



August 4, 2016
ALS1607376

Ft. Collins, Colorado

LIMS Version: 6.821

Page 1 of 1

Thursday, August 04, 2016

Laine Sumner
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1607376
Project Name: 200W Pump & Treat - Treatment Plant Water Sampling
Project Number: F16-046

Dear Ms. Sumner:

One water sample was received from CH2M HILL Plateau Remediation Company, on 7/21/2016. The sample was scheduled for the following analyses:

Metals

Inorganics

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

August 4, 2016

ALS1607376

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1607376

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: 200W Pump & Treat - Treatment Plant Water Sampling

Client Project Number: F16-046

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B36275	1607376-1		WATER	20-Jul-16	10:15



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC

Workorder No: 1607376

Project Manager: JK

Initials: CDT Date: 7-21-16

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*: #2 <input checked="" type="radio"/> #4 <input checked="" type="radio"/> RAD ONLY <input checked="" type="radio"/>		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>3.0</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: *JK* 7/22/16

August 4, 2016
ALST1607376

12-20-3.0
1607376

SHIP DATE: 20 JUL 16
ACT WT: 76.00 LB
CAD: 107066051/NET3790

ORIGIN ID: PSCA (509) 373-3580
JANELLE ZUNKER
C-201
6289 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: 6847

(970) 490-1511
NV
PO

DEPT.



THU - 21 JUL 10:30A

PRIORITY OVERNIGHT

TRK# 7768 0425 3386

DSR

80524

XH FTCA

CO-US

DEN



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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Metals Case Narrative

CH2M HILL Plateau Remediation Company

200W Pump & Treat – Treatment Plant Water Sampling – F16-046

Work Order Number: 1607376

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 07/21/16.
3. The sample had a pH less than 2 upon receipt.
4. The sample was prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by Trace ICP and ICP-MS, the sample was 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 sample was 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 sample in each digestion batch.
 - The preparation (method) blank associated with each digestion batch was below the reporting limit for the requested analytes. Aluminum and iron were detected above the MDL. 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 1607376-1 was designated as the quality control sample for each 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 each batch. All acceptance criteria for accuracy were met.
- Matrix spike recoveries could not be evaluated for the following analyte:

<u>Analyte</u>	<u>Sample ID</u>
Manganese	1607376-1

The concentration of this analyte in the native sample was greater than four times the concentration of matrix spike added during the digestion. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The laboratory control sample indicates that the digestion and analysis were in control.

- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met with the following exception:

<u>Analyte</u>	<u>Sample ID</u>
Molybdenum	1607376-1L

The native sample result is flagged for serial dilution failure.

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
Jill Latelle
Inorganics Primary Data Reviewer

7/31/16
Date

Audie Elliza
Inorganics Final Data Reviewer

7/31/16
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 $\leq 20X$ 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 -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Field ID:	B36275
Lab ID:	1607376-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-1
Run ID: IP160728-1A2
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
7440-42-8	BORON	1	40	30	11		
7440-70-2	CALCIUM	1	62000	1000	51		
7439-89-6	IRON	1	190	50	16	C	
7439-95-4	MAGNESIUM	1	20000	750	58		
7440-09-7	POTASSIUM	1	6400	1000	86		
7440-23-5	SODIUM	1	27000	500	61		

Data Package ID: *ip1607376-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Field ID:	B36275
Lab ID:	1607376-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-2
Run ID: IM160728-12A3
Cleanup: NONE
Basis: As Received
File Name: 056SMPL_

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

Analysis ReqCode: 6020_METALS_I

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	21	100	14	BC	
7440-47-3	CHROMIUM	10	1.3	10	1.1	B	
7440-48-4	COBALT	10	100	5	0.07		
7440-50-8	COPPER	10	18	8	1.1		
7439-96-5	MANGANESE	10	790	5	0.3		
7439-98-7	MOLYBDENUM	10	22	2	0.41		E
7440-02-0	NICKEL	10	19	20	4.2	B	
7782-49-2	SELENIUM	10	3.5	10	0.66	B	
7440-61-1	URANIUM	10	0.91	0.1	0.027		
7440-66-6	ZINC	10	16	100	9.1	B	

Data Package ID: im1607376-1

August 4, 2016
ALS1607376

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Lab ID: IP160727-4MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Jul-16

Date Analyzed: 28-Jul-16

Prep Batch: IP160727-4

QCBatchID: IP160727-4-1

Run ID: IP160728-1A2

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
7440-42-8	BORON	1	11	30	11	U	
7440-70-2	CALCIUM	1	51	1000	51	U	
7439-89-6	IRON	1	48	50	16	B	
7440-09-7	POTASSIUM	1	86	1000	86	U	
7440-23-5	SODIUM	1	61	500	61	U	

Data Package ID: ip1607376-1

Date Printed: Sunday, July 31, 2016

ALS -- Fort Collins

Page 1 of 2

LIMS Version: 6.820

12 of 25 of 25

August 4, 2016
ALS1607376

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Lab ID: IP160727-4MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Jul-16

Date Analyzed: 29-Jul-16

Prep Batch: IP160727-4

QCBatchID: IP160727-4-1

Run ID: IP160729-1A5

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
7439-95-4	MAGNESIUM	1	58	750	58	U	

Data Package ID: ip1607376-1

Date Printed: Sunday, July 31, 2016

ALS -- Fort Collins

Page 2 of 2

LIMS Version: 6.820

13 of 25 of 25

August 4, 2016
ALS1607376

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Lab ID: IP160727-4LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/27/2016

Date Analyzed: 07/28/2016

Prep Method: SW3005A

Prep Batch: IP160727-4

QC Batch ID: IP160727-4-1

Run ID: IP160728-1A2

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
7440-42-8	BORON	1000	1010	30		101	80 - 120%
7440-70-2	CALCIUM	40000	41600	1000		104	80 - 120%
7439-89-6	IRON	1000	987	50		99	80 - 120%
7439-95-4	MAGNESIUM	40000	38300	750		96	80 - 120%
7440-09-7	POTASSIUM	40000	39700	1000		99	80 - 120%
7440-23-5	SODIUM	40000	41100	500		103	80 - 120%

Data Package ID: ip1607376-1

Date Printed: Sunday, July 31, 2016

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.820

14 of 25 of 25

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-

Field ID: B36275
LabID: 1607376-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-1
Run ID: IP160728-1A2
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
7440-42-8	BORON	40		1030		30	1000	99	80 - 120%
7440-70-2	CALCIUM	62000		102000		1000	40000	99	80 - 120%
7439-89-6	IRON	190	C	1200		50	1000	100	80 - 120%
7439-95-4	MAGNESIUM	20000		59200		750	40000	98	80 - 120%
7440-09-7	POTASSIUM	6400		48800		1000	40000	106	80 - 120%
7440-23-5	SODIUM	27000		69900		500	40000	107	80 - 120%

Field ID: B36275
LabID: 1607376-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-1
Run ID: IP160728-1A2
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
7440-42-8	BORON	1030		1000	99	30	20	0
7440-70-2	CALCIUM	101000		40000	97	1000	20	1
7439-89-6	IRON	1220		1000	103	50	20	2
7439-95-4	MAGNESIUM	59000		40000	97	750	20	0
7440-09-7	POTASSIUM	48700		40000	106	1000	20	0
7440-23-5	SODIUM	69700		40000	107	500	20	0

Data Package ID: ip1607376-1

August 4, 2016
ALS1607376

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Lab ID: IP160727-4MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Jul-16

Date Analyzed: 28-Jul-16

Prep Batch: IP160727-4

QCBatchID: IP160727-4-2

Run ID: IM160728-12A3

Cleanup: NONE

Basis: N/A

File Name: 054SMPL_

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	100	14	B	
7440-47-3	CHROMIUM	10	1.1	10	1.1	U	
7440-48-4	COBALT	10	0.07	5	0.07	U	
7440-50-8	COPPER	10	1.1	8	1.1	U	
7439-96-5	MANGANESE	10	0.3	5	0.3	U	
7439-98-7	MOLYBDENUM	10	0.41	2	0.41	U	
7440-02-0	NICKEL	10	4.2	20	4.2	U	
7782-49-2	SELENIUM	10	0.66	10	0.66	U	
7440-61-1	URANIUM	10	0.027	0.1	0.027	U	
7440-66-6	ZINC	10	9.1	100	9.1	U	

Data Package ID: im1607376-1

Date Printed: Sunday, July 31, 2016

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.820

16 of 25

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-046

Lab ID: IM160727-4LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/27/2016

Date Analyzed: 07/28/2016

Prep Method: SW3005A

Prep Batch: IP160727-4

QCBatchID: IP160727-4-2

Run ID: IM160728-12A3

Cleanup: NONE

Basis: N/A

File Name: 055SMPL_

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	5010	100		100	80 - 120%
7440-47-3	CHROMIUM	500	516	10		103	80 - 120%
7440-48-4	COBALT	100	106	5		106	80 - 120%
7440-50-8	COPPER	1000	1070	8		107	80 - 120%
7439-96-5	MANGANESE	100	105	5		105	80 - 120%
7439-98-7	MOLYBDENUM	100	102	2		102	80 - 120%
7440-02-0	NICKEL	500	523	20		105	80 - 120%
7782-49-2	SELENIUM	100	103	10		103	80 - 120%
7440-61-1	URANIUM	10	10.4	0.1		104	80 - 120%
7440-66-6	ZINC	2000	2040	100		102	80 - 120%

Data Package ID: im1607376-1

August 4, 2016
ALS1607376

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-

Field ID: B36275
LabID: 1607376-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-2
Run ID: IM160728-12A3
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 059SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	21	BC	4990		100	5000	99	75 - 125%
7440-47-3	CHROMIUM	1.3	B	523		10	500	104	75 - 125%
7440-48-4	COBALT	100		209		5	100	108	75 - 125%
7440-50-8	COPPER	18		1050		8	1000	103	75 - 125%
7439-96-5	MANGANESE	790		934		5	100	148	75 - 125%
7439-98-7	MOLYBDENUM	22		126		2	100	103	75 - 125%
7440-02-0	NICKEL	19	B	538		20	500	104	75 - 125%
7782-49-2	SELENIUM	3.5	B	105		10	100	102	75 - 125%
7440-61-1	URANIUM	0.91		11.3		0.1	10	104	75 - 125%
7440-66-6	ZINC	16	B	2060		100	2000	102	75 - 125%

Data Package ID: *im1607376-1*

August 4, 2016
ALS1607376

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-

Field ID: B36275
LabID: 1607376-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-4
QCBatchID: IP160727-4-2
Run ID: IM160728-12A3
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 060SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMNUM	4860		5000	97	100	20	3
7440-47-3	CHROMIUM	504		500	101	10	20	4
7440-48-4	COBALT	204		100	103	5	20	2
7440-50-8	COPPER	1040		1000	102	8	20	1
7439-96-5	MANGANESE	914		100	128	5	20	2
7439-98-7	MOLYBDENUM	124		100	101	2	20	1
7440-02-0	NICKEL	525		500	101	20	20	2
7782-49-2	SELENIUM	105		100	102	10	20	0
7440-61-1	URANIUM	11.1		10	102	0.1	20	2
7440-66-6	ZINC	2010		2000	100	100	20	2

Data Package ID: *im1607376-1*



Inorganics Case Narrative

CH2M HILL Plateau Remediation Company 200W Pump & Treat - Treatment Plant Water Sampling -- F16-046

Work Order Number: 1607376

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 07/21/16.
3. The sample had been correctly preserved for the requested analysis.
4. The sample was prepared for analysis based on SW-846-9010, 3rd Edition procedures.
5. The sample was analyzed following SW-846 procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Total cyanide	9014	1110

6. All standards and solutions were used within their recommended shelf life.
7. The sample was prepared and analyzed within the established hold time for this analysis.

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

8. General quality control procedures.
 - n A preparation (method) blank, laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were prepared and analyzed with the samples in this preparation batch.
 - n The method blank associated with this batch was below the reporting limit for the requested analyte.
 - n All laboratory control sample criteria were met.



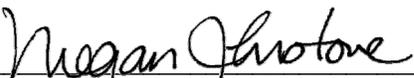
- n All initial and continuing calibration blanks were below the reporting limit for the requested analyte.
- n All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.

9. Matrix specific quality control procedures.

Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

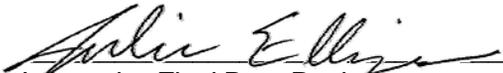
10. Sample dilutions were not required for the requested analysis.

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.



Megan Johnstone
Inorganics Primary Data Reviewer

7/30/16
Date



Arlic E. Ellinger
Inorganics Final Data Reviewer

7/31/16
Date



Inorganic Data Reporting Qualifiers

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

- Concentration 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 ALS's Method Detection Limit. If the analyte was analyzed for but not detected a "U" is entered.
- 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.

August 4, 2016
ALS1607376

Total Cyanide

Method SW9014

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-04

Field ID: B36275	Sample Matrix: WATER	Prep Batch: CN160728-1	Analyst: Kristina L. Peters
Lab ID: 1607376-1	% Moisture: N/A	QC Batch ID: CN160728-1-1	Sample Aliquot: 50 ml
	Date Collected: 20-Jul-16	Run ID: CN160729-1A3	Final Volume: 50 ml
	Date Extracted: 28-Jul-16	Cleanup: NONE	Result Units: UG/L
Analysis ReqCode: 9010_CYANIDE:	Date Analyzed: 29-Jul-16	Basis: As Received	Clean DF: 1
	Prep Method: SW9010 Rev B	File Name: Manual Entry	

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
57-12-5	CYANIDE, TOTAL	1	12	10	3.6		

Data Package ID: cn1607376-1

Date Printed: Saturday, July 30, 2016

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.820

August 4, 2016
ALS1607376

Total Cyanide

Method SW9014

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-04

Lab ID: CN160728-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 28-Jul-16

Date Analyzed: 29-Jul-16

Prep Batch: CN160728-1

QCBatchID: CN160728-1-1

Run ID: CN160729-1A3

Cleanup: NONE

Basis: N/A

File Name: Manual Entry

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
57-12-5	CYANIDE, TOTAL	1	3.6	10	3.6	U	

Data Package ID: *cn1607376-1*

Date Printed: Saturday, July 30, 2016

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.820

Total Cyanide

Method SW9014

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607376

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 200W Pump & Treat - Treatment Plant Water Sampling F16-04

Lab ID: CN160728-1LCS	Sample Matrix: WATER % Moisture: N/A Date Collected: N/A Date Extracted: 07/28/2016 Date Analyzed: 07/29/2016 Prep Method: SW9010B	Prep Batch: CN160728-1 QCBatchID: CN160728-1-1 Run ID: CN160729-1A3 Cleanup: NONE Basis: N/A File Name: Manual Entry	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
57-12-5	CYANIDE, TOTAL	200	184	10		92	85 - 115%

Lab ID: CN160728-1LCSD	Sample Matrix: WATER % Moisture: N/A Date Collected: N/A Date Extracted: 07/28/2016 Date Analyzed: 07/29/2016 Prep Method: SW9010B	Prep Batch: CN160728-1 QCBatchID: CN160728-1-1 Run ID: CN160729-1A3 Cleanup: NONE Basis: N/A File Name: Manual Entry	Sample Aliquot: 50 ml Final Volume: 50 ml Result Units: UG/L Clean DF: 1
------------------------	---	---	---

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
57-12-5	CYANIDE, TOTAL	400	375	10		94	30	2

Data Package ID: *cn1607376-1*