

Tuesday, March 31, 2015

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

Re: ALS Workorder: 1503310  
Project Name: AQUIFER TUBES, MARCH 2015  
Project Number: X15-025

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 3/17/2015. The samples were scheduled for the following analysis:

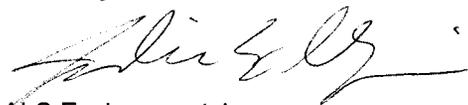
Metals

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

Revised 8/15/2013

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1503310

**Client Name:** CH2M HILL Plateau Remediation Company

**Client Project Name:** AQUIFER TUBES, MARCH 2015

**Client Project Number:** X15-025

**Client PO Number:** BOA 54854

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B30HJ5	1503310-1		WATER	12-Mar-15	8:56
B30HJ1	1503310-2		WATER	12-Mar-15	8:56

B/b/s

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
**X15-025-001**

Page 1 of 1  
50  
3/14/15

CH2MHill Plateau Remediation  
Company

Collector	J.R. Aquilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X15-025	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064
Project Title	AQUIFER TUBES, MARCH 2015	Logbook No.	HNF-N-506 72 / 67	Ice Chest No.	6WS-276
Shipped To (Lab)	ALS Environmental	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7731 3427 5856
Protocol	CERCLA	Priority:	30 Days	Offsite Property No.	5486

**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

**SPECIAL INSTRUCTIONS** Hold Time: 30 Days **PRIORITY**

Total Activity Exemption: Yes  No

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B30HJ5 ①	Y	W	3-12-15	0856	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B30HJ1 ②	N	W	3-12-15	0856	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

May 15, 2015

REV 1

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
J.R. Aquilar/CHPRC			MAR 12 2015 1240	CHPRC			MAR 12 2015 1240	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
Relinquished By	SSU #1		MAR 12 2015 1400	SSU #1			MAR 12 2015 1400	
Relinquished By	SSU #1		MAR 15 0930	CHRIS FULTON CHPRC			MAR 16 2015 0930	
Relinquished By	CHRIS FULTON CHPRC		MAR 16 2015 1400	FEDEX				

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by FEDEX Received: C Number 3-17-15 0950 A-6004-842 (REV 2)



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC

Workorder No: 1503310

Project Manager: JE

Initials: CDT Date: 3-17-15

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 of sediment: ___ dusting ___ moderate ___ heavy	Amount N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	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>12</u>			
Background µR/hr reading: <u>11</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: [Signature] 3/18/15

May 15, 2015  
1503310

From: (509) 373-3547  
chris.fulton  
CH2M  
6267 latah st  
richland, WA 99354

Origin ID: PSCA



Ship Date: 16MAR15  
ActWgt: 8.0 LB  
CAD: 107086051/NET3610

Delivery Address Bar Code



SHIP TO: (970) 498-1511  
Julie Ellingson

BILL THIRD PARTY

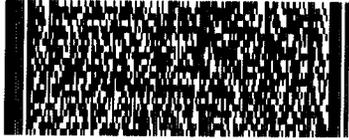
Ref # pr#5488  
Invoice #  
PO #  
Dept #

225 Commerce Drive  
FORT COLLINS, CO 80524

TUE - 17 MAR 10:30A  
PRIORITY OVERNIGHT

TRK# 7731 3427 5856  
0281

DSR  
80524  
CO-US  
DEN



XH FTCA



537J1#79AEE4B

12  
-2  
AMB

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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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.

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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**

#### **AQUIFER TUBES, MARCH 2015 – X15-025**

Work Order Number: 1503310

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 03/17/15.
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 1503310-1 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

3/24/15  
Date

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

3/30/15  
Date

**SAMPLE ISSUE RESOLUTION**

<b>SIR NUM</b>	SDR15-289
<b>REV NUM</b>	0
<b>DATE INITIATED</b>	4/28/2015

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** X15-025  
**OPERABLE UNIT(S)** NONE  
**PROJECT(S)** CERC15  
**SAMPLE EVENT TITLE(S)** CERC15  
**LABORATORY** ALS Environmental Ft. Collins

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 2  
**SAMPLE NUMBERS** B30HJ1, B30HJ5  
**SAMPLE MATRIX** WATER  
**COLLECTION DATE** 3/12/2015 - 3/12/2015  
**SDG NUM** ALS1503310

**ISSUE BACKGROUND**

**CLASS** Chain of Custody Issue (Field)  
**TYPE** Other COC issue (Specify)  
**DESCRIPTION** COC # X15-025-001; SAMPLE B30HJ5, B30HJ1.  
 Not enough receive/relinquish boxes.

**DISPOSITION**

**DESCRIPTION** DOCUMENT AND CLOSE  
**JUSTIFICATION** DOCUMENT AND CLSOE

SUBMITTED BY: Kira Murray DATE: 04/27/2015  
 ACCEPTED BY: Kirsten Killand DATE: 04/28/2015



### 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: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Field ID:	B30HJ5
Lab ID:	1503310-1

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 12-Mar-15  
 Date Extracted: 19-Mar-15  
 Date Analyzed: 23-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150319-2  
 QCBatchID: IP150319-2-7  
 Run ID: IT150323-1A6  
 Cleanup: NONE  
 Basis: As Received  
 File Name: 150323A.

Analyst: Steve Workman  
 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	5.4	20	5.4	U	
7440-38-2	ARSENIC	1	11	10	5.4		
7440-39-3	BARIUM	1	7.2	20	0.96	B	
7440-43-9	CADMIUM	1	0.75	5	0.75	U	
7440-70-2	CALCIUM	1	13000	1000	18		
7440-47-3	CHROMIUM	1	1.3	10	1.3	U	
7440-48-4	COBALT	1	1.2	10	1.2	U	
7440-50-8	COPPER	1	1.8	8	1.8	U	
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	2500	750	22		
7439-96-5	MANGANESE	1	0.91	5	0.91	U	
7440-02-0	NICKEL	1	2.9	20	2.9	U	
7440-09-7	POTASSIUM	1	1000	1000	190		
7440-22-4	SILVER	1	1.6	10	1.6	U	
7440-23-5	SODIUM	1	33000	500	49		
7440-62-2	VANADIUM	1	3.5	10	1.2	B	
7440-66-6	ZINC	1	3.9	20	2.7	B	

Data Package ID: IT1503310-1

# Total Recoverable ICP Metals

## Method SW6010B

### Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Field ID:	B30HJ1
Lab ID:	1503310-2

Sample Matrix: WATER  
 % Moisture: N/A  
 Date Collected: 12-Mar-15  
 Date Extracted: 19-Mar-15  
 Date Analyzed: 23-Mar-15  
 Prep Method: SW3005 Rev A

Prep Batch: IP150319-2  
 QCBatchID: IP150319-2-7  
 Run ID: IT150323-1A6  
 Cleanup: NONE  
 Basis: As Received  
 File Name: 150323A.

Analyst: Steve Workman  
 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	5.4	20	5.4	U	
7440-38-2	ARSENIC	1	8	10	5.4	B	
7440-39-3	BARIUM	1	8.1	20	0.96	B	
7440-43-9	CADMIUM	1	0.75	5	0.75	U	
7440-70-2	CALCIUM	1	12000	1000	18		
7440-47-3	CHROMIUM	1	1.3	10	1.3	U	
7440-48-4	COBALT	1	1.2	10	1.2	U	
7440-50-8	COPPER	1	1.8	8	1.8	U	
7439-89-6	IRON	1	33	50	16	B	
7439-95-4	MAGNESIUM	1	2500	750	22		
7439-96-5	MANGANESE	1	0.91	5	0.91	U	
7440-02-0	NICKEL	1	2.9	20	2.9	U	
7440-09-7	POTASSIUM	1	1100	1000	190		
7440-22-4	SILVER	1	1.6	10	1.6	U	
7440-23-5	SODIUM	1	36000	500	49		
7440-62-2	VANADIUM	1	3.7	10	1.2	B	
7440-66-6	ZINC	1	2.7	20	2.7	U	

Data Package ID: IT1503310-1

# ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Lab ID: FP150319-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 19-Mar-15

Date Analyzed: 23-Mar-15

Prep Batch: IP150319-2

QCBatchID: IP150319-2-7

Run ID: IT150323-1A6

Cleanup: NONE

Basis: N/A

File Name: 150323A.

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	5.4	20	5.4	U	
7440-38-2	ARSENIC	1	5.4	10	5.4	U	
7440-39-3	BARIUM	1	-1.8	20	0.96	B	
7440-43-9	CADMIUM	1	0.75	5	0.75	U	
7440-70-2	CALCIUM	1	18	1000	18	U	
7440-47-3	CHROMIUM	1	-2	10	1.3	B	
7440-48-4	COBALT	1	-1.7	10	1.2	B	
7440-50-8	COPPER	1	1.8	8	1.8	U	
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	22	750	22	U	
7439-96-5	MANGANESE	1	-2.1	5	0.91	B	
7440-02-0	NICKEL	1	2.9	20	2.9	U	
7440-09-7	POTASSIUM	1	190	1000	190	U	
7440-22-4	SILVER	1	1.6	10	1.6	U	
7440-23-5	SODIUM	1	49	500	49	U	
7440-62-2	VANADIUM	1	1.2	10	1.2	U	
7440-66-6	ZINC	1	2.7	20	2.7	U	

Data Package ID: IT1503310-1

# ICP Metals

## Method SW6010B

### Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Lab ID: FP150319-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/19/2015

Date Analyzed: 03/23/2015

Prep Method: SW3005A

Prep Batch: IP150319-2

QCBatchID: IP150319-2-7

Run ID: IT150323-1A6

Cleanup: NONE

Basis: N/A

File Name: 150323A.

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	530	20		106	80 - 120%
7440-38-2	ARSENIC	1000	1050	10		105	80 - 120%
7440-39-3	BARIUM	1000	1090	20		109	80 - 120%
7440-43-9	CADMIUM	50	53.1	5		106	80 - 120%
7440-70-2	CALCIUM	40000	41100	1000		103	80 - 120%
7440-47-3	CHROMIUM	200	209	10		105	80 - 120%
7440-48-4	COBALT	500	512	10		102	80 - 120%
7440-50-8	COPPER	250	268	8		107	80 - 120%
7439-89-6	IRON	1000	1040	50		104	80 - 120%
7439-95-4	MAGNESIUM	40000	41500	750		104	80 - 120%
7439-96-5	MANGANESE	500	532	5		106	80 - 120%
7440-02-0	NICKEL	500	552	20		110	80 - 120%
7440-09-7	POTASSIUM	40000	41700	1000		104	80 - 120%
7440-22-4	SILVER	100	105	10		105	80 - 120%
7440-23-5	SODIUM	40000	41800	500		104	80 - 120%
7440-62-2	VANADIUM	500	543	10		109	80 - 120%
7440-66-6	ZINC	500	506	20		101	80 - 120%

Data Package ID: IT1503310-1

## ICP Metals

Method SW6010B

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Field ID: B30HJ5

LabID: 1503310-1MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 12-Mar-15

Date Extracted: 19-Mar-15

Date Analyzed: 23-Mar-15

Prep Method: SW3005 Rev A

Prep Batch: IP150319-2

QC BatchID: IP150319-2-7

Run ID: IT150323-1A6

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 150323A.

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-36-0	ANTIMONY	5.4	U	530		20	500	106	80 - 120%
7440-38-2	ARSENIC	11		1050		10	1000	104	80 - 120%
7440-39-3	BARIUM	7.2	B	1080		20	1000	107	80 - 120%
7440-43-9	CADMIUM	0.75	U	52.5		5	50	105	80 - 120%
7440-70-2	CALCIUM	13000		52700		1000	40000	100	80 - 120%
7440-47-3	CHROMIUM	1.3	U	207		10	200	104	80 - 120%
7440-48-4	COBALT	1.2	U	508		10	500	102	80 - 120%
7440-50-8	COPPER	1.8	U	264		8	250	105	80 - 120%
7439-89-6	IRON	16	U	927		50	1000	93	80 - 120%
7439-95-4	MAGNESIUM	2500		43300		750	40000	102	80 - 120%
7439-96-5	MANGANESE	0.91	U	523		5	500	105	80 - 120%
7440-02-0	NICKEL	2.9	U	538		20	500	108	80 - 120%
7440-09-7	POTASSIUM	1000		45200		1000	40000	110	80 - 120%
7440-22-4	SILVER	1.6	U	105		10	100	105	80 - 120%
7440-23-5	SODIUM	33000		76800		500	40000	109	80 - 120%
7440-62-2	VANADIUM	3.5	B	540		10	500	107	80 - 120%
7440-66-6	ZINC	3.9	B	500		20	500	99	80 - 120%

Data Package ID: IT1503310-1

# ICP Metals

## Method SW6010B

### Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1503310

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: AQUIFER TUBES, MARCH 2015 X15-025

Field ID: B30HJ5 LabID: 1503310-1MSD	Sample Matrix: WATER % Moisture: N/A Date Collected: 12-Mar-15 Date Extracted: 19-Mar-15 Date Analyzed: 23-Mar-15 Prep Method: SW3005 Rev A	Prep Batch: IP150319-2 QCBatchID: IP150319-2-7 Run ID: IT150323-1A6 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 ml Final Volume: 50 ml Result Units: UG/L File Name: 150323A.
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CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-36-0	ANTIMONY	526		500	105	20	20	1
7440-38-2	ARSENIC	1040		1000	103	10	20	1
7440-39-3	BARIUM	1100		1000	109	20	20	1
7440-43-9	CADMIUM	52		50	104	5	20	1
7440-70-2	CALCIUM	52500		40000	99	1000	20	1
7440-47-3	CHROMIUM	206		200	103	10	20	1
7440-48-4	COBALT	505		500	101	10	20	1
7440-50-8	COPPER	269		250	108	8	20	2
7439-89-6	IRON	929		1000	93	50	20	0
7439-95-4	MAGNESIUM	43400		40000	102	750	20	0
7439-96-5	MANGANESE	523		500	105	5	20	0
7440-02-0	NICKEL	534		500	107	20	20	1
7440-09-7	POTASSIUM	45700		40000	112	1000	20	1
7440-22-4	SILVER	105		100	105	10	20	0
7440-23-5	SODIUM	76900		40000	109	500	20	0
7440-62-2	VANADIUM	541		500	108	10	20	0
7440-66-6	ZINC	494		500	98	20	20	1

Data Package ID: IT1503310-1