



Saturday, March 14, 2015

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

Re: ALS Workorder: 1502498  
Project Name: 100-KR-4, FEBRUARY 2015  
Project Number: I15-013

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 2/27/2015. 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,

A handwritten signature in black ink, appearing to read "Julie Ellingson".

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: 1502498****Client Name: CH2M HILL Plateau Remediation Company****Client Project Name: 100-KR-4, FEBRUARY 2015****Client Project Number: I15-013****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>
B30655	1502498-1		WATER	25-Feb-15	10:31
B30649	1502498-2		WATER	25-Feb-15	10:31

12100

1502498

C.O.C.#  
**I15-013-039**

Page 1 of 1

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

**CH2MHill Plateau Remediation Company**

**Collector** J.R. Aguilar/CHPRC  
**Contact/Requester** Karen Waters-Husted  
**Telephone No.** 509-376-4650  
**SAF No.** I15-013  
**Sampling Origin** Hanford Site  
**Purchase Order/Charge Code** 300071  
**Project Title** 100-KR-4, FEBRUARY 2015  
**Logbook No.** HNF-N-506 74 / 54  
**Ice Chest No.** 605-230 268  
**Shipped To (Lab)** ALS Environmental  
**Method of Shipment** Commercial Carrier  
**Bill of Lading/Air Bill No.** 7729 9464 0603  
**Protocol** CERCLA  
**Priority:** 30 Days  
**Offsite Property No.** 5404

**SPECIAL INSTRUCTIONS** Hold Time  
 Total Activity Exemption: Yes  No

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B30655	Y	2-25-15	1031	1x500-mL G/P	6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNO3 to pH <2
B30649	N	2-25-15	1031	1x500-mL G/P	6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNO3 to pH <2

**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

Relinquished By J.R. Aguilar/CHPRC	Print [Signature]	Sign [Signature]	Date/Time FEB 25 2015 1150	Received By Wall CHPRC	Print [Signature]	Sign [Signature]	Date/Time FEB 25 2015 1150	Matrix *
Relinquished By L.D. Wall CHPRC	Print [Signature]	Sign [Signature]	Date/Time FEB 25 2015 1400	Received By [Signature]	Print FEDEX	Sign [Signature]	Date/Time 27-15 1045	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By FED EX	Print [Signature]	Sign [Signature]	Date/Time	Received By [Signature]	Print	Sign	Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other

**FINAL SAMPLE DISPOSITION**  
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)  
 Disposed By  
 Date/Time

ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM



Client: CAPRC

Workorder No: 1502498

Project Manager: JK

Initials: CDT Date: 2-27-15

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?	N/A	<input checked="" type="radio"/> 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	N/A	<input checked="" type="radio"/> YES	NO
15. Do any water samples contain sediment? Amount of sediment: ___ dusting ___ moderate ___ heavy	Amount N/A	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</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.

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

Project Manager Signature / Date: JK 2/27/15

From: (509) 528-9426  
Lesly Wall  
CH2M  
6287 Latah St.  
6289 Latah St.  
Richland, WA 99354

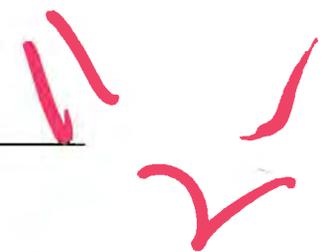
Origin ID: PSCA



J151215022303.uv

Ship Date: 25FEB15  
ActWgt: 12.0 LB  
CAD: 107068051/NET3810

1502498



SHIP TO: (970) 490-1511

BILL THIRD PARTY

Julie Ellingson  
ALS Global  
225 Commerce Drive

FORT COLLINS, CO 80524

Delivery Address Bar Code



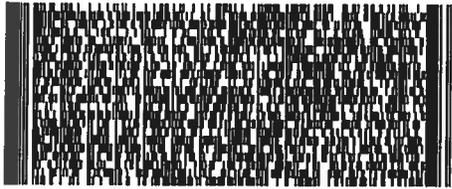
Ref # ptr# 5434  
Invoice #  
PO #  
Dept #

Amb

THU - 26 FEB 10:30A  
PRIORITY OVERNIGHT

TRK# 7729 9464 0603  
6201

DSR  
80524  
CO-US  
DEN



XH FTCA



537.2/D3CE/EE48



# Metals

## Case Narrative

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

100-KR-4, FEBRUARY 2015 – I15-013

Work Order Number: 1502498

1. This report consists of 2 water samples for total recoverable or dissolved metals.
2. The samples were received intact at ambient temperature by ALS on 02/27/15.
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, 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.
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 time.

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. 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.

9. Matrix specific quality control procedures.

Sample 1502498-1 was designated as the quality control sample 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 this batch. All acceptance criteria for accuracy were met.
- A sample duplicate and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with this ICP batch. All acceptance criteria were met.

10. Sample dilutions were not required for the requested analysis.

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

3/10/15  
Date

  
\_\_\_\_\_  
Julie Ellinger  
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.

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

Lab Name: ALS Environmental -- FC

Work Order Number: 1502498

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4, FEBRUARY 2015 I15-013

Field ID:	B30655
Lab ID:	1502498-1

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 25-Feb-15  
 Date Extracted: 04-Mar-15  
 Date Analyzed: 05-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150304-1  
 QCBatchID: IP150304-1-1  
 Run ID: IP150305-1A2  
 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
7440-36-0	ANTIMONY	1	4.8	20	4.8	U	
7440-38-2	ARSENIC	1	4.9	10	2.6	B	
7440-39-3	BARIUM	1	43	20	0.96		
7440-41-7	BERYLLIUM	1	0.67	4	0.67	U	
7440-43-9	CADMIUM	1	0.42	5	0.42	U	
7440-70-2	CALCIUM	1	51000	1000	88		
7440-47-3	CHROMIUM	1	14	10	1.2		
7440-48-4	COBALT	1	0.59	10	0.59	U	
7440-50-8	COPPER	1	7.2	8	7.2	U	
7439-89-6	IRON	1	18	50	18	U	
7439-95-4	MAGNESIUM	1	14000	750	91		
7439-96-5	MANGANESE	1	0.64	5	0.64	U	
7440-02-0	NICKEL	1	2.2	20	2.2	U	
7440-09-7	POTASSIUM	1	5500	1000	150		
7440-22-4	SILVER	1	1	10	1	U	
7440-23-5	SODIUM	1	14000	500	130		
7440-24-6	STRONTIUM	1	250	10	0.78		
7440-62-2	VANADIUM	1	12	10	1.8		
7440-66-6	ZINC	1	10	20	5.5	B	

Data Package ID: IP1502498-1

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

Lab Name: ALS Environmental -- FC

Work Order Number: 1502498

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4, FEBRUARY 2015 I15-013

Field ID:	B30649
Lab ID:	1502498-2

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 25-Feb-15  
 Date Extracted: 04-Mar-15  
 Date Analyzed: 05-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150304-1  
 QCBatchID: IP150304-1-1  
 Run ID: IP150305-1A2  
 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
7440-36-0	ANTIMONY	1	4.8	20	4.8	U	
7440-38-2	ARSENIC	1	2.6	10	2.6	U	
7440-39-3	BARIUM	1	43	20	0.96		
7440-41-7	BERYLLIUM	1	0.67	4	0.67	U	
7440-43-9	CADMIUM	1	0.42	5	0.42	U	
7440-70-2	CALCIUM	1	49000	1000	88		
7440-47-3	CHROMIUM	1	15	10	1.2		
7440-48-4	COBALT	1	0.59	10	0.59	U	
7440-50-8	COPPER	1	9.6	8	7.2		
7439-89-6	IRON	1	18	50	18	U	
7439-95-4	MAGNESIUM	1	13000	750	91		
7439-96-5	MANGANESE	1	0.64	5	0.64	U	
7440-02-0	NICKEL	1	2.2	20	2.2	U	
7440-09-7	POTASSIUM	1	5500	1000	150		
7440-22-4	SILVER	1	1	10	1	U	
7440-23-5	SODIUM	1	14000	500	130		
7440-24-6	STRONTIUM	1	250	10	0.78		
7440-62-2	VANADIUM	1	11	10	1.8		
7440-66-6	ZINC	1	20	20	5.5		

Data Package ID: IP1502498-1

## ICP Metals

## Method SW6010B

## Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1502498

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4, FEBRUARY 2015 I15-013

Lab ID: IP150304-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 04-Mar-15

Date Analyzed: 05-Mar-15

Prep Batch: IP150304-1

QCBatchID: IP150304-1-1

Run ID: IP150305-1A2

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
7440-36-0	ANTIMONY	1	4.8	20	4.8	U	
7440-38-2	ARSENIC	1	2.6	10	2.6	U	
7440-39-3	BARIUM	1	0.96	20	0.96	U	
7440-41-7	BERYLLIUM	1	0.67	4	0.67	U	
7440-43-9	CADMIUM	1	0.42	5	0.42	U	
7440-70-2	CALCIUM	1	88	1000	88	U	
7440-47-3	CHROMIUM	1	1.2	10	1.2	U	
7440-48-4	COBALT	1	0.59	10	0.59	U	
7440-50-8	COPPER	1	7.2	8	7.2	U	
7439-89-6	IRON	1	30	50	18	B	
7439-95-4	MAGNESIUM	1	91	750	91	U	
7439-96-5	MANGANESE	1	0.64	5	0.64	U	
7440-02-0	NICKEL	1	2.2	20	2.2	U	
7440-09-7	POTASSIUM	1	150	1000	150	U	
7440-22-4	SILVER	1	1	10	1	U	
7440-23-5	SODIUM	1	130	500	130	U	
7440-24-6	STRONTIUM	1	0.78	10	0.78	U	
7440-62-2	VANADIUM	1	1.8	10	1.8	U	
7440-66-6	ZINC	1	5.5	20	5.5	U	

Data Package ID: IP1502498-1

**ICP Metals****Method SW6010B****Laboratory Control Sample**

Lab Name: ALS Environmental -- FC

Work Order Number: 1502498

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4, FEBRUARY 2015 I15-013

Lab ID: IP150304-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/04/2015

Date Analyzed: 03/05/2015

Prep Method: SW3005A

Prep Batch: IP150304-1

QCBatchID: IP150304-1-1

Run ID: IP150305-1A2

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
7440-36-0	ANTIMONY	500	529	20		106	80 - 120%
7440-38-2	ARSENIC	1000	1040	10		104	80 - 120%
7440-39-3	BARIUM	1000	997	20		100	80 - 120%
7440-41-7	BERYLLIUM	50	51.9	4		104	80 - 120%
7440-43-9	CADMIUM	50	51.7	5		103	80 - 120%
7440-70-2	CALCIUM	40000	41600	1000		104	80 - 120%
7440-47-3	CHROMIUM	200	205	10		102	80 - 120%
7440-48-4	COBALT	500	500	10		100	80 - 120%
7440-50-8	COPPER	250	257	8		103	80 - 120%
7439-89-6	IRON	1000	1030	50		103	80 - 120%
7439-95-4	MAGNESIUM	40000	39800	750		100	80 - 120%
7439-96-5	MANGANESE	500	515	5		103	80 - 120%
7440-02-0	NICKEL	500	503	20		101	80 - 120%
7440-09-7	POTASSIUM	40000	38600	1000		97	80 - 120%
7440-22-4	SILVER	100	101	10		101	80 - 120%
7440-23-5	SODIUM	40000	37800	500		95	80 - 120%
7440-24-6	STRONTIUM	500	505	10		101	80 - 120%
7440-62-2	VANADIUM	500	517	10		103	80 - 120%
7440-66-6	ZINC	500	535	20		107	80 - 120%

Data Package ID: IP1502498-1

## ICP Metals

Method SW6010B

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1502498

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4, FEBRUARY 2015 I15-013

Field ID: B30655

LabID: 1502498-1MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 25-Feb-15

Date Extracted: 04-Mar-15

Date Analyzed: 05-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150304-1

QCBatchID: IP150304-1-1

Run ID: IP150305-1A2

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name:

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-36-0	ANTIMONY	4.8	U	519		20	500	104	80 - 120%
7440-38-2	ARSENIC	4.9	B	1020		10	1000	102	80 - 120%
7440-39-3	BARIUM	43		1020		20	1000	98	80 - 120%
7440-41-7	BERYLLIUM	0.67	U	50.6		4	50	101	80 - 120%
7440-43-9	CADMIUM	0.42	U	50		5	50	100	80 - 120%
7440-70-2	CALCIUM	51000		91200		1000	40000	100	80 - 120%
7440-47-3	CHROMIUM	14		215		10	200	100	80 - 120%
7440-48-4	COBALT	0.59	U	489		10	500	98	80 - 120%
7440-50-8	COPPER	7.2	U	254		8	250	101	80 - 120%
7439-89-6	IRON	18	U	1000		50	1000	100	80 - 120%
7439-95-4	MAGNESIUM	14000		52200		750	40000	97	80 - 120%
7439-96-5	MANGANESE	0.64	U	503		5	500	101	80 - 120%
7440-02-0	NICKEL	2.2	U	493		20	500	99	80 - 120%
7440-09-7	POTASSIUM	5500		43900		1000	40000	96	80 - 120%
7440-22-4	SILVER	1	U	98.8		10	100	99	80 - 120%
7440-23-5	SODIUM	14000		51500		500	40000	95	80 - 120%
7440-24-6	STRONTIUM	250		746		10	500	99	80 - 120%
7440-62-2	VANADIUM	12		513		10	500	100	80 - 120%
7440-66-6	ZINC	10	B	533		20	500	104	80 - 120%

Data Package ID: IP1502498-1

**ICP Metals****Method SW6010B****Matrix Spike And Matrix Spike Duplicate****Lab Name:** ALS Environmental -- FC**Work Order Number:** 1502498**Client Name:** CH2M HILL Plateau Remediation Company**ClientProject ID:** 100-KR-4, FEBRUARY 2015 I15-013

<b>Field ID:</b> B30655
<b>LabID:</b> 1502498-1MSD

**Sample Matrix:** WATER**% Moisture:** N/A**Date Collected:** 25-Feb-15**Date Extracted:** 04-Mar-15**Date Analyzed:** 05-Mar-15**Prep Method:** SW3005 Rev A**Prep Batch:** IP150304-1**QCBatchID:** IP150304-1-1**Run ID:** IP150305-1A2**Cleanup:** NONE**Basis:** As Received**Sample Aliquot:** 50 ml**Final Volume:** 50 ml**Result Units:** UG/L**File Name:**

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-36-0	ANTIMONY	507		500	101	20	20	2
7440-38-2	ARSENIC	1000		1000	100	10	20	2
7440-39-3	BARIUM	1020		1000	98	20	20	0
7440-41-7	BERYLLIUM	50		50	100	4	20	1
7440-43-9	CADMIUM	50.1		50	100	5	20	0
7440-70-2	CALCIUM	88000		40000	91	1000	20	4
7440-47-3	CHROMIUM	211		200	98	10	20	2
7440-48-4	COBALT	487		500	97	10	20	1
7440-50-8	COPPER	254		250	102	8	20	0
7439-89-6	IRON	1000		1000	100	50	20	0
7439-95-4	MAGNESIUM	51100		40000	94	750	20	2
7439-96-5	MANGANESE	498		500	100	5	20	1
7440-02-0	NICKEL	493		500	99	20	20	0
7440-09-7	POTASSIUM	43800		40000	96	1000	20	0
7440-22-4	SILVER	95.7		100	96	10	20	3
7440-23-5	SODIUM	51400		40000	95	500	20	0
7440-24-6	STRONTIUM	743		500	98	10	20	0
7440-62-2	VANADIUM	508		500	99	10	20	1
7440-66-6	ZINC	526		500	103	20	20	1

**Data Package ID:** IP1502498-1