



Friday, October 18, 2019

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
825 Jadwin Avenue
Richland, WA 99352

Re: ALS Workorder: 1909440
Project Name: Uranium Sequestration, September
Project Number: X19-084

Dear Ms. Waters-Husted:

Seven water samples were received from CH2M HILL Plateau Remediation Company, on 9/21/2019. The samples were scheduled for the following analyses:

- Inorganics
- 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
Katie M. O'Brien
Project Manager

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1909440

Client Name: CH2M HILL Plateau Remediation Company

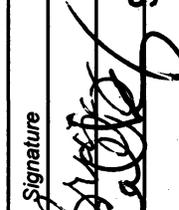
Client Project Name: Uranium Sequestration, September

Client Project Number: X19-084

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B3RB46	1909440-1		WATER	20-Sep-19	10:32
B3RB81	1909440-2		WATER	20-Sep-19	6:45
B3RB74	1909440-3		WATER	20-Sep-19	6:45
B3RB75	1909440-4		WATER	20-Sep-19	9:02
B3RB82	1909440-5		WATER	20-Sep-19	9:02
B3RB79	1909440-6		WATER	20-Sep-19	6:45
B3RB80	1909440-7		WATER	20-Sep-19	9:02

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# X19-084-003	
		1902440		Page 1 of 1	
Collector:	Barb Briggs /CHPRC	Contact/Requester:	Karen Waters-Husted		
SAF No.:	X19-084	Sampling Origin:	Hanford Site		
Project Title:	Uranium Sequestration, Septemb	Logbook No.:	HNF-N-506 109/41		
Shipped To (Lab):	ALS Environmental Ft. Collins	Method of Shipment	Commercial Carrier		
Protocol:	CERCLA	Priority:	30 Days		
POSSIBLE SAMPLE HAZARDS/REMARK		SPECIAL INSTRUCTIONS			
** ** 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		N/A			
Sample No.	B3RB46	Filter	N	Date	SEP 20 2019 1032
Time	1032	No/Type Container	1x250-mL G/P		
Sample Analysis		Sample Analysis		Holding Time	14 Days
		2320_ALKALINITY: GW 01		Preservative	COOL <=6C

Relinquished By		Received By		Matrix *	
Print First and Last Name	Signature	Print First and Last Name	Signature	S = Soil	DS = Drum Solids
Barb Briggs /CHPRC		Tim Callaway /CHPRC		SE = Sediment	DL = Drum Liquids
SEP 20 2019 1400		FEDEX	SEP 20 2019	SO = Solid	T = Tissue
SEP 20 2019		Erik Evans	SEP 21 2019	SL = Sludge	WI = Wipe
				W = Water	L = Liquid
				O = Oil	V = Vegetation
				A = Air	X = Other

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

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# X19-084-051	
Mike Esparza /CHPRC		1909440		Page 1 of 1	
Collector:	Mike Esparza /CHPRC	Contact/Requester:	Karen Waters-Husted		
SAF No.:	X19-084	Sampling Origin:	Hanford Site		
Project Title:	Uranium Sequestration, Septemb	Logbook No.:	HNF-N-506 ~111/28		
Shipped To (Lab):	ALS Environmental Ft. Collins	Method of Shipment	Commercial Carrier		
Protocol:	CERCLA	Priority:	30 Days		
POSSIBLE SAMPLE HAZARDS/REMARK		SPECIAL INSTRUCTIONS			
** ** 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		N/A			
Sample No.	Filter	* Time	No/Type Container	Sample Analysis	Holding Time
B3RB80	N	SEP 20 2019 0902	1x125-mL P	300.0_ANIONS_IC: COMMON; 300.0_ANIONS_IC: GW 01	48 Hours
					Preservative
					Cool <=6C

7

Relinquished By		Received By		Matrix *	
Print First and Last Name	Signature	Print First and Last Name	Signature	S = Soil	DS = Drum Solids
Mike Esparza /CHPRC	<i>[Signature]</i>	Tim O'Connell /CHPRC	<i>[Signature]</i>	SE = Sediment	DL = Drum Liquids
Tim Caraway /CHPRC	<i>[Signature]</i>	Eric Evans	<i>[Signature]</i>	SO = Solid	T = Tissue
				SL = Sludge	WI = Wipe
				W = Water	L = Liquid
				O = Oil	V = Vegetation
				A = Air	X = Other

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

SHIP DATE: 20SEP19
ACTWGT: 87.00 LB
CAD: 10706605/INET4160

BILL THIRD PARTY

ORIGIN ID: PSCA (509) 531-0450
TROY BACON
CH2M
6287 LATAH ST.
RICHLAND, WA 99352
UNITED STATES US

TO
JULIE ELLINGSON
ALS GLOBAL-FORT COLLINS
225 COMMERCE DR.

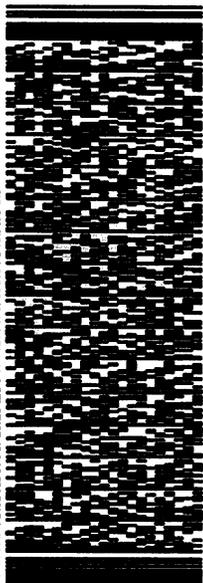
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FORT COLLINS CO 80524

REF: PTR811648

(970) 490-1511
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PO:

DEPT:



SATURDAY 12:00P

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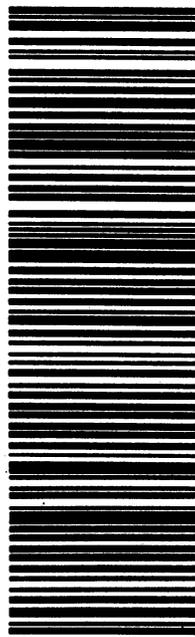
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SHIP DATE: 20SEP19
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CAD: 107066051/NET4160

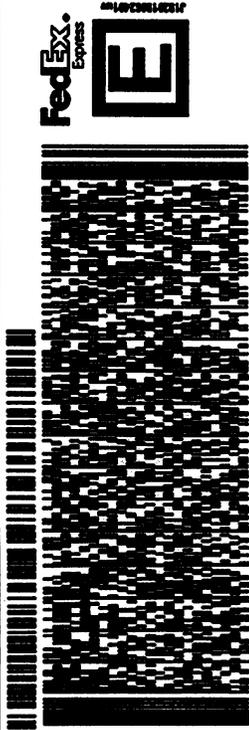
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(970) 490-1511 REF: PTRR11648

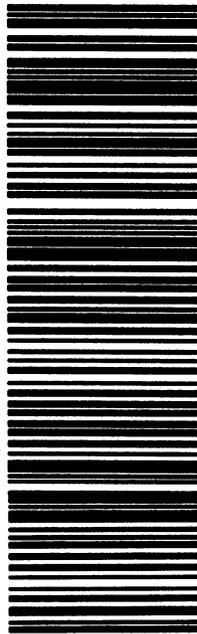
NW: PC DEPT:



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2 of 2
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Mstr# 7763 0044 0029

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 CH2M
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 RICHLAND, WA 98522
 UNITED STATES US

SHIP DATE: 20SEP19
 ACT WGT: 66.00 LB
 CAD: 10706605/IN/ET4160

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laqnuu

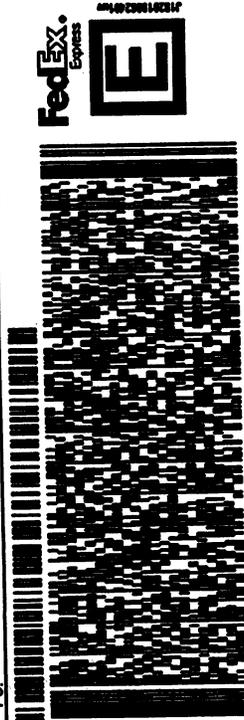
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 REF: PTR#1628

01a

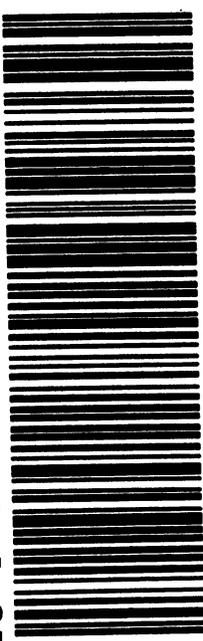
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Inorganics

Case Narrative

CH2M HILL Plateau Remediation Company

Uranium Sequestration, September -- X19-084

Work Order Number: 1909440

1. The samples were prepared for analysis based on Environmental Monitoring Systems Laboratory (EMSL) Rev 2.1 procedures and Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998 procedures.
2. The samples were analyzed following EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bromide	300.0 Revision 2.1	1113
Chloride	300.0 Revision 2.1	1113
Fluoride	300.0 Revision 2.1	1113
Nitrate as N	300.0 Revision 2.1	1113
Nitrite as N	300.0 Revision 2.1	1113
Orthophosphate as P	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

3. All standards and solutions were used within their recommended shelf life.
4. The samples were prepared and analyzed within the established hold time for each analysis except nitrate as N, nitrite as N, and orthophosphate as P which were analyzed outside of time.

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

5. General quality control procedures.
 - A preparation (method) blank, laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were prepared and analyzed with the samples in each applicable preparation batch.



- The method blank associated with each batch was below the reporting limit for the requested analytes. Sample results have been compared to the blank results and are flagged as appropriate.
- 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.

6. Matrix specific quality control procedures.

Sample 1909440-7 was designated as the quality control sample for the anion analysis.

Sample 1909379-1 was designated as the quality control sample for the total alkalinity analysis. Results for the shared quality control samples from the batch are included at the client's request.

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 (MS) was prepared and analyzed with the anion batch. All guidance criteria for precision and accuracy were met with the following exception:

<u>Analyte</u>	<u>Sample ID</u>
Nitrite as N	1909440-7MS
Orthophosphate as P	1909440-7MS

The native sample results are flagged for nitrite as N and orthophosphate as P. The laboratory control samples indicate that the procedures were in control.

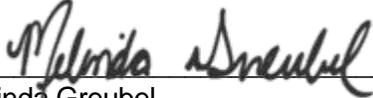
- A sample duplicate was prepared and analyzed with the total alkalinity batch. All guidance criteria for precision were met.
7. A reduced aliquot was taken of sample 1909440-1 for the total alkalinity analysis. Reporting limits were elevated accordingly.

It is a standard practice that samples for CHPRC on the ion chromatograph are analyzed at a dilution. The 2X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution.

8. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.



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.



Melinda Greubel
Inorganics Primary Data Reviewer

10/15/19
Date



Kath M. O.
Inorganics Final Data Reviewer

10/18/19
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.

BICARBONATE AS CaCO₃**Method SM2320B****Sample Results**

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: Uranium Sequestration, September X19-084
Work Order Number: 1909440 **Final Volume:** 100 ml
Reporting Basis: As Received **Matrix:** WATER
Prep Method: NONE **Result Units:** MG/L
Analyst: Lisa M. Champagne

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	Flag	Sample Aliquot
B3RB46	1909440-1	09/20/2019	09/26/2019	09/26/2019	N/A	1	150	20		25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

CARBONATE AS CaCO₃**Method SM2320B****Sample Results**

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: Uranium Sequestration, September X19-084
Work Order Number: 1909440 **Final Volume:** 100 ml
Reporting Basis: As Received **Matrix:** WATER
Prep Method: NONE **Result Units:** MG/L
Analyst: Lisa M. Champagne

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	Flag	Sample Aliquot
B3RB46	1909440-1	09/20/2019	09/26/2019	09/26/2019	N/A	1	20	20	U	25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

HYDROXIDE AS CaCO₃**Method SM2320BH****Sample Results**

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: Uranium Sequestration, September X19-084
Work Order Number: 1909440 **Final Volume:** 100 ml
Reporting Basis: As Received **Matrix:** WATER
Prep Method: NONE **Result Units:** MG/L
Analyst: Lisa M. Champagne

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	Flag	Sample Aliquot
B3RB46	1909440-1	09/20/2019	09/26/2019	09/26/2019	N/A	1	20	20	U	25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

TOTAL ALKALINITY AS CaCO₃**Method SM2320B****Sample Results**

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: Uranium Sequestration, September X19-084
Work Order Number: 1909440 **Final Volume:** 100 ml
Reporting Basis: As Received **Matrix:** WATER
Prep Method: NONE **Result Units:** MG/L
Analyst: Lisa M. Champagne

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	Flag	Sample Aliquot
B3RB46	1909440-1	09/20/2019	09/26/2019	09/26/2019	N/A	1	150	20		25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB79
Lab ID:	1909440-6

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 23-Sep-19

Date Analyzed: 23-Sep-19

Prep Method: NONE

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: As Received

File Name: 190923IC3LIMS

Analyst: Keli J. Smith

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
16984-48-8	FLUORIDE AnalysisTime: 18:41	2	0.06	U	0.2	0.06
16887-00-6	CHLORIDE AnalysisTime: 18:41	2	0.12	U	0.4	0.12
14797-65-0	NITRITE AS N AnalysisTime: 18:41	2	0.067	B	0.2	0.06
14797-55-8	NITRATE AS N AnalysisTime: 18:41	2	0.12	U	0.4	0.12
14265-44-2	ORTHOPHOSPHATE AS P AnalysisTime: 18:41	2	0.3	U	1	0.3
14808-79-8	SULFATE AnalysisTime: 18:41	2	0.7	B	2	0.6

Data Package ID: IC1909440-1

Date Printed: Tuesday, October 15, 2019

ALS -- Fort Collins

Page 1 of 2

LIMS Version: 6.912

Ion Chromatography

Method EPA300.0 Revision 2.1

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB80
Lab ID:	1909440-7

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 23-Sep-19

Date Analyzed: 23-Sep-19

Prep Method: NONE

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: As Received

File Name: 190923IC3LIMS

Analyst: Keli J. Smith

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
16984-48-8	FLUORIDE AnalysisTime: 18:53	2	0.32		0.2	0.06
16887-00-6	CHLORIDE AnalysisTime: 18:53	2	27		0.4	0.12
14797-65-0	NITRITE AS N AnalysisTime: 18:53	2	0.2	N	0.2	0.06
14797-55-8	NITRATE AS N AnalysisTime: 18:53	2	5.7		0.4	0.12
14265-44-2	ORTHOPHOSPHATE AS P AnalysisTime: 18:53	2	4.5	N	1	0.3
14808-79-8	SULFATE AnalysisTime: 18:53	2	57		2	0.6

Data Package ID: IC1909440-1

Date Printed: Tuesday, October 15, 2019

ALS -- Fort Collins

Page 2 of 2

LIMS Version: 6.912

BICARBONATE AS CaCO3

Method SM2320B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: AK190926-2MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK190926-2
QCBatchID: AK190926-2-1
Run ID: AK190926-1A1
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ	Flag
AK190926-2MB	9/26/2019	09/26/2019	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

CARBONATE AS CaCO3

Method SM2320B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: AK190926-2MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK190926-2
QCBatchID: AK190926-2-1
Run ID: AK190926-1A1
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ	Flag
AK190926-2MB	9/26/2019	09/26/2019	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

HYDROXIDE AS CaCO3

Method SM2320BH

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: AK190926-2MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK190926-2
QCBatchID: AK190926-2-1
Run ID: AK190926-1A1
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ	Flag
AK190926-2MB	9/26/2019	09/26/2019	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

TOTAL ALKALINITY AS CaCO3

Method SM2320B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: AK190926-2MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK190926-2
QCBatchID: AK190926-2-1
Run ID: AK190926-1A1
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ	Flag
AK190926-2MB	9/26/2019	09/26/2019	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

TOTAL ALKALINITY AS CaCO3

Method SM2320B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: AK190926-2LCS

Sample Matrix: WATER

Prep Batch: AK190926-2

Sample Aliquot: 100 ml

% Moisture: N/A

QCBatchID: AK190926-2-1

Final Volume: 100 ml

Date Collected: N/A

Run ID: AK190926-1A1

Result Units: MG/L

Date Extracted: 09/26/2019

Cleanup: NONE

Date Analyzed: 09/26/2019

Basis: N/A

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
3812-32-6	TOTAL ALKALINITY AS CaCO3	100	107	5		106	85 - 115

Data Package ID: *AK1909440-1*

BICARBONATE AS CaCO3**Method SM2320B****Duplicate Sample Results****Lab Name:** ALS -- Fort Collins**Work Order Number:** 1909440**Client Name:** CH2M HILL Plateau Remediation Company**ClientProject ID:** Uranium Sequestration, September X19-084**Reporting Basis:** As Received**Sample Aliquot:** 25 ml**Final Volume:** 100ml**Matrix:** WATER**Result Units:** MG/L

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Dup Qual	Sample Result	Samp Qual	Reporting Limit	RPD	RPD Limit
SHARED QC	1909379-1D	09/26/2019	09/26/2019	1	101		110		20	12	15

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

CARBONATE AS CaCO₃**Method SM2320B****Duplicate Sample Results****Lab Name:** ALS -- Fort Collins**Work Order Number:** 1909440**Client Name:** CH2M HILL Plateau Remediation Company**ClientProject ID:** Uranium Sequestration, September X19-084**Reporting Basis:** As Received**Sample Aliquot:** 25 ml**Final Volume:** 100ml**Matrix:** WATER**Result Units:** MG/L

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Dup Qual	Sample Result	Samp Qual	Reporting Limit	RPD	RPD Limit
SHARED QC	1909379-1D	09/26/2019	09/26/2019	1	20	U	20	U	20		15

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1**Date Printed:** Tuesday, October 15, 2019**ALS -- Fort Collins**

Page 2 of 4

LIMS Version: 6.912

HYDROXIDE AS CaCO3**Method SM2320BH****Duplicate Sample Results****Lab Name:** ALS -- Fort Collins**Work Order Number:** 1909440**Client Name:** CH2M HILL Plateau Remediation Company**ClientProject ID:** Uranium Sequestration, September X19-084**Reporting Basis:** As Received**Sample Aliquot:** 25 ml**Final Volume:** 100ml**Matrix:** WATER**Result Units:** MG/L

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Dup Qual	Sample Result	Samp Qual	Reporting Limit	RPD	RPD Limit
SHARED QC	1909379-1D	09/26/2019	09/26/2019	1	20	U	20	U	20		15

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1**Date Printed:** Tuesday, October 15, 2019**ALS -- Fort Collins**

Page 3 of 4

LIMS Version: 6.912

TOTAL ALKALINITY AS CaCO₃**Method SM2320B****Duplicate Sample Results****Lab Name:** ALS -- Fort Collins**Work Order Number:** 1909440**Client Name:** CH2M HILL Plateau Remediation Company**ClientProject ID:** Uranium Sequestration, September X19-084**Reporting Basis:** As Received**Sample Aliquot:** 25 ml**Final Volume:** 100ml**Matrix:** WATER**Result Units:** MG/L

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Dup Qual	Sample Result	Samp Qual	Reporting Limit	RPD	RPD Limit
SHARED QC	1909379-1D	09/26/2019	09/26/2019	1	101		110		20	12	15

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: AK1909440-1

Prep Batch ID: AK190926-2

Start Date: 09/26/19 Start Time: 14:00 Prep Analyst: Lisa M. Champagne Comments: <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	End Date: 09/26/19 End Time: 16:32	Concentration Method: NONE Extract Method: NONE Initial Volume Units: ml Final Volume Units: ml	Batch Created By: lmc Date Created: 09/26/19 Time Created: 16:32 Validated By: lmc Date Validated: 09/27/19 Time Validated: 9:51
---	---	--	---

QC Batch ID: AK190926-2-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
AK190926-2	MB	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1909379
AK190926-2	LCS	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1909379
1909338-2	DUP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909338
1909379-1	DUP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909379
1909338-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909338
1909338-2	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909338
1909338-3	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909338
1909379-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909379
1909395-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909395-2	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909395-3	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909395-4	SMP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1909395
1909395-5	SMP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1909395
1909395-6	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909395-7	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909395-8	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909395
1909404-4	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909404
1909404-5	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909404
1909404-7	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909404
1909405-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909405
1909440-1	SMP	B3RB46	WATER	9/20/2019	25	100	NONE	1	1909440
1909486-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1909486

Prep Batch ID: AK190926-2

Start Date: 09/26/19	End Date: 09/26/19	Concentration Method: NONE	Batch Created By: lmc
Start Time: 14:00	End Time: 16:32	Extract Method: NONE	Date Created: 09/26/19
Prep Analyst: Lisa M. Champagne		Initial Volume Units: ml	Time Created: 16:32
Comments:		Final Volume Units: ml	Validated By: lmc
			Date Validated: 09/27/19
			Time Validated: 9:51

QC Types

CAR	Carrier reference sample		DLS	Detection Limit Standard	
DUP	Laboratory Duplicate		LCS	Laboratory Control Sample	
LCSD	Laboratory Control Sample Duplicat		LODV	Limit of Detection Verification	
LOQV	Limit of Quantitation Verification		MB	Method Blank	
MS	Laboratory Matrix Spike		MSD	Laboratory Matrix Spike Duplicate	
REP	Sample replicate		RVS	Reporting Level Verification Standar	
SMP	Field Sample		SYS	Sample Yield Spike	

Ion Chromatography

Method EPA300.0 Revision 2.1

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IC190923-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 23-Sep-19

Date Analyzed: 23-Sep-19

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: N/A

File Name: 190923IC3LIMS

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
16984-48-8	FLUORIDE	1	0.03	U	0.1	0.03
16887-00-6	CHLORIDE	1	0.06	U	0.2	0.06
14797-65-0	NITRITE AS N	1	0.03	U	0.1	0.03
14797-55-8	NITRATE AS N	1	0.06	U	0.2	0.06
14265-44-2	ORTHOPHOSPHATE AS P	1	0.15	U	0.5	0.15
14808-79-8	SULFATE	1	0.3	U	1	0.3

Data Package ID: IC1909440-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IC190923-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/23/2019

Date Analyzed: 09/23/2019

Prep Method: NONE

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: N/A

File Name: 190923IC3LIMS

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
16984-48-8	FLUORIDE	5	5.07	0.1		101	90 - 110%
16887-00-6	CHLORIDE	10	10.3	0.2		103	90 - 110%
14797-65-0	NITRITE AS N	5	5.09	0.1		102	90 - 110%
14797-55-8	NITRATE AS N	10	10.1	0.2		101	90 - 110%
14265-44-2	ORTHOPHOSPHATE AS P	10	10.4	0.5		104	90 - 110%
14808-79-8	SULFATE	50	50.9	1		102	90 - 110%

Lab ID: IC190923-1LCS D

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/23/2019

Date Analyzed: 09/23/2019

Prep Method: NONE

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: N/A

File Name: 190923IC3LIMS

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
16984-48-8	FLUORIDE	5	5.13	0.1		103	15	1
16887-00-6	CHLORIDE	10	10.3	0.2		103	15	0
14797-65-0	NITRITE AS N	5	5.12	0.1		102	15	1
14797-55-8	NITRATE AS N	10	10.2	0.2		102	15	0
14265-44-2	ORTHOPHOSPHATE AS P	10	10.8	0.5		108	15	4
14808-79-8	SULFATE	50	51.3	1		103	15	1

Data Package ID: IC1909440-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Matrix Spike

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB80
LabID:	1909440-7MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 23-Sep-19

Date Analyzed: 23-Sep-19

Prep Batch: IC190923-1

QCBatchID: IC190923-1-1

Run ID: IC190923-1a3

Cleanup: NONE

Basis: As Received

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

File Name: 190923IC3LIMS

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
16984-48-8	FLUORIDE	0.32		4.34		0.2	4	101	85 - 115%
16887-00-6	CHLORIDE	27		36.9		0.4	10	95	85 - 115%
14797-65-0	NITRITE AS N	0.2		5	N	0.2	4	120	85 - 115%
14797-55-8	NITRATE AS N	5.7		15.7		0.4	10	100	85 - 115%
14265-44-2	ORTHOPHOSPHATE AS P	4.5		10	N	1	4	138	85 - 115%
14808-79-8	SULFATE	57		94.1		2	40	94	85 - 115%

Data Package ID: IC1909440-1

Date Printed: Tuesday, October 15, 2019

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.912

Prep Batch ID: IC190923-1

Start Date: 09/23/19	End Date: 09/23/19	Concentration Method: NONE	Batch Created By: lml
Start Time: 8:00	End Time: 9:00	Extract Method: NONE	Date Created: 09/25/19
Prep Analyst: Lainey M. Lloyd		Initial Volume Units: ml	Time Created: 14:04
Comments:		Final Volume Units: ml	Validated By: kjs
			Date Validated: 09/26/19
			Time Validated: 15:09

QC Batch ID: IC190923-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IC190923-1	MB	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1909440
IC190923-1	LCS	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1909440
IC190923-1	LCSD	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1909440
1909440-7	MS	B3RB80	WATER	9/20/2019	5	5	NONE	1	1909440
1909438-9	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1909438
1909440-6	SMP	B3RB79	WATER	9/20/2019	5	5	NONE	1	1909440
1909440-7	SMP	B3RB80	WATER	9/20/2019	5	5	NONE	1	1909440

QC Types

CAR	Carrier reference sample	DLS	Detection Limit Standard
DUP	Laboratory Duplicate	LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicat	LODV	Limit of Detection Verification
LOQV	Limit of Quantitation Verification	MB	Method Blank
MS	Laboratory Matrix Spike	MSD	Laboratory Matrix Spike Duplicate
REP	Sample replicate	RVS	Reporting Level Verification Standar
SMP	Field Sample	SYS	Sample Yield Spike



Metals

Case Narrative

CH2M HILL Plateau Remediation Company

Uranium Sequestration, September -- X19-084

Work Order Number: 1909440

1. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

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

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

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

3. All standards and solutions are NIST traceable and were used within their recommended shelf life.
4. The samples were prepared and analyzed within the established hold time.

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

5. 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 and are flagged as appropriate. Iron, phosphorus, potassium, sodium, vanadium, cobalt, nickel and tin were detected above the MDL.
 - 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 read-backs associated with Method 6010D were within acceptance criteria.
- The interference check samples associated with Method 6020B were analyzed.

6. Matrix specific quality control procedures.

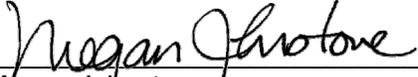
Sample 1909440-2 was designated as the quality control sample for the each analysis.

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 and precision were met.
- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met.

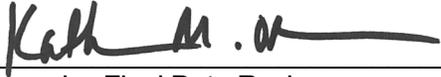
7. It is a standard practice that samples for ICP-MS are analyzed at a dilution. The 10X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution.

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.



Megan Johnstone
Inorganics Primary Data Reviewer

10/18/19
Date



Kath M. W.
Inorganics Final Data Reviewer

10/18/19
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.

Dissolved ICP Metals

Method SW6010D

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB81
Lab ID:	1909440-2

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: 20-Sep-19
 Date Extracted: 10-Oct-19
 Date Analyzed: 10-Oct-19
 Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
 QCBatchID: IP191010-2-3
 Run ID: IT191010-1A5
 Cleanup: NONE
 Basis: As Received
 File Name: 191010A.

Analyst: Steve Workman
 Sample Aliquot: 50 ml
 Final Volume: 50 ml
 Result Units: UG/L
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	210	U	1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	89	U	750	89
7723-14-0	PHOSPHORUS	1	16	BC	50	5.3
7440-09-7	POTASSIUM	1	340	BC	1000	130
7440-23-5	SODIUM	1	230	BC	500	38
7440-62-2	VANADIUM	1	0.43	U	10	0.43

Data Package ID: *IT1909440-1*

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 1 of 4

LIMS Version: 6.914

Total Recoverable ICP Metals

Method SW6010D

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB74
Lab ID:	1909440-3

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: 20-Sep-19
 Date Extracted: 10-Oct-19
 Date Analyzed: 10-Oct-19
 Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
 QCBatchID: IP191010-2-3
 Run ID: IT191010-1A5
 Cleanup: NONE
 Basis: As Received
 File Name: 191010A.

Analyst: Steve Workman
 Sample Aliquot: 50 ml
 Final Volume: 50 ml
 Result Units: UG/L
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	210	U	1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	89	U	750	89
7723-14-0	PHOSPHORUS	1	18	BC	50	5.3
7440-09-7	POTASSIUM	1	350	BC	1000	130
7440-23-5	SODIUM	1	190	BC	500	38
7440-62-2	VANADIUM	1	0.48	BC	10	0.43

Data Package ID: *IT1909440-1*

Total Recoverable ICP Metals

Method SW6010D

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB75
Lab ID:	1909440-4

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: 20-Sep-19
 Date Extracted: 10-Oct-19
 Date Analyzed: 10-Oct-19
 Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
 QCBatchID: IP191010-2-3
 Run ID: IT191010-1A5
 Cleanup: NONE
 Basis: As Received
 File Name: 191010A.

Analyst: Steve Workman
 Sample Aliquot: 50 ml
 Final Volume: 50 ml
 Result Units: UG/L
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	48000		1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	12000		750	89
7723-14-0	PHOSPHORUS	1	3900		50	5.3
7440-09-7	POTASSIUM	1	6700		1000	130
7440-23-5	SODIUM	1	30000		500	38
7440-62-2	VANADIUM	1	12	C	10	0.43

Data Package ID: IT1909440-1

Dissolved ICP Metals

Method SW6010D

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID:	B3RB82
Lab ID:	1909440-5

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 10-Oct-19

Date Analyzed: 10-Oct-19

Prep Method: SW3005 Rev A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-3

Run ID: IT191010-1A5

Cleanup: NONE

Basis: As Received

File Name: 191010A.

Analyst: Steve Workman

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	48000		1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	12000		750	89
7723-14-0	PHOSPHORUS	1	4000		50	5.3
7440-09-7	POTASSIUM	1	6700		1000	130
7440-23-5	SODIUM	1	30000		500	38
7440-62-2	VANADIUM	1	13	C	10	0.43

Data Package ID: *IT1909440-1*

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 4 of 4

LIMS Version: 6.914

Dissolved ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB81
Lab ID: 1909440-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Sep-19
Date Extracted: 10-Oct-19
Date Analyzed: 16-Oct-19
Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
QCBatchID: IP191010-2-1
Run ID: IM191016-10A6
Cleanup: NONE
Basis: As Received
File Name: 028SMPL_

Analyst: Nicole C. Chirban
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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	10	U	100	10
7440-36-0	ANTIMONY	10	0.12	U	1	0.12
7440-38-2	ARSENIC	10	0.39	U	2	0.39
7440-39-3	BARIUM	10	0.56	U	5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	1	B	10	0.46
7440-48-4	COBALT	10	0.19	BC	5	0.11
7440-50-8	COPPER	10	0.9	B	8	0.32
7439-92-1	LEAD	10	0.29	B	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	0.079	U	2	0.079
7440-02-0	NICKEL	10	1.4	BC	20	0.92
7782-49-2	SELENIUM	10	0.65	U	10	0.65
7440-22-4	SILVER	10	0.33	B	0.5	0.029
7440-24-6	STRONTIUM	10	0.32	U	5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.12	U	10	0.12
7440-61-1	URANIUM	10	0.01	B	0.1	0.0049
7440-66-6	ZINC	10	1.4	U	100	1.4

Data Package ID: IM1909440-1

Total Recoverable ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB74

Lab ID: 1909440-3

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 10-Oct-19

Date Analyzed: 16-Oct-19

Prep Method: SW3005 Rev A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: As Received

File Name: 033SMPL_

Analyst: Nicole C. Chirban

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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	11	B	100	10
7440-36-0	ANTIMONY	10	0.12	U	1	0.12
7440-38-2	ARSENIC	10	0.39	U	2	0.39
7440-39-3	BARIUM	10	0.56	U	5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	1.2	B	10	0.46
7440-48-4	COBALT	10	0.32	BC	5	0.11
7440-50-8	COPPER	10	0.9	B	8	0.32
7439-92-1	LEAD	10	0.11	B	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	0.079	U	2	0.079
7440-02-0	NICKEL	10	1.6	BC	20	0.92
7782-49-2	SELENIUM	10	0.65	U	10	0.65
7440-22-4	SILVER	10	0.18	B	0.5	0.029
7440-24-6	STRONTIUM	10	0.32	U	5	0.32
7440-28-0	THALLIUM	10	0.01	B	0.1	0.0041
7440-29-1	THORIUM	10	0.02	B	0.2	0.016
7440-31-5	TIN	10	0.52	BC	10	0.12
7440-61-1	URANIUM	10	0.02	B	0.1	0.0049
7440-66-6	ZINC	10	1.4	U	100	1.4

Data Package ID: IM1909440-1

Total Recoverable ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB75

Lab ID: 1909440-4

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 10-Oct-19

Date Analyzed: 16-Oct-19

Prep Method: SW3005 Rev A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: As Received

File Name: 034SMPL_

Analyst: Nicole C. Chirban

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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	14	B	100	10
7440-36-0	ANTIMONY	10	0.2	B	1	0.12
7440-38-2	ARSENIC	10	5.6		2	0.39
7440-39-3	BARIUM	10	52		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	3.1	B	10	0.46
7440-48-4	COBALT	10	0.38	BC	5	0.11
7440-50-8	COPPER	10	1.1	B	8	0.32
7439-92-1	LEAD	10	0.1	B	2	0.079
7439-96-5	MANGANESE	10	0.39	B	5	0.36
7439-98-7	MOLYBDENUM	10	4.9		2	0.079
7440-02-0	NICKEL	10	1.6	BC	20	0.92
7782-49-2	SELENIUM	10	2.8	B	10	0.65
7440-22-4	SILVER	10	0.04	B	0.5	0.029
7440-24-6	STRONTIUM	10	230		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.51	BC	10	0.12
7440-61-1	URANIUM	10	30		0.1	0.0049
7440-66-6	ZINC	10	1.4	U	100	1.4

Data Package ID: IM1909440-1

Dissolved ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB82
Lab ID: 1909440-5

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Sep-19
Date Extracted: 10-Oct-19
Date Analyzed: 16-Oct-19
Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
QCBatchID: IP191010-2-1
Run ID: IM191016-10A6
Cleanup: NONE
Basis: As Received
File Name: 035SMPL_

Analyst: Nicole C. Chirban
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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	10	U	100	10
7440-36-0	ANTIMONY	10	0.23	B	1	0.12
7440-38-2	ARSENIC	10	5.6		2	0.39
7440-39-3	BARIUM	10	52		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	2.6	B	10	0.46
7440-48-4	COBALT	10	0.39	BC	5	0.11
7440-50-8	COPPER	10	0.97	B	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	5		2	0.079
7440-02-0	NICKEL	10	1.3	BC	20	0.92
7782-49-2	SELENIUM	10	2.7	B	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	230		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.19	BC	10	0.12
7440-61-1	URANIUM	10	29		0.1	0.0049
7440-66-6	ZINC	10	1.8	B	100	1.4

Data Package ID: IM1909440-1

ICP Metals

Method SW6010D

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IP191010-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 10-Oct-19

Date Analyzed: 10-Oct-19

Prep Batch: IP191010-2

QCBatchID: IP191010-2-3

Run ID: IT191010-1A5

Cleanup: NONE

Basis: N/A

File Name: 191010A.

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	210	U	1000	210
7439-89-6	IRON	1	33	B	50	30
7439-95-4	MAGNESIUM	1	89	U	750	89
7723-14-0	PHOSPHORUS	1	19	B	50	5.3
7440-09-7	POTASSIUM	1	310	B	1000	130
7440-23-5	SODIUM	1	140	B	500	38
7440-62-2	VANADIUM	1	1.1	B	10	0.43

Data Package ID: IT1909440-1

ICP Metals

Method SW6010D

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IP191010-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 10/10/2019

Date Analyzed: 10/10/2019

Prep Method: SW3005A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-3

Run ID: IT191010-1A5

Cleanup: NONE

Basis: N/A

File Name: 191010A.

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	1020	50		102	80 - 120%
7440-70-2	CALCIUM	40000	39300	1000		98	80 - 120%
7439-89-6	IRON	1000	975	50		97	80 - 120%
7439-95-4	MAGNESIUM	40000	42400	750		106	80 - 120%
7723-14-0	PHOSPHORUS	10000	9760	50		98	80 - 120%
7440-09-7	POTASSIUM	40000	40000	1000		100	80 - 120%
7440-23-5	SODIUM	40000	42100	500		105	80 - 120%
7440-62-2	VANADIUM	500	493	10		99	80 - 120%

Data Package ID: *IT1909440-1*

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.914

ICP Metals

Method SW6010D

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB81
LabID: 1909440-2MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Sep-19
Date Extracted: 10-Oct-19
Date Analyzed: 10-Oct-19
Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
QCBatchID: IP191010-2-3
Run ID: IT191010-1A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 191010A.

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-42-8	BORON	36	U	999		50	1000	100	80 - 120%
7440-70-2	CALCIUM	210	U	38800		1000	40000	97	80 - 120%
7439-89-6	IRON	30	U	981		50	1000	98	80 - 120%
7439-95-4	MAGNESIUM	89	U	41800		750	40000	105	80 - 120%
7723-14-0	PHOSPHORUS	16	BC	9620		50	10000	96	80 - 120%
7440-09-7	POTASSIUM	340	BC	39200		1000	40000	97	80 - 120%
7440-23-5	SODIUM	230	BC	41300		500	40000	103	80 - 120%
7440-62-2	VANADIUM	0.43	U	486		10	500	97	80 - 120%

Field ID: B3RB81
LabID: 1909440-2MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Sep-19
Date Extracted: 10-Oct-19
Date Analyzed: 10-Oct-19
Prep Method: SW3005 Rev A

Prep Batch: IP191010-2
QCBatchID: IP191010-2-3
Run ID: IT191010-1A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 191010A.

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-42-8	BORON	997		1000	100	50	20	0
7440-70-2	CALCIUM	38700		40000	97	1000	20	0
7439-89-6	IRON	950		1000	95	50	20	3
7439-95-4	MAGNESIUM	41600		40000	104	750	20	0
7723-14-0	PHOSPHORUS	9580		10000	96	50	20	0
7440-09-7	POTASSIUM	39200		40000	97	1000	20	0
7440-23-5	SODIUM	41100		40000	102	500	20	0
7440-62-2	VANADIUM	484		500	97	10	20	0

Data Package ID: IT1909440-1

Prep Batch ID: IP191010-2

Start Date: 10/10/19	End Date: 10/10/19	Concentration Method: NONE	Batch Created By: jml
Start Time: 10:56	End Time: 18:00	Extract Method: SW3005A	Date Created: 10/10/19
Prep Analyst: Jill M. Latelle		Initial Volume Units: ml	Time Created: 10:56
Comments:		Final Volume Units: ml	Validated By: jml
			Date Validated: 10/10/19
			Time Validated: 11:54

QC Batch ID: IP191010-2-3

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP191010-2	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909440
IP191010-2	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909440
1909440-2	MS	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-2	MSD	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-2	SMP	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-3	SMP	B3RB74	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-4	SMP	B3RB75	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-5	SMP	B3RB82	WATER	9/20/2019	50	50	NONE	1	1909440
1909489-10	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-4	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-5	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-6	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-7	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-9	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489

QC Types

CAR	Carrier reference sample	DLS	Detection Limit Standard
DUP	Laboratory Duplicate	LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicat	LODV	Limit of Detection Verification
LOQV	Limit of Quantitation Verification	MB	Method Blank
MS	Laboratory Matrix Spike	MSD	Laboratory Matrix Spike Duplicate
REP	Sample replicate	RVS	Reporting Level Verification Standar
SMP	Field Sample	SYS	Sample Yield Spike

ICPMS Metals

Method SW6020B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IP191010-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 10-Oct-19

Date Analyzed: 16-Oct-19

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: N/A

File Name: 017SMPL_

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	10	U	100	10
7440-36-0	ANTIMONY	10	0.12	U	1	0.12
7440-38-2	ARSENIC	10	0.39	U	2	0.39
7440-39-3	BARIUM	10	0.56	U	5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	0.46	U	10	0.46
7440-48-4	COBALT	10	0.38	B	5	0.11
7440-50-8	COPPER	10	0.32	U	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	0.079	U	2	0.079
7440-02-0	NICKEL	10	1.3	B	20	0.92
7782-49-2	SELENIUM	10	0.65	U	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	0.32	U	5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.22	B	10	0.12
7440-61-1	URANIUM	10	0.0049	U	0.1	0.0049
7440-66-6	ZINC	10	1.4	U	100	1.4

Data Package ID: IM1909440-1

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.914

ICPMS Metals

Method SW6020B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Lab ID: IM191010-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 10/10/2019

Date Analyzed: 10/16/2019

Prep Method: SW3005A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: N/A

File Name: 018SMPL_

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	4460	100		89	80 - 120%
7440-36-0	ANTIMONY	30	29	1		97	80 - 120%
7440-38-2	ARSENIC	100	97.9	2		98	80 - 120%
7440-39-3	BARIUM	100	97.1	5		97	80 - 120%
7440-41-7	BERYLLIUM	50	45.6	0.5		91	80 - 120%
7440-43-9	CADMIUM	30	29.9	2		100	80 - 120%
7440-47-3	CHROMIUM	500	487	10		97	80 - 120%
7440-48-4	COBALT	100	96.4	5		96	80 - 120%
7440-50-8	COPPER	1000	999	8		100	80 - 120%
7439-92-1	LEAD	50	47.1	2		94	80 - 120%
7439-96-5	MANGANESE	100	95.3	5		95	80 - 120%
7439-98-7	MOLYBDENUM	100	96.3	2		96	80 - 120%
7440-02-0	NICKEL	500	503	20		101	80 - 120%
7782-49-2	SELENIUM	100	99.7	10		100	80 - 120%
7440-22-4	SILVER	10	10.1	0.5		101	80 - 120%
7440-24-6	STRONTIUM	100	95.1	5		95	80 - 120%
7440-28-0	THALLIUM	2	1.85	0.1		93	80 - 120%
7440-29-1	THORIUM	10	9.71	0.2		97	80 - 120%
7440-31-5	TIN	500	469	10		94	80 - 120%
7440-61-1	URANIUM	10	9.7	0.1		97	80 - 120%
7440-66-6	ZINC	2000	1860	100		93	80 - 120%

Data Package ID: IM1909440-1

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.914

ICPMS Metals

Method SW6020B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB81
LabID: 1909440-2MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 10-Oct-19

Date Analyzed: 16-Oct-19

Prep Method: SW3005 Rev A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 030SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	10	U	4470		100	5000	89	75 - 125%
7440-36-0	ANTIMONY	0.12	U	28.9		1	30	96	75 - 125%
7440-38-2	ARSENIC	0.39	U	94.8		2	100	95	75 - 125%
7440-39-3	BARIUM	0.56	U	95.7		5	100	96	75 - 125%
7440-41-7	BERYLLIUM	0.054	U	44.4		0.5	50	89	75 - 125%
7440-43-9	CADMIUM	0.083	U	29.6		2	30	99	75 - 125%
7440-47-3	CHROMIUM	1	B	483		10	500	96	75 - 125%
7440-48-4	COBALT	0.19	BC	95.9		5	100	96	75 - 125%
7440-50-8	COPPER	0.9	B	989		8	1000	99	75 - 125%
7439-92-1	LEAD	0.29	B	48.4		2	50	96	75 - 125%
7439-96-5	MANGANESE	0.36	U	95		5	100	95	75 - 125%
7439-98-7	MOLYBDENUM	0.079	U	95.6		2	100	96	75 - 125%
7440-02-0	NICKEL	1.4	BC	502		20	500	100	75 - 125%
7782-49-2	SELENIUM	0.65	U	94.8		10	100	95	75 - 125%
7440-22-4	SILVER	0.33	B	10.4		0.5	10	101	75 - 125%
7440-24-6	STRONTIUM	0.32	U	96.7		5	100	97	75 - 125%
7440-28-0	THALLIUM	0.0041	U	1.82		0.1	2	91	75 - 125%
7440-29-1	THORIUM	0.016	U	9.73		0.2	10	97	75 - 125%
7440-31-5	TIN	0.12	U	455		10	500	91	75 - 125%
7440-61-1	URANIUM	0.01	B	9.59		0.1	10	96	75 - 125%
7440-66-6	ZINC	1.4	U	1830		100	2000	91	75 - 125%

Data Package ID: *IM1909440-1*

ICPMS Metals

Method SW6020B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1909440

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: Uranium Sequestration, September X19-084

Field ID: B3RB81
LabID: 1909440-2MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Sep-19

Date Extracted: 10-Oct-19

Date Analyzed: 16-Oct-19

Prep Method: SW3005 Rev A

Prep Batch: IP191010-2

QCBatchID: IP191010-2-1

Run ID: IM191016-10A6

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 031SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	4450		5000	89	100	20	0
7440-36-0	ANTIMONY	28.9		30	96	1	20	0
7440-38-2	ARSENIC	95.3		100	95	2	20	0
7440-39-3	BARIUM	96.2		100	96	5	20	1
7440-41-7	BERYLLIUM	44.6		50	89	0.5	20	0
7440-43-9	CADMIUM	30.2		30	100	2	20	2
7440-47-3	CHROMIUM	485		500	97	10	20	0
7440-48-4	COBALT	96.5		100	96	5	20	1
7440-50-8	COPPER	979		1000	98	8	20	1
7439-92-1	LEAD	47		50	94	2	20	3
7439-96-5	MANGANESE	96.7		100	97	5	20	2
7439-98-7	MOLYBDENUM	97.6		100	98	2	20	2
7440-02-0	NICKEL	501		500	100	20	20	0
7782-49-2	SELENIUM	93.2		100	93	10	20	2
7440-22-4	SILVER	10.2		10	98	0.5	20	3
7440-24-6	STRONTIUM	93.5		100	94	5	20	3
7440-28-0	THALLIUM	1.86		2	93	0.1	20	2
7440-29-1	THORIUM	9.78		10	98	0.2	20	1
7440-31-5	TIN	467		500	93	10	20	3
7440-61-1	URANIUM	9.68		10	97	0.1	20	1
7440-66-6	ZINC	1800		2000	90	100	20	2

Data Package ID: IM1909440-1

Date Printed: Friday, October 18, 2019

ALS -- Fort Collins

Page 2 of 2

LIMS Version: 6.914

Prep Batch ID: IP191010-2

Start Date: 10/10/19	End Date: 10/10/19	Concentration Method: NONE	Batch Created By: jml
Start Time: 10:56	End Time: 18:00	Extract Method: SW3005A	Date Created: 10/10/19
Prep Analyst: Jill M. Latelle		Initial Volume Units: ml	Time Created: 10:56
Comments:		Final Volume Units: ml	Validated By: jml
			Date Validated: 10/10/19
			Time Validated: 11:54

QC Batch ID: IP191010-2-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP191010-2	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909440
IM191010-2	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909440
1909440-2	MS	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-2	MSD	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-2	SMP	B3RB81	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-3	SMP	B3RB74	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-4	SMP	B3RB75	WATER	9/20/2019	50	50	NONE	1	1909440
1909440-5	SMP	B3RB82	WATER	9/20/2019	50	50	NONE	1	1909440
1909489-10	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-4	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-5	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-6	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-7	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909489-9	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909489
1909537-2	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909537
1909537-3	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1909537

QC Types

CAR	Carrier reference sample		DLS	Detection Limit Standard	
DUP	Laboratory Duplicate		LCS	Laboratory Control Sample	
LCSD	Laboratory Control Sample Duplicat		LODV	Limit of Detection Verification	
LOQV	Limit of Quantitation Verification		MB	Method Blank	
MS	Laboratory Matrix Spike		MSD	Laboratory Matrix Spike Duplicate	
REP	Sample replicate		RVS	Reporting Level Verification Standar	
SMP	Field Sample		SYS	Sample Yield Spike	