003	452	100				
C34	11.898	0.000	417	270				
Filter Peak	12.711	0.001	733	261				
C36	12.563	0.001	785	206	BUNKERC	(C10-C38)	16690241	3402.84
o-terph	7.000	0.002	666320	569528	JET-A	(C10-C18)	12514817	951.75
Triacon Surr	10.570	-0.007	364685	453176				

Range Times: NW Diesel(4.940 - 8.780) NW Gas(1.565 - 4.940) NW M.Oil(8.780 - 13.256)
AK102(3.912 - 8.974) AK103(8.974 - 12.611) Jet A(3.912 - 6.858)

Surrogate	Area	Amount	%Rec
o-Terphenyl	569528	38.6	85.7
Triacontane	453176	36.7	81.6

Analyte	RF	Curve Date
o-Terph Surr	14765.3	04-OCT-2013
Triacon Surr	12335.8	09-SEP-2013
Gas	17664.0	19-AUG-2013
Diesel	12221.5	04-OCT-2013
Motor Oil	9940.3	09-SEP-2013
AK102	14552.0	04-OCT-2013
AK103	7900.5	26-SEP-2013
JetA	13149.3	10-SEP-2013
Min Spirit	13738.6	xx-xxx-xx
Kerosene	15426.1	xx-xxx-xx
IT Diesel	14496.0	
Bunker C	4904.8	xx-xxx-xx

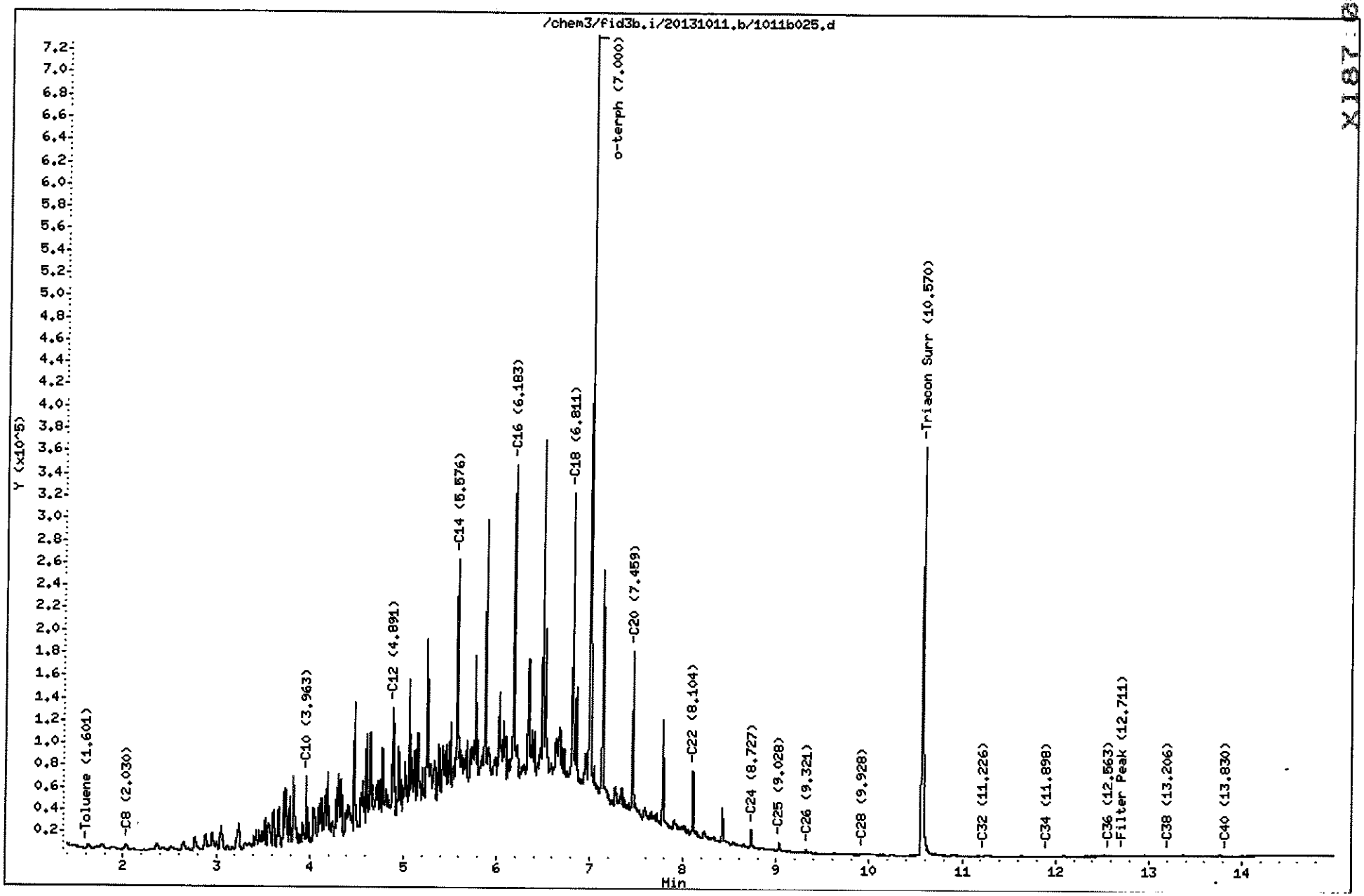
Data File: /chem3/fid3b.i/20131011.b/1011b025.d
Date : 11-OCT-2013 21:13
Client ID: XI87LCSDS1
Sample Info: XI87LCSDS1

Column phase: RTX-1

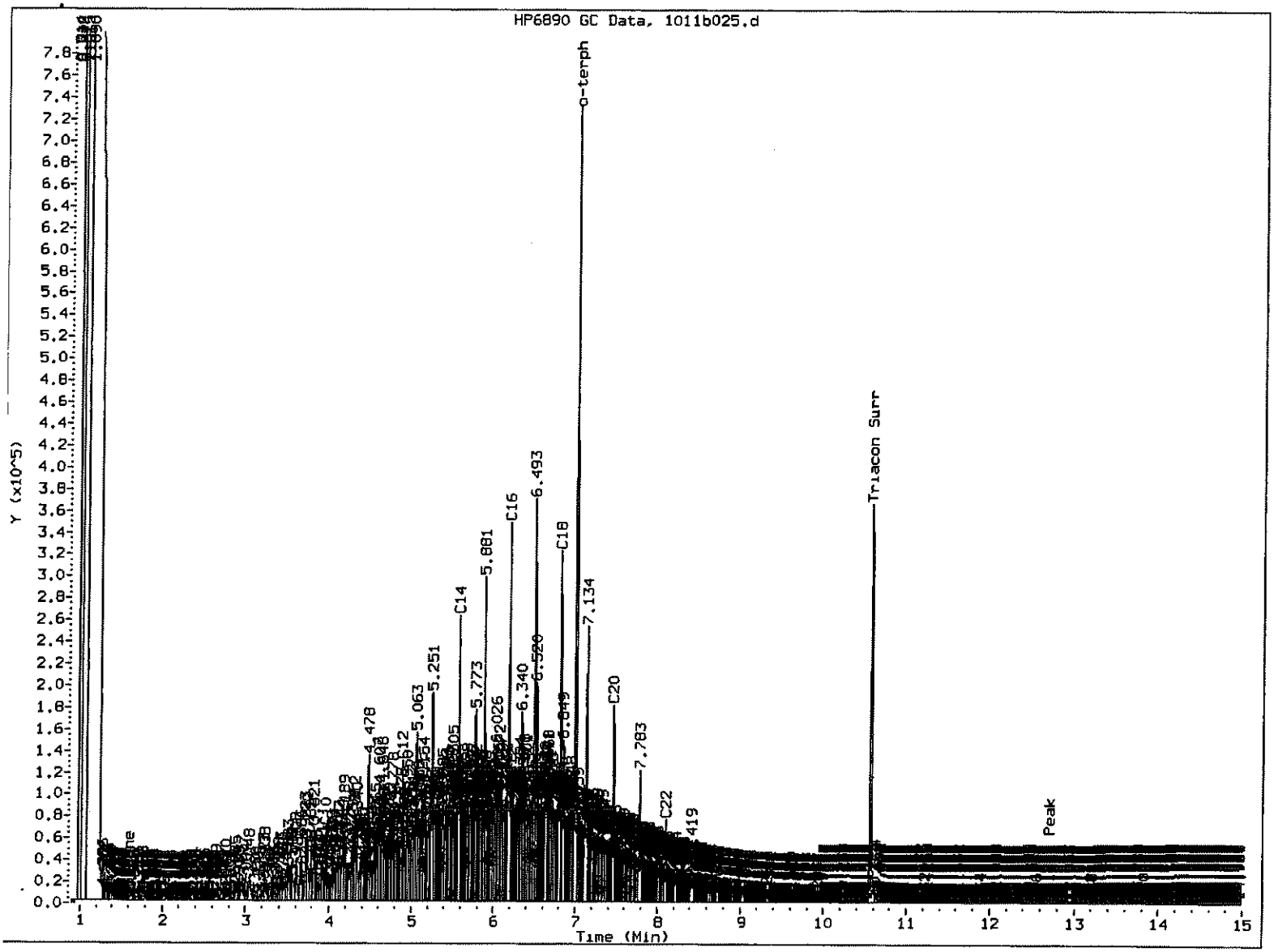
Instrument: fid3b.i

Operator: JW
Column diameter: 0.25

XI87-001130



FID:3B-2C/RTX-1 XI87LCSDS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: KC Date: 10/15/13

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/08/13

ARI Job: XI87
Project: R.G Haley Site Interim Action
0356-114-06 T2600

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
13-21758-101113MB1	Method Blank	10.0 g	1.00 mL	-	10/11/13
13-21758-101113LCS1	Lab Control	10.0 g	1.00 mL	-	10/11/13
13-21758-101113LCSD1	Lab Control Dup	10.0 g	1.00 mL	-	10/11/13
13-21758-XI87A	VANBURENPIT-100713	9.47 g	1.00 mL	D	10/11/13

Basis: D=Dry Weight W=As Received

4

TPH METHOD BLANK SUMMARY

BLANK NO.

XI87MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOEINGINEERS

SDG No.: XI87

Project No.: R.G HALEY SITE INTERIM AC

Date Extracted: 10/11/13

Matrix: SOLID

Date Analyzed : 10/11/13

Instrument ID : FID3B

Time Analyzed : 2024

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	XI87LCSS1	XI87LCSS1	10/11/13
02	XI87LCSDS1	XI87LCSDS1	10/11/13
03	VANBURENPIT-	XI87A	10/11/13
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
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28			
29			
30			

FORM IV TPH

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: GEOENGINEERS

Instrument: FID3B.I Project: R.G HALEY SITE INTERIM

Calibration Date: 04-OCT-2013 SDG No.: XI87

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	12343	12691	12158	12209	12103	11825	12221	2.3
AK Diesel	14970	15230	14437	14475	14327	13874	14552	3.3
OR Diesel	15283	15348	14532	14557	14399	13937	14676	3.7
Cal Diesel	14892	15154	14382	14427	14284	13835	14496	3.2
o-Terph	12994	14910	15491	15652	15134	14410	14765	6.6

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.873-8.695)
AK Diesel C10-C25 (3.951-8.992)
OR Diesel C10-C28 (3.951-9.883)
Cal Diesel C10-C24 (3.951-8.695)

Calibration Files	Analysis Time
1004b008.d	04-OCT-2013 10:58
1004b009.d	04-OCT-2013 11:23
1004b010.d	04-OCT-2013 11:48
1004b011.d	04-OCT-2013 12:14
1004b012.d	04-OCT-2013 12:39
1004b013.d	04-OCT-2013 13:04

6a

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: GEOENGINEERS

Instrument: FID3B.I

Project: R.G HALEY SITE INTERIM

Calibration Date: 09-SEP-2013

SDG No.: XI87

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	10705	9735	9649	9739	9781	10032	9940	4.0
Triac Surr	11889	12271	12334	12377	12563	12581	12336	2.0

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files	Analysis Time
0909b008.d	09-SEP-2013 13:20
0909b009.d	09-SEP-2013 13:46
0909b010.d	09-SEP-2013 14:11
0909b011.d	09-SEP-2013 14:37
0909b012.d	09-SEP-2013 15:02
0909b013.d	09-SEP-2013 15:28

FORM VI-M.Oil

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: GEOENGINEERS

ICal Date: 04-OCT-2013

Project: R.G HALEY SITE

CCal Date: 11-OCT-2013

SDG No.: XI87

Analysis Time: 19:35

Lab ID: DIESEL#2

Instrument: FID3B.I

Lab File Name: 1011b021.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3126165	255.8	250	2.3
AK102 (C10-C25)	3729451	256.3	250	2.5
ITDIES (C10-C24)	3713855	256.2	250	2.5
Terphenyl	711942	48.2	45	7.1

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges :

WA Diesel	C12-C24
AK Diesel	C10-C25
IT Diesel	C10-C24

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: GEOENGINEERS

ICal Date: 09-SEP-2013
Project: R.G HALEY SITE

CCal Date: 11-OCT-2013
SDG No.: XI87

Analysis Time: 20:00
Lab ID: MOIL#2

Instrument: FID3B.I
Lab File Name: 1011b022.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil(C24-C38)	5060252	509.1	500	1.8
AK103 (C25-C36)	4208118	532.6	500	6.5
n-Triacontane	571321	46.3	45	2.9

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: GEOENGINEERS

ICal Date: 04-OCT-2013

Project: R.G HALEY SITE

CCal Date: 11-OCT-2013

SDG No.: XI87

Analysis Time: 22:02

Lab ID: DIESEL#3

Instrument: FID3B.I

Lab File Name: 1011b027.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3244023	265.4	250	6.2
AK102 (C10-C25)	3836308	263.6	250	5.5
ITDIES (C10-C24)	3821328	263.6	250	5.4
Terphenyl	708346	48.0	45	6.6

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges :

WA Diesel	C12-C24
AK Diesel	C10-C25
IT Diesel	C10-C24

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: GEOENGINEERS

ICal Date: 09-SEP-2013

Project: R.G HALEY SITE

CCal Date: 11-OCT-2013

SDG No.: XI87

Analysis Time: 22:26

Lab ID: MOIL#3

Instrument: FID3B.I

Lab File Name: 1011b028.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil(C24-C38)	5225277	525.7	500	5.1
AK103 (C25-C36)	4358676	551.7	500	10.3
n-Triacontane	607294	49.2	45	9.4

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38

AK M.Oil C25-C36

8

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: GEOEINGINEERS

SDG No.: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: FID3B GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 7.01 TRIAC: 10.60

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RINSE	09/09/13	1005	7.02	10.61
02		RINSE	09/09/13	1030	7.01	10.60
03		RT0909	09/09/13	1055	7.01	10.60
04		IB0909	09/09/13	1121	7.01	10.60
05		DIESEL#1	09/09/13	1146	7.02	10.60
06		MOIL#1	09/09/13	1212	6.99	10.60
07		IBCHECK	09/09/13	1255	7.03	10.60
08		MOIL 100	09/09/13	1320	7.01	10.58
09		MOIL 250	09/09/13	1346	7.00	10.59
10		MOIL 500	09/09/13	1411	7.02	10.60
11		MOIL 1000	09/09/13	1437	7.00	10.62
12		MOIL 2500	09/09/13	1502	7.01	10.65*
13		MOIL 5000	09/09/13	1528	7.00	10.69*
14		MOIL ICV 500	09/09/13	1553	7.00	10.61
15		DIESEL#2	09/09/13	1619	7.01	10.59
16		MOIL#2	09/09/13	1644	6.99	10.60

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: GEOENGINEERS

SDG No.: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: FID3B GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.97 TRIAC: 10.53

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RINSE	10/04/13	0806	6.97	10.53
02		RINSE	10/04/13	0829	6.97	10.53
03		RT1004	10/04/13	0854	6.97	10.53
04		IB1004	10/04/13	0918	6.98	10.53
05		DIESEL#1	10/04/13	0943	6.97	10.54
06		MOIL#1	10/04/13	1008	6.97	10.53
07		AK103#1	10/04/13	1033	6.97	10.52
08		DIESEL 50	10/04/13	1058	6.96	10.53
09		DIESEL 100	10/04/13	1123	6.97	10.54
10		DIESEL 250	10/04/13	1148	6.97	10.53
11		DIESEL 500	10/04/13	1214	6.98	10.53
12		DIESEL 1000	10/04/13	1239	6.99	10.53
13		DIESEL 2500	10/04/13	1304	7.02*	10.53
14		DIESEL ICV 2	10/04/13	1330	6.97	10.53

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: GEOEINGINEERS

SDG No.: XI87 Project: R.G HALEY SITE INTERIM ACT

Instrument ID: FID3B GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 7.00 TRIAC: 10.58

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT1011	RT1011	10/11/13	1226	7.00	10.58
02	IB1011	IB1011	10/11/13	1251	7.00	10.58
03	R.G HALEY SI	DIESEL#2	10/11/13	1935	7.00	10.58
04	R.G HALEY SI	MOIL#2	10/11/13	2000	7.00	10.58
05	XI87MBS1	XI87MBS1	10/11/13	2024	7.00	10.57
06	XI87LCSS1	XI87LCSS1	10/11/13	2049	7.00	10.57
07	XI87LCSDS1	XI87LCSDS1	10/11/13	2113	7.00	10.57
08	VANBURENPIT-	XI87A	10/11/13	2138	6.99	10.57
09	R.G HALEY SI	DIESEL#3	10/11/13	2202	7.00	10.58
10	R.G HALEY SI	MOIL#3	10/11/13	2226	7.00	10.58

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

Metals Analysis
Report and Summary QC Forms

ARI Job ID: XI87

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
VANBURENPIT-100713	XI87A	13-21758	
VANBURENPIT-100713D	XI87ADUP	13-21758	
VANBURENPIT-100713S	XI87ASPK	13-21758	
PBS	XI87MB1	13-21758	
LCSS	XI87MB1SPK	13-21758	

Were ICP interelement corrections applied ?	Yes/No	YES
Were ICP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: _____ Name: Jay Kuhn

Date: 10/11/13 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: VANBURENPIT-100713
SAMPLE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/11/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Percent Total Solids: 93.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/09/13	6010C	10/10/13	7440-38-2	Arsenic	5	5	U
3050B	10/09/13	6010C	10/10/13	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/09/13	6010C	10/10/13	**7440-47-3**	**Chromium**	0.5	**29.8**	
3050B	10/09/13	6010C	10/10/13	**7440-50-8**	**Copper**	0.2	**23.2**	
3050B	10/09/13	6010C	10/10/13	7439-92-1	Lead	2	2	U
CLP	10/09/13	7471A	10/10/13	7439-97-6	Mercury	0.02	0.02	U
3050B	10/09/13	6010C	10/10/13	7440-22-4	Silver	0.3	0.3	U
3050B	10/09/13	6010C	10/10/13	**7440-66-6**	**Zinc**	1	**36**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: VANBURENPIT-100713
MATRIX SPIKE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/11/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample		Spike	Spike Added	% Recovery	Q
Arsenic	6010C	5	U	210	210	100%	
Cadmium	6010C	0.2	U	55.1	52.5	105%	
Chromium	6010C	29.8		79.0	52.5	93.7%	
Copper	6010C	23.2		73.7	52.5	96.2%	
Lead	6010C	2	U	208	210	99.0%	
Mercury	7471A	0.02	U	0.26	0.237	110%	
Silver	6010C	0.3	U	52.7	52.5	100%	
Zinc	6010C	36		83	52.5	89.5%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: VANBURENPIT-100713
DUPLICATE

Lab Sample ID: XI87A
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/11/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	5 U	5 U	0.0%	+/- 5	L
Cadmium	6010C	0.2 U	0.2 U	0.0%	+/- 0.2	L
Chromium	6010C	29.8	28.6	4.1%	+/- 20%	
Copper	6010C	23.2	20.0	14.8%	+/- 20%	
Lead	6010C	2 U	2 U	0.0%	+/- 2	L
Mercury	7471A	0.02 U	0.02 U	0.0%	+/- 0.02	L
Silver	6010C	0.3 U	0.3 U	0.0%	+/- 0.3	L
Zinc	6010C	36	31	14.9%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: XI87LCS
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/11/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	205	200	102%	
Cadmium	6010C	51.9	50.0	104%	
Chromium	6010C	53.5	50.0	107%	
Copper	6010C	50.2	50.0	100%	
Lead	6010C	201	200	100%	
Mercury	7471A	0.52	0.50	104%	
Silver	6010C	51.5	50.0	103%	
Zinc	6010C	50	50	100%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: XI87MB
LIMS ID: 13-21758
Matrix: Soil
Data Release Authorized:
Reported: 10/11/13

QC Report No: XI87-GeoEngineers
Project: R.G Haley Site Interim Action
0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/09/13	6010C	10/10/13	7440-38-2	Arsenic	5	5	U
3050B	10/09/13	6010C	10/10/13	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/09/13	6010C	10/10/13	7440-47-3	Chromium	0.5	0.5	U
3050B	10/09/13	6010C	10/10/13	7440-50-8	Copper	0.2	0.2	U
3050B	10/09/13	6010C	10/10/13	7439-92-1	Lead	2	2	U
CLP	10/09/13	7471A	10/10/13	7439-97-6	Mercury	0.02	0.02	U
3050B	10/09/13	6010C	10/10/13	7440-22-4	Silver	0.3	0.3	U
3050B	10/09/13	6010C	10/10/13	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	ICP	IP101071	2000.0	2011.37	100.6	2000.0	2018.96	100.9	1997.98	99.9	1959.18	98.0	1961.51	98.1	1967.42	98.4
Cadmium	CD	ICP	IP101071	1000.0	1046.22	104.6	1000.0	1051.01	105.1	1040.36	104.0	1027.83	102.8	1024.03	102.4	1029.90	103.0
Chromium	CR	ICP	IP101071	1000.0	1047.25	104.7	1000.0	1051.70	105.2	1039.31	103.9	1043.99	104.4	1030.58	103.1	1027.33	102.7
Copper	CU	ICP	IP101071	1000.0	1018.55	101.9	1000.0	1023.44	102.3	1019.10	101.9	1020.68	102.1	1014.12	101.4	1011.83	101.2
Lead	PB	ICP	IP101071	2000.0	1993.62	99.7	2000.0	2006.79	100.3	1985.78	99.3	1959.28	98.0	1957.63	97.9	1970.63	98.5
Mercury	HG	CVA	HG101002	8.0	8.04	100.5	4.0	4.10	102.5	4.09	102.3						
Silver	AG	ICP	IP101071	1000.0	996.78	99.7	1000.0	1008.07	100.8	1007.80	100.8	1011.38	101.1	1006.51	100.7	1009.91	101.0
Zinc	ZN	ICP	IP101071	1000.0	1004.58	100.5	1000.0	1014.28	101.4	997.44	99.7	993.32	99.3	982.69	98.3	983.35	98.3

XI87: 09150

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	ICP	IP101071	2000.0	1957.33	97.9	1941.83	97.1	1952.98	97.6	1963.17	98.2	1973.34	98.7		
Cadmium	CD	ICP	IP101071	1000.0	1020.07	102.0	1011.99	101.2	1022.17	102.2	1024.61	102.5	1028.67	102.9		
Chromium	CR	ICP	IP101071	1000.0	1016.60	101.7	1018.53	101.9	1032.29	103.2	1021.31	102.1	1044.03	104.4		
Copper	CU	ICP	IP101071	1000.0	1008.48	100.8	1008.85	100.9	1009.89	101.0	1010.11	101.0	1012.64	101.3		
Lead	PB	ICP	IP101071	2000.0	1949.53	97.5	1940.61	97.0	1951.21	97.6	1962.96	98.1	1971.42	98.6		
Mercury	HG	CVA	HG101002	4.0												
Silver	AG	ICP	IP101071	1000.0	1007.43	100.7	1004.90	100.5	1005.81	100.6	1006.31	100.6	1012.58	101.3		
Zinc	ZN	ICP	IP101071	1000.0	967.15	96.7	974.20	97.4	988.90	98.9	978.41	97.8	1001.44	100.1		

XI87:00151

Control Limits: Mercury 80-120; Other Metals 90-110

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Arsenic	AS	ICP	IP101071	50.0	49.40	98.8	47.86	95.7	46.84	93.7						
Cadmium	CD	ICP	IP101071	2.0	2.07	103.5	2.22	111.0	2.15	107.5						
Chromium	CR	ICP	IP101071	5.0	5.59	111.8	5.53	110.6	5.86	117.2						
Copper	CU	ICP	IP101071	2.0	2.08	104.0	2.51	125.5	2.45	122.5						
Lead	PB	ICP	IP101071	20.0	20.52	102.6	19.76	98.8	19.17	95.9						
Mercury	HG	CVA	HG101002	0.1	0.10	100.0										
Silver	AG	ICP	IP101071	3.0	3.16	105.3	3.04	101.3	3.01	100.3						
Zinc	ZN	ICP	IP101071	10.0	9.47	94.7	8.89	88.9	9.14	91.4						

XI87:00152

Control Limits: no control limits have been established by the EPA at this time.

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	ICP	IP101071	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Cadmium	CD	ICP	IP101071	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP101071	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP101071	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Lead	PB	ICP	IP101071	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Mercury	HG	CVA	HG101002	0.2	0.1	0.1	U	0.1	U	0.1	U						
Silver	AG	ICP	IP101071	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Zinc	ZN	ICP	IP101071	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

XI87:00153

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	ICP	IP101071	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U		
Cadmium	CD	ICP	IP101071	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U		
Chromium	CR	ICP	IP101071	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U		
Copper	CU	ICP	IP101071	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U		
Lead	PB	ICP	IP101071	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U		
Mercury	HG	CVA	HG101002	0.2	0.1												
Silver	AG	ICP	IP101071	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U		
Zinc	ZN	ICP	IP101071	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U		

XI87.001516

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

ICS SOURCE: I.V.

RUNID: IP101071

INSTRUMENT ID: OPTIMA ICP 2

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	203360.4	202959.2	**101.5**	200308.8	201337.7	**100.7**	200579.5	201877.2	**100.9**
Antimony		1000	-10.2	1003.4	**100.3**	-14.7	980.0	**98.0**	-13.6	988.2	**98.8**
Arsenic		1000	34.5	1053.5	**105.4**	38.3	1018.6	**101.9**	38.0	1028.3	**102.8**
Barium		1000	-0.3	1024.6	**102.5**	1.9	1041.5	**104.2**	1.2	1046.5	**104.7**
Beryllium		1000	0.1	973.9	**97.4**	0.0	937.6	**93.8**	0.0	947.8	**94.8**
Boron			17.6	5.8		15.2	4.3		17.3	4.5	
Cadmium		1000	-2.3	1048.9	**104.9**	-2.1	1020.2	**102.0**	-2.1	1031.2	**103.1**
Calcium	100000	100000	101299.6	101419.1	**101.4**	98496.9	99395.2	**99.4**	99078.4	99670.2	**99.7**
Chromium		1000	3.2	1024.6	**102.5**	1.4	1004.2	**100.4**	3.0	1015.4	**101.5**
Cobalt		1000	3.2	979.5	**98.0**	2.7	965.7	**96.6**	3.0	975.4	**97.5**
Copper		1000	-0.3	1034.1	**103.4**	0.3	1026.3	**102.6**	0.1	1021.2	**102.1**
Iron	200000	200000	199024.4	197801.3	**98.9**	185972.7	187571.9	**93.8**	188316.5	188805.0	**94.4**
Lead		1000	-12.1	958.2	**95.8**	-11.7	934.5	**93.5**	-11.1	944.4	**94.4**
Magnesium	100000	100000	103801.5	101124.1	**101.1**	102436.6	99818.7	**99.8**	103024.2	100051.1	**100.1**
Manganese		1000	-0.2	954.2	**95.4**	-0.4	913.6	**91.4**	-0.5	919.5	**92.0**
Molybdenum			6.4	6.1		5.9	6.4		6.4	5.9	
Nickel		1000	-1.7	964.2	**96.4**	0.4	960.6	**96.1**	-1.5	967.9	**96.8**
Potassium			14.2	-18.3		0.6	0.6		-2.2	-16.2	
Selenium		1000	29.2	1037.4	**103.7**	34.5	996.7	**99.7**	23.5	1013.5	**101.4**
Silicon			-9.1	-8.6		-5.3	-14.4		-11.0	-9.0	
Silver		1000	-1.6	1026.6	**102.7**	-1.3	1031.8	**103.2**	-1.5	1023.7	**102.4**
Sodium			25.0	14.5		20.5	7.8		18.9	10.7	
Strontium			5.3	5.4		5.3	5.3		5.3	5.3	
Thallium		1000	22.6	975.0	**97.5**	21.9	967.2	**96.7**	16.0	970.6	**97.1**
Tin			-7.2	-7.0		-8.4	-6.6		-8.2	-7.4	
Titanium			8.9	8.7		9.2	9.2		9.0	9.3	
Vanadium		1000	1.1	973.6	**97.4**	-0.4	966.1	**96.6**	0.6	962.6	**96.3**
Zinc		1000	-2.2	953.4	**95.3**	-3.1	930.2	**93.0**	-2.5	942.1	**94.2**

XI87:00155

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Arsenic	AS	ICP	OPTIMA ICP 2	197.20		10	50.0	4/1/2012	30000.0	6/10/2013
Cadmium	CD	ICP	OPTIMA ICP 2	228.80		5	2.0	4/1/2012	20000.0	6/10/2013
Chromium	CR	ICP	OPTIMA ICP 2	267.72		10	5.0	4/1/2012	100000.0	6/10/2013
Copper	CU	ICP	OPTIMA ICP 2	324.75		25	2.0	4/1/2012	40000.0	6/10/2013
Lead	PB	ICP	OPTIMA ICP 2	220.35		3	20.0	4/1/2012	300000.0	6/10/2013
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2012		
Silver	AG	ICP	OPTIMA ICP 2	328.07		10	3.0	4/1/2012	5000.0	6/10/2013
Zinc	ZN	ICP	OPTIMA ICP 2	213.86		20	10.0	4/1/2012	100000.0	6/10/2013

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

IEC DATE: 8/28/2013

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	13.5116900	0.0000000	0.0000000
Arsenic	188.98	0.0000000	0.0000000	0.0000000	0.0000000	0.1189220	0.0000000	-1.1562270	1.6205640	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	-0.0061620	0.0000000	-0.1808730	0.0000000	0.0000000	0.1270190
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.67	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	5.4930220	0.0000000	0.0000000	0.0000000	0.0000000	2.1037380	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.1385480	0.0000000	0.0000000	0.0114790
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0087760	0.0000000	0.0000000	0.0000000	0.0000000	-0.0448500
Cobalt	228.62	0.0000000	0.0000000	0.0906750	0.0000000	0.0000000	0.0000000	0.0000000	-0.0404570	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1617900	0.0000000	0.0000000	-0.0469400
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.0775070	0.0000000	0.0000000
Lead	220.35	-0.2924960	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1375770	-1.7455340	1.4164220	0.0554560
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.1033640	0.0000000	-1.6776030	-1.2063230	0.0000000	0.6336010
Manganese	257.61	0.0054660	0.0000000	0.0000000	0.0000000	0.0039450	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0131320	0.0000000	0.0000000	0.0494370	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0543800	0.0000000	0.5156780	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.7783440	0.0000000	-0.6443870	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	5.9719930	0.4226130	0.0000000	-0.1427340
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.0825120	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0849920	0.0000000	0.0000000	0.1906300	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.9208100	0.0000000	0.0601420
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0178620	0.0000000	0.0000000	-0.0659320	0.0000000	0.0000000

XI87-05157

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

IEC DATE: 8/28/2013

SDG: XI87

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.0000000	0.0000000	16.0812590	0.0000000	0.0000000	0.0000000	1.9531650	0.0000000	15.6704600	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.8263670	0.0000000	-3.8485090	0.0000000
Arsenic	188.98	0.0000000	0.0000000	3.4165090	0.0000000	0.0000000	0.0000000	-32.1596340	0.0000000	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.1266550	0.0000000	0.0000000	0.0000000	0.0000000	0.2235440	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0102770	0.0000000	0.2401990	0.0000000
Boron	249.67	0.0000000	0.0000000	-1.0759410	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	-0.9387840	0.0000000	0.0000000	0.0000000	0.0000000	0.0597550	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0820970	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.3212800	0.0000000
Cobalt	228.62	0.0000000	0.0000000	-0.1256200	0.1682020	0.0000000	0.0000000	1.7253070	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0045628	0.0000000	0.3004190	0.0000000	0.0000000	0.0000000	0.1851800	0.0000000	0.0000000	0.0000000
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	7.2530080	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	279.08	0.0000000	0.0000000	-5.2138260	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0021200	0.0000000	0.0000000	0.0000000	-0.1832430	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.5439300	0.0000000	0.4201630	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.5911140	0.0000000
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.2887870	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	287.1603720	0.0000000	0.0000000	306.9999840
Thallium	190.80	0.0000000	0.0000000	-1.5891790	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	3.6439390	0.0000000
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.0384380	-0.4873020	-0.2074990	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.9474070	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	-0.1525200	-0.5409400	0.0000000	0.0000000	0.0000000	0.5527510	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.2376970	0.0000000	-0.0608720	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

XI87:00153

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

ANALYSIS METHOD: ICP

ARI PREP CODE: SWC

PREPDATE: 10/9/2013

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
VANBURENPIT-100713	XI87A	1.028	0.0	50.0
VANBURENPIT-100713D	XI87ADUP	1.024	0.0	50.0
VANBURENPIT-100713S	XI87ASPK	1.024	0.0	50.0
PBS	XI87MB1	1.000	0.0	50.0
LCSS	XI87MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter

SDG: XI87

ANALYSIS METHOD: CVA

ARI PREP CODE: SMM

PREPDATE: 10/9/2013

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
VANBURENPIT-100713	XI87A	0.229	0.0	50.0
VANBURENPIT-100713D	XI87ADUP	0.229	0.0	50.0
VANBURENPIT-100713S	XI87ASPK	0.227	0.0	50.0
PBS	XI87MB1	0.200	0.0	50.0
LCSW	XI87MB1SPK	0.200	0.0	50.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 10/10/2013

SDG: XI87 | RUNID: IP101071 | METHOD: ICP | END DATE: 10/10/2013

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	08484		X		X					X		X	X									X									X
S2	S2	1.00	08525									X		X	X																		
S3	S3	1.00	08544		X		X																	X									X
S4	S4	1.00	08571																														
S5	S5	1.00	08592																														
ICV	ICV	1.00	09073		X		X					X		X	X									X									X
ICB	ICB	1.00	09112		X		X					X		X	X									X									X
CRI	CRII	1.00	09153		X		X					X		X	X									X									X
ICSA	ICSAI	1.00	09193		X		X					X		X	X									X									X
ICSAB	ICSABI	1.00	09235		X		X					X		X	X									X									X
CCV	CCV1	1.00	09284		X		X					X		X	X									X									X
CCB	CCB1	1.00	09322		X		X					X		X	X									X									X
ZZZZZZ	XI44MB1	2.00	09362																														
ZZZZZZ	XI44A-L	10.00	09404																														
ZZZZZZ	XI44A	2.00	09444																														
ZZZZZZ	XI44ADUP	2.00	09485																														
ZZZZZZ	XI44ASPK	2.00	09531																														
ZZZZZZ	ZZZZZZ	2.00	09571																														
ZZZZZZ	XI44B	2.00	10011																														
ZZZZZZ	XI44C	2.00	10053																														
ZZZZZZ	XI44D	2.00	10093																														
ZZZZZZ	XI44MB1SPK	2.00	10133																														
CCV	CCV2	1.00	10173		X		X					X		X	X									X									X
CCB	CCB2	1.00	10211		X		X					X		X	X									X									X
ZZZZZZ	XI45MB1	2.00	10253																														
ZZZZZZ	XI44E	2.00	10295																														
ZZZZZZ	XI44F	2.00	10335																														
ZZZZZZ	XI44G	2.00	10380																														
ZZZZZZ	XI45A-L	10.00	10420																														
ZZZZZZ	XI45A	2.00	10460																														
ZZZZZZ	XI45ADUP	2.00	10500																														
ZZZZZZ	XI45ASPK	2.00	10540																														
ZZZZZZ	ZZZZZZ	2.00	10575																														
ZZZZZZ	XI45MB1SPK	2.00	11013																														
CCV	CCV3	1.00	11053		X		X					X		X	X									X									X

FORM XIV

XI87:09151

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 10/10/2013

SDG: XI87 | RUNID: IP101071 | METHOD: ICP | END DATE: 10/10/2013

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB3	1.00	11092		X		X					X		X	X									X									X
ZZZZZZ	XI45B	2.00	11134																														
ZZZZZZ	XI45C	2.00	11175																														
ZZZZZZ	XI45D	2.00	11215																														
ZZZZZZ	XI45E	2.00	11255																														
ZZZZZZ	XI45F	2.00	11295																														
ZZZZZZ	XI45G	2.00	11335																														
ZZZZZZ	XI45H	2.00	11375																														
CCV	CCV4	1.00	11415		X		X					X		X	X									X									X
CCB	CCB4	1.00	11454		X		X					X		X	X									X									X
CRI	CRIF	1.00	11500		X		X					X		X	X									X									X
ICSA	ICSAF	1.00	11541		X		X					X		X	X									X									X
ICSAB	ICSABF	1.00	11583		X		X					X		X	X									X									X
CCV	CCV5	1.00	12032		X		X					X		X	X									X									X
CCB	CCB5	1.00	12070		X		X					X		X	X									X									X
ZZZZZZ	XI45MB2	1.00	12112																														
ZZZZZZ	XI45I-L	5.00	12154																														
ZZZZZZ	XI45I	1.00	12195																														
ZZZZZZ	XI45IDUP	1.00	12235																														
ZZZZZZ	XI45ISPK	1.00	12280																														
ZZZZZZ	ZZZZZZ	1.00	12320																														
ZZZZZZ	XI45MB2SPK	1.00	12360																														
CCV	CCV6	1.00	12400		X		X					X		X	X									X									X
CCB	CCB6	1.00	12435		X		X					X		X	X									X									X
ZZZZZZ	XI46MB1	2.00	12481																														
ZZZZZZ	XI46A-L	10.00	12522																														
ZZZZZZ	XI46A	2.00	12562																														
ZZZZZZ	XI46ADUP	2.00	13002																														
ZZZZZZ	XI46ASPK	2.00	13042																														
ZZZZZZ	ZZZZZZ	2.00	13082																														
ZZZZZZ	XI46B	2.00	13122																														
ZZZZZZ	XI46C	2.00	13162																														
ZZZZZZ	XI46D	2.00	13203																														
ZZZZZZ	XI46MB1SPK	2.00	13245																														
CCV	CCV7	1.00	13285		X		X					X		X	X									X									X

FORM XIV

XI87:00162

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 10/10/2013

SDG: XI87 | RUNID: IP101071 | METHOD: ICP | END DATE: 10/10/2013

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCB	CCB7	1.00	13324		X		X					X		X	X									X									X
ZZZZZZ	XI46MB2	1.00	13365																														
ZZZZZZ	XI46E	2.00	13411																														
ZZZZZZ	XI46F-L	5.00	13452																														
ZZZZZZ	XI46F	1.00	13494																														
ZZZZZZ	XI46FDUP	1.00	13534																														
ZZZZZZ	XI46FSPK	1.00	13575																														
ZZZZZZ	XI46FPOST	1.00	14015																														
ZZZZZZ	XI46MB2SPK	1.00	14055																														
CCV	CCV8	1.00	14095		X		X					X		X	X									X									X
CCB	CCB8	1.00	14134		X		X					X		X	X									X									X
ZZZZZZ	XI46FDUP	1.00	14175																														
ZZZZZZ	B1	1.00	14221																														
CRI	CRIF1	1.00	14262		X		X					X		X	X									X									X
ICSA	ICSAF1	1.00	14304		X		X					X		X	X									X									X
ICSAB	ICSABF1	1.00	14345		X		X					X		X	X									X									X
CCV	CCV9	1.00	14394		X		X					X		X	X									X									X
CCB	CCB9	1.00	14433		X		X					X		X	X									X									X
PBS	XI87MB1	2.00	14474		X		X					X		X	X									X									X
VANBURENPIT-100713D	XI87ADUP	2.00	14520		X		X					X		X	X									X									X
VANBURENPIT-100713	XI87A	2.00	14560		X		X					X		X	X									X									X
VANBURENPIT-100713S	XI87ASPK	2.00	15000		X		X					X		X	X									X									X
ZZZZZZ	ZZZZZZ	2.00	15035																														
LCSS	XI87MB1SPK	2.00	15073		X		X					X		X	X									X									X
CCV	CCV10	1.00	15113		X		X					X		X	X									X									X
CCB	CCB10	1.00	15152		X		X					X		X	X									X									X

XI87:00163

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: GeoEngineers

PROJECT: R.G Haley Site Inter | INSTRUMENT ID: CETAC MERCURY | START DATE: 10/10/2013

SDG: XI87 | RUNID: HG101002 | METHOD: CVA | END DATE: 10/10/2013

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10085														X																
S0.1	S0.1	1.00	10102														X																
S0.5	S0.5	1.00	10120														X																
S1	S1	1.00	10134														X																
S2	S2	1.00	10151														X																
S5	S5	1.00	10165														X																
S10	S10	1.00	10183														X																
ICV	AICV	1.00	10210														X																
ICB	ICB	1.00	10225														X																
CCV	ACCV1	1.00	10243														X																
CCB	CCB1	1.00	10261														X																
CRA	CRA	1.00	10274														X																
PBW	XI87MB1	1.00	10292														X																
LCSW	XI87MB1SPK	1.00	10310														X																
VANBURENPIT-100713	XI87A	1.00	10323														X																
VANBURENPIT-100713D	XI87ADUP	1.00	10341														X																
VANBURENPIT-100713S	XI87ASPK	1.00	10354														X																
ZZZZZZ	XI28MB1	1.00	10372																														
ZZZZZZ	XI28MB1SPK	1.00	10390																														
ZZZZZZ	XI28A	1.00	10404																														
ZZZZZZ	XI28ADUP	1.00	10421																														
CCV	ACCV2	1.00	10435														X																
CCB	CCB2	1.00	10453														X																

XI87:00161

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SPIKING LOG

Analyst: CB

Date: 10-9-13

Final Volume 50.0

Final Volume (Hg): 50.0

Sample ID XI87 ASPK, aBLSPK

		Prepcode:	SMC		
		Spike Solution:	ICP Routine	ICP No GFA	GFA
		Standard No.:	B507		
		Vol Added (mL):	1.0		
STOCK CONCENTRATION	Ag		50 ↓		2.0
	Al		200	200	
	As		200 ↓		10
	Ba		200	200	
	Be		50	50	
	Ca		1000	1000	
	Cd		50 ↓		2.0
	Co		50	50	
	Cr		50 ↓	50	
	Cu		50 ↓	50	
	Fe		200	200	
	K		1000	1000	
	Mg		1000	1000	
	Mn		50	50	
	Na		1000	1000	
	Ni		50	50	
	Pb		200 ↓		10
	Se		200		10
	Sr		50	50	
	Tl		200		10
	V		50	50	
	Zn		50 ↓	50	

	ICP-MS #1	ICP-MS #2	ICP-MS Minerals
Ag	25		
Al			500
As	25		
Ba	25		
Be	25		
Ca			500
Cd	25		
Co	25		
Cr	25		
Cu	25		
Fe			500
K			500
Mg			500
Mn	25		
Mo		25	
Na			500
Ni	25		
Pb	25		
Sb		25	
Se	80		
Tl	25		
U	25		
V	25		
Zn	80		

Element	Prepcode	Analysis	Stock Conc.	Stock Added	Std No.
Hg	SMN	CVA	1.0	0.09	300)-(3
Hg MBSPK	↓	CVA	1.0	0.10	↓
Sb		ICP	2000		
Sb		GFA	100		
B		ICP	500		
Mo		ICP	500		
Si		ICP	10000		
Sn		ICP	500		
Ti		ICP	2000		

Additional Elements:

Element	Prepcode	Analysis	Stock Conc.	Stock Added	Std. No.

XI987 : 09165

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Digestion Log

Analyst: CB Date: 10-9-13 Time: 0835

Matrix: Soil Block ID: #5 Block Temp: 95°C Thermometer: mp44

ARI Sample ID	Btl #	pH<2	Prep Code: SWC Initial Wt (g) ~~Vol (mL)~~	Prep Code: SWC Final Vol (mL)	Prep Code: Initial Wt (g) Vol (mL)	Prep Code: Final Vol (mL)	Comments
XS87 A	4	-	1.028	50.0			
" Alo	4	-	1.024	↓			
" Aso4	4	-	1.024				
" mAl	-	-	-				
" mBisol	-	-	-	50.0			
				CB 10-9-13			

Chemical/Reagent ID: HNO3: mp5555 B1445 H2O2: 28133 HCL: 28213 Tube lot #: 1303205

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Mercury Digestion Log

Prep Code: 5mm Matrix: Soil

Analyst: CB Date: 10-09-13

Bath Temp: 95°C Start Time: 0920 End Time: 0950

ARI Sample ID	Sample Bottle #	pH<2	Initial Weight (g) Volume (mL)	Final Volume (mL)	# $KMnO_4$ Aliquots	CLP	Comments
XE87 A	4	-	0.229	5c.c	10/12 1	Y	
" AdUp	4	-	0.229		1		
" AsPK	4	-	0.227		1		
" mBl	-	-	-		1		
" mBlSpk	-	-	-		1		
XE28 A	1	-	0.200		10/14 1		
" Ad-p	1	-	0.205		1		
" AsPK	1	-	0.205		1		
" B	1	-	0.237		1		
" C	1	-	0.203		1		
" D	1	-	0.238		1		
" E	1	-	0.247		1		
" F	1	-	0.212		1		
" G	1	-	0.287		1		
" H	1	-	0.280		1		
" mBl	-	-	-		1		
" mBlSpk	-	-	-	5c.c	1	Y	

(B 10-09-13)

Chemical/Reagent ID:

HNO_3: I8272 H_2SO_4: I8044 HCl: -

5% $K_2S_2O_8$: MP2551 5% $KMnO_4$: MP2552 Digest Tube Lot: 1303205

X187:00167

ANALYTICAL RESOURCES INCORPORATED

Metals Data Review Checklist

Method: (ICP) ICP-MS GFA CVA **Analysis Date:** 10-10-13

ICB2	Analyst BA 10-11-13	Peer 10-11-13	Comment
Logbook			
Analyst, Date, Method info	✓	✓	
Sample ID's	✓	✓	
Standard/QC solution ID's recorded	✓	✓	
Prep codes	✓	✓	
Dilution factors	✓	✓	
Crossouts/Corrections/Deletions	✓	✓	
Calibration			
Blank & Standard intensities	✓	✓	
Standard deviations	✓	✓	
Curve fit	✓	✓	
Calibration Verification			
ICV/CCV	✓	✓	
ICB/CCB	✓	✓	
Samples			
RSD's & SD's	✓	✓	Sw log ↓
Internal Standards	✓	✓	
Carry-over	✓	✓	
Method QC			
CRI/CRA	✓	✓	
ICSA/ICSAB	✓	✓	
Post Spikes/Serial Dilutions	✓	✓	
Analytic Spikes	—	—	
Matrix QC			
SRM/LCS	✓	✓	
Matrix Spikes	✓	✓	
Matrix Duplicates	✓	✓	XI46
Method Blanks	✓	✓	XI45, XI46
Data Distribution			
Requested elements/isotope identified	✓	✓	
Correct samples identified for distribution	✓	✓	
Raw data match distributed data	✓	✓	
Data filename correct	✓	✓	
Necessary Analytic Notes and CAF's	✓	✓	CAF - XI45, XI46

XI87.00168

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7500
Serial No. – 077C8121202

IEC Date: 8-28-13 Analysis Date: 10-10-13 Analyst: BA

LR Date: 6-10-13 Page: 1 of 4

All corrections made by analyst unless otherwise noted. BA 10-10-13

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		STD 0			B2039
		2			B2060
		3			B2061
		4			B2062
		5			B2063
		ICV			B1565
		ICB			
		CRI			
		ICSA			
		ICSAB			
		CCV1			
		CCB1			
		XI44 MB1	SWC	2	
		A-L		10	
		A		2	
		ADUP			
		ASPK			
ZZZ		ZZZZZZ APOST			
		B			
		C			
		D			
		MB1SPK			
		CCV2			
		CCB2			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7500
Serial No. – 077C8121202

IEC Date: — Analysis Date: 10-10-13 Analyst: BA

LR Date: — Page: 2 of 4

All corrections made by analyst unless otherwise noted. BA 10-10-13

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		XI45 MBI	SWC	2	
		XI44 E			
		F			
		G			
		XI45 A-L		10 ✓	
		A		2	
		ADUP		✓	Pb ↑ RPD (CAF)
		ASPK		✓	
zzz		~~APOST~~ zzzzzz			
		MBISPK		✓	
		CCV3			
		CCB3			
		XI45 B	SWC	2	Ni, Zn sl. noisy
		C			
		D			
		E			
		F			
		G			
		H			
		CCV4			
		CCB4			
		CRI			
		ICSA			
		ICSAB			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7500
Serial No. – 077C8121202

IEC Date: — Analysis Date: 10-10-13 Analyst: BA

LR Date: — Page: 3 of 4

All corrections made by analyst unless otherwise noted. BA 10-10-13

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		CCV5			
		CCB5			End XI44
		XI45 MB2	TWC		
		I-L		5 ✓	
		I			
		IDUP		✓	
		ISPK		✓	
zzz		zzzzzz ~~IPOST~~			
		MB2SPK		✓	
		CCV6			
		CCB6			
		XI46 MB1	SWC	2	
		A-L		10 ✓	
		A		2	
		ADUP		✓	
		ASPK		✓	
zzz		zzzzzz ~~APOST~~			
		B			
		C			
		D			
		MB1SPK		✓	
		CCV7			
		CCB7			
		XI46 MB2	TWC		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7500
Serial No. – 077C8121202

IEC Date: – Analysis Date: 10-10-13 Analyst: BA

LR Date: – Page: 4 of 4

All corrections made by analyst unless otherwise noted. BA 10-10-13

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		XI46 E	SWC	2	
		F-L	TWC	5	✓
		F			
	✓	FDUP			✗
		FSPK			✓ Scr noisy
		FPOST			✓ Cr, Ni ↓ → CAF
		MB2SPK			✓ 0.05 mL ICP Spk B507 Cr, Ni OK
		CCV8			
		CCB8			
		XI46 FDUP	TWC		✓ Cr, Cu, Ni, Zn > IRL
		BI			
		CRI			
		ICSA			
		ICSAB			
		CCV9			
		CCB9			End XI45, XI46
		XI87 MBI	SWC	2	✓
		ADUP			
		A			✓
		ASPK			
zzz		~~APOST~~ zzzzzz			✓
		MBISPK			
		CCV10			
		CCB10			End Pkg (XI87)

X187:00172

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

10/10/2013 8:23:11 AM Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): -0.000 Slit adjustment: 0

Analysis Begun

Start Time: 10/10/2013 8:25:32 AM
Logged In Analyst: Metals
Spectrometer: Optima 7300 DV, S/N 077C8121202
Plasma On Time: 10/10/2013 7:32:52 AM
Technique: ICP Continuous
Autosampler: ESI

Sample Information File: C:\pe\metals\Sample Information\BLKS.sif
Batch ID:
Results Data Set: I2131010
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

Method Loaded
Method Name: 7300bcESI2FAST
IEC File: IEC061013A.iec
Method Description: 12Axial Elements
Method Last Saved: 8/13/2012 7:13:22 AM
MSF File:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Al 308.215	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Be 313.042	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ca 317.933	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cd 228.802	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Fe 273.955	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
K 766.490	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Mg 279.077	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mn 257.610	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Na 589.592	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Na 330.237	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ni 231.604	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Se 196.026	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Si 288.158	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Ti 334.903	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Zn 206.200	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
ScA 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a
ScR 361.383	Lin, Calc Int	Peak Area	Radial	n/a	n/a

Sequence No.: 1
Sample ID: B1
Autosampler Location: 1
Date Collected: 10/10/2013 8:25:38 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: B1

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

BA
10/10/13

XI87:00173

Analysis Begun

Start Time: 10/10/2013 8:48:39 AM
Logged In Analyst: Metals
Spectrometer: Optima 7300 DV, S/N 077C8121202
Plasma On Time: 10/10/2013 7:32:52 AM
Technique: ICP Continuous
Autosampler: ESI

Sample Information File: C:\pe\metals\Sample Information\1010.sif
Batch ID:
Results Data Set: I2131010
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

Sequence No.: 1
Sample ID: Calib Blank 1
Autosampler Location: 1
Date Collected: 10/10/2013 8:48:41 AM
Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2267463.4	14092.64	0.62%	100.0	%
ScR 361.383	258188.1	1825.37	0.71%	100.0	%
Ag 328.068†	25.3	34.53	136.38%	[0.00]	mg/L
Al 308.215†	118.4	5.29	4.47%	[0.00]	mg/L
As 188.979†	-1.8	2.49	135.80%	[0.00]	mg/L
B 249.677†	-56.7	4.81	8.48%	[0.00]	mg/L
Ba 233.527†	-5.1	4.13	81.20%	[0.00]	mg/L
Be 313.042†	497.2	10.12	2.04%	[0.00]	mg/L
Ca 317.933†	-23.1	12.76	55.22%	[0.00]	mg/L
Cd 228.802†	186.6	2.58	1.38%	[0.00]	mg/L
Co 228.616†	-123.4	4.46	3.62%	[0.00]	mg/L
Cr 267.716†	-70.9	4.50	6.35%	[0.00]	mg/L
Cu 324.752†	2834.4	42.19	1.49%	[0.00]	mg/L
Fe 273.955†	-35.2	1.76	5.00%	[0.00]	mg/L
K 766.490†	193.1	27.18	14.08%	[0.00]	mg/L
Mg 279.077†	77.2	3.33	4.31%	[0.00]	mg/L
Mn 257.610†	61.7	2.13	3.45%	[0.00]	mg/L
Mo 202.031†	82.2	2.82	3.43%	[0.00]	mg/L
Na 589.592†	-454.6	21.22	4.67%	[0.00]	mg/L
Na 330.237†	35.1	14.59	41.54%	[0.00]	mg/L
Ni 231.604†	27.7	1.33	4.81%	[0.00]	mg/L
Pb 220.353†	-35.2	6.96	19.78%	[0.00]	mg/L
Sb 206.836†	4.9	4.70	94.91%	[0.00]	mg/L
Se 196.026†	-60.4	3.64	6.04%	[0.00]	mg/L
Si 288.158†	23.6	3.99	16.89%	[0.00]	mg/L
Sn 189.927†	-18.8	4.34	23.10%	[0.00]	mg/L
Sr 421.552†	279.6	18.36	6.57%	[0.00]	mg/L
Ti 334.903†	-14.5	5.81	40.04%	[0.00]	mg/L
Tl 190.801†	-24.3	6.59	27.18%	[0.00]	mg/L
V 292.402†	80.0	17.47	21.84%	[0.00]	mg/L
Zn 206.200†	-16.0	3.03	18.95%	[0.00]	mg/L

Sequence No.: 2
Sample ID: STD2
Autosampler Location: 2
Date Collected: 10/10/2013 8:52:55 AM
Data Type: Original

Nebulizer Parameters: STD2

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: STD2

Analyte	Mean Corrected	Calib

Analyte	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2291971.6	18558.26	0.81%	101.1	%
ScR 361.383	260994.8	920.69	0.35%	101.1	%
Ba 233.527†	45758.9	252.54	0.55%	[10]	mg/L
Cd 228.802†	189828.4	525.16	0.28%	[10]	mg/L
Co 228.616†	269440.8	690.38	0.26%	[10]	mg/L
Cr 267.716†	59946.0	113.55	0.19%	[10]	mg/L
Cu 324.752†	2182457.8	3687.48	0.17%	[10]	mg/L
Mn 257.610†	415965.6	1146.31	0.28%	[10]	mg/L
V 292.402†	1179886.9	2896.39	0.25%	[10]	mg/L

Sequence No.: 3
Sample ID: STD3

Autosampler Location: 3
Date Collected: 10/10/2013 8:54:41 AM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: STD3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Units
ScA 357.253	2251636.1	23163.04	1.03%	99.30	%
ScR 361.383	253377.6	1364.54	0.54%	98.14	%
Ag 328.068†	191118.8	1265.28	0.66%	[1.0]	mg/L
As 188.979†	11339.6	44.07	0.39%	[10]	mg/L
B 249.677†	53005.4	690.91	1.30%	[10]	mg/L
Be 313.042†	2349721.2	13121.66	0.56%	[5.0]	mg/L
Na 589.592†	560674.8	1123.62	0.20%	[50]	mg/L
Ni 231.604†	27029.9	392.57	1.45%	[10]	mg/L
Pb 220.353†	65074.4	285.33	0.44%	[10]	mg/L
Se 196.026†	13013.7	68.87	0.53%	[10]	mg/L
Sr 421.552†	3654672.1	17496.50	0.48%	[5]	mg/L
Tl 190.801†	13656.6	76.82	0.56%	[10]	mg/L
Zn 206.200†	35271.3	386.72	1.10%	[10]	mg/L

Sequence No.: 4
Sample ID: STD4

Autosampler Location: 4
Date Collected: 10/10/2013 8:57:14 AM
Data Type: Original

Nebulizer Parameters: STD4

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: STD4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Units
ScA 357.253	2267310.8	9410.62	0.42%	99.99	%
ScR 361.383	257463.7	3351.63	1.30%	99.72	%
Mo 202.031†	148183.1	1382.65	0.93%	[10]	mg/L
Sb 206.836†	21716.9	159.59	0.73%	[10]	mg/L
Si 288.158†	10902.8	138.06	1.27%	[10]	mg/L
Sn 189.927†	40901.6	497.89	1.22%	[10]	mg/L
Ti 334.903†	194989.1	424.11	0.22%	[10]	mg/L

Sequence No.: 5
Sample ID: STD5

Autosampler Location: 5
Date Collected: 10/10/2013 8:59:29 AM
Data Type: Original

Nebulizer Parameters: STD5

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: STD5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2141064.8	7619.86	0.36%	94.43	%
ScR 361.383	260526.0	2313.12	0.89%	100.9	%
Al 308.215†	26084.7	251.10	0.96%	[30]	mg/L
Ca 317.933†	215805.7	1839.28	0.85%	[30]	mg/L
Fe 273.955†	99297.9	1155.58	1.16%	[100]	mg/L
K 766.490†	160514.7	1393.89	0.87%	[100]	mg/L
Mg 279.077†	20988.9	167.18	0.80%	[30]	mg/L
Na 330.237†	2362.0	31.88	1.35%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	191100	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	869.5	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	1134	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	5301	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	4576	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	469900	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	7194	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	18980	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	26940	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	5995	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	218200	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	993.0	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	1605	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	699.6	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	41600	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	14820	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	11210	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	23.62	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	2703	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	6507	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	2172	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1301	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	1090	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	4090	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	730900	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	19500	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	1366	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	118000	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	3527	0.00000	1.000000	

Analysis Begun

Start Time: 10/10/2013 9:07:31 AM
Logged In Analyst: Metals
Spectrometer: Optima 7300 DV, S/N 077C8121202

Plasma On Time: 10/10/2013 7:32:52 AM
Technique: ICP Continuous
Autosampler: ESI

Sample Information File: C:\pe\metals\Sample Information\1010.sif
Batch ID:
Results Data Set: I2131010
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

Sequence No.: 1
Sample ID: ICV

Autosampler Location: 7
Date Collected: 10/10/2013 9:07:32 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2262297.5	99.77	%	0.549				0.55%
ScR 361.383	255329.7	98.89	%	1.003				1.01%
Ag 328.068†	190449.4	0.9968	mg/L	0.00153	0.9968	mg/L	0.00153	0.15%
Al 308.215†	1842.1	2.085	mg/L	0.0125	2.085	mg/L	0.0125	0.60%
As 188.979†	2249.2	2.011	mg/L	0.0065	2.011	mg/L	0.0065	0.33%
B 249.677†	5347.1	1.008	mg/L	0.0078	1.008	mg/L	0.0078	0.78%
Ba 233.527†	4725.0	1.032	mg/L	0.0045	1.032	mg/L	0.0045	0.44%
Be 313.042†	464051.2	0.9872	mg/L	0.00505	0.9872	mg/L	0.00505	0.51%
Ca 317.933†	15031.0	2.090	mg/L	0.0197	2.090	mg/L	0.0197	0.94%
Cd 228.802†	20052.8	1.046	mg/L	0.0040	1.046	mg/L	0.0040	0.38%
Co 228.616†	27419.1	1.016	mg/L	0.0031	1.016	mg/L	0.0031	0.31%
Cr 267.716†	6280.3	1.047	mg/L	0.0103	1.047	mg/L	0.0103	0.98%
Cu 324.752†	222344.3	1.019	mg/L	0.0017	1.019	mg/L	0.0017	0.17%
Fe 273.955†	2069.7	2.078	mg/L	0.0262	2.078	mg/L	0.0262	1.26%
K 766.490†	32369.4	20.17	mg/L	0.063	20.17	mg/L	0.063	0.31%
Mg 279.077†	1424.2	2.042	mg/L	0.0271	2.042	mg/L	0.0271	1.33%
Mn 257.610†	40976.8	0.9854	mg/L	0.00686	0.9854	mg/L	0.00686	0.70%
Mo 202.031†	14755.5	0.9957	mg/L	0.00368	0.9957	mg/L	0.00368	0.37%
Na 589.592†	558996.1	49.85	mg/L	0.167	49.85	mg/L	0.167	0.34%
Na 330.237†	1257.6	53.22	mg/L	0.400	53.22	mg/L	0.400	0.75%
Ni 231.604†	2750.2	1.018	mg/L	0.0084	1.018	mg/L	0.0084	0.83%
Pb 220.353†	12966.6	1.994	mg/L	0.0064	1.994	mg/L	0.0064	0.32%
Sb 206.836†	4472.1	2.059	mg/L	0.0023	2.059	mg/L	0.0023	0.11%
Se 196.026†	2610.9	2.005	mg/L	0.0109	2.005	mg/L	0.0109	0.54%
Si 288.158†	2256.1	2.074	mg/L	0.0163	2.074	mg/L	0.0163	0.79%
Sn 189.927†	4038.7	0.9889	mg/L	0.00407	0.9889	mg/L	0.00407	0.41%
Sr 421.552†	727445.6	0.9952	mg/L	0.00369	0.9952	mg/L	0.00369	0.37%
Ti 334.903†	19424.1	0.9948	mg/L	0.00298	0.9948	mg/L	0.00298	0.30%
Tl 190.801†	2805.2	2.046	mg/L	0.0041	2.046	mg/L	0.0041	0.20%
V 292.402†	116344.3	0.9902	mg/L	0.00174	0.9902	mg/L	0.00174	0.18%
Zn 206.200†	3542.3	1.005	mg/L	0.0090	1.005	mg/L	0.0090	0.90%

Sequence No.: 2
Sample ID: ICB

Autosampler Location: 1
Date Collected: 10/10/2013 9:11:20 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2320916.5	102.4	%	0.49				0.48%
ScR 361.383	261752.7	101.4	%	0.22				0.22%
Ag 328.068†	61.3	0.00032	mg/L	0.000276	0.00032	mg/L	0.000276	85.98%
Al 308.215†	-3.3	-0.00383	mg/L	0.002875	-0.00383	mg/L	0.002875	75.11%
As 188.979†	-1.2	-0.00097	mg/L	0.000887	-0.00097	mg/L	0.000887	91.75%
B 249.677†	12.6	0.00238	mg/L	0.001124	0.00238	mg/L	0.001124	47.13%
Ba 233.527†	5.7	0.00124	mg/L	0.000863	0.00124	mg/L	0.000863	69.72%
Be 313.042†	36.1	0.00008	mg/L	0.000046	0.00008	mg/L	0.000046	59.72%
Ca 317.933†	4.2	0.00059	mg/L	0.001202	0.00059	mg/L	0.001202	204.83%
Cd 228.802†	-2.0	-0.00010	mg/L	0.000160	-0.00010	mg/L	0.000160	158.49%
Co 228.616†	3.9	0.00014	mg/L	0.000111	0.00014	mg/L	0.000111	78.46%
Cr 267.716†	2.0	0.00034	mg/L	0.000413	0.00034	mg/L	0.000413	122.48%
Cu 324.752†	15.1	0.00007	mg/L	0.000078	0.00007	mg/L	0.000078	114.00%
Fe 273.955†	-2.0	-0.00199	mg/L	0.001172	-0.00199	mg/L	0.001172	59.00%
K 766.490†	-24.3	-0.01515	mg/L	0.016144	-0.01515	mg/L	0.016144	106.59%
Mg 279.077†	0.7	0.00103	mg/L	0.006420	0.00103	mg/L	0.006420	621.56%
Mn 257.610†	0.9	0.00002	mg/L	0.000023	0.00002	mg/L	0.000023	105.09%
Mo 202.031†	13.5	0.00091	mg/L	0.000105	0.00091	mg/L	0.000105	11.55%
Na 589.592†	86.8	0.00774	mg/L	0.008075	0.00774	mg/L	0.008075	104.37%
Na 330.237†	6.1	0.2567	mg/L	0.16207	0.2567	mg/L	0.16207	63.13%
Ni 231.604†	-3.8	-0.00142	mg/L	0.002502	-0.00142	mg/L	0.002502	176.23%
Pb 220.353†	-0.9	-0.00014	mg/L	0.000447	-0.00014	mg/L	0.000447	320.31%
Sb 206.836†	10.4	0.00481	mg/L	0.001152	0.00481	mg/L	0.001152	23.96%
Se 196.026†	-2.4	-0.00182	mg/L	0.002238	-0.00182	mg/L	0.002238	122.85%
Si 288.158†	10.1	0.00931	mg/L	0.002760	0.00931	mg/L	0.002760	29.65%
Sn 189.927†	2.5	0.00062	mg/L	0.000943	0.00062	mg/L	0.000943	151.21%
Sr 421.552†	77.8	0.00011	mg/L	0.000035	0.00011	mg/L	0.000035	33.09%
Ti 334.903†	34.9	0.00179	mg/L	0.001154	0.00179	mg/L	0.001154	64.53%
Tl 190.801†	0.7	0.00054	mg/L	0.001917	0.00054	mg/L	0.001917	356.33%
V 292.402†	12.3	0.00011	mg/L	0.000107	0.00011	mg/L	0.000107	101.58%
Zn 206.200†	-0.4	-0.00011	mg/L	0.000120	-0.00011	mg/L	0.000120	113.26%

Sequence No.: 3
Sample ID: CRI

Autosampler Location: 301
Date Collected: 10/10/2013 9:15:35 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2276957.1	100.4	%	0.43				0.43%
ScR 361.383	260296.7	100.8	%	0.92				0.91%
Ag 328.068†	603.7	0.00316	mg/L	0.000291	0.00316	mg/L	0.000291	9.22%
Al 308.215†	42.6	0.04889	mg/L	0.009847	0.04889	mg/L	0.009847	20.14%
As 188.979†	55.8	0.04940	mg/L	0.002846	0.04940	mg/L	0.002846	5.76%
B 249.677†	113.4	0.02138	mg/L	0.001099	0.02138	mg/L	0.001099	5.14%
Ba 233.527†	17.5	0.00381	mg/L	0.000591	0.00381	mg/L	0.000591	15.53%
Be 313.042†	427.4	0.00091	mg/L	0.000031	0.00091	mg/L	0.000031	3.37%
Ca 317.933†	334.9	0.04655	mg/L	0.000556	0.04655	mg/L	0.000556	1.19%
Cd 228.802†	44.3	0.00207	mg/L	0.000278	0.00207	mg/L	0.000278	13.40%
Co 228.616†	81.0	0.00300	mg/L	0.000167	0.00300	mg/L	0.000167	5.58%
Cr 267.716†	33.5	0.00559	mg/L	0.001029	0.00559	mg/L	0.001029	18.42%
Cu 324.752†	454.4	0.00208	mg/L	0.000276	0.00208	mg/L	0.000276	13.26%
Fe 273.955†	50.0	0.05030	mg/L	0.001417	0.05030	mg/L	0.001417	2.82%
K 766.490†	749.0	0.4666	mg/L	0.01991	0.4666	mg/L	0.01991	4.27%
Mg 279.077†	35.9	0.05138	mg/L	0.006164	0.05138	mg/L	0.006164	12.00%
Mn 257.610†	33.3	0.00080	mg/L	0.000096	0.00080	mg/L	0.000096	11.91%
Mo 202.031†	77.1	0.00520	mg/L	0.000072	0.00520	mg/L	0.000072	1.38%
Na 589.592†	5611.9	0.5005	mg/L	0.00082	0.5005	mg/L	0.00082	0.16%
Na 330.237†	19.6	0.8273	mg/L	0.91598	0.8273	mg/L	0.91598	110.72%
Ni 231.604†	24.0	0.00888	mg/L	0.000922	0.00888	mg/L	0.000922	10.39%
Pb 220.353†	133.4	0.02052	mg/L	0.000981	0.02052	mg/L	0.000981	4.78%
Sb 206.836†	109.6	0.05049	mg/L	0.003889	0.05049	mg/L	0.003889	7.70%
Se 196.026†	60.4	0.04639	mg/L	0.003685	0.04639	mg/L	0.003685	7.94%
Si 288.158†	72.5	0.06652	mg/L	0.006373	0.06652	mg/L	0.006373	9.58%
Sn 189.927†	39.8	0.00977	mg/L	0.000891	0.00977	mg/L	0.000891	9.12%
Sr 421.552†	697.4	0.00095	mg/L	0.000059	0.00095	mg/L	0.000059	6.21%
Ti 334.903†	116.2	0.00595	mg/L	0.000409	0.00595	mg/L	0.000409	6.88%
Tl 190.801†	72.3	0.05292	mg/L	0.002173	0.05292	mg/L	0.002173	4.11%
V 292.402†	341.9	0.00292	mg/L	0.000130	0.00292	mg/L	0.000130	4.46%
Zn 206.200†	33.3	0.00947	mg/L	0.000671	0.00947	mg/L	0.000671	7.09%

Sequence No.: 4
Sample ID: ICSA

Autosampler Location: 302
Date Collected: 10/10/2013 9:19:36 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2243490.0	98.94	%	1.152				1.16%
ScR 361.383	256799.1	99.46	%	0.758				0.76%
Ag 328.068†	-297.1	-0.00155	mg/L	0.000346	-0.00155	mg/L	0.000346	22.33%
Al 308.215†	176820.3	203.4	mg/L	0.04	203.4	mg/L	0.04	0.02%
As 188.979†	52.1	0.03447	mg/L	0.004367	0.03447	mg/L	0.004367	12.67%
B 249.677†	93.1	0.01756	mg/L	0.001164	0.01756	mg/L	0.001164	6.63%
Ba 233.527†	111.6	-0.00026	mg/L	0.000907	-0.00026	mg/L	0.000907	344.99%
Be 313.042†	34.7	0.00007	mg/L	0.000027	0.00007	mg/L	0.000027	38.68%
Ca 317.933†	728701.0	101.3	mg/L	0.76	101.3	mg/L	0.76	0.75%
Cd 228.802†	5.1	-0.00227	mg/L	0.000083	-0.00227	mg/L	0.000083	3.64%
Co 228.616†	86.7	0.00319	mg/L	0.000218	0.00319	mg/L	0.000218	6.83%
Cr 267.716†	22.5	0.00325	mg/L	0.000617	0.00325	mg/L	0.000617	19.00%
Cu 324.752†	-1992.1	-0.00026	mg/L	0.000197	-0.00026	mg/L	0.000197	74.31%
Fe 273.955†	197627.2	199.0	mg/L	2.20	199.0	mg/L	2.20	1.11%
K 766.490†	22.8	0.01423	mg/L	0.020101	0.01423	mg/L	0.020101	141.27%
Mg 279.077†	72718.2	103.8	mg/L	1.07	103.8	mg/L	1.07	1.03%
Mn 257.610†	65.4	-0.00017	mg/L	0.000276	-0.00017	mg/L	0.000276	161.92%
Mo 202.031†	113.8	0.00635	mg/L	0.000144	0.00635	mg/L	0.000144	2.27%
Na 589.592†	280.8	0.02504	mg/L	0.000212	0.02504	mg/L	0.000212	0.85%
Na 330.237†	-17.2	-0.7216	mg/L	0.08013	-0.7216	mg/L	0.08013	11.10%
Ni 231.604†	-4.5	-0.00167	mg/L	0.001749	-0.00167	mg/L	0.001749	104.55%
Pb 220.353†	-394.0	-0.01209	mg/L	0.000527	-0.01209	mg/L	0.000527	4.36%
Sb 206.836†	-22.0	-0.01024	mg/L	0.002112	-0.01024	mg/L	0.002112	20.62%
Se 196.026†	45.1	0.02917	mg/L	0.005254	0.02917	mg/L	0.005254	18.01%
Si 288.158†	-9.9	-0.00906	mg/L	0.008062	-0.00906	mg/L	0.008062	88.95%
Sn 189.927†	-63.6	-0.00719	mg/L	0.000830	-0.00719	mg/L	0.000830	11.54%
Sr 421.552†	3895.0	0.00533	mg/L Conf.	0.000093	0.00533	mg/L	0.000093	1.74%
Ti 334.903†	342.1	0.00893	mg/L	0.000514	0.00893	mg/L	0.000514	5.75%
Tl 190.801†	-7.8	0.02262	mg/L	0.000923	0.02262	mg/L	0.000923	4.08%
V 292.402†	1546.3	0.00114	mg/L	0.000531	0.00114	mg/L	0.000531	46.39%
Zn 206.200†	-1.2	-0.00216	mg/L	0.001034	-0.00216	mg/L	0.001034	47.90%

Sequence No.: 5
Sample ID: ICSAB

Autosampler Location: 303
Date Collected: 10/10/2013 9:23:51 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2245380.1	99.03	%	0.250				0.25%
ScR 361.383	261742.3	101.4	%	0.70				0.69%
Ag 328.068†	196150.0	1.027	mg/L	0.0040	1.027	mg/L	0.0040	0.39%
Al 308.215†	176484.5	203.0	mg/L	0.52	203.0	mg/L	0.52	0.26%
As 188.979†	1208.3	1.054	mg/L	0.0061	1.054	mg/L	0.0061	0.58%
B 249.677†	41.8	0.00584	mg/L	0.001445	0.00584	mg/L	0.001445	24.75%
Ba 233.527†	4801.4	1.025	mg/L	0.0090	1.025	mg/L	0.0090	0.88%
Be 313.042†	457803.1	0.9739	mg/L	0.00416	0.9739	mg/L	0.00416	0.43%
Ca 317.933†	729560.9	101.4	mg/L	0.35	101.4	mg/L	0.35	0.35%
Cd 228.802†	20050.8	1.049	mg/L	0.0038	1.049	mg/L	0.0038	0.36%
Co 228.616†	26399.5	0.9795	mg/L	0.00441	0.9795	mg/L	0.00441	0.45%
Cr 267.716†	6145.8	1.025	mg/L	0.0061	1.025	mg/L	0.0061	0.60%
Cu 324.752†	223731.4	1.034	mg/L	0.0044	1.034	mg/L	0.0044	0.42%
Fe 273.955†	196418.6	197.8	mg/L	0.61	197.8	mg/L	0.61	0.31%
K 766.490†	-29.3	-0.01828	mg/L	0.016009	-0.01828	mg/L	0.016009	87.60%
Mg 279.077†	70842.5	101.1	mg/L	0.36	101.1	mg/L	0.36	0.36%
Mn 257.610†	39757.6	0.9542	mg/L	0.00397	0.9542	mg/L	0.00397	0.42%
Mo 202.031†	110.2	0.00605	mg/L	0.000637	0.00605	mg/L	0.000637	10.53%
Na 589.592†	162.6	0.01450	mg/L	0.003901	0.01450	mg/L	0.003901	26.90%
Na 330.237†	-15.7	-0.9536	mg/L	0.19868	-0.9536	mg/L	0.19868	20.84%
Ni 231.604†	2605.8	0.9642	mg/L	0.01199	0.9642	mg/L	0.01199	1.24%
Pb 220.353†	5917.5	0.9582	mg/L	0.00270	0.9582	mg/L	0.00270	0.28%
Sb 206.836†	2201.3	1.003	mg/L	0.0046	1.003	mg/L	0.0046	0.46%
Se 196.026†	1358.6	1.037	mg/L	0.0043	1.037	mg/L	0.0043	0.41%
Si 288.158†	-14.5	-0.00865	mg/L	0.003409	-0.00865	mg/L	0.003409	39.43%
Sn 189.927†	-65.1	-0.00703	mg/L	0.000473	-0.00703	mg/L	0.000473	6.73%
Sr 421.552†	3927.7	0.00537	mg/L Cont.	0.000011	0.00537	mg/L	0.000011	0.21%
Ti 334.903†	342.3	0.00873	mg/L	0.000802	0.00873	mg/L	0.000802	9.19%
Tl 190.801†	1306.4	0.9750	mg/L	0.00385	0.9750	mg/L	0.00385	0.39%
V 292.402†	115790.3	0.9736	mg/L	0.00438	0.9736	mg/L	0.00438	0.45%
Zn 206.200†	3368.6	0.9534	mg/L	0.00591	0.9534	mg/L	0.00591	0.62%

Sequence No.: 6
Sample ID: CV |

Autosampler Location: 7
Date Collected: 10/10/2013 9:28:40 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2281136.6	100.6	%	0.26				0.26%
ScR 361.383	261336.3	101.2	%	1.05				1.04%
Ag 328.068†	192606.5	1.008	mg/L	0.0011	1.008	mg/L	0.0011	0.11%
Al 308.215†	1861.0	2.107	mg/L	0.0265	2.107	mg/L	0.0265	1.26%
As 188.979†	2257.9	2.019	mg/L	0.0019	2.019	mg/L	0.0019	0.09%
B 249.677†	5352.5	1.009	mg/L	0.0063	1.009	mg/L	0.0063	0.62%
Ba 233.527†	4796.9	1.048	mg/L	0.0119	1.048	mg/L	0.0119	1.13%
Be 313.042†	462678.7	0.9843	mg/L	0.01330	0.9843	mg/L	0.01330	1.35%
Ca 317.933†	15168.5	2.109	mg/L	0.0187	2.109	mg/L	0.0187	0.89%
Cd 228.802†	20144.4	1.051	mg/L	0.0016	1.051	mg/L	0.0016	0.15%
Co 228.616†	27686.0	1.026	mg/L	0.0006	1.026	mg/L	0.0006	0.06%
Cr 267.716†	6307.0	1.052	mg/L	0.0068	1.052	mg/L	0.0068	0.65%
Cu 324.752†	223412.3	1.023	mg/L	0.0011	1.023	mg/L	0.0011	0.11%
Fe 273.955†	2078.9	2.087	mg/L	0.0161	2.087	mg/L	0.0161	0.77%
K 766.490†	32317.1	20.13	mg/L	0.227	20.13	mg/L	0.227	1.13%
Mg 279.077†	1443.4	2.070	mg/L	0.0246	2.070	mg/L	0.0246	1.19%
Mn 257.610†	40717.7	0.9792	mg/L	0.00840	0.9792	mg/L	0.00840	0.86%
Mo 202.031†	14826.8	1.000	mg/L	0.0015	1.000	mg/L	0.0015	0.15%
Na 589.592†	560045.0	49.94	mg/L	0.665	49.94	mg/L	0.665	1.33%
Na 330.237†	1256.3	53.16	mg/L	0.545	53.16	mg/L	0.545	1.03%
Ni 231.604†	2774.3	1.027	mg/L	0.0032	1.027	mg/L	0.0032	0.31%
Pb 220.353†	13052.3	2.007	mg/L	0.0031	2.007	mg/L	0.0031	0.16%
Sb 206.836†	4503.7	2.073	mg/L	0.0042	2.073	mg/L	0.0042	0.20%
Se 196.026†	2619.4	2.012	mg/L	0.0073	2.012	mg/L	0.0073	0.36%
Si 288.158†	2253.6	2.072	mg/L	0.0235	2.072	mg/L	0.0235	1.13%
Sn 189.927†	4047.9	0.9911	mg/L	0.00133	0.9911	mg/L	0.00133	0.13%
Sr 421.552†	725961.0	0.9932	mg/L	0.01325	0.9932	mg/L	0.01325	1.33%
Ti 334.903†	19374.1	0.9923	mg/L	0.01289	0.9923	mg/L	0.01289	1.30%
Tl 190.801†	2835.1	2.068	mg/L	0.0036	2.068	mg/L	0.0036	0.17%
V 292.402†	117426.1	0.9994	mg/L	0.00282	0.9994	mg/L	0.00282	0.28%
Zn 206.200†	3576.6	1.014	mg/L	0.0072	1.014	mg/L	0.0072	0.71%

Sequence No.: 7
Sample ID: CB (

Autosampler Location: 1
Date Collected: 10/10/2013 9:32:29 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2300645.6	101.5	%	0.33				0.33%
ScR 361.383	263599.2	102.1	%	0.72				0.70%
Ag 328.068†	-1.5	-0.00001	mg/L	0.000164	-0.00001	mg/L	0.000164	>999.9%
Al 308.215†	2.6	0.00303	mg/L	0.014358	0.00303	mg/L	0.014358	473.18%
As 188.979†	-2.4	-0.00209	mg/L	0.001238	-0.00209	mg/L	0.001238	59.27%
B 249.677†	13.3	0.00250	mg/L	0.001459	0.00250	mg/L	0.001459	58.32%
Ba 233.527†	4.7	0.00102	mg/L	0.000174	0.00102	mg/L	0.000174	17.02%
Be 313.042†	14.3	0.00003	mg/L	0.000035	0.00003	mg/L	0.000035	113.30%
Ca 317.933†	21.8	0.00303	mg/L	0.000550	0.00303	mg/L	0.000550	18.17%
Cd 228.802†	2.4	0.00014	mg/L	0.000195	0.00014	mg/L	0.000195	141.42%
Co 228.616†	1.3	0.00005	mg/L	0.000037	0.00005	mg/L	0.000037	77.02%
Cr 267.716†	0.2	0.00003	mg/L	0.001388	0.00003	mg/L	0.001388	>999.9%
Cu 324.752†	78.4	0.00036	mg/L	0.000041	0.00036	mg/L	0.000041	11.36%
Fe 273.955†	1.6	0.00161	mg/L	0.001627	0.00161	mg/L	0.001627	101.04%
K 766.490†	-42.3	-0.02635	mg/L	0.006844	-0.02635	mg/L	0.006844	25.98%
Mg 279.077†	1.6	0.00236	mg/L	0.015383	0.00236	mg/L	0.015383	652.40%
Mn 257.610†	2.9	0.00007	mg/L	0.000095	0.00007	mg/L	0.000095	136.13%
Mo 202.031†	8.3	0.00056	mg/L	0.000219	0.00056	mg/L	0.000219	39.14%
Na 589.592†	26.1	0.00233	mg/L	0.003424	0.00233	mg/L	0.003424	147.11%
Na 330.237†	-0.5	-0.02102	mg/L	0.189875	-0.02102	mg/L	0.189875	903.46%
Ni 231.604†	-4.2	-0.00154	mg/L	0.001271	-0.00154	mg/L	0.001271	82.49%
Pb 220.353†	-2.0	-0.00031	mg/L	0.000573	-0.00031	mg/L	0.000573	183.62%
Sb 206.836†	7.1	0.00329	mg/L	0.002501	0.00329	mg/L	0.002501	76.07%
Se 196.026†	-0.1	-0.00005	mg/L	0.003307	-0.00005	mg/L	0.003307	>999.9%
Si 288.158†	4.7	0.00434	mg/L	0.002955	0.00434	mg/L	0.002955	68.13%
Sn 189.927†	1.3	0.00031	mg/L	0.000642	0.00031	mg/L	0.000642	206.47%
Sr 421.552†	51.0	0.00007	mg/L	0.000075	0.00007	mg/L	0.000075	107.70%
Ti 334.903†	18.1	0.00093	mg/L	0.001019	0.00093	mg/L	0.001019	110.13%
Tl 190.801†	-0.3	-0.00020	mg/L	0.001981	-0.00020	mg/L	0.001981	973.35%
V 292.402†	1.4	0.00001	mg/L	0.000100	0.00001	mg/L	0.000100	843.85%
Zn 206.200†	-1.0	-0.00028	mg/L	0.001358	-0.00028	mg/L	0.001358	492.84%

Sequence No.: 8
Sample ID: XI44 MB1 SWC

Autosampler Location: 304
Date Collected: 10/10/2013 9:36:29 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 MB1 SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 MB1 SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2309210.9	101.8	%	0.34				0.33%
ScR 361.383	262874.9	101.8	%	1.08				1.06%
Ag 328.068†	31.6	0.00017	mg/L	0.000117	0.00033	mg/L	0.000234	70.76%
Al 308.215†	-3.3	-0.00383	mg/L	0.007689	-0.00766	mg/L	0.015378	200.78%
As 188.979†	-0.7	-0.00060	mg/L	0.001764	-0.00120	mg/L	0.003529	293.17%
B 249.677†	12.7	0.00239	mg/L	0.000661	0.00478	mg/L	0.001322	27.69%
Ba 233.527†	1.2	0.00027	mg/L	0.000649	0.00054	mg/L	0.001299	240.16%
Be 313.042†	7.4	0.00002	mg/L	0.000038	0.00003	mg/L	0.000076	241.39%
Ca 317.933†	67.5	0.00939	mg/L	0.001058	0.01878	mg/L	0.002115	11.26%
Cd 228.802†	-1.2	-0.00006	mg/L	0.000090	-0.00012	mg/L	0.000179	143.86%
Co 228.616†	1.6	0.00006	mg/L	0.000100	0.00012	mg/L	0.000200	170.80%
Cr 267.716†	7.9	0.00133	mg/L	0.000910	0.00265	mg/L	0.001820	68.64%
Cu 324.752†	65.3	0.00030	mg/L	0.000066	0.00060	mg/L	0.000133	22.19%
Fe 273.955†	0.9	0.00089	mg/L	0.000233	0.00178	mg/L	0.000467	26.29%
K 766.490†	-7.0	-0.00433	mg/L	0.012615	-0.00866	mg/L	0.025229	291.28%
Mg 279.077†	1.3	0.00185	mg/L	0.009127	0.00370	mg/L	0.018254	492.83%
Mn 257.610†	-2.6	-0.00006	mg/L	0.000081	-0.00013	mg/L	0.000163	128.02%
Mo 202.031†	0.4	0.00002	mg/L	0.000138	0.00005	mg/L	0.000276	567.86%
Na 589.592†	58.1	0.00518	mg/L	0.001771	0.01037	mg/L	0.003542	34.16%
Na 330.237†	-2.4	-0.1015	mg/L	0.16344	-0.2029	mg/L	0.32688	161.07%
Ni 231.604†	-5.5	-0.00203	mg/L	0.001940	-0.00407	mg/L	0.003880	95.39%
Pb 220.353†	-4.1	-0.00063	mg/L	0.000403	-0.00126	mg/L	0.000807	64.18%
Sb 206.836†	1.3	0.00058	mg/L	0.001775	0.00116	mg/L	0.003550	306.98%
Se 196.026†	-2.2	-0.00168	mg/L	0.001992	-0.00336	mg/L	0.003985	118.48%
Si 288.158†	2.2	0.00200	mg/L	0.002142	0.00400	mg/L	0.004285	107.10%
Sn 189.927†	0.3	0.00008	mg/L	0.000248	0.00016	mg/L	0.000497	318.08%
Sr 421.552†	-7.8	-0.00001	mg/L	0.000051	-0.00002	mg/L	0.000103	482.79%
Ti 334.903†	30.2	0.00155	mg/L	0.000375	0.00309	mg/L	0.000749	24.23%
Tl 190.801†	-3.4	-0.00252	mg/L	0.000877	-0.00504	mg/L	0.001754	34.76%
V 292.402†	-28.0	-0.00023	mg/L	0.000213	-0.00047	mg/L	0.000427	91.64%
Zn 206.200†	6.7	0.00190	mg/L	0.000591	0.00379	mg/L	0.001183	31.17%

Sequence No.: 9
Sample ID: XI44 A-L SWC

Autosampler Location: 305
Date Collected: 10/10/2013 9:40:45 AM
Data Type: Original

Dilution: 10.000000X

Nebulizer Parameters: XI44 A-L SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 A-L SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2278220.5	100.5	%	0.58				0.57%
ScR 361.383	262128.2	101.5	%	0.75				0.74%
Ag 328.068†	-49.3	-0.00026	mg/L	0.000045	-0.00256	mg/L	0.000446	17.42%
Al 308.215†	958.8	1.102	mg/L	0.0024	11.02	mg/L	0.024	0.22%
As 188.979†	45.5	0.03579	mg/L	0.002791	0.3579	mg/L	0.02791	7.80%
B 249.677†	109.5	0.02066	mg/L	0.001211	0.2066	mg/L	0.01211	5.86%
Ba 233.527†	163.9	0.03578	mg/L	0.000769	0.3578	mg/L	0.00769	2.15%
Be 313.042†	19.1	0.00004	mg/L	0.000015	0.00038	mg/L	0.000152	39.74%
Ca 317.933†	416651.0	57.92	mg/L	0.337	579.2	mg/L	3.37	0.58%
Cd 228.802†	-21.9	-0.00140	mg/L	0.000186	-0.01404	mg/L	0.001856	13.23%
Co 228.616†	80.5	0.00284	mg/L	0.000113	0.02844	mg/L	0.001126	3.96%
Cr 267.716†	47.4	0.00699	mg/L	0.000507	0.06993	mg/L	0.005065	7.24%
Cu 324.752†	3996.1	0.01841	mg/L	0.000257	0.1841	mg/L	0.00257	1.39%
Fe 273.955†	3093.1	3.115	mg/L	0.0058	31.15	mg/L	0.058	0.19%
K 766.490†	813.9	0.5071	mg/L	0.03219	5.071	mg/L	0.3219	6.35%
Mg 279.077†	4687.8	6.692	mg/L	0.0153	66.92	mg/L	0.153	0.23%
Mn 257.610†	12476.9	0.2997	mg/L	0.00203	2.997	mg/L	0.0203	0.68%
Mo 202.031†	72.1	0.00410	mg/L	0.000498	0.04102	mg/L	0.004977	12.13%
Na 589.592†	13820.4	1.232	mg/L	0.0063	12.32	mg/L	0.063	0.51%
Na 330.237†	20.7	0.8730	mg/L	0.20700	8.730	mg/L	2.0700	23.71%
Ni 231.604†	15.5	0.00574	mg/L	0.001397	0.05737	mg/L	0.013965	24.34%
Pb 220.353†	176.4	0.02724	mg/L	0.001259	0.2724	mg/L	0.01259	4.62%
Sb 206.836†	17.9	0.00819	mg/L	0.002547	0.08186	mg/L	0.025469	31.11%
Se 196.026†	28.8	0.01895	mg/L	0.004005	0.1895	mg/L	0.04005	21.14%
Si 288.158†	724.1	0.6641	mg/L	0.00475	6.641	mg/L	0.0475	0.72%
Sn 189.927†	-14.0	0.00138	mg/L	0.000564	0.01381	mg/L	0.005637	40.83%
Sr 421.552†	127198.6	0.1740	mg/L	0.00088	1.740	mg/L	0.0088	0.51%
Ti 334.903†	1581.2	0.07616	mg/L	0.001511	0.7616	mg/L	0.01511	1.98%
Tl 190.801†	28.7	0.02139	mg/L	0.000776	0.2139	mg/L	0.00776	3.63%
V 292.402†	759.8	0.00629	mg/L	0.000027	0.06286	mg/L	0.000272	0.43%
Zn 206.200†	296.4	0.08312	mg/L	0.000377	0.8312	mg/L	0.00377	0.45%

Sequence No.: 10
Sample ID: XI44 A SWC

Autosampler Location: 306
Date Collected: 10/10/2013 9:44:44 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 A SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2191854.6	96.67	%	0.251				0.26%
ScR 361.383	259136.8	100.4	%	0.79				0.79%
Ag 328.068†	-276.0	-0.00143	mg/L	0.000275	-0.00287	mg/L	0.000549	19.14%
Al 308.215†	4776.4	5.492	mg/L	0.0551	10.98	mg/L	0.110	1.00%
As 188.979†	83.7	0.05255	mg/L	0.002701	0.1051	mg/L	0.00540	5.14%
B 249.677†	518.0	0.09772	mg/L	0.001461	0.1954	mg/L	0.00292	1.50%
Ba 233.527†	798.7	0.1744	mg/L	0.00174	0.3488	mg/L	0.00349	1.00%
Be 313.042†	83.5	0.00017	mg/L	0.000010	0.00033	mg/L	0.000020	6.02%
Ca 317.933†	2021936.7	281.1	mg/L	1.49	562.2	mg/L	2.99	0.53%
Cd 228.802†	-20.8	-0.00164	mg/L	0.000170	-0.00329	mg/L	0.000341	10.36%
Co 228.616†	247.9	0.00853	mg/L	0.000064	0.01705	mg/L	0.000128	0.75%
Cr 267.716†	213.3	0.03118	mg/L	0.001460	0.06237	mg/L	0.002920	4.68%
Cu 324.752†	20127.5	0.09269	mg/L	0.000170	0.1854	mg/L	0.00034	0.18%
Fe 273.955†	14507.7	14.61	mg/L	0.097	29.22	mg/L	0.195	0.67%
K 766.490†	4117.9	2.565	mg/L	0.0394	5.131	mg/L	0.0788	1.54%
Mg 279.077†	21935.3	31.31	mg/L	0.226	62.63	mg/L	0.453	0.72%
Mn 257.610†	60899.7	1.463	mg/L	0.0112	2.926	mg/L	0.0224	0.77%
Mo 202.031†	161.0	0.00718	mg/L	0.000295	0.01435	mg/L	0.000591	4.11%
Na 589.592†	69187.0	6.170	mg/L	0.0481	12.34	mg/L	0.096	0.78%
Na 330.237†	106.3	4.484	mg/L	0.3142	8.969	mg/L	0.6284	7.01%
Ni 231.604†	79.4	0.02936	mg/L	0.001968	0.05873	mg/L	0.003935	6.70%
Pb 220.353†	889.9	0.1375	mg/L	0.00161	0.2750	mg/L	0.00322	1.17%
Sb 206.836†	33.4	0.01526	mg/L	0.001796	0.03052	mg/L	0.003591	11.77%
Se 196.026†	46.0	0.02006	mg/L	0.005809	0.04012	mg/L	0.011619	28.96%
Si 288.158†	3526.5	3.235	mg/L	0.0301	6.469	mg/L	0.0601	0.93%
Sn 189.927†	-35.8	0.01453	mg/L	0.000245	0.02906	mg/L	0.000491	1.69%
Sr 421.552†	623621.0	0.8532	mg/L	0.00667	1.706	mg/L	0.0133	0.78%
Ti 334.903†	7413.5	0.3563	mg/L	0.00191	0.7126	mg/L	0.00383	0.54%
Tl 190.801†	44.1	0.03419	mg/L	0.004702	0.06837	mg/L	0.009405	13.76%
V 292.402†	4002.7	0.03320	mg/L	0.000128	0.06641	mg/L	0.000256	0.39%
Zn 206.200†	1421.2	0.3985	mg/L	0.00365	0.7970	mg/L	0.00730	0.92%

Sequence No.: 11
Sample ID: XI44 ADUP SWC

Autosampler Location: 307
Date Collected: 10/10/2013 9:48:59 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 ADUP SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 ADUP SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2213883.5	97.64	%	0.522				0.53%
ScR 361.383	260599.3	100.9	%	0.81				0.80%
Ag 328.068†	-345.8	-0.00180	mg/L	0.000119	-0.00360	mg/L	0.000238	6.62%
Al 308.215†	5218.7	6.001	mg/L	0.0472	12.00	mg/L	0.094	0.79%
As 188.979†	84.4	0.05490	mg/L	0.003784	0.1098	mg/L	0.00757	6.89%
B 249.677†	547.5	0.1033	mg/L	0.00136	0.2065	mg/L	0.00272	1.32%
Ba 233.527†	765.5	0.1671	mg/L	0.00040	0.3342	mg/L	0.00081	0.24%
Be 313.042†	84.3	0.00017	mg/L	0.000019	0.00033	mg/L	0.000038	11.36%
Ca 317.933†	1981200.4	275.4	mg/L	2.03	550.8	mg/L	4.06	0.74%
Cd 228.802†	-24.2	-0.00183	mg/L	0.000082	-0.00367	mg/L	0.000164	4.47%
Co 228.616†	258.0	0.00884	mg/L	0.000251	0.01768	mg/L	0.000501	2.83%
Cr 267.716†	220.9	0.03263	mg/L	0.000442	0.06526	mg/L	0.000883	1.35%
Cu 324.752†	21064.4	0.09700	mg/L	0.000994	0.1940	mg/L	0.00199	1.02%
Fe 273.955†	14734.7	14.84	mg/L	0.208	29.68	mg/L	0.415	1.40%
K 766.490†	4202.8	2.618	mg/L	0.0090	5.237	mg/L	0.0181	0.35%
Mg 279.077†	20991.9	29.97	mg/L	0.251	59.93	mg/L	0.502	0.84%
Mn 257.610†	64408.4	1.547	mg/L	0.0213	3.095	mg/L	0.0427	1.38%
Mo 202.031†	158.9	0.00710	mg/L	0.000320	0.01421	mg/L	0.000641	4.51%
Na 589.592†	68191.1	6.081	mg/L	0.0414	12.16	mg/L	0.083	0.68%
Na 330.237†	104.1	4.394	mg/L	0.1063	8.789	mg/L	0.2126	2.42%
Ni 231.604†	76.1	0.02813	mg/L	0.001086	0.05627	mg/L	0.002172	3.86%
Pb 220.353†	941.0	0.1455	mg/L	0.00076	0.2909	mg/L	0.00153	0.53%
Sb 206.836†	34.2	0.01563	mg/L	0.000970	0.03127	mg/L	0.001940	6.20%
Se 196.026†	57.8	0.02938	mg/L	0.003684	0.05876	mg/L	0.007368	12.54%
Si 288.158†	3431.0	3.147	mg/L	0.0210	6.294	mg/L	0.0421	0.67%
Sn 189.927†	-32.4	0.01489	mg/L	0.000224	0.02979	mg/L	0.000448	1.51%
Sr 421.552†	600021.8	0.8209	mg/L	0.00718	1.642	mg/L	0.0144	0.87%
Ti 334.903†	8090.4	0.3915	mg/L	0.00398	0.7830	mg/L	0.00796	1.02%
Tl 190.801†	39.0	0.03048	mg/L	0.008497	0.06096	mg/L	0.016994	27.88%
V 292.402†	3904.2	0.03235	mg/L	0.000234	0.06471	mg/L	0.000469	0.72%
Zn 206.200†	1505.1	0.4223	mg/L	0.00231	0.8447	mg/L	0.00463	0.55%

Sequence No.: 12
Sample ID: XI44 ASPK SWC

Autosampler Location: 308
Date Collected: 10/10/2013 9:53:14 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 ASPK SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI44 ASPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2210299.8	97.48	%	0.366				0.38%
ScR 361.383	256391.6	99.30	%	0.526				0.53%
Ag 328.068†	102404.4	0.5360	mg/L	0.00235	1.072	mg/L	0.0047	0.44%
Al 308.215†	7541.4	8.664	mg/L	0.0433	17.33	mg/L	0.087	0.50%
As 188.979†	2457.3	2.149	mg/L	0.0167	4.297	mg/L	0.0334	0.78%
B 249.677†	438.7	0.08172	mg/L	0.000898	0.1634	mg/L	0.00180	1.10%
Ba 233.527†	10345.3	2.260	mg/L	0.0162	4.520	mg/L	0.0325	0.72%
Be 313.042†	223721.5	0.4759	mg/L	0.00661	0.9519	mg/L	0.01322	1.39%
Ca 317.933†	1932864.6	268.7	mg/L	2.43	537.4	mg/L	4.86	0.91%
Cd 228.802†	10114.7	0.5211	mg/L	0.00089	1.042	mg/L	0.0018	0.17%
Co 228.616†	13435.3	0.4976	mg/L	0.00161	0.9952	mg/L	0.00323	0.32%
Cr 267.716†	3335.1	0.5517	mg/L	0.00265	1.103	mg/L	0.0053	0.48%
Cu 324.752†	137090.2	0.6288	mg/L	0.00156	1.258	mg/L	0.0031	0.25%
Fe 273.955†	17720.1	17.84	mg/L	0.087	35.68	mg/L	0.175	0.49%
K 766.490†	20712.7	12.90	mg/L	0.146	25.81	mg/L	0.293	1.13%
Mg 279.077†	24714.0	35.29	mg/L	0.188	70.57	mg/L	0.376	0.53%
Mn 257.610†	72884.4	1.751	mg/L	0.0179	3.503	mg/L	0.0358	1.02%
Mo 202.031†	151.0	0.00663	mg/L	0.000132	0.01327	mg/L	0.000264	1.99%
Na 589.592†	182940.4	16.31	mg/L	0.183	32.63	mg/L	0.366	1.12%
Na 330.237†	363.3	15.22	mg/L	0.183	30.44	mg/L	0.365	1.20%
Ni 231.604†	1384.2	0.5113	mg/L	0.00169	1.023	mg/L	0.0034	0.33%
Pb 220.353†	14024.4	2.157	mg/L	0.0141	4.314	mg/L	0.0281	0.65%
Sb 206.836†	42.0	0.01418	mg/L	0.000338	0.02836	mg/L	0.000675	2.38%
Se 196.026†	2790.6	2.129	mg/L	0.0180	4.258	mg/L	0.0360	0.84%
Si 288.158†	4088.3	3.752	mg/L	0.0082	7.504	mg/L	0.0163	0.22%
Sn 189.927†	-36.3	0.01348	mg/L	0.000922	0.02696	mg/L	0.001844	6.84%
Sr 421.552†	920585.9	1.259	mg/L	0.0147	2.519	mg/L	0.0295	1.17%
Ti 334.903†	8481.3	0.4120	mg/L	0.00224	0.8240	mg/L	0.00449	0.54%
Tl 190.801†	2781.9	2.034	mg/L	0.0199	4.069	mg/L	0.0399	0.98%
V 292.402†	62988.9	0.5350	mg/L	0.00039	1.070	mg/L	0.0008	0.07%
Zn 206.200†	3258.4	0.9198	mg/L	0.00594	1.840	mg/L	0.0119	0.65%

Sequence No.: 13
Sample ID: ~~XI44 APOST SWC~~ ZZZZZZ
Dilution: 2.000000X 3A 10/10/13

Autosampler Location: 309
Date Collected: 10/10/2013 9:57:15 AM
Data Type: Original

Nebulizer Parameters: XI44 APOST SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 APOST SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2195526.1	96.83	%	0.500				0.52%
ScR 361.383	252727.0	97.88	%	0.478				0.49%
Ag 328.068†	99978.4	0.5233	mg/L	0.00232	1.047	mg/L	0.0046	0.44%
Al 308.215†	6639.3	7.627	mg/L	0.0689	15.25	mg/L	0.138	0.90%
As 188.979†	2451.6	2.140	mg/L	0.0061	4.279	mg/L	0.0122	0.29%
B 249.677†	519.1	0.09689	mg/L	0.001623	0.1938	mg/L	0.00325	1.68%
Ba 233.527†	10430.1	2.279	mg/L	0.0188	4.558	mg/L	0.0376	0.83%
Be 313.042†	224729.1	0.4781	mg/L	0.00605	0.9561	mg/L	0.01210	1.27%
Ca 317.933†	2111681.6	293.6	mg/L	2.65	587.1	mg/L	5.30	0.90%
Cd 228.802†	10147.1	0.5229	mg/L	0.00323	1.046	mg/L	0.0065	0.62%
Co 228.616†	13478.5	0.4993	mg/L	0.00322	0.9986	mg/L	0.00643	0.64%
Cr 267.716†	3366.6	0.5560	mg/L	0.00355	1.112	mg/L	0.0071	0.64%
Cu 324.752†	137704.8	0.6316	mg/L	0.00202	1.263	mg/L	0.0040	0.32%
Fe 273.955†	17117.4	17.24	mg/L	0.164	34.47	mg/L	0.328	0.95%
K 766.490†	21154.2	13.18	mg/L	0.116	26.36	mg/L	0.232	0.88%
Mg 279.077†	30543.2	43.62	mg/L	0.349	87.23	mg/L	0.699	0.80%
Mn 257.610†	80692.6	1.939	mg/L	0.0157	3.878	mg/L	0.0315	0.81%
Mo 202.031†	160.9	0.00697	mg/L	0.000062	0.01395	mg/L	0.000125	0.89%
Na 589.592†	188568.7	16.82	mg/L	0.194	33.63	mg/L	0.388	1.15%
Na 330.237†	366.4	15.35	mg/L	0.279	30.71	mg/L	0.557	1.81%
Ni 231.604†	1396.2	0.5157	mg/L	0.00274	1.031	mg/L	0.0055	0.53%
Pb 220.353†	13858.8	2.131	mg/L	0.0106	4.262	mg/L	0.0211	0.50%
Sb 206.836†	39.8	0.01308	mg/L	0.001257	0.02616	mg/L	0.002515	9.61%
Se 196.026†	2804.6	2.139	mg/L	0.0153	4.277	mg/L	0.0306	0.72%
Si 288.158†	3414.4	3.134	mg/L	0.0224	6.268	mg/L	0.0449	0.72%
Sn 189.927†	-33.7	0.01615	mg/L	0.001730	0.03230	mg/L	0.003461	10.72%
Sr 421.552†	998574.5	1.366	mg/L	0.0147	2.732	mg/L	0.0295	1.08%
Ti 334.903†	7792.1	0.3746	mg/L	0.00296	0.7491	mg/L	0.00593	0.79%
Tl 190.801†	2764.7	2.022	mg/L	0.0143	4.043	mg/L	0.0287	0.71%
V 292.402†	64370.3	0.5468	mg/L	0.00149	1.094	mg/L	0.0030	0.27%
Zn 206.200†	3126.9	0.8820	mg/L	0.00884	1.764	mg/L	0.0177	1.00%

Sequence No.: 14
Sample ID: XI44 B SWC

Dilution: 2.000000X

Autosampler Location: 310
Date Collected: 10/10/2013 10:01:16 AM
Data Type: Original

Nebulizer Parameters: XI44 B SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI44 B SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2290019.6	101.0	%	0.50				0.50%
ScR 361.383	260790.4	101.0	%	0.08				0.08%
Ag 328.068†	-13.0	-0.00003	mg/L	0.000075	-0.00006	mg/L	0.000150	231.43%
Al 308.215†	30711.1	35.32	mg/L	0.074	70.63	mg/L	0.148	0.21%
As 188.979†	-8.0	0.03166	mg/L	0.002185	0.06333	mg/L	0.004370	6.90%
B 249.677†	518.1	0.09771	mg/L	0.000459	0.1954	mg/L	0.00092	0.47%
Ba 233.527†	1285.9	0.2761	mg/L	0.00121	0.5522	mg/L	0.00243	0.44%
Be 313.042†	238.9	0.00047	mg/L	0.000015	0.00093	mg/L	0.000031	3.32%
Ca 317.933†	193814.1	26.94	mg/L	0.086	53.89	mg/L	0.173	0.32%
Cd 228.802†	223.8	0.01141	mg/L	0.000275	0.02282	mg/L	0.000550	2.41%
Co 228.616†	531.9	0.01746	mg/L	0.000218	0.03492	mg/L	0.000435	1.25%
Cr 267.716†	359.0	0.05993	mg/L	0.001127	0.1199	mg/L	0.00225	1.88%
Cu 324.752†	20227.7	0.09423	mg/L	0.000398	0.1885	mg/L	0.00080	0.42%
Fe 273.955†	39506.5	39.79	mg/L	0.271	79.57	mg/L	0.542	0.68%
K 766.490†	9962.6	6.207	mg/L	0.0312	12.41	mg/L	0.062	0.50%
Mg 279.077†	12555.1	17.92	mg/L	0.041	35.83	mg/L	0.082	0.23%
Mn 257.610†	28541.2	0.6858	mg/L	0.00578	1.372	mg/L	0.0116	0.84%
Mo 202.031†	63.9	0.00396	mg/L	0.000386	0.00791	mg/L	0.000771	9.75%
Na 589.592†	691330.1	61.65	mg/L	0.075	123.3	mg/L	0.15	0.12%
Na 330.237†	1539.8	64.98	mg/L	0.187	130.0	mg/L	0.37	0.29%
Ni 231.604†	149.8	0.05541	mg/L	0.001144	0.1108	mg/L	0.00229	2.06%
Pb 220.353†	963.3	0.1561	mg/L	0.00224	0.3123	mg/L	0.00448	1.43%
Sb 206.836†	-1.7	-0.00004	mg/L	0.002012	-0.00008	mg/L	0.004025	>999.9%
Se 196.026†	12.1	0.00778	mg/L	0.010172	0.01555	mg/L	0.020344	130.80%
Si 288.158†	5682.3	5.212	mg/L	0.0379	10.42	mg/L	0.076	0.73%
Sn 189.927†	-3.9	0.00154	mg/L	0.001472	0.00307	mg/L	0.002943	95.75%
Sr 421.552†	215175.9	0.2944	mg/L	0.00098	0.5888	mg/L	0.00196	0.33%
Ti 334.903†	25450.5	1.303	mg/L	0.0038	2.606	mg/L	0.0075	0.29%
Tl 190.801†	8.4	0.01124	mg/L	0.001144	0.02248	mg/L	0.002288	10.18%
V 292.402†	14629.3	0.1212	mg/L	0.00102	0.2424	mg/L	0.00203	0.84%
Zn 206.200†	6718.1	1.905	mg/L	0.0055	3.810	mg/L	0.0110	0.29%

Sequence No.: 15
Sample ID: XI44 C SWC

Autosampler Location: 311
Date Collected: 10/10/2013 10:05:31 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 C SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI44 C SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2302378.7	101.5	%	0.31				0.31%
ScR 361.383	264597.7	102.5	%	0.68				0.67%
Ag 328.068†	306.5	0.00167	mg/L	0.000241	0.00333	mg/L	0.000481	14.44%
Al 308.215†	10560.2	12.14	mg/L	0.132	24.28	mg/L	0.263	1.08%
As 188.979†	59.1	0.06036	mg/L	0.002316	0.1207	mg/L	0.00463	3.84%
B 249.677†	324.3	0.06117	mg/L	0.000760	0.1223	mg/L	0.00152	1.24%
Ba 233.527†	742.6	0.1611	mg/L	0.00148	0.3221	mg/L	0.00296	0.92%
Be 313.042†	135.3	0.00023	mg/L	0.000012	0.00046	mg/L	0.000025	5.41%
Ca 317.933†	613387.3	85.27	mg/L	0.382	170.5	mg/L	0.76	0.45%
Cd 228.802†	24.4	0.00088	mg/L	0.000001	0.00177	mg/L	0.000003	0.15%
Co 228.616†	315.6	0.01070	mg/L	0.000059	0.02140	mg/L	0.000119	0.56%
Cr 267.716†	452.5	0.07479	mg/L	0.001333	0.1496	mg/L	0.00267	1.78%
Cu 324.752†	47206.6	0.2168	mg/L	0.00029	0.4336	mg/L	0.00058	0.13%
Fe 273.955†	13346.5	13.44	mg/L	0.080	26.88	mg/L	0.161	0.60%
K 766.490†	2110.8	1.315	mg/L	0.0206	2.630	mg/L	0.0412	1.56%
Mg 279.077†	4049.4	5.771	mg/L	0.0609	11.54	mg/L	0.122	1.05%
Mn 257.610†	21054.4	0.5058	mg/L	0.00260	1.012	mg/L	0.0052	0.51%
Mo 202.031†	137.5	0.00815	mg/L	0.000472	0.01631	mg/L	0.000943	5.78%
Na 589.592†	105846.6	9.439	mg/L	0.0492	18.88	mg/L	0.098	0.52%
Na 330.237†	216.6	9.187	mg/L	0.1644	18.37	mg/L	0.329	1.79%
Ni 231.604†	148.6	0.05498	mg/L	0.000934	0.1100	mg/L	0.00187	1.70%
Pb 220.353†	2102.8	0.3258	mg/L	0.00095	0.6515	mg/L	0.00191	0.29%
Sb 206.836†	35.6	0.01667	mg/L	0.002076	0.03333	mg/L	0.004153	12.46%
Se 196.026†	37.2	0.02385	mg/L	0.003413	0.04770	mg/L	0.006826	14.31%
Si 288.158†	5904.7	5.416	mg/L	0.0657	10.83	mg/L	0.131	1.21%
Sn 189.927†	-5.5	0.00584	mg/L	0.000485	0.01168	mg/L	0.000970	8.31%
Sr 421.552†	196507.2	0.2688	mg/L	0.00075	0.5377	mg/L	0.00151	0.28%
Ti 334.903†	11250.3	0.5697	mg/L	0.00210	1.139	mg/L	0.0042	0.37%
Tl 190.801†	30.9	0.02366	mg/L	0.002664	0.04732	mg/L	0.005328	11.26%
V 292.402†	25571.1	0.2160	mg/L	0.00070	0.4320	mg/L	0.00141	0.33%
Zn 206.200†	1714.5	0.4855	mg/L	0.00447	0.9710	mg/L	0.00893	0.92%

Sequence No.: 16
Sample ID: XI44 D SWC

Autosampler Location: 312
Date Collected: 10/10/2013 10:09:31 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 D SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 D SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2326695.9	102.6	%	0.55				0.53%
ScR 361.383	268110.5	103.8	%	1.06				1.02%
Ag 328.068†	-73.1	-0.00034	mg/L	0.000195	-0.00067	mg/L	0.000390	57.95%
Al 308.215†	22620.6	26.01	mg/L	0.204	52.02	mg/L	0.407	0.78%
As 188.979†	-31.6	0.02775	mg/L	0.001776	0.05549	mg/L	0.003551	6.40%
B 249.677†	1042.8	0.1967	mg/L	0.00299	0.3934	mg/L	0.00599	1.52%
Ba 233.527†	559.2	0.1169	mg/L	0.00164	0.2339	mg/L	0.00329	1.41%
Be 313.042†	207.2	0.00038	mg/L	0.000026	0.00077	mg/L	0.000052	6.81%
Ca 317.933†	149063.9	20.72	mg/L	0.160	41.44	mg/L	0.320	0.77%
Cd 228.802†	24.9	0.00102	mg/L	0.000126	0.00204	mg/L	0.000252	12.35%
Co 228.616†	567.4	0.01792	mg/L	0.000061	0.03583	mg/L	0.000121	0.34%
Cr 267.716†	367.5	0.06176	mg/L	0.001688	0.1235	mg/L	0.00338	2.73%
Cu 324.752†	20431.1	0.1318	mg/L	0.00041	0.2637	mg/L	0.00082	0.31%
Fe 273.955†	41851.1	42.15	mg/L	0.358	84.29	mg/L	0.716	0.85%
K 766.490†	4102.9	2.556	mg/L	0.0459	5.112	mg/L	0.0918	1.80%
Mg 279.077†	10226.1	14.59	mg/L	0.169	29.18	mg/L	0.338	1.16%
Mn 257.610†	29943.2	0.7196	mg/L	0.00616	1.439	mg/L	0.0123	0.86%
Mo 202.031†	98.4	0.00636	mg/L	0.000233	0.01273	mg/L	0.000466	3.66%
Na 589.592†	216699.9	19.32	mg/L	0.099	38.65	mg/L	0.199	0.51%
Na 330.237†	472.1	20.40	mg/L	0.134	40.81	mg/L	0.268	0.66%
Ni 231.604†	155.5	0.05752	mg/L	0.001583	0.1150	mg/L	0.00317	2.75%
Pb 220.353†	1144.5	0.1811	mg/L	0.00094	0.3621	mg/L	0.00187	0.52%
Sb 206.836†	-1.3	0.00066	mg/L	0.000725	0.00132	mg/L	0.001450	110.03%
Se 196.026†	16.1	0.01117	mg/L	0.003849	0.02234	mg/L	0.007699	34.47%
Si 288.158†	7673.8	7.038	mg/L	0.0744	14.08	mg/L	0.149	1.06%
Sn 189.927†	-4.6	0.00097	mg/L	0.001616	0.00194	mg/L	0.003231	166.78%
Sr 421.552†	145091.6	0.1985	mg/L	0.00141	0.3970	mg/L	0.00281	0.71%
Ti 334.903†	35295.4	1.808	mg/L	0.0147	3.617	mg/L	0.0294	0.81%
Tl 190.801†	2.4	0.00703	mg/L	0.001123	0.01406	mg/L	0.002245	15.97%
V 292.402†	18738.7	0.1556	mg/L	0.00075	0.3113	mg/L	0.00151	0.48%
Zn 206.200†	1160.2	0.3298	mg/L	0.00397	0.6596	mg/L	0.00793	1.20%

Sequence No.: 17
Sample ID: XI44 MB1SPK SWC

Autosampler Location: 313
Date Collected: 10/10/2013 10:13:30 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 MB1SPK SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI44 MB1SPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2327919.3	102.7	%	0.26				0.25%
ScR 361.383	265452.1	102.8	%	0.56				0.55%
Ag 328.068†	96863.3	0.5070	mg/L	0.00116	1.014	mg/L	0.0023	0.23%
Al 308.215†	1835.1	2.103	mg/L	0.0075	4.205	mg/L	0.0150	0.36%
As 188.979†	2364.9	2.084	mg/L	0.0065	4.168	mg/L	0.0130	0.31%
B 249.677†	15.2	0.00179	mg/L	0.000630	0.00358	mg/L	0.001261	35.23%
Ba 233.527†	9671.3	2.113	mg/L	0.0040	4.227	mg/L	0.0080	0.19%
Be 313.042†	226798.4	0.4825	mg/L	0.00144	0.9650	mg/L	0.00289	0.30%
Ca 317.933†	72006.5	10.01	mg/L	0.016	20.02	mg/L	0.032	0.16%
Cd 228.802†	10058.4	0.5188	mg/L	0.00271	1.038	mg/L	0.0054	0.52%
Co 228.616†	13763.4	0.5106	mg/L	0.00390	1.021	mg/L	0.0078	0.76%
Cr 267.716†	3202.8	0.5332	mg/L	0.00211	1.066	mg/L	0.0042	0.40%
Cu 324.752†	109758.6	0.5030	mg/L	0.00048	1.006	mg/L	0.0010	0.10%
Fe 273.955†	2055.9	2.067	mg/L	0.0074	4.134	mg/L	0.0149	0.36%
K 766.490†	16342.9	10.18	mg/L	0.049	20.36	mg/L	0.098	0.48%
Mg 279.077†	7397.4	10.57	mg/L	0.034	21.14	mg/L	0.069	0.33%
Mn 257.610†	20598.8	0.4955	mg/L	0.00097	0.9910	mg/L	0.00194	0.20%
Mo 202.031†	25.4	0.00156	mg/L	0.000285	0.00312	mg/L	0.000569	18.27%
Na 589.592†	113937.0	10.16	mg/L	0.028	20.32	mg/L	0.056	0.28%
Na 330.237†	257.6	10.76	mg/L	0.178	21.51	mg/L	0.356	1.66%
Ni 231.604†	1346.3	0.4972	mg/L	0.00302	0.9944	mg/L	0.00605	0.61%
Pb 220.353†	13048.2	2.006	mg/L	0.0123	4.012	mg/L	0.0246	0.61%
Sb 206.836†	14.1	0.00126	mg/L	0.001705	0.00252	mg/L	0.003411	135.11%
Se 196.026†	2715.0	2.085	mg/L	0.0022	4.170	mg/L	0.0044	0.11%
Si 288.158†	3.2	0.00530	mg/L	0.005425	0.01060	mg/L	0.010850	102.35%
Sn 189.927†	-7.4	-0.00091	mg/L	0.000565	-0.00181	mg/L	0.001131	62.34%
Sr 421.552†	365166.9	0.4996	mg/L	0.00086	0.9992	mg/L	0.00173	0.17%
Ti 334.903†	81.6	0.00323	mg/L	0.000389	0.00646	mg/L	0.000778	12.03%
Tl 190.801†	2840.7	2.075	mg/L	0.0039	4.150	mg/L	0.0077	0.19%
V 292.402†	61298.3	0.5216	mg/L	0.00232	1.043	mg/L	0.0046	0.44%
Zn 206.200†	1767.0	0.5009	mg/L	0.00339	1.002	mg/L	0.0068	0.68%

Sequence No.: 18
Sample ID: CV 2

Autosampler Location: 7
Date Collected: 10/10/2013 10:17:30 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2290041.4	101.0	%	0.36				0.35%
ScR 361.383	258867.8	100.3	%	0.61				0.61%
Ag 328.068†	192555.2	1.008	mg/L	0.0025	1.008	mg/L	0.0025	0.25%
Al 308.215†	1829.9	2.071	mg/L	0.0227	2.071	mg/L	0.0227	1.10%
As 188.979†	2234.2	1.998	mg/L	0.0059	1.998	mg/L	0.0059	0.29%
B 249.677†	5308.0	1.000	mg/L	0.0078	1.000	mg/L	0.0078	0.78%
Ba 233.527†	4774.5	1.043	mg/L	0.0064	1.043	mg/L	0.0064	0.62%
Be 313.042†	459874.6	0.9783	mg/L	0.00203	0.9783	mg/L	0.00203	0.21%
Ca 317.933†	14919.7	2.074	mg/L	0.0200	2.074	mg/L	0.0200	0.96%
Cd 228.802†	19940.2	1.040	mg/L	0.0025	1.040	mg/L	0.0025	0.24%
Co 228.616†	27474.6	1.018	mg/L	0.0033	1.018	mg/L	0.0033	0.32%
Cr 267.716†	6232.7	1.039	mg/L	0.0079	1.039	mg/L	0.0079	0.76%
Cu 324.752†	222464.8	1.019	mg/L	0.0007	1.019	mg/L	0.0007	0.06%
Fe 273.955†	2025.5	2.034	mg/L	0.0247	2.034	mg/L	0.0247	1.21%
K 766.490†	32457.1	20.22	mg/L	0.119	20.22	mg/L	0.119	0.59%
Mg 279.077†	1413.9	2.028	mg/L	0.0125	2.028	mg/L	0.0125	0.61%
Mn 257.610†	40262.8	0.9683	mg/L	0.00209	0.9683	mg/L	0.00209	0.22%
Mo 202.031†	14682.0	0.9907	mg/L	0.00219	0.9907	mg/L	0.00219	0.22%
Na 589.592†	562606.4	50.17	mg/L	0.248	50.17	mg/L	0.248	0.49%
Na 330.237†	1247.2	52.78	mg/L	0.594	52.78	mg/L	0.594	1.13%
Ni 231.604†	2757.9	1.021	mg/L	0.0045	1.021	mg/L	0.0045	0.44%
Pb 220.353†	12915.8	1.986	mg/L	0.0023	1.986	mg/L	0.0023	0.11%
Sb 206.836†	4451.3	2.049	mg/L	0.0055	2.049	mg/L	0.0055	0.27%
Se 196.026†	2591.2	1.990	mg/L	0.0053	1.990	mg/L	0.0053	0.26%
Si 288.158†	2237.0	2.056	mg/L	0.0266	2.056	mg/L	0.0266	1.29%
Sn 189.927†	3992.4	0.9776	mg/L	0.00279	0.9776	mg/L	0.00279	0.29%
Sr 421.552†	724529.7	0.9912	mg/L	0.00226	0.9912	mg/L	0.00226	0.23%
Ti 334.903†	19289.6	0.9880	mg/L	0.00232	0.9880	mg/L	0.00232	0.24%
Tl 190.801†	2820.8	2.057	mg/L	0.0024	2.057	mg/L	0.0024	0.11%
V 292.402†	116930.3	0.9951	mg/L	0.00192	0.9951	mg/L	0.00192	0.19%
Zn 206.200†	3517.1	0.9974	mg/L	0.00845	0.9974	mg/L	0.00845	0.85%

Sequence No.: 19
Sample ID: CB 2

Autosampler Location: 1
Date Collected: 10/10/2013 10:21:19 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2326370.5	102.6	%	0.74				0.72%
ScR 361.383	263188.0	101.9	%	1.17				1.15%
Ag 328.068†	25.3	0.00013	mg/L	0.000355	0.00013	mg/L	0.000355	268.87%
Al 308.215†	1.3	0.00149	mg/L	0.003176	0.00149	mg/L	0.003176	212.65%
As 188.979†	-1.1	-0.00092	mg/L	0.001764	-0.00092	mg/L	0.001764	192.27%
B 249.677†	10.0	0.00188	mg/L	0.000810	0.00188	mg/L	0.000810	42.99%
Ba 233.527†	2.9	0.00063	mg/L	0.000967	0.00063	mg/L	0.000967	152.50%
Be 313.042†	61.5	0.00013	mg/L	0.000084	0.00013	mg/L	0.000084	64.08%
Ca 317.933†	10.2	0.00141	mg/L	0.000594	0.00141	mg/L	0.000594	42.00%
Cd 228.802†	1.5	0.00008	mg/L	0.000216	0.00008	mg/L	0.000216	268.02%
Co 228.616†	4.1	0.00015	mg/L	0.000252	0.00015	mg/L	0.000252	165.82%
Cr 267.716†	0.9	0.00015	mg/L	0.002021	0.00015	mg/L	0.002021	>999.9%
Cu 324.752†	79.8	0.00037	mg/L	0.000254	0.00037	mg/L	0.000254	69.61%
Fe 273.955†	0.2	0.00021	mg/L	0.002914	0.00021	mg/L	0.002914	>999.9%
K 766.490†	24.8	0.01546	mg/L	0.021775	0.01546	mg/L	0.021775	140.81%
Mg 279.077†	2.0	0.00292	mg/L	0.007834	0.00292	mg/L	0.007834	268.24%
Mn 257.610†	0.9	0.00002	mg/L	0.000083	0.00002	mg/L	0.000083	386.92%
Mo 202.031†	9.9	0.00067	mg/L	0.000422	0.00067	mg/L	0.000422	63.43%
Na 589.592†	121.7	0.01085	mg/L	0.003736	0.01085	mg/L	0.003736	34.44%
Na 330.237†	6.2	0.2635	mg/L	0.39060	0.2635	mg/L	0.39060	148.24%
Ni 231.604†	-7.5	-0.00277	mg/L	0.001711	-0.00277	mg/L	0.001711	61.75%
Pb 220.353†	-2.6	-0.00040	mg/L	0.000228	-0.00040	mg/L	0.000228	56.74%
Sb 206.836†	7.1	0.00329	mg/L	0.001887	0.00329	mg/L	0.001887	57.33%
Se 196.026†	-1.6	-0.00123	mg/L	0.003134	-0.00123	mg/L	0.003134	254.17%
Si 288.158†	1.1	0.00101	mg/L	0.004506	0.00101	mg/L	0.004506	446.26%
Sn 189.927†	1.7	0.00041	mg/L	0.000894	0.00041	mg/L	0.000894	219.00%
Sr 421.552†	75.8	0.00010	mg/L	0.000080	0.00010	mg/L	0.000080	76.79%
Ti 334.903†	24.4	0.00125	mg/L	0.000106	0.00125	mg/L	0.000106	8.50%
Tl 190.801†	2.6	0.00194	mg/L	0.006260	0.00194	mg/L	0.006260	323.21%
V 292.402†	2.7	0.00002	mg/L	0.000178	0.00002	mg/L	0.000178	782.17%
Zn 206.200†	-1.3	-0.00036	mg/L	0.000195	-0.00036	mg/L	0.000195	53.38%

Sequence No.: 20
Sample ID: XI45 MB1 SWC

Autosampler Location: 314
Date Collected: 10/10/2013 10:25:34 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 MB1 SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 MB1 SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2345656.0	103.4	%	0.22				0.22%
ScR 361.383	264718.8	102.5	%	0.23				0.22%
Ag 328.068†	-33.3	-0.00017	mg/L	0.000249	-0.00035	mg/L	0.000497	142.82%
Al 308.215†	5.5	0.00635	mg/L	0.004837	0.01270	mg/L	0.009675	76.19%
As 188.979†	-1.3	-0.00105	mg/L	0.002462	-0.00210	mg/L	0.004925	234.50%
B 249.677†	0.5	0.00009	mg/L	0.001412	0.00017	mg/L	0.002824	>999.9%
Ba 233.527†	3.3	0.00072	mg/L	0.000304	0.00144	mg/L	0.000608	42.10%
Be 313.042†	-5.3	-0.00001	mg/L	0.000018	-0.00002	mg/L	0.000035	156.03%
Ca 317.933†	63.6	0.00884	mg/L	0.001419	0.01769	mg/L	0.002839	16.05%
Cd 228.802†	-2.6	-0.00013	mg/L	0.000116	-0.00027	mg/L	0.000233	87.33%
Co 228.616†	4.0	0.00014	mg/L	0.000173	0.00029	mg/L	0.000345	119.56%
Cr 267.716†	6.5	0.00109	mg/L	0.001036	0.00218	mg/L	0.002071	95.06%
Cu 324.752†	62.1	0.00028	mg/L	0.000140	0.00057	mg/L	0.000280	49.30%
Fe 273.955†	0.3	0.00026	mg/L	0.000607	0.00052	mg/L	0.001214	233.81%
K 766.490†	-18.1	-0.01129	mg/L	0.022941	-0.02259	mg/L	0.045882	203.12%
Mg 279.077†	1.0	0.00146	mg/L	0.002760	0.00291	mg/L	0.005520	189.44%
Mn 257.610†	-3.6	-0.00009	mg/L	0.000068	-0.00017	mg/L	0.000135	78.80%
Mo 202.031†	0.6	0.00004	mg/L	0.000198	0.00007	mg/L	0.000396	528.37%
Na 589.592†	111.9	0.00998	mg/L	0.002112	0.01996	mg/L	0.004224	21.16%
Na 330.237†	4.6	0.1955	mg/L	0.31880	0.3911	mg/L	0.63761	163.04%
Ni 231.604†	-5.9	-0.00216	mg/L	0.000530	-0.00433	mg/L	0.001059	24.46%
Pb 220.353†	-2.8	-0.00043	mg/L	0.000639	-0.00085	mg/L	0.001279	150.14%
Sb 206.836†	-1.7	-0.00079	mg/L	0.001168	-0.00159	mg/L	0.002337	147.32%
Se 196.026†	0.6	0.00050	mg/L	0.004881	0.00099	mg/L	0.009762	983.04%
Si 288.158†	10.7	0.00985	mg/L	0.003876	0.01971	mg/L	0.007752	39.33%
Sn 189.927†	2.3	0.00057	mg/L	0.000398	0.00113	mg/L	0.000796	70.36%
Sr 421.552†	19.7	0.00003	mg/L	0.000040	0.00005	mg/L	0.000080	148.90%
Ti 334.903†	41.1	0.00211	mg/L	0.001231	0.00422	mg/L	0.002461	58.35%
Tl 190.801†	-3.2	-0.00236	mg/L	0.002270	-0.00473	mg/L	0.004541	96.07%
V 292.402†	-17.6	-0.00015	mg/L	0.000168	-0.00029	mg/L	0.000335	114.75%
Zn 206.200†	8.6	0.00244	mg/L	0.000865	0.00487	mg/L	0.001731	35.52%

Sequence No.: 21
Sample ID: XI44 E SWC

Autosampler Location: 315
Date Collected: 10/10/2013 10:29:50 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 E SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 E SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2316177.9	102.1	%	0.41				0.40%
ScR 361.383	266150.2	103.1	%	1.45				1.41%
Ag 328.068†	-214.0	-0.00104	mg/L	0.000117	-0.00207	mg/L	0.000235	11.33%
Al 308.215†	33812.5	38.88	mg/L	0.418	77.75	mg/L	0.835	1.07%
As 188.979†	-60.1	0.03820	mg/L	0.003122	0.07640	mg/L	0.006244	8.17%
B 249.677†	94.8	0.01784	mg/L	0.000101	0.03567	mg/L	0.000201	0.56%
Ba 233.527†	686.7	0.1432	mg/L	0.00327	0.2863	mg/L	0.00654	2.28%
Be 313.042†	257.1	0.00045	mg/L	0.000027	0.00089	mg/L	0.000054	6.08%
Ca 317.933†	290522.6	40.39	mg/L	0.224	80.77	mg/L	0.448	0.56%
Cd 228.802†	10.5	0.00024	mg/L	0.000150	0.00048	mg/L	0.000299	62.70%
Co 228.616†	769.3	0.02338	mg/L	0.000423	0.04675	mg/L	0.000845	1.81%
Cr 267.716†	634.8	0.1068	mg/L	0.00154	0.2135	mg/L	0.00307	1.44%
Cu 324.752†	53800.1	0.2485	mg/L	0.00024	0.4970	mg/L	0.00048	0.10%
Fe 273.955†	55281.8	55.67	mg/L	0.270	111.3	mg/L	0.54	0.49%
K 766.490†	2910.7	1.813	mg/L	0.0260	3.627	mg/L	0.0520	1.43%
Mg 279.077†	10191.8	14.53	mg/L	0.179	29.06	mg/L	0.358	1.23%
Mn 257.610†	22570.1	0.5422	mg/L	0.00314	1.084	mg/L	0.0063	0.58%
Mo 202.031†	110.5	0.00692	mg/L	0.000311	0.01385	mg/L	0.000622	4.49%
Na 589.592†	116650.3	10.40	mg/L	0.115	20.81	mg/L	0.229	1.10%
Na 330.237†	233.4	10.60	mg/L	0.165	21.20	mg/L	0.329	1.55%
Ni 231.604†	159.6	0.05903	mg/L	0.000682	0.1181	mg/L	0.00136	1.15%
Pb 220.353†	865.5	0.1411	mg/L	0.00095	0.2823	mg/L	0.00191	0.68%
Sb 206.836†	3.6	0.00381	mg/L	0.001033	0.00762	mg/L	0.002067	27.12%
Se 196.026†	26.5	0.01799	mg/L	0.001476	0.03598	mg/L	0.002953	8.21%
Si 288.158†	1806.7	1.657	mg/L	0.0180	3.314	mg/L	0.0360	1.08%
Sn 189.927†	-6.5	0.00238	mg/L	0.000599	0.00476	mg/L	0.001198	25.17%
Sr 421.552†	216339.8	0.2960	mg/L	0.00292	0.5920	mg/L	0.00583	0.99%
Ti 334.903†	58287.0	2.986	mg/L	0.0221	5.972	mg/L	0.0442	0.74%
Tl 190.801†	16.6	0.01884	mg/L	0.001736	0.03768	mg/L	0.003472	9.21%
V 292.402†	34329.3	0.2865	mg/L	0.00060	0.5729	mg/L	0.00120	0.21%
Zn 206.200†	1590.4	0.4505	mg/L	0.00635	0.9009	mg/L	0.01270	1.41%

Sequence No.: 22
Sample ID: XI44 F SWC

Autosampler Location: 316
Date Collected: 10/10/2013 10:33:50 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 F SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 F SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2274447.9	100.3	%	0.42				0.42%
ScR 361.383	257670.7	99.80	%	1.063				1.07%
Ag 328.068†	-220.9	-0.00112	mg/L	0.000043	-0.00224	mg/L	0.000086	3.84%
Al 308.215†	20128.6	23.14	mg/L	0.220	46.29	mg/L	0.441	0.95%
As 188.979†	30.1	0.05347	mg/L	0.003861	0.1069	mg/L	0.00772	7.22%
B 249.677†	166.7	0.03143	mg/L	0.000195	0.06286	mg/L	0.000390	0.62%
Ba 233.527†	859.3	0.1858	mg/L	0.00227	0.3715	mg/L	0.00453	1.22%
Be 313.042†	35.7	0.00003	mg/L	0.000034	0.00006	mg/L	0.000068	113.68%
Ca 317.933†	1253739.4	174.3	mg/L	1.15	348.6	mg/L	2.31	0.66%
Cd 228.802†	-15.5	-0.00120	mg/L	0.000127	-0.00241	mg/L	0.000253	10.51%
Co 228.616†	415.3	0.01283	mg/L	0.000257	0.02566	mg/L	0.000515	2.00%
Cr 267.716†	438.8	0.07166	mg/L	0.001215	0.1433	mg/L	0.00243	1.70%
Cu 324.752†	48124.1	0.2213	mg/L	0.00225	0.4426	mg/L	0.00450	1.02%
Fe 273.955†	24011.5	24.18	mg/L	0.329	48.36	mg/L	0.658	1.36%
K 766.490†	2036.7	1.269	mg/L	0.0101	2.538	mg/L	0.0203	0.80%
Mg 279.077†	8925.5	12.72	mg/L	0.143	25.45	mg/L	0.285	1.12%
Mn 257.610†	28381.8	0.6815	mg/L	0.00858	1.363	mg/L	0.0172	1.26%
Mo 202.031†	144.9	0.00749	mg/L	0.000385	0.01498	mg/L	0.000770	5.14%
Na 589.592†	115113.0	10.27	mg/L	0.073	20.53	mg/L	0.146	0.71%
Na 330.237†	216.2	9.481	mg/L	0.4936	18.96	mg/L	0.987	5.21%
Ni 231.604†	125.6	0.04645	mg/L	0.001333	0.09290	mg/L	0.002665	2.87%
Pb 220.353†	857.1	0.1370	mg/L	0.00065	0.2739	mg/L	0.00130	0.47%
Sb 206.836†	24.2	0.01183	mg/L	0.002148	0.02365	mg/L	0.004296	18.16%
Se 196.026†	43.8	0.02413	mg/L	0.003443	0.04826	mg/L	0.006886	14.27%
Si 288.158†	4441.1	4.073	mg/L	0.0414	8.147	mg/L	0.0828	1.02%
Sn 189.927†	-27.5	0.00798	mg/L	0.000695	0.01595	mg/L	0.001391	8.72%
Sr 421.552†	430326.8	0.5887	mg/L	0.00579	1.177	mg/L	0.0116	0.98%
Ti 334.903†	28951.3	1.470	mg/L	0.0158	2.940	mg/L	0.0317	1.08%
Tl 190.801†	36.8	0.02982	mg/L	0.003530	0.05963	mg/L	0.007061	11.84%
V 292.402†	15132.3	0.1264	mg/L	0.00112	0.2527	mg/L	0.00225	0.89%
Zn 206.200†	1125.7	0.3167	mg/L	0.00385	0.6335	mg/L	0.00771	1.22%

Sequence No.: 23
Sample ID: XI44 G SWC

Autosampler Location: 317
Date Collected: 10/10/2013 10:38:06 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI44 G SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI44 G SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2285337.7	100.8	%	0.50				0.50%
ScR 361.383	260940.7	101.1	%	1.94				1.92%
Ag 328.068†	-215.0	-0.00105	mg/L	0.000062	-0.00210	mg/L	0.000125	5.93%
Al 308.215†	40591.5	46.67	mg/L	0.712	93.35	mg/L	1.423	1.52%
As 188.979†	-66.6	0.03217	mg/L	0.001299	0.06434	mg/L	0.002598	4.04%
B 249.677†	134.4	0.02529	mg/L	0.001072	0.05057	mg/L	0.002144	4.24%
Ba 233.527†	672.0	0.1388	mg/L	0.00234	0.2776	mg/L	0.00468	1.69%
Be 313.042†	270.8	0.00048	mg/L	0.000036	0.00097	mg/L	0.000072	7.41%
Ca 317.933†	610444.3	84.86	mg/L	1.112	169.7	mg/L	2.22	1.31%
Cd 228.802†	-7.3	-0.00079	mg/L	0.000171	-0.00158	mg/L	0.000341	21.57%
Co 228.616†	860.1	0.02648	mg/L	0.000306	0.05295	mg/L	0.000613	1.16%
Cr 267.716†	532.1	0.08934	mg/L	0.000925	0.1787	mg/L	0.00185	1.04%
Cu 324.752†	44207.1	0.2050	mg/L	0.00075	0.4101	mg/L	0.00150	0.37%
Fe 273.955†	66592.8	67.06	mg/L	1.049	134.1	mg/L	2.10	1.56%
K 766.490†	4575.1	2.850	mg/L	0.0419	5.701	mg/L	0.0838	1.47%
Mg 279.077†	13699.4	19.53	mg/L	0.293	39.06	mg/L	0.585	1.50%
Mn 257.610†	30198.5	0.7254	mg/L	0.01038	1.451	mg/L	0.0208	1.43%
Mo 202.031†	107.0	0.00610	mg/L	0.000300	0.01221	mg/L	0.000600	4.92%
Na 589.592†	101333.8	9.037	mg/L	0.1224	18.07	mg/L	0.245	1.35%
Na 330.237†	188.6	8.782	mg/L	0.1487	17.56	mg/L	0.297	1.69%
Ni 231.604†	169.0	0.06251	mg/L	0.002639	0.1250	mg/L	0.00528	4.22%
Pb 220.353†	680.7	0.1144	mg/L	0.00072	0.2288	mg/L	0.00145	0.63%
Sb 206.836†	7.7	0.00584	mg/L	0.002452	0.01168	mg/L	0.004904	41.98%
Se 196.026†	29.9	0.01819	mg/L	0.004107	0.03638	mg/L	0.008215	22.58%
Si 288.158†	2936.8	2.694	mg/L	0.0265	5.387	mg/L	0.0530	0.98%
Sn 189.927†	-20.7	0.00261	mg/L	0.001758	0.00521	mg/L	0.003517	67.46%
Sr 421.552†	325055.0	0.4447	mg/L	0.00712	0.8894	mg/L	0.01423	1.60%
Ti 334.903†	61298.7	3.136	mg/L	0.0464	6.273	mg/L	0.0929	1.48%
Tl 190.801†	19.8	0.02297	mg/L	0.002358	0.04593	mg/L	0.004716	10.27%
V 292.402†	29557.4	0.2452	mg/L	0.00133	0.4904	mg/L	0.00265	0.54%
Zn 206.200†	1199.0	0.3389	mg/L	0.00383	0.6778	mg/L	0.00767	1.13%

Sequence No.: 24
Sample ID: XI45 A-L SWC

Autosampler Location: 318
Date Collected: 10/10/2013 10:42:06 AM
Data Type: Original

Dilution: 10.000000X

Nebulizer Parameters: XI45 A-L SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI45 A-L SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2319243.6	102.3	%	1.03				1.01%
ScR 361.383	265771.2	102.9	%	0.56				0.54%
Ag 328.068†	-25.2	-0.00011	mg/L	0.000154	-0.00113	mg/L	0.001543	137.15%
Al 308.215†	10104.9	11.62	mg/L	0.090	116.2	mg/L	0.90	0.78%
As 188.979†	-21.7	0.00812	mg/L	0.002537	0.08120	mg/L	0.025370	31.24%
B 249.677†	17.9	0.00335	mg/L	0.000684	0.03349	mg/L	0.006841	20.43%
Ba 233.527†	247.2	0.05148	mg/L	0.000619	0.5148	mg/L	0.00619	1.20%
Be 313.042†	103.1	0.00019	mg/L	0.000029	0.00194	mg/L	0.000294	15.14%
Ca 317.933†	58459.1	8.127	mg/L	0.0072	81.27	mg/L	0.072	0.09%
Cd 228.802†	10.7	0.00045	mg/L	0.000205	0.00448	mg/L	0.002046	45.69%
Co 228.616†	306.4	0.00985	mg/L	0.000119	0.09847	mg/L	0.001189	1.21%
Cr 267.716†	159.7	0.02710	mg/L	0.000320	0.2710	mg/L	0.00320	1.18%
Cu 324.752†	12337.6	0.05730	mg/L	0.000517	0.5730	mg/L	0.00517	0.90%
Fe 273.955†	20124.1	20.27	mg/L	0.011	202.7	mg/L	0.11	0.06%
K 766.490†	2710.3	1.688	mg/L	0.0350	16.88	mg/L	0.350	2.07%
Mg 279.077†	3051.3	4.348	mg/L	0.0216	43.48	mg/L	0.216	0.50%
Mn 257.610†	12475.1	0.2998	mg/L	0.00048	2.998	mg/L	0.0048	0.16%
Mo 202.031†	32.5	0.00209	mg/L	0.000234	0.02087	mg/L	0.002342	11.22%
Na 589.592†	11014.1	0.9822	mg/L	0.00227	9.822	mg/L	0.0227	0.23%
Na 330.237†	18.5	0.9943	mg/L	0.08098	9.943	mg/L	0.8098	8.15%
Ni 231.604†	48.5	0.01796	mg/L	0.001895	0.1796	mg/L	0.01895	10.55%
Pb 220.353†	522.8	0.08258	mg/L	0.000739	0.8258	mg/L	0.00739	0.90%
Sb 206.836†	-1.4	-0.00002	mg/L	0.003395	-0.00020	mg/L	0.033951	>999.9%
Se 196.026†	10.0	0.00722	mg/L	0.004302	0.07216	mg/L	0.043022	59.62%
Si 288.158†	581.0	0.5329	mg/L	0.00372	5.329	mg/L	0.0372	0.70%
Sn 189.927†	-0.7	0.00068	mg/L	0.000955	0.00681	mg/L	0.009550	140.14%
Sr 421.552†	48150.4	0.06588	mg/L	0.000193	0.6588	mg/L	0.00193	0.29%
Ti 334.903†	17142.4	0.8784	mg/L	0.00350	8.784	mg/L	0.0350	0.40%
Tl 190.801†	2.2	0.00418	mg/L	0.001049	0.04179	mg/L	0.010487	25.10%
V 292.402†	7806.6	0.06461	mg/L	0.000416	0.6461	mg/L	0.00416	0.64%
Zn 206.200†	476.5	0.1351	mg/L	0.00122	1.351	mg/L	0.0122	0.90%

Sequence No.: 25
Sample ID: XI45 A SWC

Autosampler Location: 319
Date Collected: 10/10/2013 10:46:05 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 A SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI45 A SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2305182.8	101.7	%	0.54				0.53%
ScR 361.383	266893.0	103.4	%	0.22				0.21%
Ag 328.068†	-14.4	0.00002	mg/L	0.000143	0.00004	mg/L	0.000285	801.48%
Al 308.215†	49193.9	56.56	mg/L	0.380	113.1	mg/L	0.76	0.67%
As 188.979†	-119.5	0.02672	mg/L	0.004408	0.05344	mg/L	0.008816	16.50%
B 249.677†	69.7	0.01305	mg/L	0.001814	0.02611	mg/L	0.003629	13.90%
Ba 233.527†	1162.2	0.2417	mg/L	0.00140	0.4835	mg/L	0.00281	0.58%
Be 313.042†	491.7	0.00093	mg/L	0.000015	0.00185	mg/L	0.000031	1.67%
Ca 317.933†	286348.5	39.81	mg/L	0.268	79.61	mg/L	0.537	0.67%
Cd 228.802†	65.0	0.00294	mg/L	0.000079	0.00588	mg/L	0.000158	2.69%
Co 228.616†	1465.8	0.04702	mg/L	0.000391	0.09404	mg/L	0.000781	0.83%
Cr 267.716†	731.3	0.1243	mg/L	0.00066	0.2486	mg/L	0.00132	0.53%
Cu 324.752†	61056.8	0.2835	mg/L	0.00097	0.5669	mg/L	0.00194	0.34%
Fe 273.955†	97000.7	97.68	mg/L	0.698	195.4	mg/L	1.40	0.71%
K 766.490†	13383.5	8.338	mg/L	0.0340	16.68	mg/L	0.068	0.41%
Mg 279.077†	13910.6	19.82	mg/L	0.142	39.63	mg/L	0.283	0.71%
Mn 257.610†	60001.5	1.442	mg/L	0.0129	2.884	mg/L	0.0257	0.89%
Mo 202.031†	130.7	0.00829	mg/L	0.000059	0.01658	mg/L	0.000118	0.71%
Na 589.592†	53244.6	4.748	mg/L	0.0182	9.497	mg/L	0.0364	0.38%
Na 330.237†	82.1	4.500	mg/L	0.1552	9.000	mg/L	0.3104	3.45%
Ni 231.604†	244.9	0.09059	mg/L	0.002040	0.1812	mg/L	0.00408	2.25%
Pb 220.353†	2524.6	0.3989	mg/L	0.00231	0.7978	mg/L	0.00463	0.58%
Sb 206.836†	-3.5	0.00147	mg/L	0.001249	0.00294	mg/L	0.002497	84.90%
Se 196.026†	15.7	0.00966	mg/L	0.004233	0.01932	mg/L	0.008466	43.82%
Si 288.158†	2581.1	2.367	mg/L	0.0033	4.735	mg/L	0.0066	0.14%
Sn 189.927†	-15.6	0.00037	mg/L	0.000421	0.00073	mg/L	0.000843	114.96%
Sr 421.552†	232405.5	0.3180	mg/L	0.00185	0.6359	mg/L	0.00370	0.58%
Ti 334.903†	83044.8	4.256	mg/L	0.0281	8.511	mg/L	0.0562	0.66%
Tl 190.801†	8.3	0.01845	mg/L	0.003344	0.03690	mg/L	0.006689	18.13%
V 292.402†	38083.9	0.3152	mg/L	0.00202	0.6305	mg/L	0.00403	0.64%
Zn 206.200†	2272.0	0.6439	mg/L	0.00248	1.288	mg/L	0.0050	0.39%

Sequence No.: 26
Sample ID: XI45 ADUP SWC

Autosampler Location: 320
Date Collected: 10/10/2013 10:50:05 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 ADUP SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI45 ADUP SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2311194.5	101.9	%	0.61				0.60%
ScR 361.383	264588.4	102.5	%	0.33				0.32%
Ag 328.068†	-28.2	-0.00006	mg/L	0.000061	-0.00012	mg/L	0.000122	102.51%
Al 308.215†	42894.2	49.32	mg/L	0.411	98.64	mg/L	0.821	0.83%
As 188.979†	-104.5	0.02727	mg/L	0.002599	0.05453	mg/L	0.005197	9.53%
B 249.677†	63.2	0.01183	mg/L	0.000823	0.02367	mg/L	0.001646	6.96%
Ba 233.527†	1057.0	0.2195	mg/L	0.00169	0.4391	mg/L	0.00338	0.77%
Be 313.042†	470.4	0.00089	mg/L	0.000018	0.00178	mg/L	0.000037	2.08%
Ca 317.933†	281584.6	39.14	mg/L	0.288	78.29	mg/L	0.576	0.74%
Cd 228.802†	71.0	0.00326	mg/L	0.000150	0.00651	mg/L	0.000300	4.60%
Co 228.616†	1346.2	0.04326	mg/L	0.000608	0.08653	mg/L	0.001215	1.40%
Cr 267.716†	789.7	0.1338	mg/L	0.00158	0.2675	mg/L	0.00316	1.18%
Cu 324.752†	59737.3	0.2772	mg/L	0.00247	0.5544	mg/L	0.00494	0.89%
Fe 273.955†	90931.3	91.57	mg/L	0.754	183.1	mg/L	1.51	0.82%
K 766.490†	12226.8	7.617	mg/L	0.0589	15.23	mg/L	0.118	0.77%
Mg 279.077†	13992.4	19.94	mg/L	0.119	39.88	mg/L	0.237	0.60%
Mn 257.610†	42421.9	1.019	mg/L	0.0080	2.039	mg/L	0.0160	0.78%
Mo 202.031†	139.6	0.00890	mg/L	0.000319	0.01780	mg/L	0.000638	3.59%
Na 589.592†	46229.0	4.123	mg/L	0.0375	8.245	mg/L	0.0750	0.91%
Na 330.237†	73.4	4.009	mg/L	0.3328	8.018	mg/L	0.6656	8.30%
Ni 231.604†	248.9	0.09208	mg/L	0.000671	0.1842	mg/L	0.00134	0.73%
Pb 220.353†	3262.1	0.5105	mg/L	0.00290	1.021	mg/L	0.0058	0.57%
Sb 206.836†	-1.3	0.00199	mg/L	0.001389	0.00398	mg/L	0.002778	69.72%
Se 196.026†	23.7	0.01587	mg/L	0.003532	0.03174	mg/L	0.007063	22.26%
Si 288.158†	2952.7	2.708	mg/L	0.0201	5.417	mg/L	0.0403	0.74%
Sn 189.927†	-7.6	0.00219	mg/L	0.000677	0.00438	mg/L	0.001353	30.87%
Sr 421.552†	215959.6	0.2955	mg/L	0.00248	0.5909	mg/L	0.00496	0.84%
Ti 334.903†	75356.9	3.861	mg/L	0.0337	7.723	mg/L	0.0674	0.87%
Tl 190.801†	5.4	0.01554	mg/L	0.002762	0.03108	mg/L	0.005524	17.77%
V 292.402†	36035.2	0.2984	mg/L	0.00324	0.5969	mg/L	0.00648	1.09%
Zn 206.200†	2408.9	0.6828	mg/L	0.00507	1.366	mg/L	0.0101	0.74%

Sequence No.: 27
Sample ID: XI45 ASPK SWC

Autosampler Location: 321
Date Collected: 10/10/2013 10:54:05 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 ASPK SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI45 ASPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2330086.5	102.8	%	1.02				0.99%
ScR 361.383	265945.5	103.0	%	0.51				0.49%
Ag 328.068†	96518.5	0.5053	mg/L	0.00037	1.011	mg/L	0.0007	0.07%
Al 308.215†	55307.4	63.59	mg/L	0.537	127.2	mg/L	1.07	0.84%
As 188.979†	2192.0	2.055	mg/L	0.0246	4.110	mg/L	0.0493	1.20%
B 249.677†	69.2	0.01190	mg/L	0.000525	0.02380	mg/L	0.001050	4.41%
Ba 233.527†	10751.3	2.337	mg/L	0.0184	4.675	mg/L	0.0368	0.79%
Be 313.042†	224495.3	0.4775	mg/L	0.00473	0.9549	mg/L	0.00947	0.99%
Ca 317.933†	395016.9	54.91	mg/L	0.399	109.8	mg/L	0.80	0.73%
Cd 228.802†	10166.5	0.5243	mg/L	0.00624	1.049	mg/L	0.0125	1.19%
Co 228.616†	14994.7	0.5493	mg/L	0.00661	1.099	mg/L	0.0132	1.20%
Cr 267.716†	3866.0	0.6460	mg/L	0.00495	1.292	mg/L	0.0099	0.77%
Cu 324.752†	169324.1	0.7796	mg/L	0.00174	1.559	mg/L	0.0035	0.22%
Fe 273.955†	95873.3	96.55	mg/L	0.623	193.1	mg/L	1.25	0.65%
K 766.490†	29237.3	18.21	mg/L	0.096	36.43	mg/L	0.192	0.53%
Mg 279.077†	20936.9	29.86	mg/L	0.210	59.72	mg/L	0.420	0.70%
Mn 257.610†	60369.8	1.451	mg/L	0.0084	2.902	mg/L	0.0168	0.58%
Mo 202.031†	232.7	0.01495	mg/L	0.000475	0.02991	mg/L	0.000950	3.18%
Na 589.592†	181213.0	16.16	mg/L	0.109	32.32	mg/L	0.217	0.67%
Na 330.237†	363.4	16.19	mg/L	0.392	32.37	mg/L	0.784	2.42%
Ni 231.604†	1565.9	0.5785	mg/L	0.00527	1.157	mg/L	0.0105	0.91%
Pb 220.353†	15327.1	2.369	mg/L	0.0270	4.737	mg/L	0.0540	1.14%
Sb 206.836†	18.2	0.00602	mg/L	0.001427	0.01204	mg/L	0.002855	23.71%
Se 196.026†	2615.7	2.006	mg/L	0.0296	4.013	mg/L	0.0593	1.48%
Si 288.158†	2019.5	1.855	mg/L	0.0083	3.709	mg/L	0.0167	0.45%
Sn 189.927†	-20.8	0.00037	mg/L	0.001839	0.00074	mg/L	0.003679	497.23%
Sr 421.552†	628656.7	0.8601	mg/L	0.00568	1.720	mg/L	0.0114	0.66%
Ti 334.903†	78191.1	4.005	mg/L	0.0306	8.010	mg/L	0.0611	0.76%
Tl 190.801†	2699.1	1.984	mg/L	0.0223	3.967	mg/L	0.0446	1.12%
V 292.402†	95058.3	0.8004	mg/L	0.00206	1.601	mg/L	0.0041	0.26%
Zn 206.200†	4041.4	1.145	mg/L	0.0063	2.291	mg/L	0.0125	0.55%

Sequence No.: 28
Sample ID: ~~XI45 APOST SWC~~ ZZZZZZ

Autosampler Location: 322
Date Collected: 10/10/2013 10:57:51 AM
Data Type: Original

Dilution: 2.000000X BA 10-10-13

Nebulizer Parameters: XI45 APOST SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 APOST SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2302607.5	101.5	%	0.49				0.48%
ScR 361.383	265373.1	102.8	%	1.13				1.10%
Ag 328.068†	95539.6	0.5001	mg/L	0.00103	1.000	mg/L	0.0021	0.21%
Al 308.215†	51375.2	59.07	mg/L	0.836	118.1	mg/L	1.67	1.42%
As 188.979†	2194.8	2.067	mg/L	0.0101	4.134	mg/L	0.0201	0.49%
B 249.677†	70.8	0.01218	mg/L	0.000350	0.02436	mg/L	0.000701	2.88%
Ba 233.527†	10894.8	2.368	mg/L	0.0183	4.737	mg/L	0.0366	0.77%
Be 313.042†	224719.9	0.4779	mg/L	0.00469	0.9559	mg/L	0.00938	0.98%
Ca 317.933†	361490.7	50.25	mg/L	0.681	100.5	mg/L	1.36	1.36%
Cd 228.802†	10339.7	0.5333	mg/L	0.00212	1.067	mg/L	0.0042	0.40%
Co 228.616†	15284.7	0.5596	mg/L	0.00089	1.119	mg/L	0.0018	0.16%
Cr 267.716†	3852.1	0.6437	mg/L	0.00525	1.287	mg/L	0.0105	0.82%
Cu 324.752†	172704.9	0.7951	mg/L	0.00078	1.590	mg/L	0.0016	0.10%
Fe 273.955†	98564.5	99.26	mg/L	1.401	198.5	mg/L	2.80	1.41%
K 766.490†	30033.3	18.71	mg/L	0.187	37.42	mg/L	0.375	1.00%
Mg 279.077†	22044.9	31.44	mg/L	0.273	62.89	mg/L	0.547	0.87%
Mn 257.610†	80353.4	1.932	mg/L	0.0242	3.863	mg/L	0.0483	1.25%
Mo 202.031†	136.8	0.00854	mg/L	0.000171	0.01708	mg/L	0.000342	2.00%
Na 589.592†	168415.6	15.02	mg/L	0.214	30.04	mg/L	0.428	1.43%
Na 330.237†	331.0	14.90	mg/L	0.155	29.79	mg/L	0.310	1.04%
Ni 231.604†	1577.8	0.5829	mg/L	0.00540	1.166	mg/L	0.0108	0.93%
Pb 220.353†	15534.8	2.399	mg/L	0.0094	4.798	mg/L	0.0189	0.39%
Sb 206.836†	10.9	0.00297	mg/L	0.001521	0.00594	mg/L	0.003043	51.19%
Se 196.026†	2693.8	2.066	mg/L	0.0145	4.133	mg/L	0.0291	0.70%
Si 288.158†	2547.4	2.339	mg/L	0.0204	4.678	mg/L	0.0408	0.87%
Sn 189.927†	-21.8	-0.00021	mg/L	0.000548	-0.00041	mg/L	0.001095	264.52%
Sr 421.552†	597159.0	0.8170	mg/L	0.01039	1.634	mg/L	0.0208	1.27%
Ti 334.903†	83448.2	4.275	mg/L	0.0538	8.550	mg/L	0.1076	1.26%
Tl 190.801†	2754.4	2.024	mg/L	0.0081	4.049	mg/L	0.0161	0.40%
V 292.402†	96890.1	0.8157	mg/L	0.00295	1.631	mg/L	0.0059	0.36%
Zn 206.200†	3992.4	1.132	mg/L	0.0094	2.263	mg/L	0.0188	0.83%

Sequence No.: 29
Sample ID: XI45 MB1SPK SWC

Autosampler Location: 323
Date Collected: 10/10/2013 11:01:37 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 MB1SPK SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 MB1SPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2302859.1	101.6	%	0.68				0.67%
ScR 361.383	266200.2	103.1	%	1.38				1.34%
Ag 328.068†	98093.7	0.5134	mg/L	0.00131	1.027	mg/L	0.0026	0.25%
Al 308.215†	1838.3	2.106	mg/L	0.0437	4.212	mg/L	0.0874	2.07%
As 188.979†	2349.3	2.070	mg/L	0.0033	4.141	mg/L	0.0067	0.16%
B 249.677†	7.2	0.00026	mg/L	0.000249	0.00052	mg/L	0.000497	95.22%
Ba 233.527†	9845.2	2.151	mg/L	0.0427	4.302	mg/L	0.0854	1.98%
Be 313.042†	219996.4	0.4680	mg/L	0.00368	0.9360	mg/L	0.00735	0.79%
Ca 317.933†	70853.1	9.850	mg/L	0.0925	19.70	mg/L	0.185	0.94%
Cd 228.802†	10244.9	0.5287	mg/L	0.00059	1.057	mg/L	0.0012	0.11%
Co 228.616†	14062.7	0.5217	mg/L	0.00227	1.043	mg/L	0.0045	0.43%
Cr 267.716†	3204.6	0.5335	mg/L	0.00762	1.067	mg/L	0.0152	1.43%
Cu 324.752†	109979.4	0.5041	mg/L	0.00084	1.008	mg/L	0.0017	0.17%
Fe 273.955†	2027.5	2.039	mg/L	0.0291	4.077	mg/L	0.0582	1.43%
K 766.490†	16134.2	10.05	mg/L	0.123	20.10	mg/L	0.246	1.22%
Mg 279.077†	7410.6	10.59	mg/L	0.179	21.18	mg/L	0.357	1.69%
Mn 257.610†	20114.2	0.4839	mg/L	0.00594	0.9677	mg/L	0.01187	1.23%
Mo 202.031†	23.1	0.00140	mg/L	0.000253	0.00281	mg/L	0.000506	18.01%
Na 589.592†	112969.4	10.07	mg/L	0.091	20.15	mg/L	0.182	0.90%
Na 330.237†	254.9	10.64	mg/L	0.182	21.28	mg/L	0.364	1.71%
Ni 231.604†	1359.1	0.5019	mg/L	0.00651	1.004	mg/L	0.0130	1.30%
Pb 220.353†	13299.8	2.045	mg/L	0.0053	4.089	mg/L	0.0107	0.26%
Sb 206.836†	10.7	-0.00024	mg/L	0.002518	-0.00048	mg/L	0.005036	>999.9%
Se 196.026†	2691.6	2.067	mg/L	0.0071	4.134	mg/L	0.0142	0.34%
Si 288.158†	0.1	0.00250	mg/L	0.001637	0.00500	mg/L	0.003274	65.43%
Sn 189.927†	-6.4	-0.00068	mg/L	0.000448	-0.00136	mg/L	0.000896	66.05%
Sr 421.552†	359309.1	0.4916	mg/L	0.00503	0.9832	mg/L	0.01005	1.02%
Ti 334.903†	98.8	0.00413	mg/L	0.000163	0.00825	mg/L	0.000325	3.94%
Tl 190.801†	2854.8	2.085	mg/L	0.0078	4.171	mg/L	0.0156	0.37%
V 292.402†	62740.2	0.5338	mg/L	0.00253	1.068	mg/L	0.0051	0.47%
Zn 206.200†	1764.5	0.5002	mg/L	0.00790	1.000	mg/L	0.0158	1.58%

Sequence No.: 30
Sample ID: CV 3

Autosampler Location: 7
Date Collected: 10/10/2013 11:05:37 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2298833.5	101.4	%	0.67				0.66%
ScR 361.383	254271.1	98.48	%	0.546				0.55%
Ag 328.068†	193239.9	1.011	mg/L	0.0026	1.011	mg/L	0.0026	0.26%
Al 308.215†	1844.9	2.089	mg/L	0.0145	2.089	mg/L	0.0145	0.69%
As 188.979†	2190.4	1.959	mg/L	0.0158	1.959	mg/L	0.0158	0.81%
B 249.677†	5358.9	1.010	mg/L	0.0078	1.010	mg/L	0.0078	0.77%
Ba 233.527†	4864.1	1.063	mg/L	0.0146	1.063	mg/L	0.0146	1.37%
Be 313.042†	450906.6	0.9592	mg/L	0.01443	0.9592	mg/L	0.01443	1.50%
Ca 317.933†	14967.5	2.081	mg/L	0.0232	2.081	mg/L	0.0232	1.12%
Cd 228.802†	19698.1	1.028	mg/L	0.0088	1.028	mg/L	0.0088	0.86%
Co 228.616†	27263.4	1.010	mg/L	0.0099	1.010	mg/L	0.0099	0.98%
Cr 267.716†	6260.8	1.044	mg/L	0.0093	1.044	mg/L	0.0093	0.89%
Cu 324.752†	222809.5	1.021	mg/L	0.0003	1.021	mg/L	0.0003	0.03%
Fe 273.955†	2007.8	2.016	mg/L	0.0111	2.016	mg/L	0.0111	0.55%
K 766.490†	32428.5	20.20	mg/L	0.076	20.20	mg/L	0.076	0.38%
Mg 279.077†	1421.4	2.038	mg/L	0.0090	2.038	mg/L	0.0090	0.44%
Mn 257.610†	39772.9	0.9565	mg/L	0.01090	0.9565	mg/L	0.01090	1.14%
Mo 202.031†	14488.1	0.9776	mg/L	0.00977	0.9776	mg/L	0.00977	1.00%
Na 589.592†	566033.5	50.48	mg/L	0.376	50.48	mg/L	0.376	0.74%
Na 330.237†	1260.1	53.33	mg/L	0.651	53.33	mg/L	0.651	1.22%
Ni 231.604†	2770.1	1.025	mg/L	0.0123	1.025	mg/L	0.0123	1.20%
Pb 220.353†	12743.2	1.959	mg/L	0.0183	1.959	mg/L	0.0183	0.93%
Sb 206.836†	4404.3	2.027	mg/L	0.0185	2.027	mg/L	0.0185	0.91%
Se 196.026†	2536.4	1.948	mg/L	0.0195	1.948	mg/L	0.0195	1.00%
Si 288.158†	2240.3	2.059	mg/L	0.0106	2.059	mg/L	0.0106	0.51%
Sn 189.927†	3911.0	0.9576	mg/L	0.01031	0.9576	mg/L	0.01031	1.08%
Sr 421.552†	723765.3	0.9902	mg/L	0.00781	0.9902	mg/L	0.00781	0.79%
Ti 334.903†	19176.6	0.9822	mg/L	0.00892	0.9822	mg/L	0.00892	0.91%
Tl 190.801†	2813.6	2.052	mg/L	0.0208	2.052	mg/L	0.0208	1.01%
V 292.402†	116754.2	0.9936	mg/L	0.00187	0.9936	mg/L	0.00187	0.19%
Zn 206.200†	3502.6	0.9933	mg/L	0.00926	0.9933	mg/L	0.00926	0.93%

Sequence No.: 31
Sample ID: CB 3

Autosampler Location: 1
Date Collected: 10/10/2013 11:09:25 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2314929.8	102.1	%	0.65				0.64%
ScR 361.383	262015.6	101.5	%	1.41				1.39%
Ag 328.068†	19.1	0.00010	mg/L	0.000264	0.00010	mg/L	0.000264	264.43%
Al 308.215†	-1.2	-0.00133	mg/L	0.003446	-0.00133	mg/L	0.003446	258.18%
As 188.979†	-0.2	-0.00015	mg/L	0.001949	-0.00015	mg/L	0.001949	>999.9%
B 249.677†	11.5	0.00217	mg/L	0.000917	0.00217	mg/L	0.000917	42.33%
Ba 233.527†	5.1	0.00111	mg/L	0.000468	0.00111	mg/L	0.000468	42.07%
Be 313.042†	87.9	0.00019	mg/L	0.000194	0.00019	mg/L	0.000194	103.84%
Ca 317.933†	7.9	0.00110	mg/L	0.001649	0.00110	mg/L	0.001649	150.25%
Cd 228.802†	-2.9	-0.00015	mg/L	0.000139	-0.00015	mg/L	0.000139	91.65%
Co 228.616†	1.9	0.00007	mg/L	0.000028	0.00007	mg/L	0.000028	41.39%
Cr 267.716†	1.8	0.00029	mg/L	0.001033	0.00029	mg/L	0.001033	352.35%
Cu 324.752†	128.8	0.00059	mg/L	0.000170	0.00059	mg/L	0.000170	28.75%
Fe 273.955†	1.0	0.00098	mg/L	0.002120	0.00098	mg/L	0.002120	215.55%
K 766.490†	-0.3	-0.00019	mg/L	0.034463	-0.00019	mg/L	0.034463	>999.9%
Mg 279.077†	-1.1	-0.00161	mg/L	0.008886	-0.00161	mg/L	0.008886	553.18%
Mn 257.610†	7.9	0.00019	mg/L	0.000278	0.00019	mg/L	0.000278	147.08%
Mo 202.031†	6.2	0.00042	mg/L	0.000079	0.00042	mg/L	0.000079	18.93%
Na 589.592†	123.5	0.01102	mg/L	0.007883	0.01102	mg/L	0.007883	71.56%
Na 330.237†	5.7	0.2424	mg/L	0.21600	0.2424	mg/L	0.21600	89.12%
Ni 231.604†	-7.8	-0.00290	mg/L	0.001499	-0.00290	mg/L	0.001499	51.64%
Pb 220.353†	-1.3	-0.00021	mg/L	0.000910	-0.00021	mg/L	0.000910	443.57%
Sb 206.836†	4.2	0.00192	mg/L	0.002971	0.00192	mg/L	0.002971	154.58%
Se 196.026†	0.6	0.00043	mg/L	0.003431	0.00043	mg/L	0.003431	794.81%
Si 288.158†	-2.7	-0.00249	mg/L	0.005764	-0.00249	mg/L	0.005764	231.23%
Sn 189.927†	5.8	0.00142	mg/L	0.001124	0.00142	mg/L	0.001124	79.22%
Sr 421.552†	113.9	0.00016	mg/L	0.000145	0.00016	mg/L	0.000145	92.77%
Ti 334.903†	45.1	0.00231	mg/L	0.001153	0.00231	mg/L	0.001153	49.83%
Tl 190.801†	1.2	0.00087	mg/L	0.002047	0.00087	mg/L	0.002047	234.09%
V 292.402†	0.6	0.00001	mg/L	0.000091	0.00001	mg/L	0.000091	>999.9%
Zn 206.200†	-0.9	-0.00026	mg/L	0.000972	-0.00026	mg/L	0.000972	369.40%

Sequence No.: 32
Sample ID: XI45 B SWC

Autosampler Location: 324
Date Collected: 10/10/2013 11:13:40 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 B SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 B SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2246855.7	99.09	%	0.159				0.16%
ScR 361.383	254524.1	98.58	%	2.486				2.52%
Ag 328.068†	-204.5	-0.00096	mg/L	0.000314	-0.00193	mg/L	0.000628	32.55%
Al 308.215†	68018.3	78.21	mg/L	1.968	156.4	mg/L	3.94	2.52%
As 188.979†	-15.2	0.1195	mg/L	0.00596	0.2390	mg/L	0.01193	4.99%
B 249.677†	63.2	0.01181	mg/L	0.001418	0.02363	mg/L	0.002836	12.01%
Ba 233.527†	3660.3	0.7853	mg/L	0.02602	1.571	mg/L	0.0520	3.31%
Be 313.042†	742.7	0.00144	mg/L	0.000136	0.00288	mg/L	0.000272	9.45%
Ca 317.933†	1807610.0	251.3	mg/L	4.60	502.6	mg/L	9.21	1.83%
Cd 228.802†	131.9	0.00566	mg/L	0.000178	0.01132	mg/L	0.000355	3.14%
Co 228.616†	1813.8	0.05848	mg/L	0.000146	0.1170	mg/L	0.00029	0.25%
Cr 267.716†	996.7	0.1674	mg/L	0.00313	0.3348	mg/L	0.00627	1.87%
Cu 324.752†	110861.9	0.5128	mg/L	0.00273	1.026	mg/L	0.0055	0.53%
Fe 273.955†	125405.9	126.3	mg/L	2.92	252.6	mg/L	5.83	2.31%
K 766.490†	14267.6	8.889	mg/L	0.2373	17.78	mg/L	0.475	2.67%
Mg 279.077†	19013.5	27.07	mg/L	0.725	54.14	mg/L	1.450	2.68%
Mn 257.610†	66884.0	1.607	mg/L	0.0398	3.213	mg/L	0.0796	2.48%
Mo 202.031†	325.1	0.01863	mg/L	0.000766	0.03726	mg/L	0.001532	4.11%
Na 589.592†	59210.1	5.280	mg/L	0.1325	10.56	mg/L	0.265	2.51%
Na 330.237†	61.1	3.546	mg/L	0.2076	7.093	mg/L	0.4153	5.86%
Ni 231.604†	347.9	0.1287	mg/L	0.00445	0.2574	mg/L	0.00890	3.46%
Pb 220.353†	4846.0	0.7601	mg/L	0.00358	1.520	mg/L	0.0072	0.47%
Sb 206.836†	15.0	0.01022	mg/L	0.003517	0.02044	mg/L	0.007035	34.42%
Se 196.026†	48.1	0.02302	mg/L	0.004488	0.04605	mg/L	0.008977	19.49%
Si 288.158†	1828.7	1.677	mg/L	0.0557	3.355	mg/L	0.1114	3.32%
Sn 189.927†	-22.4	0.01634	mg/L	0.001057	0.03269	mg/L	0.002115	6.47%
Sr 421.552†	455246.4	0.6228	mg/L	0.01304	1.246	mg/L	0.0261	2.09%
Ti 334.903†	98857.7	5.049	mg/L	0.1317	10.10	mg/L	0.263	2.61%
Tl 190.801†	26.0	0.03525	mg/L	0.002178	0.07051	mg/L	0.004356	6.18%
V 292.402†	43333.1	0.3578	mg/L	0.00122	0.7156	mg/L	0.00244	0.34%
Zn 206.200†	5708.0	1.614	mg/L	0.0528	3.228	mg/L	0.1057	3.27%

Sequence No.: 33
Sample ID: XI45 C SWC

Autosampler Location: 325
Date Collected: 10/10/2013 11:17:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 C SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 C SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2305101.9	101.7	%	0.20				0.19%
ScR 361.383	262851.9	101.8	%	1.27				1.24%
Ag 328.068†	-93.8	-0.00040	mg/L	0.000180	-0.00080	mg/L	0.000361	45.18%
Al 308.215†	54900.4	63.13	mg/L	0.872	126.3	mg/L	1.74	1.38%
As 188.979†	-84.5	0.04877	mg/L	0.003772	0.09755	mg/L	0.007544	7.73%
B 249.677†	117.9	0.02215	mg/L	0.000275	0.04431	mg/L	0.000549	1.24%
Ba 233.527†	3852.6	0.8254	mg/L	0.00986	1.651	mg/L	0.0197	1.19%
Be 313.042†	544.9	0.00104	mg/L	0.000029	0.00208	mg/L	0.000059	2.81%
Ca 317.933†	277751.9	38.61	mg/L	0.471	77.22	mg/L	0.943	1.22%
Cd 228.802†	91.6	0.00384	mg/L	0.000126	0.00768	mg/L	0.000252	3.28%
Co 228.616†	1360.5	0.04348	mg/L	0.000180	0.08696	mg/L	0.000361	0.41%
Cr 267.716†	7289.7	1.220	mg/L	0.0148	2.439	mg/L	0.0297	1.22%
Cu 324.752†	53966.0	0.2526	mg/L	0.00208	0.5052	mg/L	0.00417	0.83%
Fe 273.955†	130845.3	131.8	mg/L	1.58	263.5	mg/L	3.16	1.20%
K 766.490†	7754.7	4.831	mg/L	0.0688	9.662	mg/L	0.1376	1.42%
Mg 279.077†	15069.0	21.45	mg/L	0.292	42.91	mg/L	0.584	1.36%
Mn 257.610†	59612.4	1.433	mg/L	0.0171	2.867	mg/L	0.0341	1.19%
Mo 202.031†	174.9	0.01124	mg/L	0.000291	0.02248	mg/L	0.000582	2.59%
Na 589.592†	73025.4	6.512	mg/L	0.0815	13.02	mg/L	0.163	1.25%
Na 330.237†	139.1	6.548	mg/L	0.2392	13.10	mg/L	0.478	3.65%
Ni 231.604†	419.7	0.1553	mg/L	0.00411	0.3106	mg/L	0.00823	2.65%
Pb 220.353†	30277.7	4.666	mg/L	0.0477	9.331	mg/L	0.0953	1.02%
Sb 206.836†	35.8	0.00477	mg/L	0.003676	0.00954	mg/L	0.007352	77.06%
Se 196.026†	12.4	0.00722	mg/L	0.005980	0.01444	mg/L	0.011961	82.84%
Si 288.158†	1567.6	1.439	mg/L	0.0142	2.877	mg/L	0.0285	0.99%
Sn 189.927†	65.8	0.02029	mg/L	0.000731	0.04058	mg/L	0.001463	3.60%
Sr 421.552†	192493.3	0.2634	mg/L	0.00332	0.5267	mg/L	0.00663	1.26%
Ti 334.903†	78718.2	4.034	mg/L	0.0539	8.067	mg/L	0.1078	1.34%
Tl 190.801†	-5.3	0.01294	mg/L	0.003077	0.02588	mg/L	0.006154	23.78%
V 292.402†	37311.4	0.3111	mg/L	0.00347	0.6221	mg/L	0.00693	1.11%
Zn 206.200†	5749.9	1.630	mg/L	0.0201	3.260	mg/L	0.0402	1.23%

Sequence No.: 34
Sample ID: XI45 D SWC

Autosampler Location: 326
Date Collected: 10/10/2013 11:21:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 D SWC

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: XI45 D SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2300063.1	101.4	%	0.63				0.62%
ScR 361.383	266422.3	103.2	%	0.71				0.69%
Ag 328.068†	-272.1	-0.00132	mg/L	0.000440	-0.00264	mg/L	0.000880	33.33%
Al 308.215†	63012.1	72.45	mg/L	0.593	144.9	mg/L	1.19	0.82%
As 188.979†	-111.5	0.05768	mg/L	0.004196	0.1154	mg/L	0.00839	7.27%
B 249.677†	74.5	0.01395	mg/L	0.001033	0.02789	mg/L	0.002065	7.40%
Ba 233.527†	1693.7	0.3542	mg/L	0.00288	0.7084	mg/L	0.00575	0.81%
Be 313.042†	506.7	0.00094	mg/L	0.000021	0.00188	mg/L	0.000042	2.21%
Ca 317.933†	270366.0	37.58	mg/L	0.246	75.17	mg/L	0.492	0.65%
Cd 228.802†	47.0	0.00166	mg/L	0.000262	0.00332	mg/L	0.000525	15.82%
Co 228.616†	1482.9	0.04636	mg/L	0.000310	0.09273	mg/L	0.000619	0.67%
Cr 267.716†	852.3	0.1453	mg/L	0.00012	0.2907	mg/L	0.00023	0.08%
Cu 324.752†	51452.7	0.2407	mg/L	0.00128	0.4813	mg/L	0.00256	0.53%
Fe 273.955†	125711.1	126.6	mg/L	0.98	253.2	mg/L	1.96	0.77%
K 766.490†	8912.1	5.552	mg/L	0.0279	11.10	mg/L	0.056	0.50%
Mg 279.077†	17649.4	25.14	mg/L	0.191	50.29	mg/L	0.383	0.76%
Mn 257.610†	65308.0	1.569	mg/L	0.0116	3.139	mg/L	0.0232	0.74%
Mo 202.031†	207.4	0.01349	mg/L	0.000462	0.02699	mg/L	0.000924	3.42%
Na 589.592†	59545.7	5.310	mg/L	0.0436	10.62	mg/L	0.087	0.82%
Na 330.237†	101.1	5.427	mg/L	0.1641	10.85	mg/L	0.328	3.02%
Ni 231.604†	354.2	0.1310	mg/L	0.00085	0.2621	mg/L	0.00170	0.65%
Pb 220.353†	1461.8	0.2387	mg/L	0.00259	0.4775	mg/L	0.00517	1.08%
Sb 206.836†	-3.8	0.00183	mg/L	0.001178	0.00366	mg/L	0.002356	64.45%
Se 196.026†	17.8	0.01141	mg/L	0.002996	0.02282	mg/L	0.005993	26.26%
Si 288.158†	1663.8	1.526	mg/L	0.0071	3.052	mg/L	0.0143	0.47%
Sn 189.927†	-2.2	0.00360	mg/L	0.000648	0.00720	mg/L	0.001296	18.00%
Sr 421.552†	222198.8	0.3040	mg/L	0.00216	0.6080	mg/L	0.00431	0.71%
Ti 334.903†	97447.5	4.994	mg/L	0.0360	9.989	mg/L	0.0720	0.72%
Tl 190.801†	0.7	0.01689	mg/L	0.003721	0.03378	mg/L	0.007442	22.03%
V 292.402†	42445.2	0.3502	mg/L	0.00049	0.7003	mg/L	0.00098	0.14%
Zn 206.200†	3321.3	0.9412	mg/L	0.00338	1.882	mg/L	0.0068	0.36%

Sequence No.: 35
Sample ID: XI45 E SWC

Autosampler Location: 327
Date Collected: 10/10/2013 11:25:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 E SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 E SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2295033.6	101.2	%	0.54				0.54%
ScR 361.383	263442.3	102.0	%	0.17				0.17%
Ag 328.068†	-250.1	-0.00120	mg/L	0.000046	-0.00240	mg/L	0.000091	3.79%
Al 308.215†	86582.7	99.56	mg/L	0.128	199.1	mg/L	0.26	0.13%
As 188.979†	-159.3	0.04464	mg/L	0.001765	0.08928	mg/L	0.003529	3.95%
B 249.677†	143.1	0.02686	mg/L	0.001531	0.05372	mg/L	0.003062	5.70%
Ba 233.527†	2518.1	0.5326	mg/L	0.00242	1.065	mg/L	0.0048	0.45%
Be 313.042†	697.5	0.00133	mg/L	0.000002	0.00267	mg/L	0.000005	0.18%
Ca 317.933†	307950.9	42.81	mg/L	0.139	85.62	mg/L	0.278	0.32%
Cd 228.802†	53.3	0.00222	mg/L	0.000232	0.00443	mg/L	0.000465	10.48%
Co 228.616†	1906.3	0.06043	mg/L	0.000495	0.1209	mg/L	0.00099	0.82%
Cr 267.716†	2398.9	0.4027	mg/L	0.00057	0.8054	mg/L	0.00113	0.14%
Cu 324.752†	56445.9	0.2640	mg/L	0.00140	0.5279	mg/L	0.00280	0.53%
Fe 273.955†	139703.4	140.7	mg/L	0.58	281.4	mg/L	1.16	0.41%
K 766.490†	11634.9	7.248	mg/L	0.0307	14.50	mg/L	0.061	0.42%
Mg 279.077†	27956.8	39.87	mg/L	0.103	79.73	mg/L	0.205	0.26%
Mn 257.610†	91297.6	2.194	mg/L	0.0021	4.388	mg/L	0.0041	0.09%
Mo 202.031†	204.1	0.01319	mg/L	0.000342	0.02638	mg/L	0.000684	2.59%
Na 589.592†	91859.6	8.192	mg/L	0.0282	16.38	mg/L	0.056	0.34%
Na 330.237†	158.3	7.989	mg/L	0.2248	15.98	mg/L	0.450	2.81%
Ni 231.604†	817.8	0.3026	mg/L	0.00091	0.6051	mg/L	0.00183	0.30%
Pb 220.353†	1858.3	0.3072	mg/L	0.00290	0.6145	mg/L	0.00581	0.95%
Sb 206.836†	-3.5	-0.00067	mg/L	0.002009	-0.00135	mg/L	0.004018	298.47%
Se 196.026†	23.1	0.01518	mg/L	0.003149	0.03036	mg/L	0.006297	20.74%
Si 288.158†	1479.8	1.358	mg/L	0.0122	2.715	mg/L	0.0245	0.90%
Sn 189.927†	-6.1	0.00329	mg/L	0.000912	0.00658	mg/L	0.001824	27.71%
Sr 421.552†	197051.1	0.2696	mg/L	0.00053	0.5392	mg/L	0.00105	0.20%
Ti 334.903†	115698.2	5.930	mg/L	0.0121	11.86	mg/L	0.024	0.20%
Tl 190.801†	-6.6	0.01334	mg/L	0.002176	0.02667	mg/L	0.004352	16.32%
V 292.402†	43961.8	0.3628	mg/L	0.00241	0.7255	mg/L	0.00481	0.66%
Zn 206.200†	4800.7	1.361	mg/L	0.0042	2.721	mg/L	0.0084	0.31%

Sequence No.: 36
Sample ID: XI45 F SWC

Autosampler Location: 328
Date Collected: 10/10/2013 11:29:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 F SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 F SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2304440.1	101.6	%	0.13				0.13%
ScR 361.383	264286.9	102.4	%	0.82				0.81%
Ag 328.068†	-228.7	-0.00108	mg/L	0.000257	-0.00217	mg/L	0.000513	23.67%
Al 308.215†	71827.0	82.59	mg/L	0.296	165.2	mg/L	0.59	0.36%
As 188.979†	-114.7	0.05153	mg/L	0.001133	0.1031	mg/L	0.00227	2.20%
B 249.677†	67.9	0.01272	mg/L	0.001063	0.02543	mg/L	0.002126	8.36%
Ba 233.527†	3090.2	0.6556	mg/L	0.00435	1.311	mg/L	0.0087	0.66%
Be 313.042†	648.2	0.00123	mg/L	0.000004	0.00247	mg/L	0.000008	0.34%
Ca 317.933†	315856.6	43.91	mg/L	0.159	87.82	mg/L	0.317	0.36%
Cd 228.802†	89.3	0.00356	mg/L	0.000062	0.00713	mg/L	0.000123	1.73%
Co 228.616†	1439.0	0.04485	mg/L	0.000528	0.08969	mg/L	0.001055	1.18%
Cr 267.716†	1178.0	0.2008	mg/L	0.00188	0.4015	mg/L	0.00376	0.94%
Cu 324.752†	168351.5	0.7777	mg/L	0.00532	1.555	mg/L	0.0106	0.68%
Fe 273.955†	155322.5	156.4	mg/L	0.15	312.8	mg/L	0.31	0.10%
K 766.490†	10369.9	6.460	mg/L	0.0564	12.92	mg/L	0.113	0.87%
Mg 279.077†	19240.2	27.40	mg/L	0.070	54.79	mg/L	0.140	0.26%
Mn 257.610†	66817.9	1.606	mg/L	0.0028	3.212	mg/L	0.0055	0.17%
Mo 202.031†	177.4	0.01139	mg/L	0.000099	0.02277	mg/L	0.000197	0.87%
Na 589.592†	73584.5	6.562	mg/L	0.0311	13.12	mg/L	0.062	0.47%
Na 330.237†	132.4	6.630	mg/L	0.1374	13.26	mg/L	0.275	2.07%
Ni 231.604†	370.7	0.1371	mg/L	0.00236	0.2743	mg/L	0.00471	1.72%
Pb 220.353†	7862.1	1.223	mg/L	0.0061	2.446	mg/L	0.0121	0.49%
Sb 206.836†	-3.1	0.00177	mg/L	0.002616	0.00353	mg/L	0.005232	148.04%
Se 196.026†	28.6	0.01937	mg/L	0.006762	0.03874	mg/L	0.013524	34.91%
Si 288.158†	1574.8	1.445	mg/L	0.0172	2.889	mg/L	0.0345	1.19%
Sn 189.927†	135.6	0.03784	mg/L	0.000599	0.07568	mg/L	0.001198	1.58%
Sr 421.552†	226278.5	0.3096	mg/L	0.00124	0.6191	mg/L	0.00248	0.40%
Ti 334.903†	95906.6	4.915	mg/L	0.0159	9.830	mg/L	0.0317	0.32%
Tl 190.801†	-7.6	0.01493	mg/L	0.002423	0.02986	mg/L	0.004847	16.23%
V 292.402†	46127.6	0.3798	mg/L	0.00237	0.7597	mg/L	0.00475	0.63%
Zn 206.200†	4467.1	1.266	mg/L	0.0114	2.532	mg/L	0.0228	0.90%

Sequence No.: 37
Sample ID: XI45 G SWC

Autosampler Location: 329
Date Collected: 10/10/2013 11:33:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 G SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 G SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2346512.6	103.5	%	0.20				0.19%
ScR 361.383	266608.8	103.3	%	0.26				0.25%
Ag 328.068†	-251.6	-0.00122	mg/L	0.000139	-0.00243	mg/L	0.000277	11.38%
Al 308.215†	83902.1	96.48	mg/L	0.470	193.0	mg/L	0.94	0.49%
As 188.979†	-166.1	0.02742	mg/L	0.004686	0.05484	mg/L	0.009372	17.09%
B 249.677†	53.2	0.00993	mg/L	0.000385	0.01987	mg/L	0.000770	3.88%
Ba 233.527†	1687.9	0.3529	mg/L	0.00335	0.7058	mg/L	0.00669	0.95%
Be 313.042†	753.9	0.00146	mg/L	0.000009	0.00293	mg/L	0.000018	0.63%
Ca 317.933†	279652.8	38.88	mg/L	0.071	77.75	mg/L	0.141	0.18%
Cd 228.802†	30.9	0.00106	mg/L	0.000147	0.00213	mg/L	0.000294	13.84%
Co 228.616†	1432.3	0.04352	mg/L	0.000217	0.08705	mg/L	0.000434	0.50%
Cr 267.716†	885.4	0.1511	mg/L	0.00077	0.3022	mg/L	0.00154	0.51%
Cu 324.752†	49951.1	0.2337	mg/L	0.00168	0.4674	mg/L	0.00337	0.72%
Fe 273.955†	126230.2	127.1	mg/L	0.26	254.2	mg/L	0.52	0.21%
K 766.490†	12624.8	7.865	mg/L	0.0255	15.73	mg/L	0.051	0.32%
Mg 279.077†	15649.4	22.28	mg/L	0.018	44.57	mg/L	0.035	0.08%
Mn 257.610†	57491.1	1.381	mg/L	0.0031	2.763	mg/L	0.0061	0.22%
Mo 202.031†	131.0	0.00833	mg/L	0.000335	0.01665	mg/L	0.000669	4.02%
Na 589.592†	54031.5	4.818	mg/L	0.0153	9.637	mg/L	0.0305	0.32%
Na 330.237†	79.4	4.826	mg/L	0.1044	9.653	mg/L	0.2088	2.16%
Ni 231.604†	331.4	0.1226	mg/L	0.00101	0.2452	mg/L	0.00202	0.82%
Pb 220.353†	831.2	0.1489	mg/L	0.00095	0.2977	mg/L	0.00191	0.64%
Sb 206.836†	-10.5	-0.00094	mg/L	0.000481	-0.00188	mg/L	0.000963	51.24%
Se 196.026†	22.0	0.01455	mg/L	0.003051	0.02910	mg/L	0.006101	20.96%
Si 288.158†	1563.0	1.434	mg/L	0.0065	2.867	mg/L	0.0130	0.45%
Sn 189.927†	-18.1	-0.00005	mg/L	0.002096	-0.00010	mg/L	0.004192	>999.9%
Sr 421.552†	240656.2	0.3292	mg/L	0.00120	0.6585	mg/L	0.00240	0.37%
Ti 334.903†	108368.5	5.554	mg/L	0.0216	11.11	mg/L	0.043	0.39%
Tl 190.801†	-2.9	0.01442	mg/L	0.003107	0.02885	mg/L	0.006215	21.55%
V 292.402†	40776.3	0.3357	mg/L	0.00225	0.6713	mg/L	0.00449	0.67%
Zn 206.200†	1515.3	0.4292	mg/L	0.00391	0.8583	mg/L	0.00782	0.91%

Sequence No.: 38
Sample ID: XI45 H SWC

Autosampler Location: 330
Date Collected: 10/10/2013 11:37:56 AM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI45 H SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 H SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2315156.8	102.1	%	0.93				0.91%
ScR 361.383	263311.8	102.0	%	0.74				0.72%
Ag 328.068†	-233.4	-0.00113	mg/L	0.000136	-0.00225	mg/L	0.000272	12.06%
Al 308.215†	59551.5	68.48	mg/L	0.380	137.0	mg/L	0.76	0.56%
As 188.979†	-111.5	0.04331	mg/L	0.005579	0.08662	mg/L	0.011157	12.88%
B 249.677†	44.5	0.00830	mg/L	0.001100	0.01659	mg/L	0.002199	13.25%
Ba 233.527†	1899.1	0.4000	mg/L	0.00207	0.8000	mg/L	0.00414	0.52%
Be 313.042†	473.8	0.00088	mg/L	0.000008	0.00176	mg/L	0.000017	0.95%
Ca 317.933†	254515.2	35.38	mg/L	0.232	70.76	mg/L	0.464	0.66%
Cd 228.802†	40.2	0.00137	mg/L	0.000163	0.00275	mg/L	0.000325	11.82%
Co 228.616†	1351.1	0.04226	mg/L	0.000413	0.08452	mg/L	0.000827	0.98%
Cr 267.716†	777.5	0.1326	mg/L	0.00062	0.2652	mg/L	0.00124	0.47%
Cu 324.752†	40203.3	0.1889	mg/L	0.00378	0.3777	mg/L	0.00757	2.00%
Fe 273.955†	118412.2	119.2	mg/L	0.88	238.5	mg/L	1.75	0.74%
K 766.490†	12722.6	7.926	mg/L	0.0649	15.85	mg/L	0.130	0.82%
Mg 279.077†	17191.5	24.49	mg/L	0.174	48.99	mg/L	0.348	0.71%
Mn 257.610†	65611.6	1.577	mg/L	0.0085	3.154	mg/L	0.0170	0.54%
Mo 202.031†	173.6	0.01124	mg/L	0.000273	0.02249	mg/L	0.000546	2.43%
Na 589.592†	57102.6	5.092	mg/L	0.0259	10.18	mg/L	0.052	0.51%
Na 330.237†	91.9	4.981	mg/L	0.2982	9.963	mg/L	0.5963	5.99%
Ni 231.604†	326.1	0.1207	mg/L	0.00021	0.2413	mg/L	0.00043	0.18%
Pb 220.353†	1183.4	0.1952	mg/L	0.00201	0.3905	mg/L	0.00402	1.03%
Sb 206.836†	-2.9	0.00194	mg/L	0.002474	0.00389	mg/L	0.004949	127.35%
Se 196.026†	16.8	0.01076	mg/L	0.002306	0.02152	mg/L	0.004611	21.42%
Si 288.158†	1477.5	1.355	mg/L	0.0069	2.711	mg/L	0.0137	0.51%
Sn 189.927†	-1.9	0.00341	mg/L	0.000364	0.00681	mg/L	0.000727	10.67%
Sr 421.552†	220583.3	0.3018	mg/L	0.00162	0.6036	mg/L	0.00324	0.54%
Ti 334.903†	88538.3	4.538	mg/L	0.0236	9.075	mg/L	0.0472	0.52%
Tl 190.801†	-3.8	0.01269	mg/L	0.001372	0.02537	mg/L	0.002745	10.82%
V 292.402†	38863.4	0.3205	mg/L	0.00504	0.6409	mg/L	0.01008	1.57%
Zn 206.200†	2425.3	0.6872	mg/L	0.00423	1.374	mg/L	0.0085	0.62%

Sequence No.: 39
Sample ID: CV 4

Autosampler Location: 7
Date Collected: 10/10/2013 11:41:56 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	212.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2322969.4	102.4	%	0.40				0.39%
ScR 361.383	261012.5	101.1	%	1.10				1.09%
Ag 328.068†	192308.9	1.007	mg/L	0.0046	1.007	mg/L	0.0046	0.45%
Al 308.215†	1820.3	2.061	mg/L	0.0158	2.061	mg/L	0.0158	0.77%
As 188.979†	2193.3	1.962	mg/L	0.0020	1.962	mg/L	0.0020	0.10%
B 249.677†	5286.5	0.9963	mg/L	0.00834	0.9963	mg/L	0.00834	0.84%
Ba 233.527†	4880.6	1.066	mg/L	0.0099	1.066	mg/L	0.0099	0.93%
Be 313.042†	446908.4	0.9507	mg/L	0.01148	0.9507	mg/L	0.01148	1.21%
Ca 317.933†	14793.6	2.057	mg/L	0.0131	2.057	mg/L	0.0131	0.64%
Cd 228.802†	19626.4	1.024	mg/L	0.0031	1.024	mg/L	0.0031	0.30%
Co 228.616†	27324.4	1.012	mg/L	0.0029	1.012	mg/L	0.0029	0.29%
Cr 267.716†	6180.3	1.031	mg/L	0.0068	1.031	mg/L	0.0068	0.66%
Cu 324.752†	221375.7	1.014	mg/L	0.0019	1.014	mg/L	0.0019	0.19%
Fe 273.955†	1965.2	1.973	mg/L	0.0101	1.973	mg/L	0.0101	0.51%
K 766.490†	32092.9	19.99	mg/L	0.013	19.99	mg/L	0.013	0.06%
Mg 279.077†	1404.8	2.014	mg/L	0.0133	2.014	mg/L	0.0133	0.66%
Mn 257.610†	39184.2	0.9423	mg/L	0.00901	0.9423	mg/L	0.00901	0.96%
Mo 202.031†	14445.0	0.9747	mg/L	0.00172	0.9747	mg/L	0.00172	0.18%
Na 589.592†	562308.9	50.15	mg/L	0.480	50.15	mg/L	0.480	0.96%
Na 330.237†	1235.6	52.29	mg/L	0.528	52.29	mg/L	0.528	1.01%
Ni 231.604†	2748.1	1.017	mg/L	0.0082	1.017	mg/L	0.0082	0.81%
Pb 220.353†	12732.6	1.958	mg/L	0.0042	1.958	mg/L	0.0042	0.21%
Sb 206.836†	4394.1	2.022	mg/L	0.0053	2.022	mg/L	0.0053	0.26%
Se 196.026†	2527.8	1.941	mg/L	0.0029	1.941	mg/L	0.0029	0.15%
Si 288.158†	2206.9	2.029	mg/L	0.0239	2.029	mg/L	0.0239	1.18%
Sn 189.927†	3887.3	0.9518	mg/L	0.00117	0.9518	mg/L	0.00117	0.12%
Sr 421.552†	716103.5	0.9797	mg/L	0.00717	0.9797	mg/L	0.00717	0.73%
Ti 334.903†	19048.0	0.9756	mg/L	0.00847	0.9756	mg/L	0.00847	0.87%
Tl 190.801†	2820.0	2.057	mg/L	0.0058	2.057	mg/L	0.0058	0.28%
V 292.402†	116012.5	0.9873	mg/L	0.00395	0.9873	mg/L	0.00395	0.40%
Zn 206.200†	3465.1	0.9827	mg/L	0.00717	0.9827	mg/L	0.00717	0.73%

Sequence No.: 40
Sample ID: CB 4

Autosampler Location: 1
Date Collected: 10/10/2013 11:45:45 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2340128.7	103.2	%	0.44				0.42%
ScR 361.383	263464.6	102.0	%	0.87				0.85%
Ag 328.068†	41.8	0.00022	mg/L	0.000155	0.00022	mg/L	0.000155	70.80%
Al 308.215†	-3.1	-0.00357	mg/L	0.004411	-0.00357	mg/L	0.004411	123.50%
As 188.979†	-4.2	-0.00361	mg/L	0.001506	-0.00361	mg/L	0.001506	41.69%
B 249.677†	6.6	0.00124	mg/L	0.000554	0.00124	mg/L	0.000554	44.76%
Ba 233.527†	3.4	0.00074	mg/L	0.000592	0.00074	mg/L	0.000592	79.93%
Be 313.042†	14.3	0.00003	mg/L	0.000069	0.00003	mg/L	0.000069	226.66%
Ca 317.933†	14.4	0.00200	mg/L	0.000780	0.00200	mg/L	0.000780	39.08%
Cd 228.802†	3.7	0.00022	mg/L	0.000114	0.00022	mg/L	0.000114	53.11%
Co 228.616†	1.2	0.00004	mg/L	0.000058	0.00004	mg/L	0.000058	138.03%
Cr 267.716†	8.6	0.00144	mg/L	0.001754	0.00144	mg/L	0.001754	121.88%
Cu 324.752†	131.4	0.00060	mg/L	0.000010	0.00060	mg/L	0.000010	1.59%
Fe 273.955†	1.9	0.00190	mg/L	0.005631	0.00190	mg/L	0.005631	296.15%
K 766.490†	22.2	0.01382	mg/L	0.013061	0.01382	mg/L	0.013061	94.49%
Mg 279.077†	2.9	0.00417	mg/L	0.003996	0.00417	mg/L	0.003996	95.80%
Mn 257.610†	4.6	0.00011	mg/L	0.000107	0.00011	mg/L	0.000107	98.16%
Mo 202.031†	9.4	0.00063	mg/L	0.000260	0.00063	mg/L	0.000260	40.89%
Na 589.592†	16.1	0.00144	mg/L	0.004918	0.00144	mg/L	0.004918	342.17%
Na 330.237†	-5.9	-0.2506	mg/L	0.21902	-0.2506	mg/L	0.21902	87.41%
Ni 231.604†	-7.1	-0.00264	mg/L	0.001643	-0.00264	mg/L	0.001643	62.23%
Pb 220.353†	-1.8	-0.00028	mg/L	0.000302	-0.00028	mg/L	0.000302	109.29%
Sb 206.836†	5.7	0.00260	mg/L	0.002625	0.00260	mg/L	0.002625	100.78%
Se 196.026†	-0.2	-0.00014	mg/L	0.001511	-0.00014	mg/L	0.001511	>999.9%
Si 288.158†	5.0	0.00460	mg/L	0.001721	0.00460	mg/L	0.001721	37.40%
Sn 189.927†	1.3	0.00032	mg/L	0.000288	0.00032	mg/L	0.000288	89.00%
Sr 421.552†	51.3	0.00007	mg/L	0.000006	0.00007	mg/L	0.000006	8.48%
Ti 334.903†	40.6	0.00208	mg/L	0.001030	0.00208	mg/L	0.001030	49.44%
Tl 190.801†	-0.4	-0.00033	mg/L	0.004015	-0.00033	mg/L	0.004015	>999.9%
V 292.402†	10.4	0.00009	mg/L	0.000110	0.00009	mg/L	0.000110	118.27%
Zn 206.200†	-0.8	-0.00024	mg/L	0.000739	-0.00024	mg/L	0.000739	313.05%

Sequence No.: 41
Sample ID: CRI

Autosampler Location: 301
Date Collected: 10/10/2013 11:50:00 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2335275.4	103.0	%	0.39				0.38%
ScR 361.383	262616.0	101.7	%	0.80				0.78%
Ag 328.068†	581.0	0.00304	mg/L	0.000218	0.00304	mg/L	0.000218	7.17%
Al 308.215†	34.3	0.03935	mg/L	0.006705	0.03935	mg/L	0.006705	17.04%
As 188.979†	54.1	0.04786	mg/L	0.001295	0.04786	mg/L	0.001295	2.71%
B 249.677†	105.4	0.01989	mg/L	0.000481	0.01989	mg/L	0.000481	2.42%
Ba 233.527†	15.1	0.00328	mg/L	0.000311	0.00328	mg/L	0.000311	9.46%
Be 313.042†	411.5	0.00087	mg/L	0.000049	0.00087	mg/L	0.000049	5.56%
Ca 317.933†	361.7	0.05028	mg/L	0.000477	0.05028	mg/L	0.000477	0.95%
Cd 228.802†	47.0	0.00222	mg/L	0.000102	0.00222	mg/L	0.000102	4.61%
Co 228.616†	80.5	0.00297	mg/L	0.000174	0.00297	mg/L	0.000174	5.83%
Cr 267.716†	33.2	0.00553	mg/L	0.000302	0.00553	mg/L	0.000302	5.47%
Cu 324.752†	547.7	0.00251	mg/L	0.000095	0.00251	mg/L	0.000095	3.78%
Fe 273.955†	46.7	0.04698	mg/L	0.004123	0.04698	mg/L	0.004123	8.78%
K 766.490†	812.6	0.5062	mg/L	0.01593	0.5062	mg/L	0.01593	3.15%
Mg 279.077†	38.6	0.05514	mg/L	0.004738	0.05514	mg/L	0.004738	8.59%
Mn 257.610†	36.4	0.00088	mg/L	0.000124	0.00088	mg/L	0.000124	14.13%
Mo 202.031†	72.9	0.00492	mg/L	0.000064	0.00492	mg/L	0.000064	1.30%
Na 589.592†	5583.6	0.4979	mg/L	0.00546	0.4979	mg/L	0.00546	1.10%
Na 330.237†	18.5	0.7809	mg/L	0.59558	0.7809	mg/L	0.59558	76.27%
Ni 231.604†	22.3	0.00824	mg/L	0.001439	0.00824	mg/L	0.001439	17.47%
Pb 220.353†	128.5	0.01976	mg/L	0.000413	0.01976	mg/L	0.000413	2.09%
Sb 206.836†	105.0	0.04837	mg/L	0.000648	0.04837	mg/L	0.000648	1.34%
Se 196.026†	62.3	0.04787	mg/L	0.002326	0.04787	mg/L	0.002326	4.86%
Si 288.158†	62.7	0.05749	mg/L	0.003477	0.05749	mg/L	0.003477	6.05%
Sn 189.927†	40.8	0.01000	mg/L	0.000164	0.01000	mg/L	0.000164	1.64%
Sr 421.552†	717.2	0.00098	mg/L	0.000011	0.00098	mg/L	0.000011	1.07%
Ti 334.903†	129.9	0.00665	mg/L	0.001176	0.00665	mg/L	0.001176	17.68%
Tl 190.801†	66.0	0.04831	mg/L	0.001812	0.04831	mg/L	0.001812	3.75%
V 292.402†	330.3	0.00282	mg/L	0.000065	0.00282	mg/L	0.000065	2.32%
Zn 206.200†	31.3	0.00889	mg/L	0.000744	0.00889	mg/L	0.000744	8.36%

Sequence No.: 42
Sample ID: ICSA

Autosampler Location: 302
Date Collected: 10/10/2013 11:54:16 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2248376.2	99.16	%	0.408				0.41%
ScR 361.383	258646.3	100.2	%	0.83				0.83%
Ag 328.068†	-256.9	-0.00134	mg/L	0.000332	-0.00134	mg/L	0.000332	24.76%
Al 308.215†	174166.8	200.3	mg/L	1.02	200.3	mg/L	1.02	0.51%
As 188.979†	56.1	0.03830	mg/L	0.006195	0.03830	mg/L	0.006195	16.18%
B 249.677†	80.4	0.01517	mg/L	0.002240	0.01517	mg/L	0.002240	14.76%
Ba 233.527†	114.0	0.00190	mg/L	0.000447	0.00190	mg/L	0.000447	23.59%
Be 313.042†	24.6	0.00005	mg/L	0.000022	0.00005	mg/L	0.000022	43.78%
Ca 317.933†	708539.8	98.50	mg/L	0.658	98.50	mg/L	0.658	0.67%
Cd 228.802†	6.4	-0.00207	mg/L	0.000184	-0.00207	mg/L	0.000184	8.90%
Co 228.616†	74.2	0.00272	mg/L	0.000076	0.00272	mg/L	0.000076	2.78%
Cr 267.716†	14.1	0.00140	mg/L	0.000718	0.00140	mg/L	0.000718	51.15%
Cu 324.752†	-1728.7	0.00034	mg/L	0.000024	0.00034	mg/L	0.000024	7.16%
Fe 273.955†	184667.1	186.0	mg/L	1.12	186.0	mg/L	1.12	0.60%
K 766.490†	1.0	0.00060	mg/L	0.014404	0.00060	mg/L	0.014404	>999.9%
Mg 279.077†	71757.2	102.4	mg/L	1.09	102.4	mg/L	1.09	1.06%
Mn 257.610†	54.4	-0.00040	mg/L	0.000057	-0.00040	mg/L	0.000057	14.01%
Mo 202.031†	106.1	0.00586	mg/L	0.000335	0.00586	mg/L	0.000335	5.70%
Na 589.592†	229.8	0.02049	mg/L	0.001892	0.02049	mg/L	0.001892	9.23%
Na 330.237†	-23.2	-0.9782	mg/L	0.16990	-0.9782	mg/L	0.16990	17.37%
Ni 231.604†	1.1	0.00038	mg/L	0.001169	0.00038	mg/L	0.001169	303.79%
Pb 220.353†	-390.7	-0.01174	mg/L	0.001019	-0.01174	mg/L	0.001019	8.68%
Sb 206.836†	-31.6	-0.01468	mg/L	0.003513	-0.01468	mg/L	0.003513	23.93%
Se 196.026†	51.9	0.03448	mg/L	0.004403	0.03448	mg/L	0.004403	12.77%
Si 288.158†	-5.8	-0.00533	mg/L	0.004072	-0.00533	mg/L	0.004072	76.43%
Sn 189.927†	-67.7	-0.00844	mg/L	0.000732	-0.00844	mg/L	0.000732	8.68%
Sr 421.552†	3838.1	0.00525	mg/L Cont.	0.000042	0.00525	mg/L	0.000042	0.80%
Ti 334.903†	342.3	0.00918	mg/L	0.000268	0.00918	mg/L	0.000268	2.92%
Tl 190.801†	-6.3	0.02187	mg/L	0.003749	0.02187	mg/L	0.003749	17.14%
V 292.402†	1274.7	-0.00038	mg/L	0.000303	-0.00038	mg/L	0.000303	80.18%
Zn 206.200†	-4.6	-0.00306	mg/L	0.001354	-0.00306	mg/L	0.001354	44.21%

Sequence No.: 43
Sample ID: ICSAB

Autosampler Location: 303
Date Collected: 10/10/2013 11:58:31 AM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2244988.2	99.01	%	0.712				0.72%
ScR 361.383	260892.0	101.0	%	0.43				0.43%
Ag 328.068†	197139.6	1.032	mg/L	0.0028	1.032	mg/L	0.0028	0.27%
Al 308.215†	175074.4	201.3	mg/L	1.23	201.3	mg/L	1.23	0.61%
As 188.979†	1168.5	1.019	mg/L	0.0084	1.019	mg/L	0.0084	0.83%
B 249.677†	33.5	0.00430	mg/L	0.000661	0.00430	mg/L	0.000661	15.39%
Ba 233.527†	4872.8	1.042	mg/L	0.0039	1.042	mg/L	0.0039	0.38%
Be 313.042†	440733.5	0.9376	mg/L	0.01170	0.9376	mg/L	0.01170	1.25%
Ca 317.933†	715001.7	99.40	mg/L	0.937	99.40	mg/L	0.937	0.94%
Cd 228.802†	19501.0	1.020	mg/L	0.0080	1.020	mg/L	0.0080	0.78%
Co 228.616†	26027.6	0.9657	mg/L	0.00704	0.9657	mg/L	0.00704	0.73%
Cr 267.716†	6025.5	1.004	mg/L	0.0068	1.004	mg/L	0.0068	0.68%
Cu 324.752†	222135.9	1.026	mg/L	0.0016	1.026	mg/L	0.0016	0.15%
Fe 273.955†	186260.9	187.6	mg/L	1.74	187.6	mg/L	1.74	0.93%
K 766.490†	0.9	0.00055	mg/L	0.008990	0.00055	mg/L	0.008990	>999.9%
Mg 279.077†	69924.5	99.82	mg/L	0.623	99.82	mg/L	0.623	0.62%
Mn 257.610†	38065.3	0.9136	mg/L	0.00884	0.9136	mg/L	0.00884	0.97%
Mo 202.031†	114.9	0.00640	mg/L	0.000554	0.00640	mg/L	0.000554	8.66%
Na 589.592†	87.7	0.00782	mg/L	0.002309	0.00782	mg/L	0.002309	29.53%
Na 330.237†	-12.7	-0.8198	mg/L	0.20727	-0.8198	mg/L	0.20727	25.28%
Ni 231.604†	2596.1	0.9606	mg/L	0.00721	0.9606	mg/L	0.00721	0.75%
Pb 220.353†	5762.9	0.9345	mg/L	0.00847	0.9345	mg/L	0.00847	0.91%
Sb 206.836†	2150.0	0.9800	mg/L	0.00938	0.9800	mg/L	0.00938	0.96%
Se 196.026†	1305.5	0.9967	mg/L	0.00391	0.9967	mg/L	0.00391	0.39%
Si 288.158†	-20.6	-0.01439	mg/L	0.001186	-0.01439	mg/L	0.001186	8.25%
Sn 189.927†	-62.8	-0.00662	mg/L	0.000114	-0.00662	mg/L	0.000114	1.73%
Sr 421.552†	3854.4	0.00527	mg/L	0.000034	0.00527	mg/L	0.000034	0.64%
Ti 334.903†	347.9	0.00920	mg/L	0.000269	0.00920	mg/L	0.000269	2.92%
Tl 190.801†	1297.6	0.9672	mg/L	0.00339	0.9672	mg/L	0.00339	0.35%
V 292.402†	114840.1	0.9661	mg/L	0.00190	0.9661	mg/L	0.00190	0.20%
Zn 206.200†	3286.8	0.9302	mg/L	0.00504	0.9302	mg/L	0.00504	0.54%

Sequence No.: 44
Sample ID: CV 5

Autosampler Location: 7
Date Collected: 10/10/2013 12:03:20 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2302410.0	101.5	%	0.79				0.78%
ScR 361.383	259755.5	100.6	%	0.13				0.13%
Ag 328.068†	192958.9	1.010	mg/L	0.0040	1.010	mg/L	0.0040	0.40%
Al 308.215†	1818.5	2.059	mg/L	0.0080	2.059	mg/L	0.0080	0.39%
As 188.979†	2200.3	1.967	mg/L	0.0082	1.967	mg/L	0.0082	0.42%
B 249.677†	5259.8	0.9912	mg/L	0.00221	0.9912	mg/L	0.00221	0.22%
Ba 233.527†	4857.2	1.061	mg/L	0.0040	1.061	mg/L	0.0040	0.37%
Be 313.042†	442777.9	0.9419	mg/L	0.01073	0.9419	mg/L	0.01073	1.14%
Ca 317.933†	14810.8	2.059	mg/L	0.0069	2.059	mg/L	0.0069	0.33%
Cd 228.802†	19738.5	1.030	mg/L	0.0043	1.030	mg/L	0.0043	0.41%
Co 228.616†	27574.9	1.022	mg/L	0.0048	1.022	mg/L	0.0048	0.47%
Cr 267.716†	6160.9	1.027	mg/L	0.0044	1.027	mg/L	0.0044	0.43%
Cu 324.752†	220877.1	1.012	mg/L	0.0030	1.012	mg/L	0.0030	0.29%
Fe 273.955†	1964.2	1.972	mg/L	0.0085	1.972	mg/L	0.0085	0.43%
K 766.490†	31931.8	19.89	mg/L	0.189	19.89	mg/L	0.189	0.95%
Mg 279.077†	1412.6	2.026	mg/L	0.0090	2.026	mg/L	0.0090	0.44%
Mn 257.610†	38959.1	0.9369	mg/L	0.00869	0.9369	mg/L	0.00869	0.93%
Mo 202.031†	14508.7	0.9790	mg/L	0.00430	0.9790	mg/L	0.00430	0.44%
Na 589.592†	554046.8	49.41	mg/L	0.476	49.41	mg/L	0.476	0.96%
Na 330.237†	1233.9	52.21	mg/L	0.231	52.21	mg/L	0.231	0.44%
Ni 231.604†	2756.9	1.020	mg/L	0.0053	1.020	mg/L	0.0053	0.52%
Pb 220.353†	12817.2	1.971	mg/L	0.0091	1.971	mg/L	0.0091	0.46%
Sb 206.836†	4424.4	2.036	mg/L	0.0078	2.036	mg/L	0.0078	0.38%
Se 196.026†	2531.8	1.944	mg/L	0.0124	1.944	mg/L	0.0124	0.64%
Si 288.158†	2187.5	2.011	mg/L	0.0069	2.011	mg/L	0.0069	0.34%
Sn 189.927†	3900.7	0.9551	mg/L	0.00491	0.9551	mg/L	0.00491	0.51%
Sr 421.552†	709305.4	0.9704	mg/L	0.00947	0.9704	mg/L	0.00947	0.98%
Ti 334.903†	18868.7	0.9664	mg/L	0.01070	0.9664	mg/L	0.01070	1.11%
Tl 190.801†	2837.1	2.069	mg/L	0.0123	2.069	mg/L	0.0123	0.60%
V 292.402†	116461.3	0.9911	mg/L	0.00319	0.9911	mg/L	0.00319	0.32%
Zn 206.200†	3467.5	0.9833	mg/L	0.00367	0.9833	mg/L	0.00367	0.37%

Sequence No.: 45
Sample ID: CB 5

Autosampler Location: 1
Date Collected: 10/10/2013 12:07:09 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2336356.7	103.0	%	0.25				0.24%
ScR 361.383	262739.7	101.8	%	0.11				0.11%
Ag 328.068†	-0.0	-0.00000	mg/L	0.000024	-0.00000	mg/L	0.000024	>999.9%
Al 308.215†	0.9	0.00104	mg/L	0.002775	0.00104	mg/L	0.002775	266.84%
As 188.979†	1.6	0.00149	mg/L	0.001763	0.00149	mg/L	0.001763	118.40%
B 249.677†	4.5	0.00085	mg/L	0.001836	0.00085	mg/L	0.001836	215.73%
Ba 233.527†	2.4	0.00052	mg/L	0.000781	0.00052	mg/L	0.000781	151.09%
Be 313.042†	44.2	0.00009	mg/L	0.000021	0.00009	mg/L	0.000021	22.71%
Ca 317.933†	32.7	0.00454	mg/L	0.002321	0.00454	mg/L	0.002321	51.08%
Cd 228.802†	4.0	0.00020	mg/L	0.000155	0.00020	mg/L	0.000155	77.52%
Co 228.616†	3.6	0.00013	mg/L	0.000259	0.00013	mg/L	0.000259	197.04%
Cr 267.716†	4.5	0.00076	mg/L	0.001343	0.00076	mg/L	0.001343	177.24%
Cu 324.752†	171.3	0.00078	mg/L	0.000155	0.00078	mg/L	0.000155	19.72%
Fe 273.955†	4.1	0.00417	mg/L	0.000164	0.00417	mg/L	0.000164	3.92%
K 766.490†	-2.4	-0.00148	mg/L	0.013127	-0.00148	mg/L	0.013127	886.88%
Mg 279.077†	2.1	0.00296	mg/L	0.006402	0.00296	mg/L	0.006402	216.06%
Mn 257.610†	1.2	0.00003	mg/L	0.000023	0.00003	mg/L	0.000023	81.77%
Mo 202.031†	9.2	0.00062	mg/L	0.000255	0.00062	mg/L	0.000255	40.92%
Na 589.592†	10.8	0.00097	mg/L	0.003484	0.00097	mg/L	0.003484	360.55%
Na 330.237†	8.0	0.3385	mg/L	0.16140	0.3385	mg/L	0.16140	47.68%
Ni 231.604†	-7.4	-0.00275	mg/L	0.001561	-0.00275	mg/L	0.001561	56.77%
Pb 220.353†	-0.8	-0.00013	mg/L	0.000856	-0.00013	mg/L	0.000856	661.01%
Sb 206.836†	0.9	0.00042	mg/L	0.001586	0.00042	mg/L	0.001586	373.42%
Se 196.026†	1.1	0.00082	mg/L	0.002719	0.00082	mg/L	0.002719	332.20%
Si 288.158†	1.2	0.00109	mg/L	0.005218	0.00109	mg/L	0.005218	477.47%
Sn 189.927†	3.4	0.00084	mg/L	0.000680	0.00084	mg/L	0.000680	81.04%
Sr 421.552†	45.4	0.00006	mg/L	0.000045	0.00006	mg/L	0.000045	72.01%
Ti 334.903†	33.4	0.00171	mg/L	0.000477	0.00171	mg/L	0.000477	27.88%
Tl 190.801†	1.3	0.00097	mg/L	0.001580	0.00097	mg/L	0.001580	162.56%
V 292.402†	-15.5	-0.00013	mg/L	0.000140	-0.00013	mg/L	0.000140	108.63%
Zn 206.200†	-1.5	-0.00042	mg/L	0.000364	-0.00042	mg/L	0.000364	85.82%

Sequence No.: 46
Sample ID: XI45 MB2 TWC

Autosampler Location: 331
Date Collected: 10/10/2013 12:11:24 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI45 MB2 TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI45 MB2 TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2314609.2	102.1	%	2.41				2.36%
ScR 361.383	263428.8	102.0	%	0.18				0.18%
Ag 328.068†	34.8	0.00018	mg/L	0.000072	0.00018	mg/L	0.000072	39.30%
Al 308.215†	-2.8	-0.00317	mg/L	0.002234	-0.00317	mg/L	0.002234	70.47%
As 188.979†	-1.8	-0.00158	mg/L	0.001864	-0.00158	mg/L	0.001864	118.14%
B 249.677†	6.4	0.00120	mg/L	0.000696	0.00120	mg/L	0.000696	57.83%
Ba 233.527†	1.6	0.00036	mg/L	0.001345	0.00036	mg/L	0.001345	376.87%
Be 313.042†	5.4	0.00001	mg/L	0.000031	0.00001	mg/L	0.000031	270.08%
Ca 317.933†	31.6	0.00439	mg/L	0.001921	0.00439	mg/L	0.001921	43.79%
Cd 228.802†	1.6	0.00009	mg/L	0.000327	0.00009	mg/L	0.000327	357.52%
Co 228.616†	-1.8	-0.00007	mg/L	0.000040	-0.00007	mg/L	0.000040	58.49%
Cr 267.716†	20.6	0.00343	mg/L	0.001043	0.00343	mg/L	0.001043	30.38%
Cu 324.752†	191.0	0.00088	mg/L	0.000294	0.00088	mg/L	0.000294	33.54%
Fe 273.955†	8.9	0.00896	mg/L	0.002768	0.00896	mg/L	0.002768	30.89%
K 766.490†	5.2	0.00327	mg/L	0.015984	0.00327	mg/L	0.015984	489.08%
Mg 279.077†	0.3	0.00045	mg/L	0.007982	0.00045	mg/L	0.007982	>999.9%
Mn 257.610†	14.5	0.00035	mg/L	0.000139	0.00035	mg/L	0.000139	39.89%
Mo 202.031†	0.3	0.00002	mg/L	0.000116	0.00002	mg/L	0.000116	555.88%
Na 589.592†	59.0	0.00527	mg/L	0.003045	0.00527	mg/L	0.003045	57.82%
Na 330.237†	3.4	0.1435	mg/L	0.36260	0.1435	mg/L	0.36260	252.62%
Ni 231.604†	3.3	0.00120	mg/L	0.000996	0.00120	mg/L	0.000996	82.71%
Pb 220.353†	-1.5	-0.00023	mg/L	0.000724	-0.00023	mg/L	0.000724	313.67%
Sb 206.836†	2.5	0.00111	mg/L	0.001481	0.00111	mg/L	0.001481	133.39%
Se 196.026†	1.6	0.00123	mg/L	0.001806	0.00123	mg/L	0.001806	146.47%
Si 288.158†	18.7	0.01715	mg/L	0.008709	0.01715	mg/L	0.008709	50.79%
Sn 189.927†	5.1	0.00124	mg/L	0.000587	0.00124	mg/L	0.000587	47.44%
Sr 421.552†	-14.4	-0.00002	mg/L	0.000073	-0.00002	mg/L	0.000073	369.81%
Ti 334.903†	22.2	0.00114	mg/L	0.000830	0.00114	mg/L	0.000830	73.11%
Tl 190.801†	-3.2	-0.00236	mg/L	0.002339	-0.00236	mg/L	0.002339	99.23%
V 292.402†	-4.7	-0.00003	mg/L	0.000043	-0.00003	mg/L	0.000043	155.96%
Zn 206.200†	8.8	0.00249	mg/L	0.000703	0.00249	mg/L	0.000703	28.27%

Sequence No.: 47
Sample ID: XI45 I-L TWC

Autosampler Location: 332
Date Collected: 10/10/2013 12:15:40 PM
Data Type: Original

Dilution: 5.000000X

Nebulizer Parameters: XI45 I-L TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI45 I-L TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2326777.2	102.6	%	1.00				0.97%
ScR 361.383	262249.0	101.6	%	0.73				0.71%
Ag 328.068†	-30.2	-0.00016	mg/L	0.000177	-0.00079	mg/L	0.000883	111.89%
Al 308.215†	2.5	0.00290	mg/L	0.012399	0.01449	mg/L	0.061995	427.78%
As 188.979†	-2.2	-0.00188	mg/L	0.001819	-0.00938	mg/L	0.009096	97.00%
B 249.677†	4.7	0.00088	mg/L	0.001363	0.00442	mg/L	0.006816	154.07%
Ba 233.527†	4.6	0.00101	mg/L	0.000368	0.00506	mg/L	0.001840	36.38%
Be 313.042†	-8.2	-0.00002	mg/L	0.000032	-0.00009	mg/L	0.000162	186.36%
Ca 317.933†	246.0	0.03419	mg/L	0.001552	0.1710	mg/L	0.00776	4.54%
Cd 228.802†	1.0	0.00006	mg/L	0.000200	0.00031	mg/L	0.001000	326.09%
Co 228.616†	-2.3	-0.00009	mg/L	0.000170	-0.00043	mg/L	0.000848	195.74%
Cr 267.716†	4.8	0.00079	mg/L	0.000417	0.00396	mg/L	0.002087	52.69%
Cu 324.752†	361.9	0.00166	mg/L	0.000063	0.00829	mg/L	0.000317	3.83%
Fe 273.955†	0.8	0.00084	mg/L	0.003298	0.00418	mg/L	0.016489	394.18%
K 766.490†	13.6	0.00849	mg/L	0.013669	0.04244	mg/L	0.068344	161.05%
Mg 279.077†	5.7	0.00809	mg/L	0.007397	0.04045	mg/L	0.036987	91.43%
Mn 257.610†	11.0	0.00027	mg/L	0.000060	0.00133	mg/L	0.000299	22.56%
Mo 202.031†	-0.2	-0.00002	mg/L	0.000175	-0.00008	mg/L	0.000875	>999.9%
Na 589.592†	597.8	0.05331	mg/L	0.002113	0.2666	mg/L	0.01056	3.96%
Na 330.237†	7.8	0.3281	mg/L	0.19393	1.641	mg/L	0.9697	59.10%
Ni 231.604†	-3.3	-0.00123	mg/L	0.000530	-0.00614	mg/L	0.002649	43.13%
Pb 220.353†	-3.4	-0.00052	mg/L	0.001118	-0.00258	mg/L	0.005588	216.91%
Sb 206.836†	0.6	0.00028	mg/L	0.002904	0.00141	mg/L	0.014519	>999.9%
Se 196.026†	-0.7	-0.00052	mg/L	0.004936	-0.00262	mg/L	0.024679	941.98%
Si 288.158†	110.9	0.1017	mg/L	0.00592	0.5086	mg/L	0.02960	5.82%
Sn 189.927†	1.0	0.00024	mg/L	0.000673	0.00119	mg/L	0.003366	282.84%
Sr 421.552†	29.1	0.00004	mg/L	0.000051	0.00020	mg/L	0.000254	127.80%
Ti 334.903†	25.1	0.00128	mg/L	0.000407	0.00641	mg/L	0.002034	31.74%
Tl 190.801†	-0.2	-0.00013	mg/L	0.000137	-0.00063	mg/L	0.000684	108.28%
V 292.402†	-32.4	-0.00027	mg/L	0.000183	-0.00136	mg/L	0.000915	67.26%
Zn 206.200†	5.1	0.00147	mg/L	0.000222	0.00736	mg/L	0.001110	15.09%

Sequence No.: 48
Sample ID: XI45 I TWC

Autosampler Location: 333
Date Collected: 10/10/2013 12:19:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI45 I TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI45 I TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2330798.4	102.8	%	0.78				0.76%
ScR 361.383	267543.4	103.6	%	0.51				0.49%
Ag 328.068†	33.4	0.00017	mg/L	0.000234	0.00017	mg/L	0.000234	133.75%
Al 308.215†	17.0	0.01951	mg/L	0.006082	0.01951	mg/L	0.006082	31.17%
As 188.979†	-3.6	-0.00321	mg/L	0.001107	-0.00321	mg/L	0.001107	34.46%
B 249.677†	23.7	0.00448	mg/L	0.000919	0.00448	mg/L	0.000919	20.53%
Ba 233.527†	6.0	0.00131	mg/L	0.000166	0.00131	mg/L	0.000166	12.73%
Be 313.042†	-29.8	-0.00006	mg/L	0.000013	-0.00006	mg/L	0.000013	21.05%
Ca 317.933†	930.9	0.1294	mg/L	0.00201	0.1294	mg/L	0.00201	1.55%
Cd 228.802†	-0.3	-0.00000	mg/L	0.000207	-0.00000	mg/L	0.000207	>999.9%
Co 228.616†	-5.9	-0.00022	mg/L	0.000122	-0.00022	mg/L	0.000122	55.92%
Cr 267.716†	3.5	0.00059	mg/L	0.000554	0.00059	mg/L	0.000554	94.02%
Cu 324.752†	755.0	0.00346	mg/L	0.000052	0.00346	mg/L	0.000052	1.50%
Fe 273.955†	2.4	0.00242	mg/L	0.000804	0.00242	mg/L	0.000804	33.24%
K 766.490†	-42.1	-0.02622	mg/L	0.010014	-0.02622	mg/L	0.010014	38.19%
Mg 279.077†	16.7	0.02388	mg/L	0.006290	0.02388	mg/L	0.006290	26.34%
Mn 257.610†	65.1	0.00157	mg/L	0.000047	0.00157	mg/L	0.000047	3.03%
Mo 202.031†	0.2	0.00001	mg/L	0.000071	0.00001	mg/L	0.000071	626.01%
Na 589.592†	2745.6	0.2448	mg/L	0.00142	0.2448	mg/L	0.00142	0.58%
Na 330.237†	1.1	0.04756	mg/L	0.618754	0.04756	mg/L	0.618754	>999.9%
Ni 231.604†	-6.8	-0.00251	mg/L	0.001727	-0.00251	mg/L	0.001727	68.88%
Pb 220.353†	-3.8	-0.00058	mg/L	0.001627	-0.00058	mg/L	0.001627	281.67%
Sb 206.836†	-0.0	-0.00002	mg/L	0.001492	-0.00002	mg/L	0.001492	>999.9%
Se 196.026†	3.2	0.00243	mg/L	0.002323	0.00243	mg/L	0.002323	95.55%
Si 288.158†	495.1	0.4541	mg/L	0.00297	0.4541	mg/L	0.00297	0.65%
Sn 189.927†	1.1	0.00029	mg/L	0.000554	0.00029	mg/L	0.000554	191.33%
Sr 421.552†	91.6	0.00013	mg/L	0.000006	0.00013	mg/L	0.000006	5.15%
Ti 334.903†	8.8	0.00044	mg/L	0.000294	0.00044	mg/L	0.000294	67.15%
Tl 190.801†	-3.5	-0.00256	mg/L	0.002178	-0.00256	mg/L	0.002178	85.10%
V 292.402†	-8.5	-0.00007	mg/L	0.000136	-0.00007	mg/L	0.000136	193.73%
Zn 206.200†	14.3	0.00413	mg/L	0.000866	0.00413	mg/L	0.000866	20.96%

Sequence No.: 49
Sample ID: XI45 IDUP TWC

Autosampler Location: 334
Date Collected: 10/10/2013 12:23:53 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI45 IDUP TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI45 IDUP TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2336496.2	103.0	%	0.18				0.18%
ScR 361.383	263005.9	101.9	%	0.56				0.55%
Ag 328.068†	35.8	0.00019	mg/L	0.000170	0.00019	mg/L	0.000170	90.76%
Al 308.215†	16.2	0.01864	mg/L	0.005449	0.01864	mg/L	0.005449	29.22%
As 188.979†	-0.1	-0.00007	mg/L	0.002455	-0.00007	mg/L	0.002455	>999.9%
B 249.677†	31.3	0.00590	mg/L	0.000618	0.00590	mg/L	0.000618	10.47%
Ba 233.527†	2.6	0.00057	mg/L	0.000236	0.00057	mg/L	0.000236	41.45%
Be 313.042†	-14.6	-0.00003	mg/L	0.000031	-0.00003	mg/L	0.000031	99.65%
Ca 317.933†	911.2	0.1267	mg/L	0.00183	0.1267	mg/L	0.00183	1.44%
Cd 228.802†	0.8	0.00004	mg/L	0.000087	0.00004	mg/L	0.000087	211.57%
Co 228.616†	-4.6	-0.00017	mg/L	0.000074	-0.00017	mg/L	0.000074	42.55%
Cr 267.716†	4.4	0.00073	mg/L	0.000733	0.00073	mg/L	0.000733	99.90%
Cu 324.752†	120.4	0.00055	mg/L	0.000145	0.00055	mg/L	0.000145	26.24%
Fe 273.955†	2.4	0.00246	mg/L	0.002141	0.00246	mg/L	0.002141	87.22%
K 766.490†	17.8	0.01107	mg/L	0.009885	0.01107	mg/L	0.009885	89.30%
Mg 279.077†	18.0	0.02572	mg/L	0.004994	0.02572	mg/L	0.004994	19.42%
Mn 257.610†	13.6	0.00033	mg/L	0.000126	0.00033	mg/L	0.000126	38.62%
Mo 202.031†	-2.9	-0.00020	mg/L	0.000130	-0.00020	mg/L	0.000130	65.84%
Na 589.592†	2694.2	0.2403	mg/L	0.00144	0.2403	mg/L	0.00144	0.60%
Na 330.237†	4.4	0.1831	mg/L	0.15471	0.1831	mg/L	0.15471	84.50%
Ni 231.604†	-6.6	-0.00244	mg/L	0.002115	-0.00244	mg/L	0.002115	86.78%
Pb 220.353†	-4.6	-0.00070	mg/L	0.000845	-0.00070	mg/L	0.000845	120.76%
Sb 206.836†	-5.0	-0.00232	mg/L	0.000777	-0.00232	mg/L	0.000777	33.51%
Se 196.026†	0.6	0.00047	mg/L	0.002641	0.00047	mg/L	0.002641	564.39%
Si 288.158†	477.7	0.4382	mg/L	0.00903	0.4382	mg/L	0.00903	2.06%
Sn 189.927†	4.8	0.00119	mg/L	0.000377	0.00119	mg/L	0.000377	31.54%
Sr 421.552†	116.6	0.00016	mg/L	0.000040	0.00016	mg/L	0.000040	25.00%
Ti 334.903†	23.1	0.00117	mg/L	0.000296	0.00117	mg/L	0.000296	25.26%
Tl 190.801†	-4.1	-0.00300	mg/L	0.000791	-0.00300	mg/L	0.000791	26.37%
V 292.402†	-14.8	-0.00012	mg/L	0.000064	-0.00012	mg/L	0.000064	52.23%
Zn 206.200†	18.7	0.00536	mg/L	0.000368	0.00536	mg/L	0.000368	6.87%

Sequence No.: 50
Sample ID: XI45 ISPK TWC

Autosampler Location: 335
Date Collected: 10/10/2013 12:28:07 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI45 ISPK TWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 ISPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2319345.9	102.3	%	0.29				0.28%
ScR 361.383	263783.3	102.2	%	0.73				0.72%
Ag 328.068†	95980.0	0.5024	mg/L	0.00272	0.5024	mg/L	0.00272	0.54%
Al 308.215†	1819.3	2.084	mg/L	0.0166	2.084	mg/L	0.0166	0.79%
As 188.979†	2282.1	2.011	mg/L	0.0159	2.011	mg/L	0.0159	0.79%
B 249.677†	30.2	0.00464	mg/L	0.000168	0.00464	mg/L	0.000168	3.62%
Ba 233.527†	9847.1	2.152	mg/L	0.0132	2.152	mg/L	0.0132	0.61%
Be 313.042†	216742.6	0.4611	mg/L	0.00379	0.4611	mg/L	0.00379	0.82%
Ca 317.933†	71361.6	9.920	mg/L	0.0647	9.920	mg/L	0.0647	0.65%
Cd 228.802†	9870.2	0.5092	mg/L	0.00345	0.5092	mg/L	0.00345	0.68%
Co 228.616†	13656.6	0.5066	mg/L	0.00299	0.5066	mg/L	0.00299	0.59%
Cr 267.716†	3138.0	0.5225	mg/L	0.00363	0.5225	mg/L	0.00363	0.69%
Cu 324.752†	107741.8	0.4938	mg/L	0.00024	0.4938	mg/L	0.00024	0.05%
Fe 273.955†	1953.7	1.964	mg/L	0.0228	1.964	mg/L	0.0228	1.16%
K 766.490†	15996.0	9.965	mg/L	0.0939	9.965	mg/L	0.0939	0.94%
Mg 279.077†	7290.7	10.42	mg/L	0.081	10.42	mg/L	0.081	0.78%
Mn 257.610†	19680.8	0.4734	mg/L	0.00297	0.4734	mg/L	0.00297	0.63%
Mo 202.031†	24.3	0.00148	mg/L	0.000135	0.00148	mg/L	0.000135	9.09%
Na 589.592†	114151.7	10.18	mg/L	0.063	10.18	mg/L	0.063	0.62%
Na 330.237†	258.0	10.77	mg/L	0.206	10.77	mg/L	0.206	1.91%
Ni 231.604†	1328.6	0.4907	mg/L	0.00375	0.4907	mg/L	0.00375	0.76%
Pb 220.353†	12821.1	1.971	mg/L	0.0222	1.971	mg/L	0.0222	1.13%
Sb 206.836†	10.3	-0.00035	mg/L	0.001450	-0.00035	mg/L	0.001450	418.93%
Se 196.026†	2582.6	1.983	mg/L	0.0061	1.983	mg/L	0.0061	0.31%
Si 288.158†	490.5	0.4522	mg/L	0.00327	0.4522	mg/L	0.00327	0.72%
Sn 189.927†	-4.6	-0.00023	mg/L	0.000945	-0.00023	mg/L	0.000945	407.62%
Sr 421.552†	354072.1	0.4844	mg/L	0.00281	0.4844	mg/L	0.00281	0.58%
Ti 334.903†	56.4	0.00195	mg/L	0.000220	0.00195	mg/L	0.000220	11.28%
Tl 190.801†	2793.6	2.041	mg/L	0.0096	2.041	mg/L	0.0096	0.47%
V 292.402†	61278.0	0.5214	mg/L	0.00564	0.5214	mg/L	0.00564	1.08%
Zn 206.200†	1725.9	0.4894	mg/L	0.00368	0.4894	mg/L	0.00368	0.75%

Sequence No.: 51
Sample ID: ~~XI45 IPOST TWC~~ ZZZZZZ
BA 10-10-13
Dilution: 1.000000X

Autosampler Location: 336
Date Collected: 10/10/2013 12:32:07 PM
Data Type: Original

Nebulizer Parameters: XI45 IPOST TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI45 IPOST TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2294958.0	101.2	%	0.06				0.06%
ScR 361.383	261959.2	101.5	%	0.64				0.63%
Ag 328.068†	94528.2	0.4948	mg/L	0.00381	0.4948	mg/L	0.00381	0.77%
Al 308.215†	1946.2	2.230	mg/L	0.0137	2.230	mg/L	0.0137	0.61%
As 188.979†	2293.3	2.021	mg/L	0.0074	2.021	mg/L	0.0074	0.37%
B 249.677†	35.0	0.00553	mg/L	0.000966	0.00553	mg/L	0.000966	17.48%
Ba 233.527†	9930.0	2.170	mg/L	0.0143	2.170	mg/L	0.0143	0.66%
Be 313.042†	220170.7	0.4684	mg/L	0.00379	0.4684	mg/L	0.00379	0.81%
Ca 317.933†	72655.3	10.10	mg/L	0.029	10.10	mg/L	0.029	0.29%
Cd 228.802†	9973.9	0.5147	mg/L	0.00132	0.5147	mg/L	0.00132	0.26%
Co 228.616†	13830.3	0.5130	mg/L	0.00143	0.5130	mg/L	0.00143	0.28%
Cr 267.716†	3165.3	0.5270	mg/L	0.00252	0.5270	mg/L	0.00252	0.48%
Cu 324.752†	109845.6	0.5034	mg/L	0.00074	0.5034	mg/L	0.00074	0.15%
Fe 273.955†	2121.1	2.133	mg/L	0.0127	2.133	mg/L	0.0127	0.60%
K 766.490†	16218.0	10.10	mg/L	0.104	10.10	mg/L	0.104	1.03%
Mg 279.077†	7387.2	10.56	mg/L	0.059	10.56	mg/L	0.059	0.56%
Mn 257.610†	20064.5	0.4827	mg/L	0.00185	0.4827	mg/L	0.00185	0.38%
Mo 202.031†	21.5	0.00129	mg/L	0.000079	0.00129	mg/L	0.000079	6.12%
Na 589.592†	116151.4	10.36	mg/L	0.086	10.36	mg/L	0.086	0.83%
Na 330.237†	266.0	11.11	mg/L	0.039	11.11	mg/L	0.039	0.35%
Ni 231.604†	1347.3	0.4976	mg/L	0.00408	0.4976	mg/L	0.00408	0.82%
Pb 220.353†	12970.0	1.994	mg/L	0.0070	1.994	mg/L	0.0070	0.35%
Sb 206.836†	8.9	-0.00100	mg/L	0.002299	-0.00100	mg/L	0.002299	229.33%
Se 196.026†	2603.6	2.000	mg/L	0.0097	2.000	mg/L	0.0097	0.48%
Si 288.158†	497.5	0.4587	mg/L	0.00643	0.4587	mg/L	0.00643	1.40%
Sn 189.927†	-4.5	-0.00019	mg/L	0.000883	-0.00019	mg/L	0.000883	458.53%
Sr 421.552†	359358.8	0.4916	mg/L	0.00274	0.4916	mg/L	0.00274	0.56%
Ti 334.903†	203.2	0.00946	mg/L	0.000452	0.00946	mg/L	0.000452	4.77%
Tl 190.801†	2823.4	2.063	mg/L	0.0089	2.063	mg/L	0.0089	0.43%
V 292.402†	62169.8	0.5289	mg/L	0.00030	0.5289	mg/L	0.00030	0.06%
Zn 206.200†	1739.0	0.4931	mg/L	0.00417	0.4931	mg/L	0.00417	0.85%

Sequence No.: 52
Sample ID: XI45 MB2SPK TWC

Autosampler Location: 337
Date Collected: 10/10/2013 12:36:07 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI45 MB2SPK TWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI45 MB2SPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2308850.3	101.8	%	0.32				0.31%
ScR 361.383	260332.3	100.8	%	0.41				0.40%
Ag 328.068†	97999.1	0.5129	mg/L	0.00059	0.5129	mg/L	0.00059	0.11%
Al 308.215†	1832.1	2.099	mg/L	0.0129	2.099	mg/L	0.0129	0.61%
As 188.979†	2312.1	2.038	mg/L	0.0058	2.038	mg/L	0.0058	0.29%
B 249.677†	3.9	-0.00035	mg/L	0.002300	-0.00035	mg/L	0.002300	657.60%
Ba 233.527†	10014.2	2.188	mg/L	0.0134	2.188	mg/L	0.0134	0.61%
Be 313.042†	221806.2	0.4719	mg/L	0.00239	0.4719	mg/L	0.00239	0.51%
Ca 317.933†	71763.6	9.976	mg/L	0.0398	9.976	mg/L	0.0398	0.40%
Cd 228.802†	9973.4	0.5145	mg/L	0.00126	0.5145	mg/L	0.00126	0.24%
Co 228.616†	13837.1	0.5133	mg/L	0.00116	0.5133	mg/L	0.00116	0.23%
Cr 267.716†	3204.5	0.5335	mg/L	0.00446	0.5335	mg/L	0.00446	0.84%
Cu 324.752†	109709.3	0.5028	mg/L	0.00062	0.5028	mg/L	0.00062	0.12%
Fe 273.955†	1993.3	2.004	mg/L	0.0187	2.004	mg/L	0.0187	0.94%
K 766.490†	16395.5	10.21	mg/L	0.057	10.21	mg/L	0.057	0.56%
Mg 279.077†	7419.1	10.60	mg/L	0.062	10.60	mg/L	0.062	0.59%
Mn 257.610†	20185.5	0.4856	mg/L	0.00235	0.4856	mg/L	0.00235	0.48%
Mo 202.031†	22.9	0.00139	mg/L	0.000228	0.00139	mg/L	0.000228	16.44%
Na 589.592†	114452.3	10.21	mg/L	0.060	10.21	mg/L	0.060	0.58%
Na 330.237†	259.4	10.83	mg/L	0.060	10.83	mg/L	0.060	0.56%
Ni 231.604†	1358.0	0.5015	mg/L	0.00581	0.5015	mg/L	0.00581	1.16%
Pb 220.353†	12984.4	1.996	mg/L	0.0017	1.996	mg/L	0.0017	0.09%
Sb 206.836†	12.1	0.00036	mg/L	0.003580	0.00036	mg/L	0.003580	984.60%
Se 196.026†	2626.3	2.017	mg/L	0.0042	2.017	mg/L	0.0042	0.21%
Si 288.158†	15.5	0.01654	mg/L	0.001750	0.01654	mg/L	0.001750	10.58%
Sn 189.927†	-4.9	-0.00030	mg/L	0.001285	-0.00030	mg/L	0.001285	424.73%
Sr 421.552†	364636.1	0.4989	mg/L	0.00301	0.4989	mg/L	0.00301	0.60%
Ti 334.903†	56.0	0.00192	mg/L	0.000534	0.00192	mg/L	0.000534	27.81%
Tl 190.801†	2837.0	2.072	mg/L	0.0117	2.072	mg/L	0.0117	0.56%
V 292.402†	62066.9	0.5281	mg/L	0.00132	0.5281	mg/L	0.00132	0.25%
Zn 206.200†	1764.7	0.5003	mg/L	0.00083	0.5003	mg/L	0.00083	0.17%

Sequence No.: 53
Sample ID: CV 6

Autosampler Location: 7
Date Collected: 10/10/2013 12:40:07 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2302023.0	101.5	%	0.56				0.55%
ScR 361.383	259449.3	100.5	%	0.56				0.56%
Ag 328.068†	192485.2	1.007	mg/L	0.0041	1.007	mg/L	0.0041	0.40%
Al 308.215†	1795.3	2.032	mg/L	0.0125	2.032	mg/L	0.0125	0.62%
As 188.979†	2189.0	1.957	mg/L	0.0121	1.957	mg/L	0.0121	0.62%
B 249.677†	5206.6	0.9812	mg/L	0.01015	0.9812	mg/L	0.01015	1.03%
Ba 233.527†	4822.8	1.054	mg/L	0.0067	1.054	mg/L	0.0067	0.63%
Be 313.042†	443596.5	0.9437	mg/L	0.00919	0.9437	mg/L	0.00919	0.97%
Ca 317.933†	14558.5	2.024	mg/L	0.0189	2.024	mg/L	0.0189	0.94%
Cd 228.802†	19551.1	1.020	mg/L	0.0072	1.020	mg/L	0.0072	0.70%
Co 228.616†	27220.0	1.008	mg/L	0.0055	1.008	mg/L	0.0055	0.54%
Cr 267.716†	6096.6	1.017	mg/L	0.0074	1.017	mg/L	0.0074	0.73%
Cu 324.752†	220146.2	1.008	mg/L	0.0002	1.008	mg/L	0.0002	0.02%
Fe 273.955†	1920.2	1.928	mg/L	0.0152	1.928	mg/L	0.0152	0.79%
K 766.490†	31630.0	19.71	mg/L	0.092	19.71	mg/L	0.092	0.47%
Mg 279.077†	1389.9	1.993	mg/L	0.0187	1.993	mg/L	0.0187	0.94%
Mn 257.610†	38535.0	0.9267	mg/L	0.00424	0.9267	mg/L	0.00424	0.46%
Mo 202.031†	14379.7	0.9703	mg/L	0.00631	0.9703	mg/L	0.00631	0.65%
Na 589.592†	550809.2	49.12	mg/L	0.019	49.12	mg/L	0.019	0.04%
Na 330.237†	1220.4	51.65	mg/L	0.437	51.65	mg/L	0.437	0.85%
Ni 231.604†	2713.9	1.004	mg/L	0.0101	1.004	mg/L	0.0101	1.00%
Pb 220.353†	12680.1	1.950	mg/L	0.0096	1.950	mg/L	0.0096	0.49%
Sb 206.836†	4363.4	2.008	mg/L	0.0083	2.008	mg/L	0.0083	0.42%
Se 196.026†	2518.0	1.934	mg/L	0.0144	1.934	mg/L	0.0144	0.74%
Si 288.158†	2166.8	1.992	mg/L	0.0146	1.992	mg/L	0.0146	0.73%
Sn 189.927†	3878.5	0.9497	mg/L	0.00687	0.9497	mg/L	0.00687	0.72%
Sr 421.552†	702735.1	0.9614	mg/L	0.00110	0.9614	mg/L	0.00110	0.11%
Ti 334.903†	18757.2	0.9607	mg/L	0.00305	0.9607	mg/L	0.00305	0.32%
Tl 190.801†	2802.3	2.044	mg/L	0.0119	2.044	mg/L	0.0119	0.58%
V 292.402†	115937.9	0.9866	mg/L	0.00247	0.9866	mg/L	0.00247	0.25%
Zn 206.200†	3410.4	0.9672	mg/L	0.00858	0.9672	mg/L	0.00858	0.89%

Sequence No.: 54
Sample ID: CB 6

Autosampler Location: 1
Date Collected: 10/10/2013 12:43:55 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2307336.4	101.8	%	0.50				0.49%
ScR 361.383	260831.7	101.0	%	0.75				0.74%
Ag 328.068†	61.5	0.00032	mg/L	0.000081	0.00032	mg/L	0.000081	25.32%
Al 308.215†	-3.9	-0.00445	mg/L	0.008004	-0.00445	mg/L	0.008004	180.04%
As 188.979†	-3.6	-0.00312	mg/L	0.004262	-0.00312	mg/L	0.004262	136.54%
B 249.677†	8.0	0.00151	mg/L	0.000756	0.00151	mg/L	0.000756	50.15%
Ba 233.527†	0.8	0.00017	mg/L	0.000314	0.00017	mg/L	0.000314	180.45%
Be 313.042†	42.3	0.00009	mg/L	0.000041	0.00009	mg/L	0.000041	45.11%
Ca 317.933†	7.4	0.00103	mg/L	0.000757	0.00103	mg/L	0.000757	73.81%
Cd 228.802†	1.4	0.00009	mg/L	0.000237	0.00009	mg/L	0.000237	256.43%
Co 228.616†	1.8	0.00006	mg/L	0.000084	0.00006	mg/L	0.000084	130.42%
Cr 267.716†	3.2	0.00053	mg/L	0.001176	0.00053	mg/L	0.001176	223.04%
Cu 324.752†	180.5	0.00083	mg/L	0.000079	0.00083	mg/L	0.000079	9.60%
Fe 273.955†	-1.9	-0.00193	mg/L	0.000310	-0.00193	mg/L	0.000310	16.04%
K 766.490†	-2.3	-0.00142	mg/L	0.019228	-0.00142	mg/L	0.019228	>999.9%
Mg 279.077†	-6.8	-0.00977	mg/L	0.009096	-0.00977	mg/L	0.009096	93.12%
Mn 257.610†	0.5	0.00001	mg/L	0.000076	0.00001	mg/L	0.000076	677.13%
Mo 202.031†	11.6	0.00078	mg/L	0.000199	0.00078	mg/L	0.000199	25.57%
Na 589.592†	9.5	0.00085	mg/L	0.002717	0.00085	mg/L	0.002717	319.40%
Na 330.237†	1.9	0.08130	mg/L	0.165735	0.08130	mg/L	0.165735	203.85%
Ni 231.604†	-1.3	-0.00048	mg/L	0.001107	-0.00048	mg/L	0.001107	232.16%
Pb 220.353†	-3.7	-0.00057	mg/L	0.000552	-0.00057	mg/L	0.000552	97.01%
Sb 206.836†	3.5	0.00160	mg/L	0.001241	0.00160	mg/L	0.001241	77.79%
Se 196.026†	1.7	0.00132	mg/L	0.001182	0.00132	mg/L	0.001182	89.76%
Si 288.158†	1.7	0.00160	mg/L	0.003980	0.00160	mg/L	0.003980	249.48%
Sn 189.927†	2.6	0.00064	mg/L	0.000716	0.00064	mg/L	0.000716	111.88%
Sr 421.552†	54.5	0.00007	mg/L	0.000012	0.00007	mg/L	0.000012	16.72%
Ti 334.903†	31.8	0.00163	mg/L	0.000481	0.00163	mg/L	0.000481	29.55%
Tl 190.801†	-0.8	-0.00059	mg/L	0.001164	-0.00059	mg/L	0.001164	196.12%
V 292.402†	4.2	0.00004	mg/L	0.000079	0.00004	mg/L	0.000079	210.64%
Zn 206.200†	-2.1	-0.00059	mg/L	0.000551	-0.00059	mg/L	0.000551	92.77%

Sequence No.: 55
Sample ID: XI46 MB1 SWC

Autosampler Location: 338
Date Collected: 10/10/2013 12:48:10 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 MB1 SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 MB1 SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2328260.2	102.7	%	0.35				0.34%
ScR 361.383	263068.0	101.9	%	1.41				1.38%
Ag 328.068†	5.6	0.00003	mg/L	0.000193	0.00006	mg/L	0.000385	654.45%
Al 308.215†	-1.7	-0.00197	mg/L	0.008358	-0.00394	mg/L	0.016715	423.80%
As 188.979†	-2.3	-0.00198	mg/L	0.000851	-0.00396	mg/L	0.001702	42.94%
B 249.677†	9.6	0.00181	mg/L	0.000387	0.00362	mg/L	0.000775	21.41%
Ba 233.527†	1.2	0.00027	mg/L	0.001269	0.00054	mg/L	0.002537	471.51%
Be 313.042†	-2.7	-0.00001	mg/L	0.000053	-0.00001	mg/L	0.000107	930.05%
Ca 317.933†	109.7	0.01525	mg/L	0.001007	0.03049	mg/L	0.002015	6.61%
Cd 228.802†	2.3	0.00013	mg/L	0.000075	0.00027	mg/L	0.000151	56.47%
Co 228.616†	-3.7	-0.00014	mg/L	0.000075	-0.00028	mg/L	0.000149	53.46%
Cr 267.716†	4.8	0.00081	mg/L	0.000427	0.00161	mg/L	0.000854	53.02%
Cu 324.752†	143.4	0.00066	mg/L	0.000136	0.00131	mg/L	0.000272	20.67%
Fe 273.955†	-1.1	-0.00115	mg/L	0.002143	-0.00229	mg/L	0.004287	186.79%
K 766.490†	-13.0	-0.00811	mg/L	0.014551	-0.01622	mg/L	0.029102	179.39%
Mg 279.077†	-1.5	-0.00211	mg/L	0.004049	-0.00422	mg/L	0.008099	191.99%
Mn 257.610†	-4.3	-0.00010	mg/L	0.000054	-0.00021	mg/L	0.000109	52.44%
Mo 202.031†	-3.2	-0.00021	mg/L	0.000118	-0.00043	mg/L	0.000235	55.13%
Na 589.592†	-9.1	-0.00081	mg/L	0.000767	-0.00162	mg/L	0.001533	94.86%
Na 330.237†	-0.3	-0.01416	mg/L	0.416382	-0.02832	mg/L	0.832764	>999.9%
Ni 231.604†	-3.5	-0.00131	mg/L	0.001145	-0.00262	mg/L	0.002290	87.36%
Pb 220.353†	-6.1	-0.00094	mg/L	0.000607	-0.00188	mg/L	0.001213	64.51%
Sb 206.836†	-3.7	-0.00171	mg/L	0.001123	-0.00343	mg/L	0.002247	65.52%
Se 196.026†	-0.2	-0.00018	mg/L	0.002315	-0.00037	mg/L	0.004629	>999.9%
Si 288.158†	2.1	0.00197	mg/L	0.002731	0.00394	mg/L	0.005462	138.63%
Sn 189.927†	3.2	0.00079	mg/L	0.000803	0.00157	mg/L	0.001606	102.12%
Sr 421.552†	3.5	0.00000	mg/L	0.000020	0.00001	mg/L	0.000040	424.56%
Ti 334.903†	24.0	0.00123	mg/L	0.000619	0.00246	mg/L	0.001237	50.35%
Tl 190.801†	-1.0	-0.00074	mg/L	0.002226	-0.00148	mg/L	0.004452	301.06%
V 292.402†	-11.8	-0.00010	mg/L	0.000130	-0.00020	mg/L	0.000260	133.49%
Zn 206.200†	6.6	0.00188	mg/L	0.000973	0.00376	mg/L	0.001946	51.79%

Sequence No.: 56
Sample ID: XI46 A-L SWC

Autosampler Location: 339
Date Collected: 10/10/2013 12:52:26 PM
Data Type: Original

Dilution: 10.000000X

Nebulizer Parameters: XI46 A-L SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 A-L SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2303103.0	101.6	%	0.15				0.15%
ScR 361.383	262927.0	101.8	%	0.95				0.93%
Ag 328.068†	20.4	0.00011	mg/L	0.000190	0.00110	mg/L	0.001901	173.50%
Al 308.215†	1888.1	2.171	mg/L	0.0197	21.71	mg/L	0.197	0.91%
As 188.979†	9.6	0.01095	mg/L	0.001312	0.1095	mg/L	0.01312	11.98%
B 249.677†	64.5	0.01216	mg/L	0.000717	0.1216	mg/L	0.00717	5.89%
Ba 233.527†	112.3	0.02422	mg/L	0.000975	0.2422	mg/L	0.00975	4.02%
Be 313.042†	29.7	0.00006	mg/L	0.000007	0.00059	mg/L	0.000069	11.64%
Ca 317.933†	85750.3	11.92	mg/L	0.070	119.2	mg/L	0.70	0.58%
Cd 228.802†	-2.1	-0.00018	mg/L	0.000152	-0.00184	mg/L	0.001525	82.74%
Co 228.616†	72.1	0.00246	mg/L	0.000151	0.02464	mg/L	0.001506	6.11%
Cr 267.716†	56.6	0.00922	mg/L	0.001054	0.09221	mg/L	0.010538	11.43%
Cu 324.752†	3429.2	0.01582	mg/L	0.000285	0.1582	mg/L	0.00285	1.80%
Fe 273.955†	2990.9	3.012	mg/L	0.0236	30.12	mg/L	0.236	0.78%
K 766.490†	298.1	0.1857	mg/L	0.01937	1.857	mg/L	0.1937	10.43%
Mg 279.077†	2134.3	3.048	mg/L	0.0300	30.48	mg/L	0.300	0.98%
Mn 257.610†	14499.9	0.3485	mg/L	0.00241	3.485	mg/L	0.0241	0.69%
Mo 202.031†	28.0	0.00173	mg/L	0.000198	0.01730	mg/L	0.001976	11.42%
Na 589.592†	16542.1	1.475	mg/L	0.0089	14.75	mg/L	0.089	0.60%
Na 330.237†	36.1	1.545	mg/L	0.2291	15.45	mg/L	2.291	14.82%
Ni 231.604†	20.6	0.00763	mg/L	0.000385	0.07626	mg/L	0.003850	5.05%
Pb 220.353†	154.0	0.02413	mg/L	0.000731	0.2413	mg/L	0.00731	3.03%
Sb 206.836†	6.2	0.00285	mg/L	0.001761	0.02851	mg/L	0.017609	61.76%
Se 196.026†	8.1	0.00554	mg/L	0.001289	0.05541	mg/L	0.012892	23.27%
Si 288.158†	1477.0	1.355	mg/L	0.0169	13.55	mg/L	0.169	1.25%
Sn 189.927†	-3.3	0.00021	mg/L	0.000803	0.00211	mg/L	0.008030	381.10%
Sr 421.552†	37809.4	0.05173	mg/L	0.000319	0.5173	mg/L	0.00319	0.62%
Ti 334.903†	2365.8	0.1203	mg/L	0.00156	1.203	mg/L	0.0156	1.30%
Tl 190.801†	7.5	0.00589	mg/L	0.002586	0.05893	mg/L	0.025862	43.89%
V 292.402†	1223.7	0.01021	mg/L	0.000146	0.1021	mg/L	0.00146	1.43%
Zn 206.200†	223.6	0.06342	mg/L	0.001044	0.6342	mg/L	0.01044	1.65%

Sequence No.: 57
Sample ID: XI46 A SWC

Autosampler Location: 340
Date Collected: 10/10/2013 12:56:25 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 A SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 A SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2295504.5	101.2	%	0.42				0.41%
ScR 361.383	264387.3	102.4	%	0.58				0.57%
Ag 328.068†	25.6	0.00015	mg/L	0.000105	0.00030	mg/L	0.000210	70.59%
Al 308.215†	9361.0	10.76	mg/L	0.119	21.53	mg/L	0.237	1.10%
As 188.979†	25.6	0.03451	mg/L	0.000992	0.06902	mg/L	0.001984	2.87%
B 249.677†	311.7	0.05878	mg/L	0.000694	0.1176	mg/L	0.00139	1.18%
Ba 233.527†	540.5	0.1167	mg/L	0.00190	0.2333	mg/L	0.00380	1.63%
Be 313.042†	60.1	0.00011	mg/L	0.000019	0.00022	mg/L	0.000037	16.95%
Ca 317.933†	437548.5	60.83	mg/L	0.519	121.7	mg/L	1.04	0.85%
Cd 228.802†	-9.5	-0.00075	mg/L	0.000222	-0.00150	mg/L	0.000444	29.63%
Co 228.616†	334.0	0.01135	mg/L	0.000180	0.02270	mg/L	0.000360	1.59%
Cr 267.716†	267.8	0.04354	mg/L	0.000531	0.08707	mg/L	0.001063	1.22%
Cu 324.752†	16156.7	0.07452	mg/L	0.000970	0.1490	mg/L	0.00194	1.30%
Fe 273.955†	14253.5	14.35	mg/L	0.032	28.71	mg/L	0.064	0.22%
K 766.490†	1573.7	0.9804	mg/L	0.01200	1.961	mg/L	0.0240	1.22%
Mg 279.077†	10504.5	15.00	mg/L	0.179	30.00	mg/L	0.357	1.19%
Mn 257.610†	72199.5	1.735	mg/L	0.0046	3.471	mg/L	0.0093	0.27%
Mo 202.031†	88.4	0.00516	mg/L	0.000291	0.01032	mg/L	0.000583	5.65%
Na 589.592†	83384.3	7.436	mg/L	0.0681	14.87	mg/L	0.136	0.92%
Na 330.237†	172.0	7.358	mg/L	0.0998	14.72	mg/L	0.200	1.36%
Ni 231.604†	126.6	0.04685	mg/L	0.003143	0.09369	mg/L	0.006287	6.71%
Pb 220.353†	765.0	0.1199	mg/L	0.00254	0.2398	mg/L	0.00508	2.12%
Sb 206.836†	15.6	0.00725	mg/L	0.000433	0.01449	mg/L	0.000866	5.98%
Se 196.026†	25.2	0.01605	mg/L	0.002362	0.03210	mg/L	0.004725	14.72%
Si 288.158†	6956.6	6.381	mg/L	0.0676	12.76	mg/L	0.135	1.06%
Sn 189.927†	-8.4	0.00311	mg/L	0.000515	0.00621	mg/L	0.001029	16.57%
Sr 421.552†	188495.8	0.2579	mg/L	0.00145	0.5158	mg/L	0.00289	0.56%
Ti 334.903†	11645.4	0.5920	mg/L	0.00257	1.184	mg/L	0.0051	0.43%
Tl 190.801†	18.4	0.01524	mg/L	0.003253	0.03048	mg/L	0.006506	21.34%
V 292.402†	6107.2	0.05101	mg/L	0.000631	0.1020	mg/L	0.00126	1.24%
Zn 206.200†	1096.4	0.3109	mg/L	0.00500	0.6217	mg/L	0.00999	1.61%

Sequence No.: 58
Sample ID: XI46 ADUP SWC

Autosampler Location: 341
Date Collected: 10/10/2013 1:00:24 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 ADUP SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 ADUP SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2287739.0	100.9	%	0.56				0.56%
ScR 361.383	257998.9	99.93	%	1.136				1.14%
Ag 328.068†	-66.4	-0.00033	mg/L	0.000017	-0.00067	mg/L	0.000034	5.05%
Al 308.215†	9745.6	11.21	mg/L	0.174	22.41	mg/L	0.349	1.56%
As 188.979†	26.3	0.03487	mg/L	0.003061	0.06973	mg/L	0.006121	8.78%
B 249.677†	295.3	0.05569	mg/L	0.001208	0.1114	mg/L	0.00242	2.17%
Ba 233.527†	560.8	0.1210	mg/L	0.00255	0.2420	mg/L	0.00509	2.10%
Be 313.042†	67.2	0.00012	mg/L	0.000013	0.00025	mg/L	0.000026	10.52%
Ca 317.933†	457878.1	63.65	mg/L	0.395	127.3	mg/L	0.79	0.62%
Cd 228.802†	-4.1	-0.00048	mg/L	0.000128	-0.00096	mg/L	0.000256	26.65%
Co 228.616†	368.9	0.01264	mg/L	0.000470	0.02527	mg/L	0.000940	3.72%
Cr 267.716†	263.6	0.04295	mg/L	0.000414	0.08590	mg/L	0.000829	0.96%
Cu 324.752†	16229.8	0.07490	mg/L	0.000402	0.1498	mg/L	0.00080	0.54%
Fe 273.955†	15072.6	15.18	mg/L	0.136	30.36	mg/L	0.273	0.90%
K 766.490†	1719.8	1.071	mg/L	0.0108	2.143	mg/L	0.0217	1.01%
Mg 279.077†	9551.7	13.64	mg/L	0.239	27.27	mg/L	0.478	1.75%
Mn 257.610†	67488.3	1.622	mg/L	0.0138	3.244	mg/L	0.0276	0.85%
Mo 202.031†	95.3	0.00559	mg/L	0.000183	0.01119	mg/L	0.000366	3.27%
Na 589.592†	82986.6	7.401	mg/L	0.0536	14.80	mg/L	0.107	0.72%
Na 330.237†	172.2	7.358	mg/L	0.2684	14.72	mg/L	0.537	3.65%
Ni 231.604†	118.4	0.04379	mg/L	0.001412	0.08759	mg/L	0.002824	3.22%
Pb 220.353†	820.8	0.1285	mg/L	0.00221	0.2571	mg/L	0.00443	1.72%
Sb 206.836†	13.8	0.00642	mg/L	0.001275	0.01284	mg/L	0.002549	19.86%
Se 196.026†	23.0	0.01421	mg/L	0.006656	0.02841	mg/L	0.013312	46.86%
Si 288.158†	6743.3	6.185	mg/L	0.1026	12.37	mg/L	0.205	1.66%
Sn 189.927†	-13.3	0.00214	mg/L	0.000438	0.00428	mg/L	0.000877	20.49%
Sr 421.552†	192257.4	0.2630	mg/L	0.00142	0.5261	mg/L	0.00284	0.54%
Ti 334.903†	11740.0	0.5967	mg/L	0.00556	1.193	mg/L	0.0111	0.93%
Tl 190.801†	22.9	0.01864	mg/L	0.000700	0.03727	mg/L	0.001399	3.75%
V 292.402†	5862.1	0.04886	mg/L	0.000327	0.09772	mg/L	0.000654	0.67%
Zn 206.200†	1190.4	0.3374	mg/L	0.00481	0.6748	mg/L	0.00962	1.42%

Sequence No.: 59
Sample ID: XI46 ASPK SWC

Autosampler Location: 342
Date Collected: 10/10/2013 1:04:23 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 ASPK SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 ASPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2279425.8	100.5	%	0.93				0.93%
ScR 361.383	258891.7	100.3	%	0.19				0.19%
Ag 328.068†	102585.8	0.5369	mg/L	0.00848	1.074	mg/L	0.0170	1.58%
Al 308.215†	12779.1	14.69	mg/L	0.011	29.37	mg/L	0.022	0.07%
As 188.979†	2319.9	2.057	mg/L	0.0162	4.114	mg/L	0.0323	0.79%
B 249.677†	274.7	0.05076	mg/L	0.000649	0.1015	mg/L	0.00130	1.28%
Ba 233.527†	10592.2	2.313	mg/L	0.0076	4.626	mg/L	0.0151	0.33%
Be 313.042†	221040.1	0.4702	mg/L	0.00211	0.9404	mg/L	0.00423	0.45%
Ca 317.933†	611842.5	85.05	mg/L	0.432	170.1	mg/L	0.86	0.51%
Cd 228.802†	9949.3	0.5131	mg/L	0.00566	1.026	mg/L	0.0113	1.10%
Co 228.616†	13854.7	0.5128	mg/L	0.00515	1.026	mg/L	0.0103	1.00%
Cr 267.716†	3377.7	0.5615	mg/L	0.00091	1.123	mg/L	0.0018	0.16%
Cu 324.752†	132126.2	0.6061	mg/L	0.00752	1.212	mg/L	0.0150	1.24%
Fe 273.955†	18667.6	18.80	mg/L	0.081	37.59	mg/L	0.163	0.43%
K 766.490†	18057.9	11.25	mg/L	0.055	22.50	mg/L	0.110	0.49%
Mg 279.077†	16252.6	23.21	mg/L	0.074	46.42	mg/L	0.147	0.32%
Mn 257.610†	93706.3	2.253	mg/L	0.0133	4.505	mg/L	0.0266	0.59%
Mo 202.031†	112.7	0.00646	mg/L	0.000437	0.01292	mg/L	0.000874	6.77%
Na 589.592†	199241.8	17.77	mg/L	0.108	35.54	mg/L	0.217	0.61%
Na 330.237†	413.8	17.47	mg/L	0.294	34.93	mg/L	0.589	1.69%
Ni 231.604†	1443.4	0.5331	mg/L	0.00340	1.066	mg/L	0.0068	0.64%
Pb 220.353†	13812.3	2.126	mg/L	0.0163	4.252	mg/L	0.0326	0.77%
Sb 206.836†	19.1	0.00383	mg/L	0.001997	0.00766	mg/L	0.003995	52.15%
Se 196.026†	2653.4	2.034	mg/L	0.0113	4.067	mg/L	0.0227	0.56%
Si 288.158†	6271.9	5.755	mg/L	0.0253	11.51	mg/L	0.051	0.44%
Sn 189.927†	-12.4	0.00421	mg/L	0.001293	0.00842	mg/L	0.002585	30.72%
Sr 421.552†	588170.0	0.8047	mg/L	0.00378	1.609	mg/L	0.0076	0.47%
Ti 334.903†	13158.2	0.6675	mg/L	0.00351	1.335	mg/L	0.0070	0.53%
Tl 190.801†	2801.2	2.049	mg/L	0.0153	4.097	mg/L	0.0305	0.75%
V 292.402†	65256.3	0.5541	mg/L	0.00732	1.108	mg/L	0.0146	1.32%
Zn 206.200†	2825.8	0.8008	mg/L	0.00222	1.602	mg/L	0.0044	0.28%

Sequence No.: 60
Sample ID: ~~XI46 APOST SWC~~ ZZZZZZ
BA 10/10/13
Dilution: 2.000000X

Autosampler Location: 343
Date Collected: 10/10/2013 1:08:23 PM
Data Type: Original

Nebulizer Parameters: XI46 APOST SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 APOST SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2289820.9	101.0	%	0.12				0.11%
ScR 361.383	259460.5	100.5	%	0.28				0.28%
Ag 328.068†	102172.5	0.5348	mg/L	0.01501	1.070	mg/L	0.0300	2.81%
Al 308.215†	11250.7	12.93	mg/L	0.059	25.86	mg/L	0.117	0.45%
As 188.979†	2430.6	2.154	mg/L	0.0597	4.308	mg/L	0.1194	2.77%
B 249.677†	317.4	0.05877	mg/L	0.000745	0.1175	mg/L	0.00149	1.27%
Ba 233.527†	10204.1	2.228	mg/L	0.0257	4.456	mg/L	0.0515	1.16%
Be 313.042†	215923.9	0.4593	mg/L	0.00443	0.9186	mg/L	0.00886	0.96%
Ca 317.933†	512271.9	71.21	mg/L	0.259	142.4	mg/L	0.52	0.36%
Cd 228.802†	10238.5	0.5278	mg/L	0.01472	1.056	mg/L	0.0294	2.79%
Co 228.616†	14274.6	0.5285	mg/L	0.01340	1.057	mg/L	0.0268	2.54%
Cr 267.716†	3321.2	0.5519	mg/L	0.00626	1.104	mg/L	0.0125	1.14%
Cu 324.752†	133897.8	0.6142	mg/L	0.01292	1.228	mg/L	0.0258	2.10%
Fe 273.955†	16861.9	16.98	mg/L	0.067	33.95	mg/L	0.134	0.39%
K 766.490†	17698.5	11.03	mg/L	0.089	22.05	mg/L	0.179	0.81%
Mg 279.077†	17816.4	25.45	mg/L	0.147	50.90	mg/L	0.293	0.58%
Mn 257.610†	92681.9	2.228	mg/L	0.0140	4.456	mg/L	0.0281	0.63%
Mo 202.031†	102.1	0.00593	mg/L	0.000258	0.01185	mg/L	0.000516	4.35%
Na 589.592†	196476.3	17.52	mg/L	0.081	35.04	mg/L	0.163	0.46%
Na 330.237†	422.5	17.82	mg/L	0.329	35.64	mg/L	0.657	1.84%
Ni 231.604†	1428.5	0.5276	mg/L	0.00854	1.055	mg/L	0.0171	1.62%
Pb 220.353†	14297.1	2.200	mg/L	0.0568	4.400	mg/L	0.1135	2.58%
Sb 206.836†	21.8	0.00527	mg/L	0.001628	0.01053	mg/L	0.003256	30.91%
Se 196.026†	2787.3	2.137	mg/L	0.0603	4.275	mg/L	0.1206	2.82%
Si 288.158†	7211.0	6.616	mg/L	0.0481	13.23	mg/L	0.096	0.73%
Sn 189.927†	-12.6	0.00300	mg/L	0.000720	0.00601	mg/L	0.001439	23.96%
Sr 421.552†	543218.1	0.7432	mg/L	0.00407	1.486	mg/L	0.0081	0.55%
Ti 334.903†	11809.5	0.5995	mg/L	0.00416	1.199	mg/L	0.0083	0.69%
Tl 190.801†	2913.9	2.131	mg/L	0.0567	4.261	mg/L	0.1134	2.66%
V 292.402†	68393.7	0.5808	mg/L	0.01493	1.162	mg/L	0.0299	2.57%
Zn 206.200†	2782.0	0.7888	mg/L	0.00775	1.578	mg/L	0.0155	0.98%

Sequence No.: 61
Sample ID: XI46 B SWC

Autosampler Location: 344
Date Collected: 10/10/2013 1:12:23 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 B SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 B SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2282024.6	100.6	%	0.27				0.27%
ScR 361.383	259145.4	100.4	%	0.40				0.40%
Ag 328.068†	-33.8	-0.00017	mg/L	0.000141	-0.00033	mg/L	0.000283	85.08%
Al 308.215†	10089.5	11.60	mg/L	0.047	23.20	mg/L	0.094	0.40%
As 188.979†	41.6	0.04605	mg/L	0.001367	0.09210	mg/L	0.002733	2.97%
B 249.677†	374.2	0.07056	mg/L	0.001394	0.1411	mg/L	0.00279	1.98%
Ba 233.527†	637.9	0.1384	mg/L	0.00150	0.2768	mg/L	0.00301	1.09%
Be 313.042†	43.2	0.00008	mg/L	0.000022	0.00015	mg/L	0.000043	27.98%
Ca 317.933†	507931.2	70.61	mg/L	0.110	141.2	mg/L	0.22	0.16%
Cd 228.802†	13.6	0.00042	mg/L	0.000174	0.00083	mg/L	0.000347	41.64%
Co 228.616†	705.4	0.02521	mg/L	0.000292	0.05042	mg/L	0.000584	1.16%
Cr 267.716†	296.5	0.04752	mg/L	0.000954	0.09504	mg/L	0.001908	2.01%
Cu 324.752†	20000.7	0.09196	mg/L	0.000089	0.1839	mg/L	0.00018	0.10%
Fe 273.955†	11063.9	11.14	mg/L	0.053	22.28	mg/L	0.106	0.48%
K 766.490†	2541.5	1.583	mg/L	0.0249	3.167	mg/L	0.0498	1.57%
Mg 279.077†	15467.1	22.09	mg/L	0.039	44.19	mg/L	0.077	0.17%
Mn 257.610†	17689.4	0.4249	mg/L	0.00073	0.8498	mg/L	0.00145	0.17%
Mo 202.031†	339.6	0.02199	mg/L	0.000175	0.04398	mg/L	0.000351	0.80%
Na 589.592†	525364.2	46.85	mg/L	0.022	93.70	mg/L	0.045	0.05%
Na 330.237†	1156.6	48.94	mg/L	0.372	97.89	mg/L	0.744	0.76%
Ni 231.604†	104.9	0.03879	mg/L	0.000727	0.07758	mg/L	0.001454	1.87%
Pb 220.353†	1298.3	0.2022	mg/L	0.00055	0.4045	mg/L	0.00110	0.27%
Sb 206.836†	11.0	0.00499	mg/L	0.000965	0.00999	mg/L	0.001930	19.33%
Se 196.026†	33.8	0.02208	mg/L	0.005431	0.04416	mg/L	0.010862	24.60%
Si 288.158†	8827.7	8.097	mg/L	0.0414	16.19	mg/L	0.083	0.51%
Sn 189.927†	-13.2	0.00271	mg/L	0.000567	0.00543	mg/L	0.001134	20.90%
Sr 421.552†	190202.4	0.2602	mg/L	0.00067	0.5204	mg/L	0.00134	0.26%
Ti 334.903†	10834.2	0.5496	mg/L	0.00087	1.099	mg/L	0.0017	0.16%
Tl 190.801†	23.9	0.01879	mg/L	0.000231	0.03758	mg/L	0.000462	1.23%
V 292.402†	4519.5	0.03760	mg/L	0.000157	0.07520	mg/L	0.000315	0.42%
Zn 206.200†	2068.2	0.5865	mg/L	0.00262	1.173	mg/L	0.0052	0.45%

Sequence No.: 62
Sample ID: XI46 C SWC

Autosampler Location: 345
Date Collected: 10/10/2013 1:16:23 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 C SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 C SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2310439.1	101.9	%	0.46				0.45%
ScR 361.383	259706.6	100.6	%	0.45				0.45%
Ag 328.068†	223.8	0.00121	mg/L	0.000216	0.00241	mg/L	0.000433	17.94%
Al 308.215†	12448.0	14.31	mg/L	0.048	28.62	mg/L	0.095	0.33%
As 188.979†	-8.0	0.02734	mg/L	0.002968	0.05468	mg/L	0.005936	10.85%
B 249.677†	2169.6	0.4093	mg/L	0.00202	0.8186	mg/L	0.00403	0.49%
Ba 233.527†	1665.1	0.3618	mg/L	0.00131	0.7236	mg/L	0.00261	0.36%
Be 313.042†	81.3	0.00013	mg/L	0.000012	0.00026	mg/L	0.000024	9.14%
Ca 317.933†	193494.0	26.90	mg/L	0.205	53.80	mg/L	0.410	0.76%
Cd 228.802†	4.2	0.00016	mg/L	0.000077	0.00032	mg/L	0.000154	48.37%
Co 228.616†	399.6	0.01276	mg/L	0.000138	0.02552	mg/L	0.000276	1.08%
Cr 267.716†	498.0	0.08256	mg/L	0.001191	0.1651	mg/L	0.00238	1.44%
Cu 324.752†	20486.6	0.09442	mg/L	0.001137	0.1888	mg/L	0.00227	1.20%
Fe 273.955†	17420.1	17.54	mg/L	0.093	35.08	mg/L	0.186	0.53%
K 766.490†	3441.3	2.144	mg/L	0.0145	4.288	mg/L	0.0290	0.68%
Mg 279.077†	8828.9	12.61	mg/L	0.049	25.21	mg/L	0.098	0.39%
Mn 257.610†	50938.3	1.224	mg/L	0.0104	2.449	mg/L	0.0208	0.85%
Mo 202.031†	57.0	0.00349	mg/L	0.000138	0.00698	mg/L	0.000276	3.95%
Na 589.592†	957406.4	85.38	mg/L	0.500	170.8	mg/L	1.00	0.59%
Na 330.237†	2120.1	89.98	mg/L	0.580	180.0	mg/L	1.16	0.64%
Ni 231.604†	311.6	0.1153	mg/L	0.00174	0.2306	mg/L	0.00347	1.51%
Pb 220.353†	3101.3	0.4798	mg/L	0.00344	0.9596	mg/L	0.00688	0.72%
Sb 206.836†	0.4	0.00048	mg/L	0.002125	0.00097	mg/L	0.004250	440.25%
Se 196.026†	19.0	0.01306	mg/L	0.001453	0.02611	mg/L	0.002906	11.13%
Si 288.158†	5725.6	5.252	mg/L	0.0095	10.50	mg/L	0.019	0.18%
Sn 189.927†	-8.4	0.00043	mg/L	0.002398	0.00086	mg/L	0.004795	560.24%
Sr 421.552†	156843.6	0.2146	mg/L	0.00188	0.4292	mg/L	0.00375	0.87%
Ti 334.903†	22849.2	1.170	mg/L	0.0078	2.339	mg/L	0.0156	0.67%
Tl 190.801†	10.8	0.00986	mg/L	0.002439	0.01972	mg/L	0.004878	24.74%
V 292.402†	14503.2	0.1217	mg/L	0.00094	0.2435	mg/L	0.00188	0.77%
Zn 206.200†	1383.3	0.3926	mg/L	0.00164	0.7853	mg/L	0.00328	0.42%

Sequence No.: 63
Sample ID: XI46 D SWC

Autosampler Location: 346
Date Collected: 10/10/2013 1:20:38 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 D SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 D SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2285381.8	100.8	%	0.54				0.54%
ScR 361.383	257180.2	99.61	%	0.231				0.23%
Ag 328.068†	-149.9	-0.00077	mg/L	0.000296	-0.00155	mg/L	0.000592	38.30%
Al 308.215†	5271.4	6.061	mg/L	0.0110	12.12	mg/L	0.022	0.18%
As 188.979†	68.3	0.05409	mg/L	0.005030	0.1082	mg/L	0.01006	9.30%
B 249.677†	270.5	0.05102	mg/L	0.000259	0.1020	mg/L	0.00052	0.51%
Ba 233.527†	491.9	0.1073	mg/L	0.00151	0.2146	mg/L	0.00301	1.40%
Be 313.042†	78.9	0.00015	mg/L	0.000007	0.00031	mg/L	0.000014	4.40%
Ca 317.933†	1127656.2	156.8	mg/L	0.33	313.5	mg/L	0.67	0.21%
Cd 228.802†	-18.4	-0.00138	mg/L	0.000234	-0.00276	mg/L	0.000468	16.97%
Co 228.616†	295.3	0.01027	mg/L	0.000163	0.02054	mg/L	0.000325	1.58%
Cr 267.716†	156.5	0.02443	mg/L	0.001152	0.04886	mg/L	0.002304	4.72%
Cu 324.752†	22314.6	0.1026	mg/L	0.00110	0.2051	mg/L	0.00220	1.07%
Fe 273.955†	8884.4	8.947	mg/L	0.0327	17.89	mg/L	0.065	0.37%
K 766.490†	2083.3	1.298	mg/L	0.0072	2.596	mg/L	0.0144	0.55%
Mg 279.077†	5910.4	8.426	mg/L	0.0072	16.85	mg/L	0.014	0.09%
Mn 257.610†	31989.8	0.7684	mg/L	0.00386	1.537	mg/L	0.0077	0.50%
Mo 202.031†	144.9	0.00772	mg/L	0.000342	0.01544	mg/L	0.000684	4.43%
Na 589.592†	57881.4	5.162	mg/L	0.0405	10.32	mg/L	0.081	0.78%
Na 330.237†	98.1	4.189	mg/L	0.2458	8.378	mg/L	0.4917	5.87%
Ni 231.604†	75.7	0.02801	mg/L	0.001015	0.05601	mg/L	0.002029	3.62%
Pb 220.353†	712.4	0.1107	mg/L	0.00071	0.2213	mg/L	0.00142	0.64%
Sb 206.836†	24.7	0.01144	mg/L	0.000759	0.02287	mg/L	0.001518	6.64%
Se 196.026†	36.0	0.01912	mg/L	0.005264	0.03824	mg/L	0.010528	27.53%
Si 288.158†	4677.1	4.290	mg/L	0.0197	8.580	mg/L	0.0395	0.46%
Sn 189.927†	-26.0	0.00666	mg/L	0.000585	0.01333	mg/L	0.001169	8.77%
Sr 421.552†	332066.9	0.4543	mg/L	0.00057	0.9086	mg/L	0.00114	0.13%
Ti 334.903†	7634.1	0.3782	mg/L	0.00300	0.7564	mg/L	0.00600	0.79%
Tl 190.801†	33.3	0.02548	mg/L	0.003107	0.05096	mg/L	0.006214	12.19%
V 292.402†	4735.5	0.03961	mg/L	0.000225	0.07921	mg/L	0.000449	0.57%
Zn 206.200†	897.6	0.2524	mg/L	0.00186	0.5048	mg/L	0.00373	0.74%

Sequence No.: 64
Sample ID: XI46 MB1SPK SWC

Autosampler Location: 347
Date Collected: 10/10/2013 1:24:54 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 MB1SPK SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 MB1SPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2339825.7	103.2	%	0.20				0.20%
ScR 361.383	265927.5	103.0	%	0.17				0.17%
Ag 328.068†	98265.9	0.5143	mg/L	0.00330	1.029	mg/L	0.0066	0.64%
Al 308.215†	1828.4	2.095	mg/L	0.0149	4.189	mg/L	0.0299	0.71%
As 188.979†	2338.7	2.061	mg/L	0.0061	4.122	mg/L	0.0122	0.29%
B 249.677†	6.6	0.00015	mg/L	0.001011	0.00031	mg/L	0.002022	652.14%
Ba 233.527†	9964.3	2.177	mg/L	0.0132	4.355	mg/L	0.0264	0.61%
Be 313.042†	221458.3	0.4711	mg/L	0.00427	0.9422	mg/L	0.00854	0.91%
Ca 317.933†	71670.1	9.963	mg/L	0.0789	19.93	mg/L	0.158	0.79%
Cd 228.802†	10113.9	0.5218	mg/L	0.00220	1.044	mg/L	0.0044	0.42%
Co 228.616†	13955.4	0.5177	mg/L	0.00371	1.035	mg/L	0.0074	0.72%
Cr 267.716†	3189.8	0.5311	mg/L	0.00292	1.062	mg/L	0.0058	0.55%
Cu 324.752†	110209.9	0.5051	mg/L	0.00070	1.010	mg/L	0.0014	0.14%
Fe 273.955†	1986.1	1.997	mg/L	0.0065	3.994	mg/L	0.0130	0.33%
K 766.490†	16158.4	10.07	mg/L	0.043	20.13	mg/L	0.087	0.43%
Mg 279.077†	7400.8	10.58	mg/L	0.056	21.15	mg/L	0.112	0.53%
Mn 257.610†	20052.8	0.4824	mg/L	0.00572	0.9648	mg/L	0.01144	1.19%
Mo 202.031†	24.9	0.00152	mg/L	0.000101	0.00304	mg/L	0.000202	6.64%
Na 589.592†	112866.4	10.07	mg/L	0.016	20.13	mg/L	0.031	0.16%
Na 330.237†	259.2	10.82	mg/L	0.109	21.64	mg/L	0.219	1.01%
Ni 231.604†	1354.2	0.5001	mg/L	0.00411	1.000	mg/L	0.0082	0.82%
Pb 220.353†	13148.3	2.021	mg/L	0.0087	4.043	mg/L	0.0174	0.43%
Sb 206.836†	15.3	0.00186	mg/L	0.001046	0.00373	mg/L	0.002091	56.13%
Se 196.026†	2672.6	2.053	mg/L	0.0067	4.105	mg/L	0.0134	0.33%
Si 288.158†	2.3	0.00450	mg/L	0.004282	0.00899	mg/L	0.008565	95.26%
Sn 189.927†	-8.3	-0.00112	mg/L	0.000453	-0.00225	mg/L	0.000907	40.37%
Sr 421.552†	359478.0	0.4918	mg/L	0.00216	0.9836	mg/L	0.00431	0.44%
Ti 334.903†	64.0	0.00233	mg/L	0.000418	0.00467	mg/L	0.000836	17.91%
Tl 190.801†	2853.6	2.085	mg/L	0.0061	4.169	mg/L	0.0122	0.29%
V 292.402†	62377.7	0.5307	mg/L	0.00162	1.061	mg/L	0.0032	0.31%
Zn 206.200†	1755.7	0.4978	mg/L	0.00345	0.9955	mg/L	0.00689	0.69%

Sequence No.: 65
Sample ID: CV 7

Autosampler Location: 7
Date Collected: 10/10/2013 1:28:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2366648.2	104.4	%	0.66				0.63%
ScR 361.383	264736.0	102.5	%	0.47				0.46%
Ag 328.068†	192000.2	1.005	mg/L	0.0047	1.005	mg/L	0.0047	0.47%
Al 308.215†	1792.9	2.029	mg/L	0.0154	2.029	mg/L	0.0154	0.76%
As 188.979†	2171.3	1.942	mg/L	0.0105	1.942	mg/L	0.0105	0.54%
B 249.677†	5209.9	0.9818	mg/L	0.00449	0.9818	mg/L	0.00449	0.46%
Ba 233.527†	4821.7	1.053	mg/L	0.0036	1.053	mg/L	0.0036	0.34%
Be 313.042†	448290.8	0.9537	mg/L	0.00280	0.9537	mg/L	0.00280	0.29%
Ca 317.933†	14767.1	2.053	mg/L	0.0081	2.053	mg/L	0.0081	0.39%
Cd 228.802†	19395.9	1.012	mg/L	0.0065	1.012	mg/L	0.0065	0.64%
Co 228.616†	27068.9	1.003	mg/L	0.0051	1.003	mg/L	0.0051	0.51%
Cr 267.716†	6108.2	1.019	mg/L	0.0034	1.019	mg/L	0.0034	0.33%
Cu 324.752†	220226.7	1.009	mg/L	0.0021	1.009	mg/L	0.0021	0.20%
Fe 273.955†	1936.9	1.945	mg/L	0.0089	1.945	mg/L	0.0089	0.46%
K 766.490†	31598.3	19.69	mg/L	0.104	19.69	mg/L	0.104	0.53%
Mg 279.077†	1390.7	1.994	mg/L	0.0178	1.994	mg/L	0.0178	0.89%
Mn 257.610†	38702.9	0.9308	mg/L	0.00182	0.9308	mg/L	0.00182	0.20%
Mo 202.031†	14294.6	0.9646	mg/L	0.00543	0.9646	mg/L	0.00543	0.56%
Na 589.592†	549581.2	49.01	mg/L	0.022	49.01	mg/L	0.022	0.05%
Na 330.237†	1218.9	51.58	mg/L	0.505	51.58	mg/L	0.505	0.98%
Ni 231.604†	2712.5	1.004	mg/L	0.0027	1.004	mg/L	0.0027	0.27%
Pb 220.353†	12622.0	1.941	mg/L	0.0105	1.941	mg/L	0.0105	0.54%
Sb 206.836†	4344.4	2.000	mg/L	0.0127	2.000	mg/L	0.0127	0.64%
Se 196.026†	2506.3	1.925	mg/L	0.0111	1.925	mg/L	0.0111	0.58%
Si 288.158†	2178.5	2.003	mg/L	0.0126	2.003	mg/L	0.0126	0.63%
Sn 189.927†	3861.8	0.9456	mg/L	0.00810	0.9456	mg/L	0.00810	0.86%
Sr 421.552†	703716.7	0.9628	mg/L	0.00232	0.9628	mg/L	0.00232	0.24%
Ti 334.903†	18815.5	0.9637	mg/L	0.00257	0.9637	mg/L	0.00257	0.27%
Tl 190.801†	2789.9	2.035	mg/L	0.0117	2.035	mg/L	0.0117	0.58%
V 292.402†	115974.0	0.9869	mg/L	0.00423	0.9869	mg/L	0.00423	0.43%
Zn 206.200†	3435.2	0.9742	mg/L	0.00435	0.9742	mg/L	0.00435	0.45%

Sequence No.: 66
Sample ID: CB 7

Autosampler Location: 1
Date Collected: 10/10/2013 1:32:41 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2372119.4	104.6	%	0.78				0.75%
ScR 361.383	266014.6	103.0	%	0.65				0.64%
Ag 328.068†	40.0	0.00021	mg/L	0.000217	0.00021	mg/L	0.000217	103.86%
Al 308.215†	-5.0	-0.00576	mg/L	0.006789	-0.00576	mg/L	0.006789	117.78%
As 188.979†	-2.1	-0.00178	mg/L	0.002330	-0.00178	mg/L	0.002330	130.91%
B 249.677†	4.1	0.00077	mg/L	0.000538	0.00077	mg/L	0.000538	70.04%
Ba 233.527†	5.5	0.00120	mg/L	0.000533	0.00120	mg/L	0.000533	44.56%
Be 313.042†	26.8	0.00006	mg/L	0.000064	0.00006	mg/L	0.000064	113.12%
Ca 317.933†	17.4	0.00242	mg/L	0.000838	0.00242	mg/L	0.000838	34.57%
Cd 228.802†	0.5	0.00003	mg/L	0.000117	0.00003	mg/L	0.000117	359.76%
Co 228.616†	5.5	0.00020	mg/L	0.000053	0.00020	mg/L	0.000053	26.20%
Cr 267.716†	6.2	0.00104	mg/L	0.001655	0.00104	mg/L	0.001655	159.04%
Cu 324.752†	150.2	0.00069	mg/L	0.000044	0.00069	mg/L	0.000044	6.37%
Fe 273.955†	-0.9	-0.00093	mg/L	0.001384	-0.00093	mg/L	0.001384	149.10%
K 766.490†	14.2	0.00885	mg/L	0.038841	0.00885	mg/L	0.038841	438.78%
Mg 279.077†	1.2	0.00174	mg/L	0.007277	0.00174	mg/L	0.007277	417.80%
Mn 257.610†	-6.8	-0.00016	mg/L	0.000059	-0.00016	mg/L	0.000059	36.29%
Mo 202.031†	6.3	0.00043	mg/L	0.000095	0.00043	mg/L	0.000095	22.11%
Na 589.592†	64.3	0.00574	mg/L	0.004280	0.00574	mg/L	0.004280	74.60%
Na 330.237†	1.8	0.07673	mg/L	0.395188	0.07673	mg/L	0.395188	515.07%
Ni 231.604†	-7.7	-0.00286	mg/L	0.000574	-0.00286	mg/L	0.000574	20.04%
Pb 220.353†	-7.4	-0.00113	mg/L	0.000215	-0.00113	mg/L	0.000215	18.97%
Sb 206.836†	3.7	0.00170	mg/L	0.000139	0.00170	mg/L	0.000139	8.20%
Se 196.026†	2.5	0.00193	mg/L	0.002499	0.00193	mg/L	0.002499	129.76%
Si 288.158†	0.4	0.00032	mg/L	0.003223	0.00032	mg/L	0.003223	998.38%
Sn 189.927†	3.9	0.00096	mg/L	0.000462	0.00096	mg/L	0.000462	48.26%
Sr 421.552†	57.8	0.00008	mg/L	0.000057	0.00008	mg/L	0.000057	72.23%
Ti 334.903†	28.2	0.00144	mg/L	0.000645	0.00144	mg/L	0.000645	44.69%
Tl 190.801†	-1.2	-0.00084	mg/L	0.000890	-0.00084	mg/L	0.000890	105.53%
V 292.402†	-18.6	-0.00015	mg/L	0.000271	-0.00015	mg/L	0.000271	175.43%
Zn 206.200†	1.7	0.00047	mg/L	0.000622	0.00047	mg/L	0.000622	131.67%

Sequence No.: 67
Sample ID: XI46 MB2 TWC

Autosampler Location: 348
Date Collected: 10/10/2013 1:36:56 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 MB2 TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 MB2 TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2350748.1	103.7	%	1.09				1.05%
ScR 361.383	264856.6	102.6	%	1.40				1.37%
Ag 328.068†	-12.2	-0.00006	mg/L	0.000188	-0.00006	mg/L	0.000188	295.59%
Al 308.215†	-4.6	-0.00530	mg/L	0.004594	-0.00530	mg/L	0.004594	86.75%
As 188.979†	-3.1	-0.00266	mg/L	0.003979	-0.00266	mg/L	0.003979	149.50%
B 249.677†	5.6	0.00106	mg/L	0.001339	0.00106	mg/L	0.001339	126.12%
Ba 233.527†	1.2	0.00026	mg/L	0.001066	0.00026	mg/L	0.001066	409.19%
Be 313.042†	-2.3	-0.00000	mg/L	0.000044	-0.00000	mg/L	0.000044	885.22%
Ca 317.933†	31.4	0.00437	mg/L	0.000706	0.00437	mg/L	0.000706	16.17%
Cd 228.802†	0.6	0.00004	mg/L	0.000115	0.00004	mg/L	0.000115	262.87%
Co 228.616†	-0.2	-0.00001	mg/L	0.000174	-0.00001	mg/L	0.000174	>999.9%
Cr 267.716†	1.1	0.00018	mg/L	0.000076	0.00018	mg/L	0.000076	42.26%
Cu 324.752†	124.1	0.00057	mg/L	0.000109	0.00057	mg/L	0.000109	19.25%
Fe 273.955†	-2.0	-0.00205	mg/L	0.001928	-0.00205	mg/L	0.001928	94.02%
K 766.490†	-0.3	-0.00022	mg/L	0.030005	-0.00022	mg/L	0.030005	>999.9%
Mg 279.077†	-2.0	-0.00289	mg/L	0.005741	-0.00289	mg/L	0.005741	198.32%
Mn 257.610†	-2.9	-0.00007	mg/L	0.000024	-0.00007	mg/L	0.000024	33.94%
Mo 202.031†	-4.4	-0.00030	mg/L	0.000207	-0.00030	mg/L	0.000207	69.99%
Na 589.592†	30.8	0.00275	mg/L	0.001393	0.00275	mg/L	0.001393	50.64%
Na 330.237†	-1.8	-0.07678	mg/L	0.398177	-0.07678	mg/L	0.398177	518.62%
Ni 231.604†	-4.7	-0.00173	mg/L	0.001212	-0.00173	mg/L	0.001212	69.90%
Pb 220.353†	-3.2	-0.00049	mg/L	0.001400	-0.00049	mg/L	0.001400	285.00%
Sb 206.836†	-2.0	-0.00093	mg/L	0.002694	-0.00093	mg/L	0.002694	289.98%
Se 196.026†	3.0	0.00229	mg/L	0.002643	0.00229	mg/L	0.002643	115.17%
Si 288.158†	15.0	0.01376	mg/L	0.003285	0.01376	mg/L	0.003285	23.87%
Sn 189.927†	3.3	0.00080	mg/L	0.000406	0.00080	mg/L	0.000406	50.44%
Sr 421.552†	7.1	0.00001	mg/L	0.000021	0.00001	mg/L	0.000021	215.45%
Ti 334.903†	20.1	0.00103	mg/L	0.001209	0.00103	mg/L	0.001209	117.62%
Tl 190.801†	1.7	0.00123	mg/L	0.001120	0.00123	mg/L	0.001120	91.34%
V 292.402†	-9.6	-0.00008	mg/L	0.000149	-0.00008	mg/L	0.000149	183.52%
Zn 206.200†	3.8	0.00107	mg/L	0.000426	0.00107	mg/L	0.000426	39.67%

Sequence No.: 68
Sample ID: XI46 E SWC

Autosampler Location: 349
Date Collected: 10/10/2013 1:41:12 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI46 E SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 E SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2331898.2	102.8	%	0.27				0.26%
ScR 361.383	266057.3	103.0	%	1.41				1.37%
Ag 328.068†	17.9	0.00011	mg/L	0.000146	0.00023	mg/L	0.000293	128.50%
Al 308.215†	15366.8	17.67	mg/L	0.105	35.34	mg/L	0.211	0.60%
As 188.979†	21.0	0.03287	mg/L	0.002980	0.06573	mg/L	0.005959	9.07%
B 249.677†	948.2	0.1789	mg/L	0.00167	0.3577	mg/L	0.00335	0.94%
Ba 233.527†	439.7	0.09408	mg/L	0.002346	0.1882	mg/L	0.00469	2.49%
Be 313.042†	5.4	-0.00001	mg/L	0.000033	-0.00002	mg/L	0.000066	311.55%
Ca 317.933†	149167.4	20.74	mg/L	0.129	41.47	mg/L	0.258	0.62%
Cd 228.802†	4.6	-0.00002	mg/L	0.000143	-0.00005	mg/L	0.000287	585.28%
Co 228.616†	237.7	0.00790	mg/L	0.000329	0.01581	mg/L	0.000659	4.17%
Cr 267.716†	164.5	0.02701	mg/L	0.000632	0.05401	mg/L	0.001264	2.34%
Cu 324.752†	14844.0	0.06865	mg/L	0.000560	0.1373	mg/L	0.00112	0.82%
Fe 273.955†	16624.2	16.74	mg/L	0.150	33.48	mg/L	0.300	0.90%
K 766.490†	4898.0	3.051	mg/L	0.0073	6.103	mg/L	0.0145	0.24%
Mg 279.077†	8336.7	11.90	mg/L	0.155	23.81	mg/L	0.310	1.30%
Mn 257.610†	14588.1	0.3505	mg/L	0.00245	0.7010	mg/L	0.00490	0.70%
Mo 202.031†	47.7	0.00295	mg/L	0.000344	0.00589	mg/L	0.000689	11.70%
Na 589.592†	624144.5	55.66	mg/L	0.760	111.3	mg/L	1.52	1.37%
Na 330.237†	1393.3	59.08	mg/L	0.838	118.2	mg/L	1.68	1.42%
Ni 231.604†	93.1	0.03446	mg/L	0.001490	0.06892	mg/L	0.002980	4.32%
Pb 220.353†	874.9	0.1386	mg/L	0.00167	0.2773	mg/L	0.00335	1.21%
Sb 206.836†	-0.3	0.00019	mg/L	0.001516	0.00038	mg/L	0.003032	790.94%
Se 196.026†	16.8	0.01172	mg/L	0.003718	0.02344	mg/L	0.007435	31.73%
Si 288.158†	5608.3	5.144	mg/L	0.0590	10.29	mg/L	0.118	1.15%
Sn 189.927†	-0.8	0.00164	mg/L	0.000827	0.00328	mg/L	0.001654	50.49%
Sr 421.552†	151169.3	0.2068	mg/L	0.00104	0.4136	mg/L	0.00208	0.50%
Ti 334.903†	10240.4	0.5234	mg/L	0.00203	1.047	mg/L	0.0041	0.39%
Tl 190.801†	9.3	0.00889	mg/L	0.002770	0.01777	mg/L	0.005539	31.16%
V 292.402†	8229.8	0.06862	mg/L	0.000513	0.1372	mg/L	0.00103	0.75%
Zn 206.200†	655.5	0.1864	mg/L	0.00330	0.3727	mg/L	0.00660	1.77%

Sequence No.: 69
Sample ID: XI46 F-L TWC

Autosampler Location: 350
Date Collected: 10/10/2013 1:45:27 PM
Data Type: Original

Dilution: 5.000000X

Nebulizer Parameters: XI46 F-L TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 F-L TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2349024.4	103.6	%	0.46				0.45%
ScR 361.383	264054.9	102.3	%	0.55				0.53%
Ag 328.068†	-22.4	-0.00012	mg/L	0.000069	-0.00059	mg/L	0.000345	58.86%
Al 308.215†	-2.5	-0.00290	mg/L	0.003521	-0.01452	mg/L	0.017603	121.24%
As 188.979†	-2.5	-0.00222	mg/L	0.002208	-0.01112	mg/L	0.011040	99.25%
B 249.677†	5.2	0.00099	mg/L	0.000395	0.00494	mg/L	0.001974	39.95%
Ba 233.527†	3.2	0.00066	mg/L	0.001402	0.00332	mg/L	0.007012	211.26%
Be 313.042†	-21.4	-0.00005	mg/L	0.000037	-0.00023	mg/L	0.000184	80.73%
Ca 317.933†	239.5	0.03330	mg/L	0.000729	0.1665	mg/L	0.00365	2.19%
Cd 228.802†	1.8	0.00016	mg/L	0.000118	0.00078	mg/L	0.000588	75.23%
Co 228.616†	21.2	0.00078	mg/L	0.000072	0.00389	mg/L	0.000358	9.19%
Cr 267.716†	312.6	0.05216	mg/L	0.000805	0.2608	mg/L	0.00403	1.54%
Cu 324.752†	437.2	0.00201	mg/L	0.000191	0.01005	mg/L	0.000957	9.52%
Fe 273.955†	164.2	0.1654	mg/L	0.00157	0.8272	mg/L	0.00786	0.95%
K 766.490†	-8.4	-0.00522	mg/L	0.007001	-0.02609	mg/L	0.035004	134.15%
Mg 279.077†	5.9	0.00832	mg/L	0.004523	0.04160	mg/L	0.022613	54.36%
Mn 257.610†	379.6	0.00913	mg/L	0.000093	0.04563	mg/L	0.000463	1.02%
Mo 202.031†	-1.2	-0.00008	mg/L	0.000078	-0.00042	mg/L	0.000391	92.18%
Na 589.592†	625.1	0.05575	mg/L	0.001714	0.2787	mg/L	0.00857	3.07%
Na 330.237†	6.4	0.2684	mg/L	0.66295	1.342	mg/L	3.3148	247.00%
Ni 231.604†	145.2	0.05372	mg/L	0.001859	0.2686	mg/L	0.00930	3.46%
Pb 220.353†	-1.8	-0.00021	mg/L	0.000497	-0.00103	mg/L	0.002485	242.10%
Sb 206.836†	0.9	-0.00029	mg/L	0.000817	-0.00143	mg/L	0.004084	285.64%
Se 196.026†	4.7	0.00357	mg/L	0.003884	0.01787	mg/L	0.019418	108.66%
Si 288.158†	87.0	0.07986	mg/L	0.004913	0.3993	mg/L	0.02457	6.15%
Sn 189.927†	1.5	0.00037	mg/L	0.000711	0.00184	mg/L	0.003555	193.70%
Sr 421.552†	53.0	0.00007	mg/L	0.000050	0.00036	mg/L	0.000248	68.23%
Ti 334.903†	27.5	0.00140	mg/L	0.001151	0.00699	mg/L	0.005757	82.35%
Tl 190.801†	1.7	0.00124	mg/L	0.001626	0.00619	mg/L	0.008131	131.26%
V 292.402†	-23.5	-0.00000	mg/L	0.000081	-0.00002	mg/L	0.000406	>999.9%
Zn 206.200†	20.5	0.00583	mg/L	0.000751	0.02917	mg/L	0.003755	12.87%

Sequence No.: 70
Sample ID: XI46 F TWC

Autosampler Location: 351
Date Collected: 10/10/2013 1:49:41 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 F TWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 F TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2370295.4	104.5	%	0.54				0.52%
ScR 361.383	267467.4	103.6	%	0.05				0.05%
Ag 328.068†	0.4	0.00000	mg/L	0.000168	0.00000	mg/L	0.000168	>999.9%
Al 308.215†	6.6	0.00764	mg/L	0.003161	0.00764	mg/L	0.003161	41.36%
As 188.979†	-1.9	-0.00204	mg/L	0.001785	-0.00204	mg/L	0.001785	87.34%
B 249.677†	32.2	0.00606	mg/L	0.002175	0.00606	mg/L	0.002175	35.91%
Ba 233.527†	3.2	0.00057	mg/L	0.000814	0.00057	mg/L	0.000814	143.59%
Be 313.042†	-5.6	-0.00001	mg/L	0.000010	-0.00001	mg/L	0.000010	88.25%
Ca 317.933†	895.5	0.1245	mg/L	0.00086	0.1245	mg/L	0.00086	0.69%
Cd 228.802†	-8.6	-0.00019	mg/L	0.000132	-0.00019	mg/L	0.000132	69.48%
Co 228.616†	107.9	0.00396	mg/L	0.000061	0.00396	mg/L	0.000061	1.55%
Cr 267.716†	1513.0	0.2524	mg/L	0.00127	0.2524	mg/L	0.00127	0.50%
Cu 324.752†	1759.2	0.00810	mg/L	0.000188	0.00810	mg/L	0.000188	2.33%
Fe 273.955†	799.2	0.8051	mg/L	0.00435	0.8051	mg/L	0.00435	0.54%
K 766.490†	-58.7	-0.03659	mg/L	0.019107	-0.03659	mg/L	0.019107	52.23%
Mg 279.077†	11.8	0.01669	mg/L	0.007180	0.01669	mg/L	0.007180	43.01%
Mn 257.610†	1863.3	0.04479	mg/L	0.000216	0.04479	mg/L	0.000216	0.48%
Mo 202.031†	-0.4	-0.00004	mg/L	0.000024	-0.00004	mg/L	0.000024	62.09%
Na 589.592†	2477.3	0.2209	mg/L	0.00350	0.2209	mg/L	0.00350	1.58%
Na 330.237†	11.9	0.4979	mg/L	0.31112	0.4979	mg/L	0.31112	62.48%
Ni 231.604†	754.5	0.2791	mg/L	0.00482	0.2791	mg/L	0.00482	1.73%
Pb 220.353†	-1.6	0.00014	mg/L	0.001130	0.00014	mg/L	0.001130	805.36%
Sb 206.836†	2.4	-0.00232	mg/L	0.001368	-0.00232	mg/L	0.001368	58.96%
Se 196.026†	-0.1	-0.00005	mg/L	0.003804	-0.00005	mg/L	0.003804	>999.9%
Si 288.158†	415.3	0.3811	mg/L	0.00712	0.3811	mg/L	0.00712	1.87%
Sn 189.927†	1.0	0.00025	mg/L	0.000421	0.00025	mg/L	0.000421	168.37%
Sr 421.552†	229.3	0.00031	mg/L	0.000017	0.00031	mg/L	0.000017	5.49%
Ti 334.903†	26.8	0.00131	mg/L	0.000270	0.00131	mg/L	0.000270	20.52%
Tl 190.801†	-1.7	-0.00129	mg/L	0.002233	-0.00129	mg/L	0.002233	172.65%
V 292.402†	-61.2	0.00043	mg/L	0.000006	0.00043	mg/L	0.000006	1.50%
Zn 206.200†	88.8	0.02527	mg/L	0.000643	0.02527	mg/L	0.000643	2.54%

Sequence No.: 71
Sample ID: XI46 FDUP TWC

Del

Dilution: 1.000000X

Autosampler Location: 352
Date Collected: 10/10/2013 1:53:40 PM
Data Type: Original

Nebulizer Parameters: XI46 FDUP TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 FDUP TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2379757.9	105.0	%	0.72				0.69%
ScR 361.383	258553.0	100.1	%	5.88				5.87%
Ag 328.068†	-18.6	-0.00010	mg/L	0.000098	-0.00010	mg/L	0.000098	100.33%
Al 308.215†	13.3	0.01531	mg/L	0.004755	0.01531	mg/L	0.004755	31.07%
As 188.979†	1.9	0.00164	mg/L	0.001396	0.00164	mg/L	0.001396	84.93%
B 249.677†	23.8	0.00449	mg/L	0.001600	0.00449	mg/L	0.001600	35.61%
Ba 233.527†	3.3	0.00072	mg/L	0.000647	0.00072	mg/L	0.000647	89.66%
Be 313.042†	-10.2	-0.00002	mg/L	0.000023	-0.00002	mg/L	0.000023	103.62%
Ca 317.933†	890.2	0.1238	mg/L	0.00698	0.1238	mg/L	0.00698	5.64%
Cd 228.802†	0.2	-0.00000	mg/L	0.000173	-0.00000	mg/L	0.000173	>999.9%
Co 228.616†	-2.3	-0.00009	mg/L	0.000086	-0.00009	mg/L	0.000086	99.68%
Cr 267.716†	2.3	0.00038	mg/L	0.000484	0.00038	mg/L	0.000484	128.64%
Cu 324.752†	153.5	0.00070	mg/L	0.000315	0.00070	mg/L	0.000315	44.87%
Fe 273.955†	-0.0	-0.00001	mg/L	0.002793	-0.00001	mg/L	0.002793	>999.9%
K 766.490†	23.0	0.01434	mg/L	0.022172	0.01434	mg/L	0.022172	154.58%
Mg 279.077†	24.2	0.03457	mg/L	0.008303	0.03457	mg/L	0.008303	24.01%
Mn 257.610†	12.4	0.00030	mg/L	0.000194	0.00030	mg/L	0.000194	65.33%
Mo 202.031†	-1.8	-0.00013	mg/L	0.000189	-0.00013	mg/L	0.000189	150.80%
Na 589.592†	2597.6	0.2317	mg/L	0.01405	0.2317	mg/L	0.01405	6.07%
Na 330.237†	10.7	0.4524	mg/L	0.19292	0.4524	mg/L	0.19292	42.65%
Ni 231.604†	-4.0	-0.00148	mg/L	0.001363	-0.00148	mg/L	0.001363	91.85%
Pb 220.353†	-2.8	-0.00042	mg/L	0.000209	-0.00042	mg/L	0.000209	49.68%
Sb 206.836†	0.6	0.00027	mg/L	0.001410	0.00027	mg/L	0.001410	519.29%
Se 196.026†	4.7	0.00358	mg/L	0.002923	0.00358	mg/L	0.002923	81.74%
Si 288.158†	427.7	0.3923	mg/L	0.02622	0.3923	mg/L	0.02622	6.68%
Sn 189.927†	0.9	0.00024	mg/L	0.000725	0.00024	mg/L	0.000725	307.99%
Sr 421.552†	153.4	0.00021	mg/L	0.000066	0.00021	mg/L	0.000066	31.34%
Ti 334.903†	8.3	0.00042	mg/L	0.001168	0.00042	mg/L	0.001168	279.75%
Tl 190.801†	-1.8	-0.00132	mg/L	0.001299	-0.00132	mg/L	0.001299	98.51%
V 292.402†	-2.7	-0.00002	mg/L	0.000189	-0.00002	mg/L	0.000189	878.72%
Zn 206.200†	8.7	0.00252	mg/L	0.000566	0.00252	mg/L	0.000566	22.46%

Sequence No.: 72
Sample ID: XI46 FSPK TWC

Autosampler Location: 353
Date Collected: 10/10/2013 1:57:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 FSPK TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 FSPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2329552.9	102.7	%	1.89				1.84%
ScR 361.383	263518.1	102.1	%	1.05				1.03%
Ag 328.068†	98689.0	0.5165	mg/L	0.00152	0.5165	mg/L	0.00152	0.29%
Al 308.215†	1863.8	2.135	mg/L	0.0279	2.135	mg/L	0.0279	1.31%
As 188.979†	2338.5	2.061	mg/L	0.0165	2.061	mg/L	0.0165	0.80%
B 249.677†	28.9	0.00435	mg/L	0.000601	0.00435	mg/L	0.000601	13.82%
Ba 233.527†	10054.7	2.197	mg/L	0.0394	2.197	mg/L	0.0394	1.79%
Be 313.042†	222090.5	0.4725	mg/L	0.00117	0.4725	mg/L	0.00117	0.25%
Ca 317.933†	72744.6	10.11	mg/L	0.021	10.11	mg/L	0.021	0.21%
Cd 228.802†	10178.8	0.5252	mg/L	0.00493	0.5252	mg/L	0.00493	0.94%
Co 228.616†	14080.7	0.5223	mg/L	0.00431	0.5223	mg/L	0.00431	0.83%
Cr 267.716†	3240.6	0.5395	mg/L	0.00521	0.5395	mg/L	0.00521	0.97%
Cu 324.752†	110938.8	0.5085	mg/L	0.00049	0.5085	mg/L	0.00049	0.10%
Fe 273.955†	2027.6	2.039	mg/L	0.0224	2.039	mg/L	0.0224	1.10%
K 766.490†	16475.8	10.26	mg/L	0.009	10.26	mg/L	0.009	0.09%
Mg 279.077†	7534.5	10.77	mg/L	0.140	10.77	mg/L	0.140	1.30%
Mn 257.610†	20243.4	0.4870	mg/L	0.00199	0.4870	mg/L	0.00199	0.41%
Mo 202.031†	22.4	0.00135	mg/L	0.000087	0.00135	mg/L	0.000087	6.43%
Na 589.592†	116668.3	10.40	mg/L	0.023	10.40	mg/L	0.023	0.22%
Na 330.237†	270.4	11.29	mg/L	0.106	11.29	mg/L	0.106	0.94%
Ni 231.604†	1371.9	0.5067	mg/L	0.00544	0.5067	mg/L	0.00544	1.07%
Pb 220.353†	13240.2	2.035	mg/L	0.0190	2.035	mg/L	0.0190	0.94%
Sb 206.836†	11.6	0.00010	mg/L	0.003023	0.00010	mg/L	0.003023	>999.9%
Se 196.026†	2640.9	2.028	mg/L	0.0189	2.028	mg/L	0.0189	0.93%
Si 288.158†	421.7	0.3892	mg/L	0.00778	0.3892	mg/L	0.00778	2.00%
Sn 189.927†	-9.4	-0.00138	mg/L	0.000557	-0.00138	mg/L	0.000557	40.35%
Sr 421.552†	365588.4	0.5002	mg/L	0.00132	0.5002	mg/L	0.00132	0.26%
Ti 334.903†	62.5	0.00224	mg/L	0.000581	0.00224	mg/L	0.000581	25.91%
Tl 190.801†	2858.3	2.088	mg/L	0.0215	2.088	mg/L	0.0215	1.03%
V 292.402†	63326.2	0.5388	mg/L	0.00569	0.5388	mg/L	0.00569	1.06%
Zn 206.200†	1781.0	0.5050	mg/L	0.00626	0.5050	mg/L	0.00626	1.24%

Sequence No.: 73
Sample ID: XI46 FPOST TWC

Autosampler Location: 354
Date Collected: 10/10/2013 2:01:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 FPOST TWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI46 FPOST TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2340445.2	103.2	%	0.50				0.48%
ScR 361.383	263887.9	102.2	%	0.17				0.16%
Ag 328.068†	99474.5	0.5206	mg/L	0.00330	0.5206	mg/L	0.00330	0.63%
Al 308.215†	1831.5	2.098	mg/L	0.0109	2.098	mg/L	0.0109	0.52%
As 188.979†	2291.3	2.019	mg/L	0.0096	2.019	mg/L	0.0096	0.48%
B 249.677†	34.2	0.00536	mg/L	0.000665	0.00536	mg/L	0.000665	12.41%
Ba 233.527†	9908.2	2.165	mg/L	0.0113	2.165	mg/L	0.0113	0.52%
Be 313.042†	220616.3	0.4693	mg/L	0.00156	0.4693	mg/L	0.00156	0.33%
Ca 317.933†	71827.3	9.985	mg/L	0.0313	9.985	mg/L	0.0313	0.31%
Cd 228.802†	9917.0	0.5119	mg/L	0.00314	0.5119	mg/L	0.00314	0.61%
Co 228.616†	13850.8	0.5138	mg/L	0.00203	0.5138	mg/L	0.00203	0.39%
Cr 267.716†	4676.9	0.7792	mg/L	0.00168	0.7792	mg/L	0.00168	0.22%
Cu 324.752†	110038.7	0.5044	mg/L	0.00085	0.5044	mg/L	0.00085	0.17%
Fe 273.955†	2779.7	2.796	mg/L	0.0124	2.796	mg/L	0.0124	0.44%
K 766.490†	16087.4	10.02	mg/L	0.032	10.02	mg/L	0.032	0.32%
Mg 279.077†	7377.4	10.54	mg/L	0.035	10.54	mg/L	0.035	0.33%
Mn 257.610†	21779.4	0.5239	mg/L	0.00233	0.5239	mg/L	0.00233	0.44%
Mo 202.031†	29.8	0.00184	mg/L	0.000237	0.00184	mg/L	0.000237	12.90%
Na 589.592†	114839.0	10.24	mg/L	0.010	10.24	mg/L	0.010	0.09%
Na 330.237†	259.4	10.82	mg/L	0.125	10.82	mg/L	0.125	1.15%
Ni 231.604†	2091.8	0.7730	mg/L	0.00284	0.7730	mg/L	0.00284	0.37%
Pb 220.353†	12907.6	1.985	mg/L	0.0085	1.985	mg/L	0.0085	0.43%
Sb 206.836†	16.1	-0.00112	mg/L	0.000853	-0.00112	mg/L	0.000853	75.92%
Se 196.026†	2600.7	1.997	mg/L	0.0092	1.997	mg/L	0.0092	0.46%
Si 288.158†	411.6	0.3800	mg/L	0.00239	0.3800	mg/L	0.00239	0.63%
Sn 189.927†	-9.0	-0.00129	mg/L	0.000283	-0.00129	mg/L	0.000283	21.93%
Sr 421.552†	360656.0	0.4934	mg/L	0.00055	0.4934	mg/L	0.00055	0.11%
Ti 334.903†	66.2	0.00239	mg/L	0.000156	0.00239	mg/L	0.000156	6.53%
Tl 190.801†	2796.7	2.043	mg/L	0.0012	2.043	mg/L	0.0012	0.06%
V 292.402†	61619.5	0.5252	mg/L	0.00227	0.5252	mg/L	0.00227	0.43%
Zn 206.200†	1835.4	0.5204	mg/L	0.00216	0.5204	mg/L	0.00216	0.41%

Sequence No.: 74
Sample ID: XI46 MB2SPK TWC

Autosampler Location: 355
Date Collected: 10/10/2013 2:05:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 MB2SPK TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 MB2SPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2316766.8	102.2	%	0.73				0.71%
ScR 361.383	263059.7	101.9	%	0.37				0.36%
Ag 328.068†	97616.5	0.5109	mg/L	0.00162	0.5109	mg/L	0.00162	0.32%
Al 308.215†	1822.2	2.088	mg/L	0.0181	2.088	mg/L	0.0181	0.87%
As 188.979†	2326.6	2.050	mg/L	0.0156	2.050	mg/L	0.0156	0.76%
B 249.677†	4.2	-0.00029	mg/L	0.000558	-0.00029	mg/L	0.000558	189.30%
Ba 233.527†	9886.5	2.160	mg/L	0.0096	2.160	mg/L	0.0096	0.44%
Be 313.042†	221230.4	0.4706	mg/L	0.00113	0.4706	mg/L	0.00113	0.24%
Ca 317.933†	71221.5	9.901	mg/L	0.0447	9.901	mg/L	0.0447	0.45%
Cd 228.802†	10011.4	0.5165	mg/L	0.00074	0.5165	mg/L	0.00074	0.14%
Co 228.616†	13855.7	0.5140	mg/L	0.00103	0.5140	mg/L	0.00103	0.20%
Cr 267.716†	3182.1	0.5298	mg/L	0.00159	0.5298	mg/L	0.00159	0.30%
Cu 324.752†	109877.0	0.5036	mg/L	0.00135	0.5036	mg/L	0.00135	0.27%
Fe 273.955†	1990.2	2.001	mg/L	0.0056	2.001	mg/L	0.0056	0.28%
K 766.490†	16093.5	10.03	mg/L	0.040	10.03	mg/L	0.040	0.40%
Mg 279.077†	7382.2	10.55	mg/L	0.033	10.55	mg/L	0.033	0.31%
Mn 257.610†	20037.4	0.4820	mg/L	0.00213	0.4820	mg/L	0.00213	0.44%
Mo 202.031†	25.2	0.00155	mg/L	0.000289	0.00155	mg/L	0.000289	18.66%
Na 589.592†	112488.8	10.03	mg/L	0.027	10.03	mg/L	0.027	0.27%
Na 330.237†	255.5	10.67	mg/L	0.117	10.67	mg/L	0.117	1.10%
Ni 231.604†	1347.2	0.4975	mg/L	0.00218	0.4975	mg/L	0.00218	0.44%
Pb 220.353†	13002.6	1.999	mg/L	0.0053	1.999	mg/L	0.0053	0.27%
Sb 206.836†	8.2	-0.00138	mg/L	0.001613	-0.00138	mg/L	0.001613	116.67%
Se 196.026†	2633.2	2.022	mg/L	0.0086	2.022	mg/L	0.0086	0.43%
Si 288.158†	13.7	0.01491	mg/L	0.001800	0.01491	mg/L	0.001800	12.07%
Sn 189.927†	-5.3	-0.00041	mg/L	0.000205	-0.00041	mg/L	0.000205	50.27%
Sr 421.552†	358739.1	0.4908	mg/L	0.00174	0.4908	mg/L	0.00174	0.35%
Ti 334.903†	64.7	0.00237	mg/L	0.000126	0.00237	mg/L	0.000126	5.33%
Tl 190.801†	2832.6	2.069	mg/L	0.0123	2.069	mg/L	0.0123	0.59%
V 292.402†	62244.4	0.5296	mg/L	0.00302	0.5296	mg/L	0.00302	0.57%
Zn 206.200†	1741.1	0.4936	mg/L	0.00217	0.4936	mg/L	0.00217	0.44%

Sequence No.: 75
Sample ID: CV8

Autosampler Location: 7
Date Collected: 10/10/2013 2:09:54 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2319250.6	102.3	%	0.09				0.09%
ScR 361.383	257460.9	99.72	%	0.706				0.71%
Ag 328.068†	192175.8	1.006	mg/L	0.0095	1.006	mg/L	0.0095	0.95%
Al 308.215†	1822.5	2.063	mg/L	0.0268	2.063	mg/L	0.0268	1.30%
As 188.979†	2183.6	1.953	mg/L	0.0097	1.953	mg/L	0.0097	0.50%
B 249.677†	5287.7	0.9965	mg/L	0.00807	0.9965	mg/L	0.00807	0.81%
Ba 233.527†	4867.2	1.063	mg/L	0.0155	1.063	mg/L	0.0155	1.46%
Be 313.042†	446416.8	0.9497	mg/L	0.00513	0.9497	mg/L	0.00513	0.54%
Ca 317.933†	14836.6	2.062	mg/L	0.0171	2.062	mg/L	0.0171	0.83%
Cd 228.802†	19590.2	1.022	mg/L	0.0035	1.022	mg/L	0.0035	0.34%
Co 228.616†	27201.4	1.008	mg/L	0.0041	1.008	mg/L	0.0041	0.41%
Cr 267.716†	6190.6	1.032	mg/L	0.0086	1.032	mg/L	0.0086	0.83%
Cu 324.752†	220452.7	1.010	mg/L	0.0018	1.010	mg/L	0.0018	0.18%
Fe 273.955†	1968.6	1.977	mg/L	0.0068	1.977	mg/L	0.0068	0.34%
K 766.490†	32097.7	20.00	mg/L	0.082	20.00	mg/L	0.082	0.41%
Mg 279.077†	1419.7	2.036	mg/L	0.0293	2.036	mg/L	0.0293	1.44%
Mn 257.610†	39430.9	0.9483	mg/L	0.00218	0.9483	mg/L	0.00218	0.23%
Mo 202.031†	14385.5	0.9707	mg/L	0.00334	0.9707	mg/L	0.00334	0.34%
Na 589.592†	558156.7	49.78	mg/L	0.124	49.78	mg/L	0.124	0.25%
Na 330.237†	1243.1	52.61	mg/L	0.635	52.61	mg/L	0.635	1.21%
Ni 231.604†	2755.9	1.020	mg/L	0.0069	1.020	mg/L	0.0069	0.67%
Pb 220.353†	12690.8	1.951	mg/L	0.0073	1.951	mg/L	0.0073	0.38%
Sb 206.836†	4373.4	2.013	mg/L	0.0091	2.013	mg/L	0.0091	0.45%
Se 196.026†	2519.3	1.935	mg/L	0.0053	1.935	mg/L	0.0053	0.27%
Si 288.158†	2213.8	2.035	mg/L	0.0339	2.035	mg/L	0.0339	1.67%
Sn 189.927†	3891.7	0.9529	mg/L	0.00554	0.9529	mg/L	0.00554	0.58%
Sr 421.552†	715515.5	0.9789	mg/L	0.00153	0.9789	mg/L	0.00153	0.16%
Ti 334.903†	19035.1	0.9749	mg/L	0.00378	0.9749	mg/L	0.00378	0.39%
Tl 190.801†	2794.4	2.038	mg/L	0.0089	2.038	mg/L	0.0089	0.43%
V 292.402†	115983.6	0.9871	mg/L	0.00912	0.9871	mg/L	0.00912	0.92%
Zn 206.200†	3487.0	0.9889	mg/L	0.01000	0.9889	mg/L	0.01000	1.01%

Sequence No.: 76
Sample ID: CB8

Autosampler Location: 1
Date Collected: 10/10/2013 2:13:42 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2330974.3	102.8	%	0.46				0.44%
ScR 361.383	260502.2	100.9	%	0.47				0.47%
Ag 328.068†	4.5	0.00002	mg/L	0.000166	0.00002	mg/L	0.000166	710.62%
Al 308.215†	-5.8	-0.00665	mg/L	0.002561	-0.00665	mg/L	0.002561	38.52%
As 188.979†	-1.3	-0.00111	mg/L	0.003328	-0.00111	mg/L	0.003328	300.59%
B 249.677†	6.4	0.00122	mg/L	0.000853	0.00122	mg/L	0.000853	70.11%
Ba 233.527†	4.0	0.00088	mg/L	0.000947	0.00088	mg/L	0.000947	107.91%
Be 313.042†	62.3	0.00013	mg/L	0.000026	0.00013	mg/L	0.000026	19.48%
Ca 317.933†	2.4	0.00033	mg/L	0.002400	0.00033	mg/L	0.002400	725.50%
Cd 228.802†	1.7	0.00009	mg/L	0.000283	0.00009	mg/L	0.000283	310.89%
Co 228.616†	3.5	0.00013	mg/L	0.000251	0.00013	mg/L	0.000251	194.24%
Cr 267.716†	1.2	0.00020	mg/L	0.000566	0.00020	mg/L	0.000566	280.36%
Cu 324.752†	118.3	0.00054	mg/L	0.000097	0.00054	mg/L	0.000097	17.93%
Fe 273.955†	-0.7	-0.00070	mg/L	0.003003	-0.00070	mg/L	0.003003	427.20%
K 766.490†	10.9	0.00679	mg/L	0.030330	0.00679	mg/L	0.030330	446.87%
Mg 279.077†	1.3	0.00188	mg/L	0.008461	0.00188	mg/L	0.008461	450.38%
Mn 257.610†	-0.4	-0.00001	mg/L	0.000121	-0.00001	mg/L	0.000121	>999.9%
Mo 202.031†	10.4	0.00070	mg/L	0.000358	0.00070	mg/L	0.000358	50.88%
Na 589.592†	52.8	0.00471	mg/L	0.003074	0.00471	mg/L	0.003074	65.32%
Na 330.237†	2.5	0.1086	mg/L	0.24862	0.1086	mg/L	0.24862	228.84%
Ni 231.604†	-6.8	-0.00252	mg/L	0.001137	-0.00252	mg/L	0.001137	45.14%
Pb 220.353†	-0.4	-0.00006	mg/L	0.000580	-0.00006	mg/L	0.000580	910.66%
Sb 206.836†	5.1	0.00235	mg/L	0.002433	0.00235	mg/L	0.002433	103.43%
Se 196.026†	1.6	0.00119	mg/L	0.001773	0.00119	mg/L	0.001773	148.66%
Si 288.158†	2.8	0.00255	mg/L	0.002070	0.00255	mg/L	0.002070	81.15%
Sn 189.927†	0.3	0.00008	mg/L	0.000182	0.00008	mg/L	0.000182	238.22%
Sr 421.552†	55.2	0.00008	mg/L	0.000031	0.00008	mg/L	0.000031	41.63%
Ti 334.903†	29.4	0.00151	mg/L	0.000565	0.00151	mg/L	0.000565	37.55%
Tl 190.801†	0.5	0.00039	mg/L	0.001827	0.00039	mg/L	0.001827	469.15%
V 292.402†	5.1	0.00004	mg/L	0.000070	0.00004	mg/L	0.000070	161.02%
Zn 206.200†	-4.0	-0.00114	mg/L	0.000263	-0.00114	mg/L	0.000263	23.08%

Sequence No.: 77
Sample ID: XI46 FDUP TWC

Autosampler Location: 362
Date Collected: 10/10/2013 2:17:57 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: XI46 FDUP TWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI46 FDUP TWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2332453.4	102.9	%	0.43				0.42%
ScR 361.383	262622.6	101.7	%	0.76				0.75%
Ag 328.068†	-33.9	-0.00018	mg/L	0.000029	-0.00018	mg/L	0.000029	16.51%
Al 308.215†	6.3	0.00728	mg/L	0.004350	0.00728	mg/L	0.004350	59.72%
As 188.979†	-5.6	-0.00489	mg/L	0.002472	-0.00489	mg/L	0.002472	50.52%
B 249.677†	28.4	0.00536	mg/L	0.000266	0.00536	mg/L	0.000266	4.96%
Ba 233.527†	3.3	0.00072	mg/L	0.000830	0.00072	mg/L	0.000830	115.40%
Be 313.042†	-11.7	-0.00002	mg/L	0.000025	-0.00002	mg/L	0.000025	101.65%
Ca 317.933†	865.4	0.1203	mg/L	0.00130	0.1203	mg/L	0.00130	1.08%
Cd 228.802†	0.4	0.00005	mg/L	0.000098	0.00005	mg/L	0.000098	203.08%
Co 228.616†	-4.2	-0.00016	mg/L	0.000176	-0.00016	mg/L	0.000176	112.28%
Cr 267.716†	-1.5	-0.00025	mg/L	0.001292	-0.00025	mg/L	0.001292	525.88%
Cu 324.752†	210.8	0.00097	mg/L	0.000270	0.00097	mg/L	0.000270	27.98%
Fe 273.955†	0.8	0.00081	mg/L	0.003421	0.00081	mg/L	0.003421	420.79%
K 766.490†	-5.4	-0.00337	mg/L	0.012646	-0.00337	mg/L	0.012646	375.69%
Mg 279.077†	18.0	0.02576	mg/L	0.011746	0.02576	mg/L	0.011746	45.59%
Mn 257.610†	8.9	0.00021	mg/L	0.000062	0.00021	mg/L	0.000062	29.23%
Mo 202.031†	-0.8	-0.00006	mg/L	0.000104	-0.00006	mg/L	0.000104	185.03%
Na 589.592†	2568.2	0.2290	mg/L	0.00132	0.2290	mg/L	0.00132	0.58%
Na 330.237†	5.5	0.2324	mg/L	0.09740	0.2324	mg/L	0.09740	41.92%
Ni 231.604†	-4.8	-0.00179	mg/L	0.001636	-0.00179	mg/L	0.001636	91.48%
Pb 220.353†	-0.5	-0.00008	mg/L	0.001437	-0.00008	mg/L	0.001437	>999.9%
Sb 206.836†	0.5	0.00023	mg/L	0.002055	0.00023	mg/L	0.002055	874.93%
Se 196.026†	0.6	0.00044	mg/L	0.001900	0.00044	mg/L	0.001900	432.96%
Si 288.158†	418.1	0.3835	mg/L	0.00314	0.3835	mg/L	0.00314	0.82%
Sn 189.927†	2.6	0.00064	mg/L	0.000704	0.00064	mg/L	0.000704	109.60%
Sr 421.552†	148.4	0.00020	mg/L	0.000041	0.00020	mg/L	0.000041	20.05%
Ti 334.903†	19.6	0.00100	mg/L	0.000774	0.00100	mg/L	0.000774	77.67%
Tl 190.801†	-0.4	-0.00033	mg/L	0.002728	-0.00033	mg/L	0.002728	838.23%
V 292.402†	-11.9	-0.00010	mg/L	0.000170	-0.00010	mg/L	0.000170	165.35%
Zn 206.200†	7.7	0.00224	mg/L	0.000699	0.00224	mg/L	0.000699	31.16%

Sequence No.: 78
Sample ID: B1

Autosampler Location: 363
Date Collected: 10/10/2013 2:22:13 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: B1

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: B1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2328858.9	102.7	%	0.68				0.67%
ScR 361.383	264603.5	102.5	%	0.29				0.28%
Ag 328.068†	-2.6	-0.00001	mg/L	0.000195	-0.00001	mg/L	0.000195	>999.9%
Al 308.215†	-8.7	-0.00997	mg/L	0.005022	-0.00997	mg/L	0.005022	50.35%
As 188.979†	-1.5	-0.00127	mg/L	0.003846	-0.00127	mg/L	0.003846	303.34%
B 249.677†	1.3	0.00025	mg/L	0.000215	0.00025	mg/L	0.000215	84.87%
Ba 233.527†	4.2	0.00091	mg/L	0.000426	0.00091	mg/L	0.000426	46.83%
Be 313.042†	-18.0	-0.00004	mg/L	0.000026	-0.00004	mg/L	0.000026	68.05%
Ca 317.933†	64.2	0.00893	mg/L	0.002490	0.00893	mg/L	0.002490	27.89%
Cd 228.802†	2.5	0.00014	mg/L	0.000236	0.00014	mg/L	0.000236	174.28%
Co 228.616†	-4.2	-0.00016	mg/L	0.000199	-0.00016	mg/L	0.000199	127.21%
Cr 267.716†	7.7	0.00129	mg/L	0.000498	0.00129	mg/L	0.000498	38.68%
Cu 324.752†	150.0	0.00069	mg/L	0.000145	0.00069	mg/L	0.000145	21.17%
Fe 273.955†	-3.1	-0.00311	mg/L	0.003630	-0.00311	mg/L	0.003630	116.78%
K 766.490†	3.9	0.00244	mg/L	0.021437	0.00244	mg/L	0.021437	878.47%
Mg 279.077†	1.0	0.00144	mg/L	0.004206	0.00144	mg/L	0.004206	292.90%
Mn 257.610†	-6.7	-0.00016	mg/L	0.000128	-0.00016	mg/L	0.000128	80.15%
Mo 202.031†	-4.5	-0.00030	mg/L	0.000253	-0.00030	mg/L	0.000253	83.65%
Na 589.592†	35.4	0.00316	mg/L	0.006349	0.00316	mg/L	0.006349	201.23%
Na 330.237†	3.5	0.1481	mg/L	0.16198	0.1481	mg/L	0.16198	109.39%
Ni 231.604†	-5.7	-0.00211	mg/L	0.001549	-0.00211	mg/L	0.001549	73.25%
Pb 220.353†	-0.4	-0.00007	mg/L	0.000435	-0.00007	mg/L	0.000435	652.96%
Sb 206.836†	-2.2	-0.00102	mg/L	0.001025	-0.00102	mg/L	0.001025	100.38%
Se 196.026†	3.0	0.00229	mg/L	0.001647	0.00229	mg/L	0.001647	71.84%
Si 288.158†	-5.4	-0.00494	mg/L	0.002442	-0.00494	mg/L	0.002442	49.40%
Sn 189.927†	1.2	0.00029	mg/L	0.000579	0.00029	mg/L	0.000579	196.83%
Sr 421.552†	9.8	0.00001	mg/L	0.000026	0.00001	mg/L	0.000026	190.69%
Ti 334.903†	29.3	0.00150	mg/L	0.000878	0.00150	mg/L	0.000878	58.36%
Tl 190.801†	-2.7	-0.00199	mg/L	0.003749	-0.00199	mg/L	0.003749	188.61%
V 292.402†	-8.2	-0.00007	mg/L	0.000105	-0.00007	mg/L	0.000105	160.11%
Zn 206.200†	2.1	0.00061	mg/L	0.000614	0.00061	mg/L	0.000614	101.10%

Sequence No.: 79
Sample ID: CRI

Autosampler Location: 301
Date Collected: 10/10/2013 2:26:27 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2344449.2	103.4	%	0.50				0.49%
ScR 361.383	260182.0	100.8	%	0.53				0.52%
Ag 328.068†	576.0	0.00301	mg/L	0.000242	0.00301	mg/L	0.000242	8.02%
Al 308.215†	41.8	0.04800	mg/L	0.005154	0.04800	mg/L	0.005154	10.74%
As 188.979†	52.9	0.04684	mg/L	0.001989	0.04684	mg/L	0.001989	4.25%
B 249.677†	106.4	0.02007	mg/L	0.000835	0.02007	mg/L	0.000835	4.16%
Ba 233.527†	16.4	0.00357	mg/L	0.000198	0.00357	mg/L	0.000198	5.53%
Be 313.042†	413.3	0.00088	mg/L	0.000011	0.00088	mg/L	0.000011	1.22%
Ca 317.933†	351.9	0.04892	mg/L	0.000974	0.04892	mg/L	0.000974	1.99%
Cd 228.802†	45.5	0.00215	mg/L	0.000059	0.00215	mg/L	0.000059	2.75%
Co 228.616†	78.5	0.00290	mg/L	0.000254	0.00290	mg/L	0.000254	8.75%
Cr 267.716†	35.1	0.00586	mg/L	0.000840	0.00586	mg/L	0.000840	14.33%
Cu 324.752†	535.1	0.00245	mg/L	0.000193	0.00245	mg/L	0.000193	7.86%
Fe 273.955†	44.7	0.04496	mg/L	0.003047	0.04496	mg/L	0.003047	6.78%
K 766.490†	783.4	0.4880	mg/L	0.02508	0.4880	mg/L	0.02508	5.14%
Mg 279.077†	40.0	0.05724	mg/L	0.005686	0.05724	mg/L	0.005686	9.93%
Mn 257.610†	32.6	0.00079	mg/L	0.000081	0.00079	mg/L	0.000081	10.30%
Mo 202.031†	70.4	0.00475	mg/L	0.000335	0.00475	mg/L	0.000335	7.05%
Na 589.592†	5551.4	0.4951	mg/L	0.00731	0.4951	mg/L	0.00731	1.48%
Na 330.237†	12.6	0.5334	mg/L	0.04023	0.5334	mg/L	0.04023	7.54%
Ni 231.604†	26.0	0.00964	mg/L	0.001521	0.00964	mg/L	0.001521	15.78%
Pb 220.353†	124.6	0.01917	mg/L	0.001336	0.01917	mg/L	0.001336	6.97%
Sb 206.836†	107.0	0.04929	mg/L	0.000824	0.04929	mg/L	0.000824	1.67%
Se 196.026†	63.0	0.04840	mg/L	0.005036	0.04840	mg/L	0.005036	10.41%
Si 288.158†	70.0	0.06418	mg/L	0.003789	0.06418	mg/L	0.003789	5.90%
Sn 189.927†	40.1	0.00983	mg/L	0.000845	0.00983	mg/L	0.000845	8.59%
Sr 421.552†	685.6	0.00094	mg/L	0.000023	0.00094	mg/L	0.000023	2.41%
Ti 334.903†	107.2	0.00549	mg/L	0.000635	0.00549	mg/L	0.000635	11.57%
Tl 190.801†	65.7	0.04811	mg/L	0.002106	0.04811	mg/L	0.002106	4.38%
V 292.402†	337.0	0.00288	mg/L	0.000101	0.00288	mg/L	0.000101	3.51%
Zn 206.200†	32.2	0.00914	mg/L	0.000158	0.00914	mg/L	0.000158	1.72%

Sequence No.: 80
Sample ID: ICSA

Autosampler Location: 302
Date Collected: 10/10/2013 2:30:41 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2228315.5	98.27	%	0.176				0.18%
ScR 361.383	257115.7	99.58	%	0.641				0.64%
Ag 328.068†	-283.2	-0.00148	mg/L	0.000254	-0.00148	mg/L	0.000254	17.21%
Al 308.215†	174402.2	200.6	mg/L	0.96	200.6	mg/L	0.96	0.48%
As 188.979†	55.9	0.03803	mg/L	0.002548	0.03803	mg/L	0.002548	6.70%
B 249.677†	91.8	0.01732	mg/L	0.002242	0.01732	mg/L	0.002242	12.94%
Ba 233.527†	112.0	0.00117	mg/L	0.001848	0.00117	mg/L	0.001848	158.02%
Be 313.042†	18.2	0.00004	mg/L	0.000002	0.00004	mg/L	0.000002	5.77%
Ca 317.933†	712723.1	99.08	mg/L	0.274	99.08	mg/L	0.274	0.28%
Cd 228.802†	5.9	-0.00212	mg/L	0.000100	-0.00212	mg/L	0.000100	4.69%
Co 228.616†	80.5	0.00296	mg/L	0.000060	0.00296	mg/L	0.000060	2.03%
Cr 267.716†	23.2	0.00297	mg/L	0.000436	0.00297	mg/L	0.000436	14.65%
Cu 324.752†	-1793.1	0.00015	mg/L	0.000037	0.00015	mg/L	0.000037	25.11%
Fe 273.955†	186994.4	188.3	mg/L	0.76	188.3	mg/L	0.76	0.40%
K 766.490†	-3.6	-0.00223	mg/L	0.015749	-0.00223	mg/L	0.015749	706.33%
Mg 279.077†	72169.5	103.0	mg/L	0.38	103.0	mg/L	0.38	0.37%
Mn 257.610†	49.2	-0.00053	mg/L	0.000267	-0.00053	mg/L	0.000267	50.04%
Mo 202.031†	113.9	0.00638	mg/L	0.000092	0.00638	mg/L	0.000092	1.44%
Na 589.592†	212.1	0.01891	mg/L	0.003069	0.01891	mg/L	0.003069	16.23%
Na 330.237†	-20.7	-0.8693	mg/L	0.24339	-0.8693	mg/L	0.24339	28.00%
Ni 231.604†	-4.1	-0.00152	mg/L	0.003092	-0.00152	mg/L	0.003092	203.42%
Pb 220.353†	-386.0	-0.01107	mg/L	0.001504	-0.01107	mg/L	0.001504	13.59%
Sb 206.836†	-29.3	-0.01362	mg/L	0.003249	-0.01362	mg/L	0.003249	23.86%
Se 196.026†	37.6	0.02348	mg/L	0.002107	0.02348	mg/L	0.002107	8.97%
Si 288.158†	-12.0	-0.01097	mg/L	0.005081	-0.01097	mg/L	0.005081	46.31%
Sn 189.927†	-66.8	-0.00816	mg/L	0.000718	-0.00816	mg/L	0.000718	8.80%
Sr 421.552†	3858.1	0.00528	mg/L Cont.	0.000021	0.00528	mg/L	0.000021	0.40%
Ti 334.903†	340.4	0.00903	mg/L	0.000736	0.00903	mg/L	0.000736	8.15%
Tl 190.801†	-14.8	0.01602	mg/L	0.002240	0.01602	mg/L	0.002240	13.99%
V 292.402†	1405.7	0.00060	mg/L	0.000374	0.00060	mg/L	0.000374	62.56%
Zn 206.200†	-2.4	-0.00247	mg/L	0.000512	-0.00247	mg/L	0.000512	20.70%

Sequence No.: 81
Sample ID: ICSAB

Autosampler Location: 303
Date Collected: 10/10/2013 2:34:56 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2248446.2	99.16	%	0.933				0.94%
ScR 361.383	257152.9	99.60	%	0.417				0.42%
Ag 328.068†	195599.1	1.024	mg/L	0.0045	1.024	mg/L	0.0045	0.44%
Al 308.215†	175543.5	201.9	mg/L	0.69	201.9	mg/L	0.69	0.34%
As 188.979†	1179.4	1.028	mg/L	0.0158	1.028	mg/L	0.0158	1.54%
B 249.677†	34.6	0.00447	mg/L	0.001653	0.00447	mg/L	0.001653	36.94%
Ba 233.527†	4896.3	1.046	mg/L	0.0021	1.046	mg/L	0.0021	0.20%
Be 313.042†	445537.0	0.9478	mg/L	0.00603	0.9478	mg/L	0.00603	0.64%
Ca 317.933†	716980.3	99.67	mg/L	0.287	99.67	mg/L	0.287	0.29%
Cd 228.802†	19710.7	1.031	mg/L	0.0129	1.031	mg/L	0.0129	1.25%
Co 228.616†	26288.6	0.9754	mg/L	0.01232	0.9754	mg/L	0.01232	1.26%
Cr 267.716†	6092.5	1.015	mg/L	0.0076	1.015	mg/L	0.0076	0.74%
Cu 324.752†	220995.6	1.021	mg/L	0.0030	1.021	mg/L	0.0030	0.29%
Fe 273.955†	187485.4	188.8	mg/L	0.81	188.8	mg/L	0.81	0.43%
K 766.490†	-25.9	-0.01617	mg/L	0.020365	-0.01617	mg/L	0.020365	125.97%
Mg 279.077†	70087.7	100.1	mg/L	0.27	100.1	mg/L	0.27	0.27%
Mn 257.610†	38310.4	0.9195	mg/L	0.00353	0.9195	mg/L	0.00353	0.38%
Mo 202.031†	107.6	0.00590	mg/L	0.000226	0.00590	mg/L	0.000226	3.83%
Na 589.592†	120.2	0.01072	mg/L	0.003407	0.01072	mg/L	0.003407	31.80%
Na 330.237†	-12.9	-0.8327	mg/L	0.09557	-0.8327	mg/L	0.09557	11.48%
Ni 231.604†	2615.7	0.9679	mg/L	0.00698	0.9679	mg/L	0.00698	0.72%
Pb 220.353†	5826.5	0.9444	mg/L	0.01209	0.9444	mg/L	0.01209	1.28%
Sb 206.836†	2168.2	0.9882	mg/L	0.01348	0.9882	mg/L	0.01348	1.36%
Se 196.026†	1327.4	1.013	mg/L	0.0075	1.013	mg/L	0.0075	0.74%
Si 288.158†	-14.8	-0.00898	mg/L	0.002947	-0.00898	mg/L	0.002947	32.83%
Sn 189.927†	-66.1	-0.00741	mg/L	0.000883	-0.00741	mg/L	0.000883	11.91%
Sr 421.552†	3879.0	0.00531	mg/L Cont.	0.000019	0.00531	mg/L	0.000019	0.36%
Ti 334.903†	349.7	0.00926	mg/L	0.000292	0.00926	mg/L	0.000292	3.16%
Tl 190.801†	1302.0	0.9706	mg/L	0.00713	0.9706	mg/L	0.00713	0.73%
V 292.402†	114429.5	0.9626	mg/L	0.00241	0.9626	mg/L	0.00241	0.25%
Zn 206.200†	3328.6	0.9421	mg/L	0.00485	0.9421	mg/L	0.00485	0.51%

Sequence No.: 82
Sample ID: CV 9

Autosampler Location: 7
Date Collected: 10/10/2013 2:39:45 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2324009.9	102.5	%	0.38				0.38%
ScR 361.383	261690.0	101.4	%	1.05				1.03%
Ag 328.068†	192270.3	1.006	mg/L	0.0010	1.006	mg/L	0.0010	0.09%
Al 308.215†	1808.7	2.047	mg/L	0.0271	2.047	mg/L	0.0271	1.32%
As 188.979†	2195.5	1.963	mg/L	0.0080	1.963	mg/L	0.0080	0.41%
B 249.677†	5200.5	0.9800	mg/L	0.01120	0.9800	mg/L	0.01120	1.14%
Ba 233.527†	4806.1	1.050	mg/L	0.0078	1.050	mg/L	0.0078	0.75%
Be 313.042†	447985.7	0.9530	mg/L	0.00369	0.9530	mg/L	0.00369	0.39%
Ca 317.933†	14705.4	2.044	mg/L	0.0189	2.044	mg/L	0.0189	0.92%
Cd 228.802†	19637.8	1.025	mg/L	0.0022	1.025	mg/L	0.0022	0.21%
Co 228.616†	27350.6	1.013	mg/L	0.0036	1.013	mg/L	0.0036	0.35%
Cr 267.716†	6124.8	1.021	mg/L	0.0106	1.021	mg/L	0.0106	1.04%
Cu 324.752†	220501.1	1.010	mg/L	0.0025	1.010	mg/L	0.0025	0.24%
Fe 273.955†	1956.1	1.964	mg/L	0.0204	1.964	mg/L	0.0204	1.04%
K 766.490†	31526.5	19.64	mg/L	0.054	19.64	mg/L	0.054	0.27%
Mg 279.077†	1400.5	2.008	mg/L	0.0175	2.008	mg/L	0.0175	0.87%
Mn 257.610†	38979.7	0.9374	mg/L	0.00350	0.9374	mg/L	0.00350	0.37%
Mo 202.031†	14413.4	0.9726	mg/L	0.00284	0.9726	mg/L	0.00284	0.29%
Na 589.592†	550178.9	49.06	mg/L	0.298	49.06	mg/L	0.298	0.61%
Na 330.237†	1218.5	51.56	mg/L	0.679	51.56	mg/L	0.679	1.32%
Ni 231.604†	2734.6	1.012	mg/L	0.0100	1.012	mg/L	0.0100	0.99%
Pb 220.353†	12767.4	1.963	mg/L	0.0063	1.963	mg/L	0.0063	0.32%
Sb 206.836†	4391.3	2.021	mg/L	0.0095	2.021	mg/L	0.0095	0.47%
Se 196.026†	2526.3	1.940	mg/L	0.0029	1.940	mg/L	0.0029	0.15%
Si 288.158†	2179.7	2.004	mg/L	0.0266	2.004	mg/L	0.0266	1.33%
Sn 189.927†	3901.5	0.9553	mg/L	0.00465	0.9553	mg/L	0.00465	0.49%
Sr 421.552†	703270.2	0.9622	mg/L	0.00536	0.9622	mg/L	0.00536	0.56%
Ti 334.903†	18861.6	0.9660	mg/L	0.00381	0.9660	mg/L	0.00381	0.39%
Tl 190.801†	2808.7	2.048	mg/L	0.0087	2.048	mg/L	0.0087	0.42%
V 292.402†	116462.2	0.9911	mg/L	0.00103	0.9911	mg/L	0.00103	0.10%
Zn 206.200†	3450.1	0.9784	mg/L	0.00924	0.9784	mg/L	0.00924	0.94%

Sequence No.: 83
Sample ID: CB 9

Autosampler Location: 1
Date Collected: 10/10/2013 2:43:33 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2328092.8	102.7	%	0.21				0.21%
ScR 361.383	260951.3	101.1	%	0.28				0.28%
Ag 328.068†	19.4	0.00010	mg/L	0.000071	0.00010	mg/L	0.000071	70.28%
Al 308.215†	2.2	0.00250	mg/L	0.003984	0.00250	mg/L	0.003984	159.23%
As 188.979†	-2.3	-0.00196	mg/L	0.002428	-0.00196	mg/L	0.002428	123.71%
B 249.677†	9.1	0.00172	mg/L	0.000721	0.00172	mg/L	0.000721	41.89%
Ba 233.527†	1.1	0.00024	mg/L	0.000642	0.00024	mg/L	0.000642	267.82%
Be 313.042†	42.8	0.00009	mg/L	0.000065	0.00009	mg/L	0.000065	71.76%
Ca 317.933†	24.7	0.00344	mg/L	0.000532	0.00344	mg/L	0.000532	15.48%
Cd 228.802†	5.9	0.00032	mg/L	0.000201	0.00032	mg/L	0.000201	62.93%
Co 228.616†	2.3	0.00008	mg/L	0.000136	0.00008	mg/L	0.000136	164.79%
Cr 267.716†	1.1	0.00018	mg/L	0.001317	0.00018	mg/L	0.001317	741.57%
Cu 324.752†	136.1	0.00062	mg/L	0.000072	0.00062	mg/L	0.000072	11.58%
Fe 273.955†	-0.1	-0.00012	mg/L	0.001641	-0.00012	mg/L	0.001641	>999.9%
K 766.490†	-24.6	-0.01533	mg/L	0.035638	-0.01533	mg/L	0.035638	232.52%
Mg 279.077†	0.4	0.00054	mg/L	0.003618	0.00054	mg/L	0.003618	674.65%
Mn 257.610†	-0.9	-0.00002	mg/L	0.000063	-0.00002	mg/L	0.000063	302.15%
Mo 202.031†	6.5	0.00044	mg/L	0.000178	0.00044	mg/L	0.000178	40.48%
Na 589.592†	-1.0	-0.00009	mg/L	0.004107	-0.00009	mg/L	0.004107	>999.9%
Na 330.237†	-7.3	-0.3096	mg/L	0.42745	-0.3096	mg/L	0.42745	138.05%
Ni 231.604†	-6.7	-0.00246	mg/L	0.001284	-0.00246	mg/L	0.001284	52.19%
Pb 220.353†	-7.2	-0.00111	mg/L	0.000350	-0.00111	mg/L	0.000350	31.51%
Sb 206.836†	2.4	0.00111	mg/L	0.002542	0.00111	mg/L	0.002542	228.56%
Se 196.026†	0.7	0.00051	mg/L	0.001880	0.00051	mg/L	0.001880	372.17%
Si 288.158†	4.4	0.00400	mg/L	0.002107	0.00400	mg/L	0.002107	52.66%
Sn 189.927†	3.0	0.00074	mg/L	0.000391	0.00074	mg/L	0.000391	53.22%
Sr 421.552†	71.1	0.00010	mg/L	0.000013	0.00010	mg/L	0.000013	13.29%
Ti 334.903†	21.9	0.00112	mg/L	0.000348	0.00112	mg/L	0.000348	31.00%
Tl 190.801†	-0.8	-0.00055	mg/L	0.002199	-0.00055	mg/L	0.002199	397.93%
V 292.402†	-20.6	-0.00017	mg/L	0.000139	-0.00017	mg/L	0.000139	79.98%
Zn 206.200†	-0.8	-0.00023	mg/L	0.000624	-0.00023	mg/L	0.000624	265.91%

Sequence No.: 84
Sample ID: XI87 MB1 SWC

Autosampler Location: 356
Date Collected: 10/10/2013 2:47:48 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI87 MB1 SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI87 MB1 SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2351269.7	103.7	%	0.12				0.11%
ScR 361.383	266025.2	103.0	%	0.97				0.94%
Ag 328.068†	23.7	0.00012	mg/L	0.000188	0.00025	mg/L	0.000375	151.59%
Al 308.215†	1.5	0.00178	mg/L	0.003734	0.00355	mg/L	0.007469	210.35%
As 188.979†	-1.6	-0.00141	mg/L	0.003058	-0.00282	mg/L	0.006115	216.80%
B 249.677†	4.3	0.00080	mg/L	0.001243	0.00161	mg/L	0.002487	154.62%
Ba 233.527†	3.2	0.00070	mg/L	0.000665	0.00141	mg/L	0.001330	94.64%
Be 313.042†	8.8	0.00002	mg/L	0.000045	0.00004	mg/L	0.000090	240.14%
Ca 317.933†	51.5	0.00715	mg/L	0.000297	0.01431	mg/L	0.000594	4.15%
Cd 228.802†	-0.5	-0.00002	mg/L	0.000183	-0.00004	mg/L	0.000367	>999.9%
Co 228.616†	-1.0	-0.00004	mg/L	0.000141	-0.00008	mg/L	0.000282	360.10%
Cr 267.716†	1.6	0.00027	mg/L	0.000285	0.00055	mg/L	0.000571	104.31%
Cu 324.752†	126.0	0.00058	mg/L	0.000043	0.00115	mg/L	0.000085	7.40%
Fe 273.955†	3.9	0.00396	mg/L	0.001338	0.00792	mg/L	0.002675	33.77%
K 766.490†	-40.7	-0.02538	mg/L	0.010245	-0.05076	mg/L	0.020490	40.37%
Mg 279.077†	-3.1	-0.00438	mg/L	0.004514	-0.00876	mg/L	0.009028	103.08%
Mn 257.610†	-3.6	-0.00009	mg/L	0.000083	-0.00017	mg/L	0.000167	96.13%
Mo 202.031†	-3.0	-0.00020	mg/L	0.000154	-0.00040	mg/L	0.000307	76.72%
Na 589.592†	11.3	0.00101	mg/L	0.001022	0.00202	mg/L	0.002044	101.41%
Na 330.237†	8.2	0.3457	mg/L	0.49579	0.6913	mg/L	0.99158	143.43%
Ni 231.604†	-4.3	-0.00159	mg/L	0.001057	-0.00317	mg/L	0.002113	66.57%
Pb 220.353†	-6.4	-0.00098	mg/L	0.000363	-0.00197	mg/L	0.000726	36.93%
Sb 206.836†	0.7	0.00034	mg/L	0.001267	0.00068	mg/L	0.002533	370.24%
Se 196.026†	4.3	0.00330	mg/L	0.002688	0.00660	mg/L	0.005377	81.49%
Si 288.158†	3.8	0.00345	mg/L	0.003591	0.00691	mg/L	0.007182	103.95%
Sn 189.927†	0.4	0.00010	mg/L	0.000942	0.00020	mg/L	0.001883	955.00%
Sr 421.552†	-25.7	-0.00004	mg/L	0.000002	-0.00007	mg/L	0.000005	6.87%
Ti 334.903†	19.7	0.00101	mg/L	0.000674	0.00202	mg/L	0.001349	66.76%
Tl 190.801†	-2.9	-0.00215	mg/L	0.001888	-0.00431	mg/L	0.003776	87.69%
V 292.402†	-19.1	-0.00016	mg/L	0.000079	-0.00032	mg/L	0.000158	48.86%
Zn 206.200†	5.1	0.00145	mg/L	0.000828	0.00291	mg/L	0.001657	57.02%

Sequence No.: 85
Sample ID: XI87 ADUP SWC

Autosampler Location: 357
Date Collected: 10/10/2013 2:52:04 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI87 ADUP SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI87 ADUP SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2322323.4	102.4	%	0.41				0.40%
ScR 361.383	266163.0	103.1	%	0.22				0.21%
Ag 328.068†	-134.8	-0.00059	mg/L	0.000047	-0.00119	mg/L	0.000095	7.99%
Al 308.215†	78525.4	90.29	mg/L	0.063	180.6	mg/L	0.13	0.07%
As 188.979†	-198.1	0.00756	mg/L	0.001086	0.01513	mg/L	0.002171	14.35%
B 249.677†	47.5	0.00883	mg/L	0.001746	0.01766	mg/L	0.003492	19.77%
Ba 233.527†	2348.4	0.4953	mg/L	0.00139	0.9907	mg/L	0.00279	0.28%
Be 313.042†	590.2	0.00110	mg/L	0.000019	0.00221	mg/L	0.000038	1.72%
Ca 317.933†	246511.8	34.27	mg/L	0.147	68.54	mg/L	0.294	0.43%
Cd 228.802†	23.5	0.00071	mg/L	0.000235	0.00141	mg/L	0.000471	33.36%
Co 228.616†	1846.3	0.05844	mg/L	0.000355	0.1169	mg/L	0.00071	0.61%
Cr 267.716†	1621.8	0.2723	mg/L	0.00082	0.5445	mg/L	0.00164	0.30%
Cu 324.752†	40535.1	0.1911	mg/L	0.00126	0.3822	mg/L	0.00253	0.66%
Fe 273.955†	140733.7	141.7	mg/L	0.72	283.5	mg/L	1.44	0.51%
K 766.490†	11561.4	7.203	mg/L	0.0260	14.41	mg/L	0.052	0.36%
Mg 279.077†	35911.9	51.24	mg/L	0.069	102.5	mg/L	0.14	0.13%
Mn 257.610†	91096.0	2.189	mg/L	0.0070	4.378	mg/L	0.0140	0.32%
Mo 202.031†	98.1	0.00616	mg/L	0.000479	0.01231	mg/L	0.000958	7.78%
Na 589.592†	23228.8	2.072	mg/L	0.0091	4.143	mg/L	0.0181	0.44%
Na 330.237†	14.6	2.194	mg/L	0.1058	4.389	mg/L	0.2116	4.82%
Ni 231.604†	479.0	0.1772	mg/L	0.00192	0.3544	mg/L	0.00384	1.08%
Pb 220.353†	-67.3	0.00844	mg/L	0.001256	0.01688	mg/L	0.002513	14.89%
Sb 206.836†	-12.0	-0.00297	mg/L	0.002443	-0.00594	mg/L	0.004886	82.21%
Se 196.026†	16.8	0.01078	mg/L	0.007304	0.02155	mg/L	0.014608	67.77%
Si 288.158†	1215.1	1.115	mg/L	0.0054	2.229	mg/L	0.0107	0.48%
Sn 189.927†	-43.0	-0.00648	mg/L	0.000435	-0.01295	mg/L	0.000870	6.72%
Sr 421.552†	111548.2	0.1526	mg/L	0.00029	0.3052	mg/L	0.00058	0.19%
Ti 334.903†	113195.4	5.802	mg/L	0.0061	11.60	mg/L	0.012	0.10%
Tl 190.801†	-6.4	0.01362	mg/L	0.002001	0.02724	mg/L	0.004003	14.70%
V 292.402†	45702.4	0.3770	mg/L	0.00290	0.7540	mg/L	0.00579	0.77%
Zn 206.200†	1047.8	0.2967	mg/L	0.00175	0.5933	mg/L	0.00349	0.59%

Sequence No.: 86
Sample ID: XI87 A SWC

Autosampler Location: 358
Date Collected: 10/10/2013 2:56:04 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI87 A SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI87 A SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2345249.7	103.4	%	0.37				0.36%
ScR 361.383	267809.9	103.7	%	0.89				0.86%
Ag 328.068†	-245.1	-0.00118	mg/L	0.000224	-0.00235	mg/L	0.000449	19.09%
Al 308.215†	88886.8	102.2	mg/L	0.85	204.4	mg/L	1.71	0.83%
As 188.979†	-206.6	0.01416	mg/L	0.000704	0.02833	mg/L	0.001408	4.97%
B 249.677†	45.4	0.00842	mg/L	0.000409	0.01684	mg/L	0.000817	4.85%
Ba 233.527†	1774.1	0.3677	mg/L	0.00594	0.7355	mg/L	0.01189	1.62%
Be 313.042†	674.5	0.00128	mg/L	0.000032	0.00256	mg/L	0.000063	2.47%
Ca 317.933†	282424.8	39.26	mg/L	0.315	78.52	mg/L	0.630	0.80%
Cd 228.802†	32.6	0.00111	mg/L	0.000222	0.00221	mg/L	0.000444	20.07%
Co 228.616†	2011.9	0.06380	mg/L	0.000168	0.1276	mg/L	0.00034	0.26%
Cr 267.716†	1699.4	0.2848	mg/L	0.00284	0.5695	mg/L	0.00568	1.00%
Cu 324.752†	47089.3	0.2217	mg/L	0.00045	0.4435	mg/L	0.00090	0.20%
Fe 273.955†	157124.0	158.2	mg/L	0.75	316.5	mg/L	1.50	0.47%
K 766.490†	8810.2	5.489	mg/L	0.0765	10.98	mg/L	0.153	1.39%
Mg 279.077†	45632.7	65.12	mg/L	0.490	130.2	mg/L	0.98	0.75%
Mn 257.610†	116059.1	2.789	mg/L	0.0117	5.579	mg/L	0.0234	0.42%
Mo 202.031†	98.3	0.00611	mg/L	0.000443	0.01221	mg/L	0.000886	7.26%
Na 589.592†	19750.3	1.761	mg/L	0.0131	3.523	mg/L	0.0262	0.74%
Na 330.237†	-0.2	1.686	mg/L	0.2283	3.371	mg/L	0.4567	13.55%
Ni 231.604†	674.4	0.2495	mg/L	0.00317	0.4990	mg/L	0.00634	1.27%
Pb 220.353†	-69.6	0.01063	mg/L	0.001015	0.02126	mg/L	0.002029	9.54%
Sb 206.836†	-20.3	-0.00667	mg/L	0.000387	-0.01333	mg/L	0.000774	5.81%
Se 196.026†	24.6	0.01655	mg/L	0.000712	0.03309	mg/L	0.001424	4.30%
Si 288.158†	1549.5	1.421	mg/L	0.0154	2.843	mg/L	0.0308	1.08%
Sn 189.927†	-41.7	-0.00567	mg/L	0.000830	-0.01134	mg/L	0.001659	14.64%
Sr 421.552†	99428.0	0.1360	mg/L	0.00101	0.2721	mg/L	0.00202	0.74%
Ti 334.903†	122139.5	6.261	mg/L	0.0424	12.52	mg/L	0.085	0.68%
Tl 190.801†	-10.7	0.01282	mg/L	0.003995	0.02564	mg/L	0.007989	31.16%
V 292.402†	43752.3	0.3594	mg/L	0.00255	0.7188	mg/L	0.00510	0.71%
Zn 206.200†	1220.1	0.3455	mg/L	0.00535	0.6910	mg/L	0.01069	1.55%

Sequence No.: 87
Sample ID: XI87 ASPK SWC

Autosampler Location: 359
Date Collected: 10/10/2013 3:00:04 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI87 ASPK SWC

Analyte	Back Pressure	Flow
All	210.0 kPa	0.75 L/min

Mean Data: XI87 ASPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2353817.0	103.8	%	0.23				0.22%
ScR 361.383	267646.0	103.7	%	0.27				0.26%
Ag 328.068†	95968.6	0.5024	mg/L	0.00199	1.005	mg/L	0.0040	0.40%
Al 308.215†	90904.7	104.5	mg/L	0.28	209.0	mg/L	0.55	0.26%
As 188.979†	2070.1	2.006	mg/L	0.0062	4.011	mg/L	0.0125	0.31%
B 249.677†	40.6	0.00646	mg/L	0.001488	0.01292	mg/L	0.002976	23.04%
Ba 233.527†	11809.7	2.562	mg/L	0.0211	5.124	mg/L	0.0421	0.82%
Be 313.042†	221781.4	0.4717	mg/L	0.00308	0.9433	mg/L	0.00616	0.65%
Ca 317.933†	398915.9	55.45	mg/L	0.320	110.9	mg/L	0.64	0.58%
Cd 228.802†	10181.8	0.5252	mg/L	0.00018	1.050	mg/L	0.0004	0.03%
Co 228.616†	15583.2	0.5680	mg/L	0.00098	1.136	mg/L	0.0020	0.17%
Cr 267.716†	4513.9	0.7530	mg/L	0.00357	1.506	mg/L	0.0071	0.47%
Cu 324.752†	152047.6	0.7023	mg/L	0.00214	1.405	mg/L	0.0043	0.30%
Fe 273.955†	147345.5	148.4	mg/L	1.29	296.8	mg/L	2.57	0.87%
K 766.490†	24311.6	15.15	mg/L	0.088	30.29	mg/L	0.177	0.58%
Mg 279.077†	50262.2	71.74	mg/L	0.308	143.5	mg/L	0.62	0.43%
Mn 257.610†	128094.3	3.079	mg/L	0.0293	6.158	mg/L	0.0586	0.95%
Mo 202.031†	109.9	0.00665	mg/L	0.000243	0.01330	mg/L	0.000485	3.65%
Na 589.592†	139896.8	12.48	mg/L	0.047	24.95	mg/L	0.095	0.38%
Na 330.237†	265.0	12.65	mg/L	0.276	25.30	mg/L	0.551	2.18%
Ni 231.604†	1910.7	0.7060	mg/L	0.00645	1.412	mg/L	0.0129	0.91%
Pb 220.353†	12752.0	1.982	mg/L	0.0044	3.965	mg/L	0.0087	0.22%
Sb 206.836†	-6.7	-0.00524	mg/L	0.004548	-0.01049	mg/L	0.009096	86.74%
Se 196.026†	2603.5	1.997	mg/L	0.0010	3.994	mg/L	0.0020	0.05%
Si 288.158†	1344.7	1.236	mg/L	0.0041	2.472	mg/L	0.0081	0.33%
Sn 189.927†	-46.5	-0.00550	mg/L	0.002283	-0.01101	mg/L	0.004565	41.47%
Sr 421.552†	526803.5	0.7207	mg/L	0.00338	1.441	mg/L	0.0068	0.47%
Ti 334.903†	113579.1	5.820	mg/L	0.0302	11.64	mg/L	0.060	0.52%
Tl 190.801†	2688.7	1.983	mg/L	0.0017	3.966	mg/L	0.0033	0.08%
V 292.402†	101611.4	0.8525	mg/L	0.00364	1.705	mg/L	0.0073	0.43%
Zn 206.200†	2798.5	0.7928	mg/L	0.00539	1.586	mg/L	0.0108	0.68%

Sequence No.: 88
Sample ID: ~~XI87 APOST SWC~~ ZZZZZZ
Dilution: 2.000000X BA 10-10-13

Autosampler Location: 360
Date Collected: 10/10/2013 3:03:51 PM
Data Type: Original

Nebulizer Parameters: XI87 APOST SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI87 APOST SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2321584.5	102.4	%	0.46				0.45%
ScR 361.383	264705.0	102.5	%	1.29				1.25%
Ag 328.068†	96391.4	0.5046	mg/L	0.00416	1.009	mg/L	0.0083	0.82%
Al 308.215†	90996.5	104.6	mg/L	1.68	209.3	mg/L	3.37	1.61%
As 188.979†	2080.5	2.030	mg/L	0.0088	4.059	mg/L	0.0176	0.43%
B 249.677†	44.9	0.00726	mg/L	0.001111	0.01452	mg/L	0.002222	15.31%
Ba 233.527†	11628.6	2.521	mg/L	0.0303	5.042	mg/L	0.0606	1.20%
Be 313.042†	220993.7	0.4700	mg/L	0.00817	0.9400	mg/L	0.01635	1.74%
Ca 317.933†	354659.5	49.30	mg/L	0.704	98.61	mg/L	1.409	1.43%
Cd 228.802†	10208.0	0.5264	mg/L	0.00234	1.053	mg/L	0.0047	0.44%
Co 228.616†	15570.2	0.5667	mg/L	0.00245	1.133	mg/L	0.0049	0.43%
Cr 267.716†	4854.1	0.8100	mg/L	0.00904	1.620	mg/L	0.0181	1.12%
Cu 324.752†	159587.1	0.7373	mg/L	0.00141	1.475	mg/L	0.0028	0.19%
Fe 273.955†	158042.2	159.2	mg/L	3.24	318.3	mg/L	6.47	2.03%
K 766.490†	25341.5	15.79	mg/L	0.283	31.58	mg/L	0.566	1.79%
Mg 279.077†	52835.5	75.42	mg/L	1.217	150.8	mg/L	2.43	1.61%
Mn 257.610†	135738.6	3.263	mg/L	0.0675	6.525	mg/L	0.1351	2.07%
Mo 202.031†	105.5	0.00643	mg/L	0.000273	0.01286	mg/L	0.000546	4.24%
Na 589.592†	133883.0	11.94	mg/L	0.222	23.88	mg/L	0.445	1.86%
Na 330.237†	244.1	11.88	mg/L	0.330	23.76	mg/L	0.659	2.78%
Ni 231.604†	2010.1	0.7428	mg/L	0.01003	1.486	mg/L	0.0201	1.35%
Pb 220.353†	12715.9	1.976	mg/L	0.0096	3.953	mg/L	0.0193	0.49%
Sb 206.836†	-8.5	-0.00641	mg/L	0.003602	-0.01283	mg/L	0.007203	56.16%
Se 196.026†	2659.6	2.040	mg/L	0.0124	4.080	mg/L	0.0248	0.61%
Si 288.158†	1580.1	1.452	mg/L	0.0206	2.904	mg/L	0.0412	1.42%
Sn 189.927†	-41.6	-0.00472	mg/L	0.001429	-0.00944	mg/L	0.002857	30.28%
Sr 421.552†	460434.7	0.6299	mg/L	0.01072	1.260	mg/L	0.0214	1.70%
Ti 334.903†	122186.9	6.262	mg/L	0.1100	12.52	mg/L	0.220	1.76%
Tl 190.801†	2685.5	1.982	mg/L	0.0079	3.964	mg/L	0.0158	0.40%
V 292.402†	102665.5	0.8608	mg/L	0.00504	1.722	mg/L	0.0101	0.58%
Zn 206.200†	2939.2	0.8328	mg/L	0.00891	1.666	mg/L	0.0178	1.07%

Sequence No.: 89
Sample ID: XI87 MB1SPK SWC

Autosampler Location: 361
Date Collected: 10/10/2013 3:07:38 PM
Data Type: Original

Dilution: 2.000000X

Nebulizer Parameters: XI87 MB1SPK SWC

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: XI87 MB1SPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2340272.9	103.2	%	0.62				0.60%
ScR 361.383	263877.3	102.2	%	0.80				0.78%
Ag 328.068†	98353.6	0.5148	mg/L	0.00056	1.030	mg/L	0.0011	0.11%
Al 308.215†	1839.9	2.108	mg/L	0.0153	4.216	mg/L	0.0306	0.73%
As 188.979†	2329.8	2.053	mg/L	0.0029	4.107	mg/L	0.0058	0.14%
B 249.677†	6.0	0.00005	mg/L	0.000610	0.00010	mg/L	0.001220	>999.9%
Ba 233.527†	9994.6	2.184	mg/L	0.0230	4.368	mg/L	0.0459	1.05%
Be 313.042†	221299.0	0.4708	mg/L	0.00130	0.9416	mg/L	0.00259	0.28%
Ca 317.933†	71736.5	9.972	mg/L	0.0369	19.94	mg/L	0.074	0.37%
Cd 228.802†	10051.4	0.5186	mg/L	0.00509	1.037	mg/L	0.0102	0.98%
Co 228.616†	13870.4	0.5145	mg/L	0.00434	1.029	mg/L	0.0087	0.84%
Cr 267.716†	3212.6	0.5349	mg/L	0.00636	1.070	mg/L	0.0127	1.19%
Cu 324.752†	109453.5	0.5016	mg/L	0.00078	1.003	mg/L	0.0016	0.16%
Fe 273.955†	2033.9	2.045	mg/L	0.0165	4.090	mg/L	0.0330	0.81%
K 766.490†	16314.5	10.16	mg/L	0.033	20.33	mg/L	0.067	0.33%
Mg 279.077†	7471.6	10.68	mg/L	0.103	21.36	mg/L	0.206	0.96%
Mn 257.610†	20235.2	0.4868	mg/L	0.00199	0.9735	mg/L	0.00397	0.41%
Mo 202.031†	22.9	0.00139	mg/L	0.000209	0.00278	mg/L	0.000418	15.06%
Na 589.592†	113209.1	10.10	mg/L	0.032	20.19	mg/L	0.064	0.32%
Na 330.237†	261.9	10.93	mg/L	0.173	21.87	mg/L	0.346	1.58%
Ni 231.604†	1363.6	0.5036	mg/L	0.00556	1.007	mg/L	0.0111	1.10%
Pb 220.353†	13069.5	2.009	mg/L	0.0133	4.018	mg/L	0.0266	0.66%
Sb 206.836†	8.1	-0.00152	mg/L	0.000877	-0.00304	mg/L	0.001755	57.64%
Se 196.026†	2650.0	2.035	mg/L	0.0127	4.070	mg/L	0.0255	0.63%
Si 288.158†	4.8	0.00671	mg/L	0.003879	0.01341	mg/L	0.007758	57.85%
Sn 189.927†	-11.0	-0.00179	mg/L	0.001261	-0.00358	mg/L	0.002523	70.51%
Sr 421.552†	361558.4	0.4947	mg/L	0.00129	0.9893	mg/L	0.00259	0.26%
Ti 334.903†	106.9	0.00453	mg/L	0.000478	0.00906	mg/L	0.000955	10.55%
Tl 190.801†	2838.2	2.073	mg/L	0.0108	4.147	mg/L	0.0216	0.52%
V 292.402†	61970.0	0.5273	mg/L	0.00595	1.055	mg/L	0.0119	1.13%
Zn 206.200†	1776.8	0.5037	mg/L	0.00625	1.007	mg/L	0.0125	1.24%

Sequence No.: 90
Sample ID: CV 10

Autosampler Location: 7
Date Collected: 10/10/2013 3:11:39 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2323812.0	102.5	%	0.12				0.12%
ScR 361.383	256371.8	99.30	%	0.462				0.47%
Ag 328.068†	193469.1	1.013	mg/L	0.0040	1.013	mg/L	0.0040	0.39%
Al 308.215†	1839.6	2.083	mg/L	0.0156	2.083	mg/L	0.0156	0.75%
As 188.979†	2206.6	1.973	mg/L	0.0006	1.973	mg/L	0.0006	0.03%
B 249.677†	5318.7	1.002	mg/L	0.0053	1.002	mg/L	0.0053	0.53%
Ba 233.527†	4935.5	1.078	mg/L	0.0068	1.078	mg/L	0.0068	0.63%
Be 313.042†	451651.7	0.9608	mg/L	0.00532	0.9608	mg/L	0.00532	0.55%
Ca 317.933†	15013.1	2.087	mg/L	0.0052	2.087	mg/L	0.0052	0.25%
Cd 228.802†	19715.5	1.029	mg/L	0.0024	1.029	mg/L	0.0024	0.23%
Co 228.616†	27490.4	1.018	mg/L	0.0034	1.018	mg/L	0.0034	0.34%
Cr 267.716†	6261.0	1.044	mg/L	0.0050	1.044	mg/L	0.0050	0.48%
Cu 324.752†	221054.6	1.013	mg/L	0.0024	1.013	mg/L	0.0024	0.24%
Fe 273.955†	1987.1	1.995	mg/L	0.0031	1.995	mg/L	0.0031	0.16%
K 766.490†	32383.2	20.17	mg/L	0.174	20.17	mg/L	0.174	0.86%
Mg 279.077†	1430.5	2.051	mg/L	0.0209	2.051	mg/L	0.0209	1.02%
Mn 257.610†	39524.4	0.9505	mg/L	0.00608	0.9505	mg/L	0.00608	0.64%
Mo 202.031†	14506.0	0.9788	mg/L	0.00123	0.9788	mg/L	0.00123	0.13%
Na 589.592†	564531.1	50.34	mg/L	0.477	50.34	mg/L	0.477	0.95%
Na 330.237†	1257.4	53.21	mg/L	0.047	53.21	mg/L	0.047	0.09%
Ni 231.604†	2778.3	1.028	mg/L	0.0078	1.028	mg/L	0.0078	0.76%
Pb 220.353†	12822.2	1.971	mg/L	0.0039	1.971	mg/L	0.0039	0.20%
Sb 206.836†	4402.7	2.026	mg/L	0.0033	2.026	mg/L	0.0033	0.16%
Se 196.026†	2541.1	1.951	mg/L	0.0024	1.951	mg/L	0.0024	0.12%
Si 288.158†	2226.5	2.047	mg/L	0.0156	2.047	mg/L	0.0156	0.76%
Sn 189.927†	3922.3	0.9604	mg/L	0.00201	0.9604	mg/L	0.00201	0.21%
Sr 421.552†	719914.0	0.9849	mg/L	0.00835	0.9849	mg/L	0.00835	0.85%
Ti 334.903†	19127.6	0.9797	mg/L	0.00772	0.9797	mg/L	0.00772	0.79%
Tl 190.801†	2824.3	2.060	mg/L	0.0105	2.060	mg/L	0.0105	0.51%
V 292.402†	117104.9	0.9966	mg/L	0.00434	0.9966	mg/L	0.00434	0.44%
Zn 206.200†	3531.3	1.001	mg/L	0.0025	1.001	mg/L	0.0025	0.25%

Sequence No.: 91
Sample ID: CB 13

Autosampler Location: 1
Date Collected: 10/10/2013 3:15:27 PM
Data Type: Original

Dilution: 1.000000X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	211.0 kPa	0.75 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2314351.3	102.1	%	0.65				0.64%
ScR 361.383	263664.5	102.1	%	0.59				0.57%
Ag 328.068†	50.9	0.00027	mg/L	0.000192	0.00027	mg/L	0.000192	72.19%
Al 308.215†	-2.5	-0.00289	mg/L	0.005182	-0.00289	mg/L	0.005182	179.18%
As 188.979†	-0.8	-0.00068	mg/L	0.001150	-0.00068	mg/L	0.001150	169.75%
B 249.677†	-0.7	-0.00013	mg/L	0.000278	-0.00013	mg/L	0.000278	212.76%
Ba 233.527†	0.8	0.00018	mg/L	0.000659	0.00018	mg/L	0.000659	363.88%
Be 313.042†	38.2	0.00008	mg/L	0.000041	0.00008	mg/L	0.000041	50.16%
Ca 317.933†	10.6	0.00148	mg/L	0.001457	0.00148	mg/L	0.001457	98.74%
Cd 228.802†	6.2	0.00033	mg/L	0.000118	0.00033	mg/L	0.000118	35.61%
Co 228.616†	-0.4	-0.00002	mg/L	0.000118	-0.00002	mg/L	0.000118	621.64%
Cr 267.716†	1.4	0.00023	mg/L	0.000960	0.00023	mg/L	0.000960	420.21%
Cu 324.752†	145.1	0.00066	mg/L	0.000101	0.00066	mg/L	0.000101	15.25%
Fe 273.955†	-1.9	-0.00188	mg/L	0.002994	-0.00188	mg/L	0.002994	159.24%
K 766.490†	5.7	0.00356	mg/L	0.015701	0.00356	mg/L	0.015701	441.06%
Mg 279.077†	-0.1	-0.00012	mg/L	0.002111	-0.00012	mg/L	0.002111	>999.9%
Mn 257.610†	-0.8	-0.00002	mg/L	0.000014	-0.00002	mg/L	0.000014	71.11%
Mo 202.031†	4.7	0.00032	mg/L	0.000364	0.00032	mg/L	0.000364	114.29%
Na 589.592†	14.2	0.00126	mg/L	0.002644	0.00126	mg/L	0.002644	209.13%
Na 330.237†	1.0	0.04249	mg/L	0.297878	0.04249	mg/L	0.297878	701.00%
Ni 231.604†	-4.5	-0.00168	mg/L	0.000181	-0.00168	mg/L	0.000181	10.77%
Pb 220.353†	-1.9	-0.00029	mg/L	0.000358	-0.00029	mg/L	0.000358	122.06%
Sb 206.836†	4.5	0.00208	mg/L	0.000940	0.00208	mg/L	0.000940	45.21%
Se 196.026†	1.5	0.00112	mg/L	0.004796	0.00112	mg/L	0.004796	427.17%
Si 288.158†	2.7	0.00249	mg/L	0.003903	0.00249	mg/L	0.003903	156.74%
Sn 189.927†	3.6	0.00089	mg/L	0.000514	0.00089	mg/L	0.000514	57.93%
Sr 421.552†	62.8	0.00009	mg/L	0.000049	0.00009	mg/L	0.000049	57.26%
Ti 334.903†	39.8	0.00204	mg/L	0.000077	0.00204	mg/L	0.000077	3.76%
Tl 190.801†	-1.8	-0.00134	mg/L	0.003926	-0.00134	mg/L	0.003926	293.79%
V 292.402†	-10.8	-0.00009	mg/L	0.000043	-0.00009	mg/L	0.000043	47.58%
Zn 206.200†	-2.3	-0.00066	mg/L	0.000580	-0.00066	mg/L	0.000580	87.73%

ANALYTICAL RESOURCES INCORPORATED

Metals Data Review Checklist

Method: ICP ICP-MS GFA (CVA) **Analysis Date:** 10-10-13

	Analyst 10-10 DM	Peer 10-10-13	Comment
Analyst, Date, Method info	√	/	
Sample ID's	√	/	
Standard/QC solution ID's recorded	√	/	
Prep codes	√	/	
Dilution factors	√	/	
Crossouts/Corrections/Deletions	√	/	
Blank & Standard intensities	√	/	
Standard deviations	√	/	
Curve fit	√	/	See RUN LOG
ICV/CCV	√	/	
ICB/CCB	√	/	
RSD's & SD's	√	/	
Internal Standards	—	/	
Carry-over	—	/	
CRI/CRA	√	/	
ICSA/ICSAB	—	/	
Post Spikes/Serial Dilutions	—	/	
Analytic Spikes	—	/	
SRM/LCS	√	/	X103 MBSPK High
Matrix Spikes	√	/	
Matrix Duplicates	√	/	
Method Blanks	√	/	
Requested elements/isotope identified	√	/	
Correct samples identified for distribution	√	/	
Raw data match distributed data	√	/	
Data filename correct	√	/	
	√	/	See CAF

Mercury Analysis Log

Analyst: DM

Instrument: CETAC

Date: 10-10-13

Page: 1 of 6

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
STD 0.0	SMM	1X		
" 0.1				
" 0.5				
" 1.0				
" 2.0				
" 5.0				
" 10.0				LOW X
STD 00				
" 0.1				
" 0.5				
" 1.0				
" 2.0				
" 5.0				
" 10.0				
ICV			8.04	Begin CLP %R=101 ✓
ICB			-0.03	✓
CCV1			4.10	%R=103 ✓
CCB1			-0.01	✓
CRA			0.10	✓
X187 MB1			-0.00	✓
" MB1SPK			2.08	%R=104 ✓
" A			0.03	
" ADUP			0.04	NO RPD: Undetected ✓
" ASPK			1.11	%R=111 ✓
X128 MB1			0.01	✓
" MB1SPK			2.12	%R=106 ✓
" A			0.20	
" ADUP			0.27	✓
CCV2			4.09	%R=102 ✓
CCB2	↓	↓	-0.01	✓

Chemical/Reagent ID:

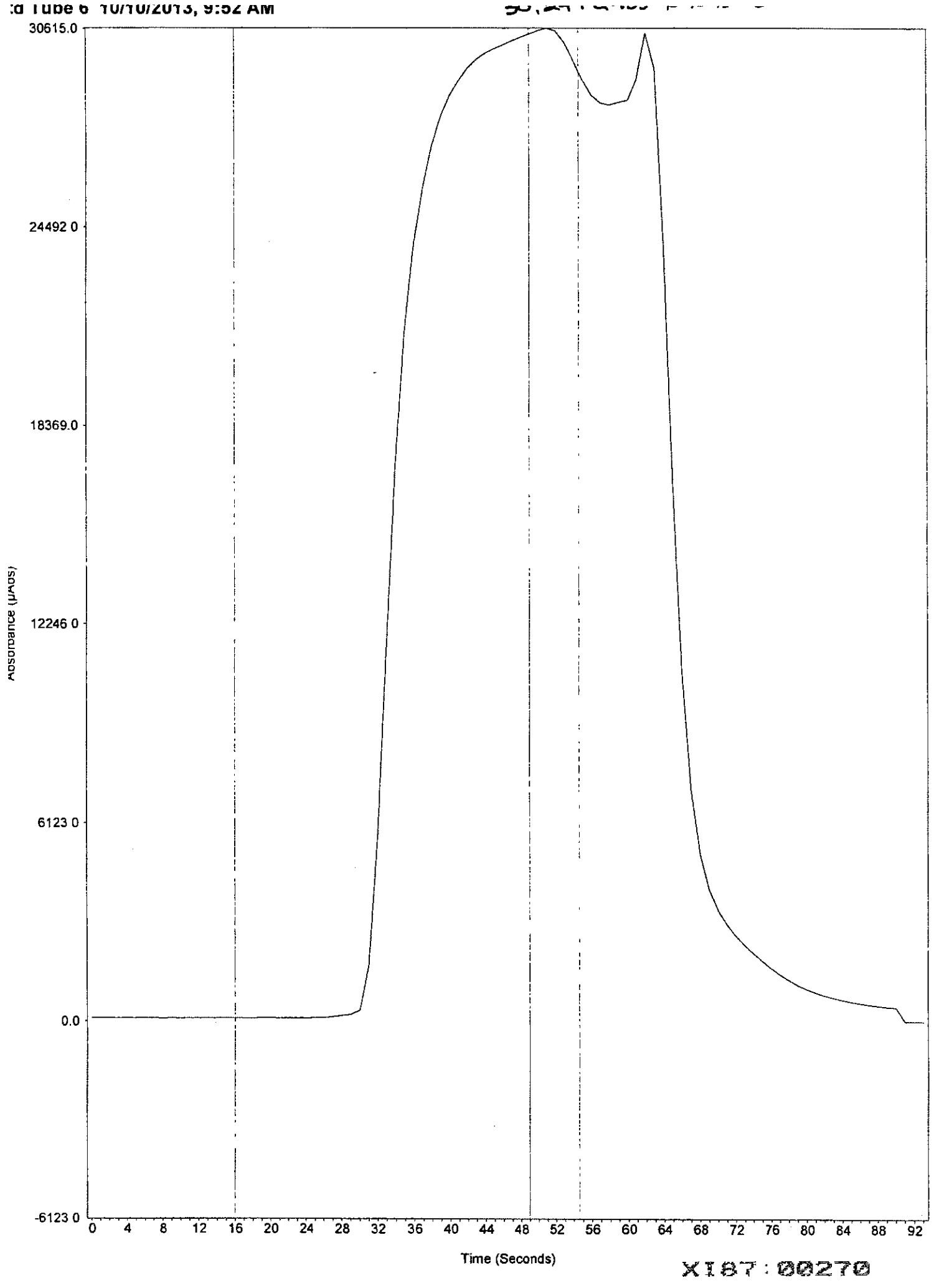
10% $SnCl_2$: MP2569

14% NH_2OH/NaCl: MP2520

Standard ID:

Standard: 3541-8

ICV/CCV: 59-C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30615.0
24492 0
18369.0
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Absorbance (μAbs)
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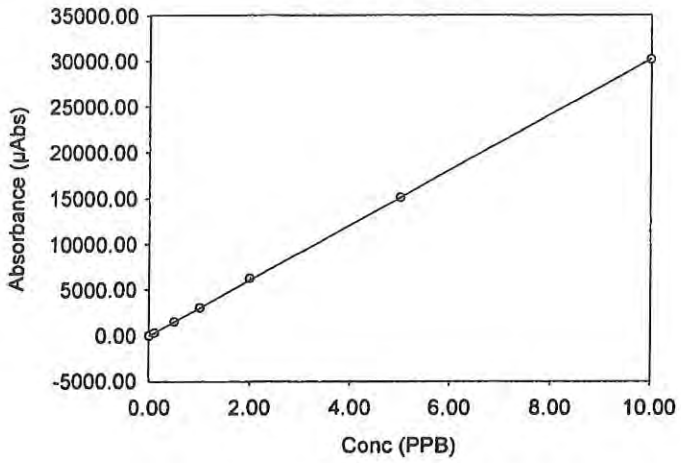
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
84
88
92
Time (Seconds)

CETAC Hg Analysis Report - 13101000.DB - Thursday, October 10, 2013, 2:02:36 PM

Analyst
Date Started Thursday, October 10, 2013, 10:08:53
Worksheet ARI 10ppb CALIB
Comment

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
Calibration Zero	10-Oct-2013, 10:08	0.00	11.60	-23.20	1.00	
Standard #1	10-Oct-2013, 10:10	0.10	0.95	292.00	1.00	
Standard #2	10-Oct-2013, 10:12	0 50	1.05	1520.00	1.00	
Standard #3	10-Oct-2013, 10:13	1.00	0.94	3050.00	1 00	
Standard #4	10-Oct-2013, 10:15	2.00	0.83	6240.00	1.00	
Standard #5	10-Oct-2013, 10:16	5.00	1.27	15100.00	1.00	
Standard #6	10-Oct-2013, 10:18	10.00	0.65	30200.00	1.00	

Calibration Data



Int.	0.000
Slope	3025.364
Correlation	0 99997

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
ICV	10-Oct-2013, 10:21	8.04	0.93	24300.00	1.00	Begin CLP
ICB	10-Oct-2013, 10:22	-0 03	0.86	-80.10	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	10-Oct-2013, 10:24	4.10	0.78	12400.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	10-Oct-2013, 10:26	-0.01	7.84	-26.50	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
CRA	10-Oct-2013, 10:27	0.10	1.01	289.00	1 00	
XI87 MB1 SMM	10-Oct-2013, 10:29	-0.00	65.60	-5.64	1.00	
XI87 MB1SPK SMM	10-Oct-2013, 10:31	2.08	0.76	6300.00	1.00	
XI87 A SMM	10-Oct-2013, 10:32	0.03	4.26	90.50	1.00	
XI87 ADUP SMM	10-Oct-2013, 10:34	0.04	1.53	121.00	1.00	
XI87 ASPK SMM	10-Oct-2013, 10:35	1.11	1.08	3350.00	1.00	
XI28 MB1 SMM	10-Oct-2013, 10:37	0.01	8.83	16.10	1.00	
XI28 MB1SPK SMM	10-Oct-2013, 10:39	2.12	1.02	6430.00	1.00	
XI28 A SMM	10-Oct-2013, 10:40	0.20	0.79	609.00	1.00	
XI28 ADUP SMM	10-Oct-2013, 10:42	0.27	0.86	831.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	10-Oct-2013, 10:43	4.09	0.67	12400.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	10-Oct-2013, 10:45	-0.01	3.07	-43.10	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
~~XI28 ASPK SMM~~	10-Oct-2013, 10:47	1.35	1.07	4080.00	1.00	
XI28 B SMM	~~10-Oct-2013, 10:48~~	0.41	0.96	1240.00	1.00	
XI28 C SMM	10-Oct-2013, 10:50	0.24	0.75	716.00	1.00	
XI28 D SMM	10-Oct-2013, 10:52	0.26	0.68	782.00	1.00	

10-10-13

XI87 · 00271

Analyst	
Date Created:	Thursday, July 13, 2000
Worksheet	ARI 10ppb CALIB
Comment	
Sip Duration (Sec.):	30
Rinse Duration (Sec.):	60
Read Delay:	49
Integration Time/Replicate:	1.40
# of Replicates:	4
# of Repeats:	1
Baseline Correction Enabled:	True
Baseline Point 1 Start Time:	10
Baseline Point 1 End Time:	16
2-Point Baseline Corr. Enabled:	False
Baseline Point 2 Start Time:	
Baseline Point 2 End Time:	
Gas Flow (ml/min):	180
Calibration Algorithm:	Linear, Zero Intercept
Recalibration Frequency:	0
Reslope Frequency:	0
Reslope Standard:	5
Calibration Standard #1 Conc.:	0.10 PPB
Calibration Standard #2 Conc.:	0.50 PPB
Calibration Standard #3 Conc.:	1.00 PPB
Calibration Standard #4 Conc.:	2.00 PPB
Calibration Standard #5 Conc.:	5.00 PPB
Calibration Standard #6 Conc.:	10 00 PPB
QC Enabled:	True
QC-RSD Enabled:	True
Limit Condition & Error Action:	If %RSD > 5.0%, if µAbs. > 1500, Flag and Continue
QC-Std Enabled:	True
Limit Condition & Error Action:	If outside 80% .. 120%,Stop
QC-Blank Enabled:	True
Limit Condition & Error Action:	If outside -100 .. 100,Stop

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Mercury Standard Prep Log

Prep Code: 5mm
Analyst: mm
Bath Temp: 95°c
Instrument: CETAC
Date: 10-04-13
Start Time: 0930
End Time: 1000

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	—	0.00	50.0	0.0	3
STD1	3041-7	0.01		0.1	2
STD2		0.05		0.5	2
STD3		0.10		1.0	2
STD4		0.20		2.0	2
STD5		0.50		5.0	2
STD6		1.00		10.0	2
CRA	↓	0.01		0.1	1
ICB/CCB	—	0.00		0.0	3
ICV/LCS	59-6	0.08	↓	8.0	2
CCV	↓	0.04	50.0	4.0	3

Chemical/Reagent ID:

HNO_3: I8212 H_2SO_4: I8044 HCl: —

5% $K_2S_2O_8$: MP2551 5% $KMnO_4$: MP2552

Prep Code: 5mm
Analyst: CB
Bath Temp: 95°C
Instrument: CETAC
Date: 10-07-13
Start Time: 1035
End Time: 1105

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	—	0.00	50.0	0.0	3
STD1	3041-8	0.01		0.1	2
STD2		0.05		0.5	2
STD3		0.10		1.0	2
STD4		0.20		2.0	2
STD5		0.50		5.0	2
STD6		1.00		10.0	2
CRA	↓	0.01		0.1	1
ICB/CCB	—	0.00		0.0	3
ICV/LCS	59-6	0.08	↓	8.0	2
CCV	↓	0.04	50.0	4.0	3

Chemical/Reagent ID:

HNO_3: I8212 H_2SO_4: I8044 HCl: —

5% $K_2S_2O_8$: MP2551 5% $KMnO_4$: MP2552

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Mercury Digestion Log

Prep Code: Smm **Matrix:** Soil

Analyst: CB **Date:** 10-09-13

Bath Temp: 95°C **Start Time:** 0920 **End Time:** 0950

ARI Sample ID	Sample Bottle #	pH<2	Initial Weight (g) Volume (mL)	Final Volume (mL)	# $KMnO_4$ Aliquots	CLP	Comments
XE87 A	4	-	0.229	50.0	10/32 1	Y	
" AD,P	4	-	0.229		1		
" AD,K	4	-	0.227		1		
" mB	-	-	-		1		
" mBSD,R	-	-	-		1		
XE28 A	1	-	0.200		10/14 1		
" A1,P	1	-	0.205		1		
" A1,K	1	-	0.205		1		
" B	1	-	0.237		1		
" C	1	-	0.203		1		
" D	1	-	0.238		1		
" E	1	-	0.247		1		
" F	1	-	0.212		1		
" G	1	-	0.287		1		
" H	1	-	0.280		1		
" mB1	-	-	-		1		
" mB1SD,R	-	-	-	50.0	1	Y	
			(B 10-09-13)				

Chemical/Reagent ID:

HNO_3: 38272 **H_2SO_4:** 38044 **HCl:** -

5% $K_2S_2O_8$: MP2551 **5% $KMnO_4$:** MP2552 **Digest Tube Lot:** 1303205

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: XI87

SAMPLE RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Client ID: VANBURENPIT-100713
ARI ID: 13-21758 XI87A

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/15/13 101513#1	SM2540B	Percent	0.01	94.06
Total Organic Carbon	10/16/13 101613#1	Plumb,1981	Percent	0.020	0.118

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: XI87A Client ID: VANBURENPIT-100713						
Total Organic Carbon	10/16/13	Percent	0.118	0.751	0.584	108.5%

REPLICATE RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: 10/07/13
Date Received: 10/08/13

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: XI87A Client ID: VANBURENPIT-100713					
Total Solids	10/15/13	Percent	94.06	94.44 94.23	0.2%
Total Organic Carbon	10/16/13	Percent	0.118	0.119 0.098	10.6%

LAB CONTROL RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	10/16/13	Percent	0.104	0.100	104.0%

METHOD BLANK RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/15/13	Percent	< 0.01 U	ICB
Total Organic Carbon	10/16/13	Percent	< 0.020 U	ICB

STANDARD REFERENCE RESULTS-CONVENTIONALS
XI87-GeoEngineers

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 10/16/13

Project: R.G Haley Site Interim Actio
Event: 0356-114-06 T2600
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	10/16/13	Percent	2.47	2.99	82.6%

Total Solids

ARI Job ID: XI87

Extractions Total Solids-extts
Data By: Yen Luu
Created: 10/ 8/13

Worklist: 4706
Analyst: SR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% TS	pH	5g	10g	12.5g
1.	XI87A 13-21758 VANBURENPIT-100713	1.19	12.18	11.59	94.6	NR	5.29	10.57	13.21

Extractions Total Solids-extts
Data By: Yen Luu
Created: 10/ 8/13

Worklist: 4706
Analyst: YL
Comments:

Oven ID: ΦLS

Balance ID: B13929ΦΦ2

Samples In: Date: 10/08/13 Time: 18:30 Temp: 106 Analyst: YL

Samples Out: Date: 10/09/13 Time: 07:03 Temp: 99° Analyst: SR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% TS	pH	5g	10g	12.5g
1.	XI87A 13-21758 VANBURENPIT-100713	1.19	12.18	11.59		NR			

Extractions Total Solids-extts
Data By: Yen Luu
Created: 10/ 8/13

Worklist: 4706
Analyst: SR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% TS	pH	5g	10g	12.5g
1.	XI87A 13-21758 VANBURENPIT-100713	1.19	12.18	11.59	94.6	NR	5.29	10.57	13.21

Extractions Total Solids-extts
Data By: Yen Luu
Created: 10/ 8/13

Worklist: 4706
Analyst: YL
Comments:

Oven ID: ΦLS

Balance ID: B139298ΦΦ2

Samples In: Date: 10/08/13 Time: 18:30 Temp: 106 Analyst: YL

Samples Out: Date: 10/09/13 Time: 07:03 Temp: 99° Analyst: SR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% TS	pH	5g	10g	12.5g
1.	XI87A 13-21758 VANBURENPIT-100713	1.19	12.18	11.59		NR			

Solids Data Entry Report Checked by: DM Date: 10/10/13
Date: 10/10/13 Data Analyst: CB

Solids Determination performed on 10/09/13 by CB

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
XI87	A	VANBURENPIT-100713	0.987	10.198	9.560	93.07

Analytical Resources, Incorporated
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Total Solids Bench Sheet

Laboratory Section metals

Oven Identification: 07 **Balance ID:** 068755

Samples in Oven: Date: 10-4-13 Time: 0905 Temp: 100°C Analyst: CB

Removed from Oven: Date: 10-8-13 Time: 0725 Temp: 100°C Analyst: CB

ARI Sample ID		Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
XI87	A	0.987	10.198	9.560	—	√
XI28	A	1.028	10.772	5.692	—	√
"	B	1.015	5.784	3.993	—	√
"	C	1.004	5.090	2.215	—	√
"	D	1.019	5.148	2.824	—	√
"	E	1.005	5.181	2.776	—	√
"	F	1.010	5.576	2.868	—	√
"	G	1.029	5.051	3.044	—	√
"	H	1.011	5.263	2.557	—	√
			CB			
				10-09-13		

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings

General Chemistry Raw Data
Analyst Notes and Raw Data

ARI Job ID: XI87

W
10-16-13

TOC Solids Prep Log

acid purging to remove IC and drying at 70°C for TOC analysis

General notes regarding prep method and samples (identify the acid used)

DATE:	10/15/2013
ANALYST:	KE 7:38

HCL 10% ID:

HCL ID:

Balance ID: Mettler Toledo (XS205 DU) SN 123230597

make no entry to shaded cells, they are calculated

Sample ID		IC Test	Gravimetric Data (grams)			%	*Sample description & notes*
ARI #	Client	+ / -	Tare Wt.	Wet wt.	70°C dry wt	Solids	*(homogeneity and exclusions)*
Blank			13.1724		13.1726	0.2 mg	
XI87 A4		-	13.0294	18.9191	18.7199	96.62%	
XI87 A4 dup		-	13.1286	19.6107	19.3838	96.50%	RPD = 0.12%
XI87 A4 trip		-	13.0325	19.1743	18.9802	96.84%	RSD = 0.18%

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TOC Solids Preparation Log

Acid purge to remove IC and drying 70 °C for TOC analysis
Add general notes regarding samples and preparation and identify the acid used

Analyst (W) 7:38 Date 10-15-13

Sample Idenification		IC	Gravimetric Data			% Solids	Sample description & notes
ARI #	Client ID	Test	Tare	Wet	70 °C		
Blank			13.1724	Ø	13.1726		
X187 A4		—	13.0294	18.9191	18.7199		
" nDA4		—	13.1286	19.6107	19.3838		
" pA4		—	13.0325	19.1743	18.9802		

10-15-13 (W)

X187:00291

10-16-13

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET

SOLIDS *(dry at 104 (12-24 hr) then combust at 550 (30 min))*

DATE: 10/15/2013

ANALYST: KE 7:28 (A)

Instrumentation

Drying Ovens: 12

Muffle Furnace: N / A

Analytical Balance: 1123230597

Batch drying time

record times as mm/dd/yy hh:mm

10/15/2013 7:28 date/time in oven KE

10/16/2013 2:58 date/time out KE

elapsed hrs = 19.5

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt)/ (grams Sample-Tare)

TVS (mg/kg dry wt) calculated as:
Final ash wt (g) = (min ash wt - tare wt)
*TVS (mg/kg) = [(Dry wt-Ash wt)/ (dry weight)] *1,000,000*
if ash wt > dry wt, "Chk for Err"
*if dry wt-ash wt < 0.001 g, "< (1/dry wt)*1,000,000*

	Cal Weight ID	CV-02	CV-02	CV-02	CV-02				CV-02	CV-02				
	Date & Time	10/15/13 7.24 KE	10/15/13 7.20 KE	10/16/13 3:16										
Cal Wt (g)	10.0000	10.0000	10.0000	10.0000										
	record weights to 4 places	*Cal OK!*	*Cal OK!*	*Cal OK!*										

SAMPLE ID	DISH #	SAMPLE (grams)	TARE WT (grams)	DRY WT 104C (grams) 1			dry Wt (g)	TS (%)	ASH WT 550C (grams) 1	2		Ash Wt (g)	TVS (mg/kg)	TVS (%)
Blank			1.1632	1.1632			0.00							
KJ52 N1		8.4612	1.0889	6.5841			5.50	**74.54%**						
KI87 A4		6.7868	1.0776	6.4474			5.37	**94.06%**						
KI87 A4 dup		6.9747	1.0798	6.6468			5.57	**94.44%**						
							RPD =	0.41%				RPD =		NA
KI87 A4 trp		6.5785	1.0784	6.2611			5.18	**94.23%**						
							RSD =	0.20%				RSD =		NA

KI87 : 06252

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TOTAL / VOLATILE SOLIDS (TS/TVS) BENCHSHEET

A

Analyst:	(IV)	Date:	10-15-13	Oven ID:	012	Muffle ID: N/A		Balance ID:	1123230597
Time in Oven:	7:28			Time Out of Oven:		2:58		Elapsed Time (> 12 Hrs):	

Dry at 104 °C (12-24 hrs) then combust at 550 °C for 30 min. Record Weights to 4 places

TS (%) calculated as:
Final Dry Weight (g) = (Dry Weight – Tare Weight)
TS = (Final Dry Weight) / (Grams Sample – Tare Weight)

TVS (mg/kg dry weight) calculated as:
Final Ash Weight (g) = (Minimum Ash Weight – Tare Weight)
TVS (mg/kg) = [(Dry Weight – Ash Weight) / (Dry Weight) * 1,000,000
If Ash Weight > Dry Weight then "Check for Error"
If Dry Weight – Ash Weight < 0.001 < (1/Dry Weight) * 1,000,000

Cal Weight ID		CV-02	CV-02	CV-02	CV-02	CV-02	[redacted]	CV-02	CV-02	CV-02
Date & Time:		10-15-13 7:24	10-15-13 7:20	10-16-13 3:16						
Cal Weight (10.0000):		10.0000 (IV)	10.0000 (IV)	10.0000 (IV)						
Sample ID	Dish #	Sample	Tare	Dry Weight 104°C			Dry Weight	Ash Weight 550°C		
				1	2	3	grams	1	2	3
BLANK	1	Ø	1.1632	1.1632						
XJS2 N1	2	8.4612	1.0859	6.5841						
XJ87 A4	3	6.7868	1.0776	6.4474						
↓ DA4	4	6.9747	1.0798	6.6468						
↓ HA4	5	6.5785	1.0784	6.2611						

10-15-13 (IV)

XJ87 · 002933

W
10-16-13

TOC, Solids Data Analysis

DATE: 10/16/2013
ANALYST: KE 6:10

Instrument: Apollo 1
Mode: NPOC *Inlet:* Boat
Spike Std = 2,500 *ppm C*
Balance ID:

Calibration Data

Cal Curve ID: 8/16/2013 *Conc:* 5,000 *ppm*
Calibration Curve Standard: 00136-09 *Curve Date:* 08/16/13
CalFact: 1.314E+05 *intercept:* 348125 *r2 :* 0.99853
Curve Range (ppm) 200 *to* 2,500
Curve Range (µgC): 8 *to* 100 *40 µL injections of designated standard*

Verification Standard Source: ERA# 0409-12-01 *Conc:* 5,000 *ppm*
dilution : 10 *mL to* 50 1,000 *ppm*

Standard Reference Material Source: NIST 8704 *Conc:* 33,510 *ppm*
Source: NIST 1941B *Conc:* 29,900 *ppm*

Silica Blanks

Replicate determinations						Mean	RSD	condition
23.3	19.7	29.4				24.1	20.5%	OK

Sample Data

*"C corr" (with dilution) = ("C obs" - (Mean silica Blank * %Silica)) * Dilution Factor*

Sample ID	Dilution Data: Sample wt. (mg)	Final wt. (mg)	Silica (%)	Dilution Factor	Spike (µL Std)	Combustion Data: Burn wt. (mg)	C obs (ppm C)	C corr (ppm C)	comments
ICV				1.00		40.0	1039	1,039	103.90%
Blank				1.00		40.0	-62.89	-63	Blank OK
NIST 1941B				1.00		0.9	24672	24,672	82.52%
Silica Blanks 1				1.00		67.4	25.30	25	Low Scale
Silica Blanks 2				1.00		67.2	19.66	20	Low Scale
Silica Blanks 3				1.00		71.8	29.44	29	Low Scale
~~XI87 A4~~			-	~~1.00~~		~~4.2~~	~~1840~~	~~1,840~~	~~Low Scale~~
XI87 A4				1.00		4.4	1152	1,152	Low Scale
XI87 A4 dup				1.00		4.4	1155	1,155	RPD=0.3%
XI87 A4 trp				1.00		4.5	954	954	RSD=10.6%
XI87 A4 ms				1.00	10	4.4	7311	7,311	Range OK!
Spike = 0.025	*mg C to* 4.4			*mg samp=* 5,682	*ppm*			108%	
CCV				1.00		40.0	965	965	96.50%
Blank				1.00		40.0	-64.55	-65	Blank OK
XI28 A1	13.6	133.7	89.83%	9.83		1.5	23559	231,393	Range OK!
XI28 A1 dup	13.1	130.1	89.93%	9.93		1.6	22269	220,945	RPD=4.6%
~~XI28 A1 trp~~	~~13.5~~	~~133.8~~	~~89.91%~~	~~9.91~~		~~1.4~~	~~32411~~	~~321,014~~	~~RSD=21.3%~~
XI28 A1 trp	13.5	133.8	89.91%	9.91		1.6	22100	218,821	RSD=3%
~~XI28 A1 ms~~	~~13.6~~	~~133.7~~	~~89.83%~~	~~9.83~~	~~10~~	~~0.9~~	~~59336~~	~~583,112~~	~~Range OK!~~
~~*Spike =* 0.025~~	~~*mg C to* 0.1~~			~~*mg samp=* 273,080~~	~~*ppm*~~			~~120%~~	
XI28 A1 ms	13.6	133.7	89.83%	9.83	10	0.7	59205	581,824	Range OK!
Spike = 0.025	*mg C to* 0.1			*mg samp=* 351,103	*ppm*			100%	

Sample Data

*"C corr" (with dilution) = ("C obs" - (Mean silica Blank * %Silica)) * Dilution Factor*

Sample ID	Dilution Data				Spike (µL Std)	Combustion Data			comments
	Sample wt. (mg)	Final wt. (mg)	Silica (%)	Dilution Factor		Burn wt. (mg)	C obs (ppm C)	C corr (ppm C)	
XI28 F1	11.2	106.4	89.47%	9.50		1.2	24639	233,865	*Range OK!*
XI28 G1	18.5	181.9	89.83%	9.83		1.5	16999	166,928	*Range OK!*
XI28 H1	19.5	188.3	89.64%	9.66		1.2	20766	200,316	*Range OK!*
XI93 C2	11.9	110.9	89.27%	9.32		1.3	17350	161,490	*Range OK!*
CCV				1.00		40.0	1063	1,063	*106.30%*
Blank				1.00		40.0	-62.50	-63	*Blank OK*
XI93 D2	14.1	136.3	89.66%	9.67		1.3	22952	221,660	*Range OK!*
XI72 C1				1.00		1.7	28943	28,943	*Range OK!*
~~XI72 D1~~			-	~~1.00~~		~~1.5~~	~~305~~	~~305~~	~~*Low Scale*~~
XI72 D1				1.00		6.2	531	531	*Low Scale*
XI72 F1				1.00		2.2	10921	10,921	*Range OK!*
~~NIST 1941B~~			-	~~1.00~~		~~1.3~~	~~21415~~	~~21,415~~	~~*71.62%*~~
NIST 1941B				1.00		0.8	31075	31,075	*103.93%*
CCV				1.00		40.0	1035	1,035	*103.50%*
Blank				1.00		40.0	-63.29	-63	*Blank OK*

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Analytical Chemists and Consultants

TOC Solids Sample Run Log
Apollo 9000

Set-Up Parameters MODE: NPOC			INLET:	Boat Sampler
Standards:	Source	Conc (ppm)	Analyst:	Ⓦ
Calibration:	ARI-00136-09	5000	Date:	10-16-13
Verification:	ERA-0409-12-01	5000 to 1000 for CVS	Time:	6:10
SRM:	NBS (1941b) or 8704	Method: PSEP 1986-MOD	Balance ID	B146454145
Sample Sequence:				

Sample ID	Dilution Data (mg)		Burn Wt	Matrix Spike Data		Comments
	Sample	+ Silica Gel	mg	mg/L	µL added	
ICV			40			
ICB			40			
NBS 1941 B			0.9			
SB 1			67.4			
2			67.2			
3			71.8			
XI87 A4			4.2			wrong # injected & Rerun
A4			4.4			
DP A4			4.4			
TP A4			4.5			
MS A4			4.4	2500	10	
CCV			40			
CCB			40			
XI28 A'	13.6	133.7	1.5			
DP A'	13.1	130.1	1.6			
TP A'	13.5	133.8	*1.4 / 1.6			*high Regrind & Rerun
MS A'	13.6	133.7	0.9	2500	10	high Rerun to Verify
MSD A'	13.6	133.7	0.7	2500	10	
F'	11.2	106.4	1.2			
G'	18.5	181.9	1.5			
H'	19.5	188.3	1.2			
XF92 C2	11.9	110.9	1.3			
~~D2~~	~~14.1~~	~~136.3~~		10-16-13 Ⓦ		
CCV			40			
CCB			40			
XF92 D2	14.1	136.3	1.3			
XI72 C'			1.7			
D'			*1.5 / 6.2			*Low (its Low)
F'			2.2			
NBS 1941 B			*1.3 / 0.8			*Fail Low
CCV			40			
CCB			40			

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Detailed Analysis Report Print Date/Time: 2013/10/16 10:05:37

Sample ID: ICV/CCV BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160303
Timestamp: 2013/10/16 03:07
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1038.7970	41.5519	5806763	36.582	37.582	143

Sample ID: ICB/CCB BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160320
Timestamp: 2013/10/16 03:23
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	-62.8868	-2.5155	17670	36.650	36.671	120

Last Message: Low Sample Detected

Sample ID: ICB/CCB BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160329
Timestamp: 2013/10/16 03:37
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	24672.2676	22.2050	3265184	36.736	37.735	250

Last Message: Out of Calibration

Sample ID: Silica Blank 1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160418
Timestamp: 2013/10/16 04:20
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	25.3012	1.7053	224024	39.749	40.745	53

Sample ID: Silica Blank 2
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160434
Timestamp: 2013/10/16 04:36
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	19.6638	1.3214	173593	39.163	40.161	59

Sample ID: Silica Blank 3
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160450
Timestamp: 2013/10/16 04:52
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	29.4417	2.1139	277703	40.637	41.631	55

Sample ID: XI87 A4
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160524
Timestamp: 2013/10/16 05:28
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1840.4070	7.7297	1015446	40.342	41.340	163

Sample ID: XI87 A4
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160530
Timestamp: 2013/10/16 05:34
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1151.9767	5.0687	665871	40.665	41.665	136

Sample ID: XI87 A4 DUP
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160537
Timestamp: 2013/10/16 05:40
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1154.9369	5.0817	667582	40.657	41.656	109

Sample ID: XI87 A4 TRIP
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160547
Timestamp: 2013/10/16 05:50
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	953.5015	4.2908	563673	40.750	41.748	120

Sample ID: XI87 A4 MS
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160555
Timestamp: 2013/10/16 05:58
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	7311.1387	32.1690	4226017	40.924	41.922	173

Sample ID: ICV/CCV BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160603
Timestamp: 2013/10/16 06:07
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	965.0583	38.6023	5419283	40.717	41.715	151

Sample ID: ICB/CCB BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160611
Timestamp: 2013/10/16 06:14
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	-64.5475	-2.5819	8943	40.687	40.702	120

Last Message: Low Sample Detected

Sample ID: XI28 A1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE

Mode: TOC
Filename: 10160626
Timestamp: 2013/10/16 06:29
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	23558.7148	35.3381	4642334	40.606	41.605	135

Sample ID: XI28 A1 DUP
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160633
Timestamp: 2013/10/16 06:36
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	22269.0898	35.6305	4680756	40.613	41.610	130

Sample ID: XI28 A1 TRIP
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160639
Timestamp: 2013/10/16 06:42
Sample Type: Sample

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Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	32411.3867	45.3758	5961001	40.514	41.513	143

Sample ID: XI28 A1 TRIP
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160651
Timestamp: 2013/10/16 06:54
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	22100.4824	35.3608	4645316	40.542	41.536	132

Sample ID: XI28 A1 MS
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160658
Timestamp: 2013/10/16 07:01
Sample Type: Sample

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Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	59336.0000	53.4024	7015431	40.714	41.708	150

Sample ID: XI28 A1 MS
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160706
Timestamp: 2013/10/16 07:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	59205.3047	41.4437	5444428	41.084	42.082	132

Sample ID: XI28 F1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160717
Timestamp: 2013/10/16 07:20
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	24638.7754	29.5665	3884132	41.690	42.687	142

Sample ID: XI28 G1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160730
Timestamp: 2013/10/16 07:33
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	16999.2285	25.4988	3349763	43.189	44.188	140

Sample ID: XI28 H1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160741
Timestamp: 2013/10/16 07:44
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	20766.2246	24.9195	3273651	44.606	45.605	131

Sample ID: XI93 C2
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160746
Timestamp: 2013/10/16 07:50
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	17349.7988	22.5547	2962998	45.212	46.208	121

Sample ID: ICV/CCV BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160751
Timestamp: 2013/10/16 07:54
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1063.2339	42.5294	5935173	45.701	46.701	149

Sample ID: ICB/CCB BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160755
Timestamp: 2013/10/16 07:58
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	-62.5008	-2.5000	19698	45.995	45.918	120

Last Message: Low Sample Detected

Sample ID: XI93 D2
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160800
Timestamp: 2013/10/16 08:03
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	22951.6094	29.8371	3919675	46.090	47.089	126

Sample ID: XI72 C1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160810
Timestamp: 2013/10/16 08:13
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	28942.8340	49.2028	6463735	46.397	47.397	149

Sample ID: XI72 D1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160818
Timestamp: 2013/10/16 08:21
Sample Type: Sample

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Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	304.9254	0.4574	60087	46.461	47.458	53

Sample ID: XI72 D1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160829
Timestamp: 2013/10/16 08:33
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	530.6663	3.2901	432222	46.091	47.089	84

Sample ID: XI72 F1
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160836
Timestamp: 2013/10/16 08:39
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10920.8184	24.0258	3156250	45.915	46.912	120

Sample ID: NBS 1941B
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160844
Timestamp: 2013/10/16 08:49
Sample Type: Cal. Verification

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Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	21415.0469	27.8396	4005386	45.857	46.855	222

Last Message: Out of Calibration

Sample ID: NBS 1941B
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160855
Timestamp: 2013/10/16 09:00
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	31075.4805	24.8604	3614014	45.905	46.902	242

Sample ID: ICV/CCV BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160927
Timestamp: 2013/10/16 09:34
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1035.1470	41.4059	5787583	47.718	48.718	150

Sample ID: ICB/CCB BOAT
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 10160942
Timestamp: 2013/10/16 09:48
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	-63.2907	-2.5316	15547	47.480	47.392	120

Last Message: Low Sample Detected

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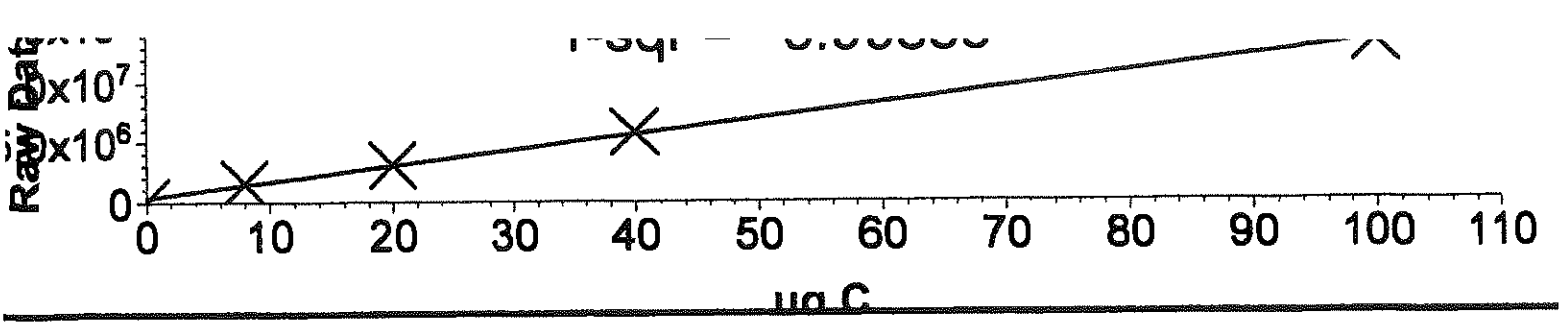
Calibration Report Print Date/Time: 2013/09/16 7:54:29

Cal. Curve ID: 091613 BOAT CAL
Created: 2013/09/16 07:53
Calibration Factor (m): 1.314e+05
Y Intercept (b): 348125
r-squared: 0.99853

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
DI Water	41775	0.000	-2.332	Low Sample De	2013/09/16 05:12
200 ppm	1545037	8.000	9.111	Max Integrati	2013/09/16 05:56
500 ppm	3056500	20.000	20.617	Max Integrati	2013/09/16 06:20
1000 ppm	5781690	40.000	41.361		2013/09/16 07:20
2500 ppm	13385652	100.000	99.243	Max Integrati	2013/09/16 07:51


Raw Data
x10^7
x10^6
0
0
10
20
30
40
50
60
70
80
90
100
110
ug C

Detailed Analysis Report Print Date/Time: 2013/09/16 7:53:58

Sample ID: DI Water
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160332
Timestamp: 2013/09/16 04:39
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			40136	34.194	34.254	120
2			19246	34.392	34.525	120
3			78820	34.913	35.532	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 46067 Std Dev: 30227 RSD: 65.61

Sample ID: DI Water
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160442
Timestamp: 2013/09/16 05:12
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			44279	35.792	36.130	120
2			43033	36.299	36.292	120
3			38015	36.493	36.573	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 41776 Std Dev: 3316 RSD: 7.94

Sample ID: 200 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160519
Timestamp: 2013/09/16 05:32
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			1058138	36.740	37.738	89
2			1051964	37.006	38.005	92
3			1346911	37.355	38.355	150

<<<Statistics>>> Mean: 1152338 Std Dev: 168534 RSD: 14.63

Sample ID: 200 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160533
Timestamp: 2013/09/16 05:56
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			1508809	38.116	39.116	120
2			1544799	39.737	41.479	300
3			1581504	43.158	45.293	300

Last Message: Max Integration Time Reached
<<<Statistics>>> Mean: 1545037 Std Dev: 36348 RSD: 2.35

Sample ID: 500 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160558
Timestamp: 2013/09/16 06:20
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			3052821	46.812	49.014	300
2			2866676	50.018	51.959	301
3			3250003	52.432	54.100	301

Last Message: Max Integration Time Reached

<<<Statistics>>> Mean: 3056500 Std Dev: 191690 RSD: 6.27

Sample ID: 500 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160626
Timestamp: 2013/09/16 06:53
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			2777638	55.631	57.136	300
2			3180858	57.805	59.516	300
3			3058849	59.686	60.686	200

Last Message: Max Integration Time Reached
<<<Statistics>>> Mean: 3005782 Std Dev: 206782 RSD: 6.88

Sample ID: 1000 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160657
Timestamp: 2013/09/16 07:20
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			5453813	60.538	61.658	300
2			5619148	61.332	62.328	298
3			6272107	62.034	63.032	236

Last Message: Max Integration Time Reached
<<<Statistics>>> Mean: 5781690 Std Dev: 432685 RSD: 7.48

Sample ID: 2500 ppm
Method: Boat Sampler
Cal. Curve: 091613 BOAT CAL
Operator ID: KE
Mode: TOC
Filename: 09160721
Timestamp: 2013/09/16 07:51
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			13161378	62.532	64.982	300
2			13217556	63.366	65.755	300
3			13778022	63.857	66.248	301

Last Message: Max Integration Time Reached
<<<Statistics>>> Mean: 13385652 Std Dev: 340961 RSD: 2.55