



Saturday, March 14, 2015

Karen Waters-Husted  
CH2M HILL Plateau Remediation Company  
2420 Stevens Center  
Richland, WA 99352

Re: ALS Workorder: 1502510  
Project Name: SURV, FEB 2015  
Project Number: S15-002

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 2/28/2015. The samples were scheduled for the following analysis:

Metals

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental  
Julie Ellingson  
Project Manager

JME/jme  
Enclosure(s):

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington	C1280

**ALS Environmental -- FC****Sample Number(s) Cross-Reference Table**

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**OrderNum: 1502510****Client Name: CH2M HILL Plateau Remediation Company****Client Project Name: SURV, FEB 2015****Client Project Number: S15-002****Client PO Number: BOA 54854**

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<b>Client Sample Number</b>	<b>Lab Sample Number</b>	<b>COC Number</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Time Collected</b>
B307W6	1502510-1		WATER	26-Feb-15	8:56
B30BB5	1502510-2		WATER	26-Feb-15	8:56

1502510  
6 lbs  
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
S15-002-245  
Page 1 of 13

Collector: S.W. King/CHPRC  
 Telephone No.: 509-376-4650  
 SAF No.: S15-002  
 Purchase Order/Charge Code: 300071  
 Project Title: SURV, FEB 2015  
 Ice Chest No.: 605-032  
 Shipped To (Lab): ALS Environmental - Fort Collins  
 Bill of Lading/Air Bill No.: ~~730105~~ 17301919  
 Protocol: SURV  
 Offsite Property No.: 5445  
 Priority: 30 Days  
 Method of Shipment: Commercial Carrier  
 Logbook No.: HNF-N-506 70 / 23  
 Sampling Origin: Hanford Site  
 Contact/Requester: Karen Waters-Husted  
 Priority: **PRIORITY**

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
 \*\*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B307W6 ①	N	W	FEB 26 2015	0856	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2
B30BB5 ②	Y	W	FEB 26 2015		1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2

**SPECIAL INSTRUCTIONS**

Hold Time  
 Total Activity Exemption: Yes  No

Relinquished By	Print	Signature	Date/Time	Received By	Signature	Date/Time	Matrix *
S.W. King/CHPRC		[Signature]	FEB 26 2015 1040	R.A. Shepard/CHPRC	[Signature]	FEB 26 2015 1040	Soil
R.A. Shepard/CHPRC		[Signature]	FEB 26 2015 1130	SSU-1		FEB 26 2015	Sediment
SSU-1		[Signature]	FEB 27 2015 0745	L.D. Wall	[Signature]	FEB 27 2015 0745	Solid
L.D. Wall		[Signature]	FEB 27 2015 1400	CHPRC		FEB 27 2015	Sludge
FINAL SAMPLE DISPOSITION		[Signature]		FEDEX			Water
							Oil
							Air
							Drum Solids
							Drum Liquids
							Tissue
							Wipe
							Liquid
							Vegetation
							Other

Disposal Method (e.g., Return to customer, per lab procedure, used in process)  
 Disposed By: Received [Signature] 2-28-15 1015  
 Date/Time



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC

Workorder No: 1502510

Project Manager: JE

Initials: CDT Date: 2-28-15

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	NONE	<input checked="" type="radio"/> YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <input checked="" type="radio"/> #2 #4 RAD ONLY		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>5.6</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>12</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

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If applicable, was the client contacted? YES / NO /  NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date:  2/28/15

Form 201r24.xls (06/04/2012) \*IR Gun #2: Oakton, SN 29922500201-0066 \*IR Gun #4: Oakton, SN 2372220101-0002

1502510

From: (508) 373-3547  
chris fullon  
CH2M  
9267 latak st  
richland, WA 90354

Origin ID: PSCA



Ship Date: 27FEB15  
ActWgt: 0.0 LB  
CAD: 107066051/NET3610

Delivery Address Bar Code



SHIP TO: (970) 490-1511  
Julie Ellingson

BILL THIRD PARTY

Ref # pr#5445  
Invoice #  
PO #  
Dept #

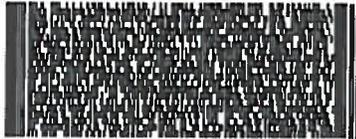
225 Commerce Drive

FORT COLLINS, CO 80524

SATURDAY 12:00P  
PRIORITY OVERNIGHT

TRK# 7730 1019 7398  
0291

DSR  
80524  
CO-US  
DEN



X0 FTCA



537 12/00CEEE48

Handwritten red markings: '11', '2-', and '5.6'

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



# Metals

## Case Narrative

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### **CH2M HILL Plateau Remediation Company**

**SURV, FEB 2015 – S15-002**

Work Order Number: 1502510

1. This report consists of 2 water samples for total recoverable or dissolved metals.
2. The samples were received cool and intact by ALS on 02/28/15.
3. The sample for dissolved metals had been filtered prior to receipt. Both samples had a pH less than 2 upon receipt.
4. The samples were prepared and analyzed based on SW-846, 3<sup>rd</sup> Edition procedures.

For analysis by Trace ICP and ICP-MS, the samples were digested following method 3005A and the current revision of SOP 806.

5. Analysis by Trace ICP followed method 6010B and the current revision of SOP 834.

Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.

6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
7. The samples were prepared and analyzed within the established hold times.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
  - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
  - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes with the exception of iron. The associated



samples were below the requested reporting limit, so no further action was taken. Sample results have been compared to the blank results.

- All laboratory control sample criteria were met.
- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.
- The interference check samples and high standard readbacks associated with Method 6010B were within acceptance criteria.
- The interference check samples associated with Method 6020A were analyzed.

9. Matrix specific quality control procedures.

Sample 1502499-1 was designated as the quality control sample for each analysis. Results for the shared quality control samples are included at the client's request. Matrix QC results were not included with this report for the Trace ICP due to the samples not being logged in for this analysis.

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

- A matrix spike and matrix spike duplicate were digested and analyzed with the ICP-MS batch. All acceptance criteria for accuracy were met.
- A sample duplicate and matrix spike duplicate were digested and analyzed with the ICP-MS batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with the ICP-MS batch. All acceptance criteria were met.

10. It is a standard practice that samples for ICP-MS are analyzed at a dilution. The 10X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
\_\_\_\_\_  
Jill Latelle  
Inorganics Primary Data Reviewer

3/13/15  
Date

  
\_\_\_\_\_  
Arlic E. Eliza  
Inorganics Final Data Reviewer

3/14/15  
Date



### Inorganic Data Reporting Qualifiers

The following qualifiers are used as needed by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- A "B" is entered if the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL). If the analyte was analyzed for but not detected a "U" is entered. For samples, negative values are reported as non-detects ("U" flagged). For blanks, if the absolute value of the negative value is above the MDL and below the reporting limit, then the result is "B" flagged.
- QC qualifier -- Specified entries and their meanings are as follows:
  - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
  - M - Duplicate injection precision was not met.
  - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
  - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
  - \* - Duplicate analysis (relative percent difference) not within control limits.
  - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.
  - C - The analyte was detected in both the sample and the associated QC blank, and the sample concentration was  $\leq 5X$  the blank concentration.
  - D - Analyte was reported at a secondary dilution factor, typically  $DF > 1$  (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.

**Total Recoverable ICP Metals****Method SW6010B****Sample Results**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID:	B307W6
Lab ID:	1502510-1

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 26-Feb-15  
 Date Extracted: 05-Mar-15  
 Date Analyzed: 09-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150305-1  
 QCBatchID: IP150305-1-1  
 Run ID: IP150309-2A6  
 Cleanup: NONE  
 Basis: As Received  
 File Name:

Analyst: Nathan A. Quatier  
 Sample Aliquot: 50 ml  
 Final Volume: 50 ml  
 Result Units: UG/L  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-70-2	CALCIUM	1	47000	1000	88		
7439-89-6	IRON	1	33	50	18	B,C	
7439-95-4	MAGNESIUM	1	9900	750	91		
7440-09-7	POTASSIUM	1	5300	1000	150		
7440-23-5	SODIUM	1	30000	500	130		

Data Package ID: IP1502510-1

**Dissolved ICP Metals****Method SW6010B****Sample Results**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID:	B30BB5
Lab ID:	1502510-2

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 26-Feb-15  
 Date Extracted: 05-Mar-15  
 Date Analyzed: 09-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150305-1  
 QCBatchID: IP150305-1-1  
 Run ID: IP150309-2A6  
 Cleanup: NONE  
 Basis: As Received  
 File Name:

Analyst: Nathan A. Quatier  
 Sample Aliquot: 50 ml  
 Final Volume: 50 ml  
 Result Units: UG/L  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-70-2	CALCIUM	1	48000	1000	88		
7439-89-6	IRON	1	40	50	18	B,C	
7439-95-4	MAGNESIUM	1	10000	750	91		
7440-09-7	POTASSIUM	1	5400	1000	150		
7440-23-5	SODIUM	1	31000	500	130		

Data Package ID: IP1502510-1

**Total Recoverable ICPMS Metals****Method SW6020A****Sample Results**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID: B307W6

Lab ID: 1502510-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 26-Feb-15

Date Extracted: 05-Mar-15

Date Analyzed: 05-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: As Received

File Name: 022SMPL\_

Analyst: Brent A. Stanfield

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

Analysis ReqCode: GW 01

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	24	50	17	B	
7440-36-0	ANTIMONY	10	0.28	0.3	0.17	B	
7440-38-2	ARSENIC	10	2	2	0.25	B	
7440-39-3	BARIUM	10	31	1	0.41		
7440-41-7	BERYLLIUM	10	0.13	0.5	0.13	U	
7440-42-8	BORON	10	16	50	8.7	B	
7440-43-9	CADMIUM	10	0.12	0.3	0.12	U	
7440-47-3	CHROMIUM	10	4.4	10	1.3	B	
7440-48-4	COBALT	10	0.17	1	0.17	U	
7440-50-8	COPPER	10	2.8	8	2.8	U	
7439-92-1	LEAD	10	0.25	0.5	0.25	U	
7439-96-5	MANGANESE	10	0.52	5	0.52	U	
7439-98-7	MOLYBDENUM	10	2.1	1	0.43		
7440-02-0	NICKEL	10	1.7	5	1.4	B,C	
7782-49-2	SELENIUM	10	0.76	1	0.54	B	
7440-22-4	SILVER	10	0.05	0.1	0.04	B	
7440-24-6	STRONTIUM	10	240	1	0.32		
7440-28-0	THALLIUM	10	0.042	0.2	0.042	U	
7440-29-1	THORIUM	10	0.069	0.2	0.069	U	
7440-31-5	TIN	10	2.2	5	0.86	B,C	
7440-61-1	URANIUM	10	0.32	0.1	0.088		
7440-62-2	VANADIUM	10	5.8	1	0.52		
7440-66-6	ZINC	10	6.8	20	6.8	U	

Data Package ID: *IM1502510-1*

**Dissolved ICPMS Metals****Method SW6020A****Sample Results**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID:	B30BB5
Lab ID:	1502510-2

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 26-Feb-15

Date Extracted: 05-Mar-15

Date Analyzed: 05-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: As Received

File Name: 023SMPL\_

Analyst: Brent A. Stanfield

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

Analysis ReqCode: GW 01

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	28	50	17	B	
7440-36-0	ANTIMONY	10	0.25	0.3	0.17	B	
7440-38-2	ARSENIC	10	2	2	0.25	B	
7440-39-3	BARIUM	10	31	1	0.41		
7440-41-7	BERYLLIUM	10	0.13	0.5	0.13	U	
7440-42-8	BORON	10	16	50	8.7	B	
7440-43-9	CADMIUM	10	0.12	0.3	0.12	U	
7440-47-3	CHROMIUM	10	3.5	10	1.3	B	
7440-48-4	COBALT	10	0.17	1	0.17	U	
7440-50-8	COPPER	10	2.8	8	2.8	U	
7439-92-1	LEAD	10	0.25	0.5	0.25	U	
7439-96-5	MANGANESE	10	0.52	5	0.52	U	
7439-98-7	MOLYBDENUM	10	2	1	0.43		
7440-02-0	NICKEL	10	1.4	5	1.4	U	
7782-49-2	SELENIUM	10	0.63	1	0.54	B	
7440-22-4	SILVER	10	0.04	0.1	0.04	U	
7440-24-6	STRONTIUM	10	240	1	0.32		
7440-28-0	THALLIUM	10	0.042	0.2	0.042	U	
7440-29-1	THORIUM	10	0.069	0.2	0.069	U	
7440-31-5	TIN	10	2.4	5	0.86	B,C	
7440-61-1	URANIUM	10	0.32	0.1	0.088		
7440-62-2	VANADIUM	10	5.8	1	0.52		
7440-66-6	ZINC	10	6.8	20	6.8	U	

Data Package ID: *IM1502510-1*

ALS1502510  
**ICP Metals**

March 14, 2015

**Method SW6010B**  
**Method Blank**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Lab ID: IP150305-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 05-Mar-15

Date Analyzed: 09-Mar-15

Prep Batch: IP150305-1

QCBatchID: IP150305-1-1

Run ID: IP150309-2A6

Cleanup: NONE

Basis: N/A

File Name:

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-70-2	CALCIUM	1	88	1000	88	U	
7439-89-6	IRON	1	460	50	18		
7439-95-4	MAGNESIUM	1	91	750	91	U	
7440-09-7	POTASSIUM	1	150	1000	150	U	
7440-23-5	SODIUM	1	130	500	130	U	

Data Package ID: IP1502510-1

ALS1502510  
**ICP Metals**

March 14, 2015

**Method SW6010B**  
**Laboratory Control Sample**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Lab ID: IP150305-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/05/2015

Date Analyzed: 03/09/2015

Prep Method: SW3005A

Prep Batch: IP150305-1

QC Batch ID: IP150305-1-1

Run ID: IP150309-2A6

Cleanup: NONE

Basis: N/A

File Name:

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-70-2	CALCIUM	40000	39600	1000		99	80 - 120%
7439-89-6	IRON	1000	1050	50		105	80 - 120%
7439-95-4	MAGNESIUM	40000	39100	750		98	80 - 120%
7440-09-7	POTASSIUM	40000	38500	1000		96	80 - 120%
7440-23-5	SODIUM	40000	38700	500		97	80 - 120%

Data Package ID: IP1502510-1

ALS1502510  
**ICPMS Metals**

March 14, 2015

**Method SW6020A**  
**Method Blank**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Lab ID: IP150305-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 05-Mar-15

Date Analyzed: 05-Mar-15

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: N/A

File Name: 003SMPL\_

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	17	50	17	U	
7440-36-0	ANTIMONY	10	0.17	0.3	0.17	U	
7440-38-2	ARSENIC	10	0.25	2	0.25	U	
7440-39-3	BARIUM	10	0.41	1	0.41	U	
7440-41-7	BERYLLIUM	10	0.13	0.5	0.13	U	
7440-42-8	BORON	10	8.7	50	8.7	U	
7440-43-9	CADMIUM	10	0.12	0.3	0.12	U	
7440-47-3	CHROMIUM	10	1.3	10	1.3	U	
7440-48-4	COBALT	10	0.17	1	0.17	U	
7440-50-8	COPPER	10	2.8	8	2.8	U	
7439-92-1	LEAD	10	0.25	0.5	0.25	U	
7439-96-5	MANGANESE	10	1.4	5	0.52	B	
7439-98-7	MOLYBDENUM	10	0.43	1	0.43	U	
7440-02-0	NICKEL	10	4.5	5	1.4	B	
7782-49-2	SELENIUM	10	0.54	1	0.54	U	
7440-22-4	SILVER	10	0.04	0.1	0.04	U	
7440-24-6	STRONTIUM	10	0.32	1	0.32	U	
7440-28-0	THALLIUM	10	0.042	0.2	0.042	U	
7440-29-1	THORIUM	10	0.13	0.2	0.069	B	
7440-31-5	TIN	10	4.2	5	0.86	B	
7440-61-1	URANIUM	10	0.088	0.1	0.088	U	
7440-62-2	VANADIUM	10	0.52	1	0.52	U	
7440-66-6	ZINC	10	6.8	20	6.8	U	

Data Package ID: IM1502510-1

ALS1502510  
ICPMS Metals

March 14, 2015

Method SW6020A  
Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Lab ID: IM150305-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/05/2015

Date Analyzed: 03/05/2015

Prep Method: SW3005A

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: N/A

File Name: 004SMPL\_

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7429-90-5	ALUMINUM	5000	4700	50		94	80 - 120%
7440-36-0	ANTIMONY	30	30.2	0.3		101	80 - 120%
7440-38-2	ARSENIC	100	95.7	2		96	80 - 120%
7440-39-3	BARIUM	100	104	1		104	80 - 120%
7440-41-7	BERYLLIUM	50	46.3	0.5		93	80 - 120%
7440-42-8	BORON	1000	937	50		94	80 - 120%
7440-43-9	CADMIUM	30	29.4	0.3		98	80 - 120%
7440-47-3	CHROMIUM	500	459	10		92	80 - 120%
7440-48-4	COBALT	100	97.4	1		97	80 - 120%
7440-50-8	COPPER	1000	944	8		94	80 - 120%
7439-92-1	LEAD	50	49.3	0.5		99	80 - 120%
7439-96-5	MANGANESE	100	95.9	5		96	80 - 120%
7439-98-7	MOLYBDENUM	100	93	1		93	80 - 120%
7440-02-0	NICKEL	500	484	5		97	80 - 120%
7782-49-2	SELENIUM	100	97.5	1		98	80 - 120%
7440-22-4	SILVER	10	10.2	0.1		102	80 - 120%
7440-24-6	STRONTIUM	100	99.9	1		100	80 - 120%
7440-28-0	THALLIUM	2	2.12	0.2		106	80 - 120%
7440-29-1	THORIUM	10	9.04	0.2		90	80 - 120%
7440-31-5	TIN	500	508	5		102	80 - 120%
7440-61-1	URANIUM	10	9.93	0.1		99	80 - 120%
7440-62-2	VANADIUM	100	93.1	1		93	80 - 120%
7440-66-6	ZINC	2000	1810	20		90	80 - 120%

Data Package ID: IM1502510-1

**ICPMS Metals**

Method SW6020A

**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID: SHARED QC

LabID: 1502499-1MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 24-Feb-15

Date Extracted: 05-Mar-15

Date Analyzed: 05-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 010SMPL\_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	17	U	4660		50	5000	93	75 - 125%
7440-36-0	ANTIMONY	0.17	U	29.3		0.3	30	98	75 - 125%
7440-38-2	ARSENIC	4.2		96.9		2	100	93	75 - 125%
7440-39-3	BARIUM	65		168		1	100	103	75 - 125%
7440-41-7	BERYLLIUM	0.13	U	45		0.5	50	90	75 - 125%
7440-42-8	BORON	14	B	914		50	1000	90	75 - 125%
7440-43-9	CADMIUM	0.12	U	28.9		0.3	30	96	75 - 125%
7440-47-3	CHROMIUM	98		551		10	500	91	75 - 125%
7440-48-4	COBALT	0.17	U	95.3		1	100	95	75 - 125%
7440-50-8	COPPER	2.8	U	941		8	1000	94	75 - 125%
7439-92-1	LEAD	0.35	B	49.6		0.5	50	99	75 - 125%
7439-96-5	MANGANESE	0.52	U	96.2		5	100	96	75 - 125%
7439-98-7	MOLYBDENUM	1.6		94.6		1	100	93	75 - 125%
7440-02-0	NICKEL	1.4	U	476		5	500	95	75 - 125%
7782-49-2	SELENIUM	0.54	U	96.8		1	100	97	75 - 125%
7440-22-4	SILVER	0.04	U	10.1		0.1	10	101	75 - 125%
7440-24-6	STRONTIUM	190		277		1	100	92	75 - 125%
7440-28-0	THALLIUM	0.042	U	2.02		0.2	2	101	75 - 125%
7440-29-1	THORIUM	0.09	B,C	8.76		0.2	10	87	75 - 125%
7440-31-5	TIN	2.1	B,C	501		5	500	100	75 - 125%
7440-61-1	URANIUM	1.2		11.2		0.1	10	101	75 - 125%
7440-62-2	VANADIUM	28		121		1	100	93	75 - 125%
7440-66-6	ZINC	6.8	U	1850		20	2000	92	75 - 125%

Data Package ID: *IM1502510-1*

**ICPMS Metals**

Method SW6020A

**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502510

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, FEB 2015 S15-002

Field ID: SHARED QC

LabID: 1502499-1MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 24-Feb-15

Date Extracted: 05-Mar-15

Date Analyzed: 05-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150305-1

QCBatchID: IP150305-1-3

Run ID: IM150305-14A3

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 011SMPL\_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	4670		5000	93	50	20	0
7440-36-0	ANTIMONY	29.6		30	99	0.3	20	1
7440-38-2	ARSENIC	96.4		100	92	2	20	1
7440-39-3	BARIUM	167		100	102	1	20	0
7440-41-7	BERYLLIUM	44.9		50	90	0.5	20	0
7440-42-8	BORON	932		1000	92	50	20	2
7440-43-9	CADMIUM	29.6		30	99	0.3	20	3
7440-47-3	CHROMIUM	557		500	92	10	20	1
7440-48-4	COBALT	96.1		100	96	1	20	1
7440-50-8	COPPER	953		1000	95	8	20	1
7439-92-1	LEAD	49.9		50	99	0.5	20	1
7439-96-5	MANGANESE	96.2		100	96	5	20	0
7439-98-7	MOLYBDENUM	94.2		100	93	1	20	0
7440-02-0	NICKEL	490		500	98	5	20	3
7782-49-2	SELENIUM	95.9		100	96	1	20	1
7440-22-4	SILVER	10.2		10	103	0.1	20	2
7440-24-6	STRONTIUM	279		100	93	1	20	1
7440-28-0	THALLIUM	2.26		2	113	0.2	20	11
7440-29-1	THORIUM	9.04		10	89	0.2	20	3
7440-31-5	TIN	503		500	100	5	20	0
7440-61-1	URANIUM	11.3		10	101	0.1	20	0
7440-62-2	VANADIUM	122		100	94	1	20	0
7440-66-6	ZINC	1890		2000	94	20	20	2

Data Package ID: *IM1502510-1*