Friday, June 17, 2016

Dave Todak
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1605530
Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Wa
Project Number: F16-007

Dear Mr. Todak:

Four water samples were received from CH2M HILL Plateau Remediation Company, on 5/26/2016. The samples were scheduled for the following analyses:

Metals
GC/MS Volatiles

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

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1605530
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-
Client Project Number: F16-007
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B349P6	1605530-1		WATER	24-May-16	10:22
B349P7	1605530-2		WATER	24-May-16	10:22
B34959	1605530-3		WATER	25-May-16	12:30
B34960	1605530-4		WATER	25-May-16	12:30

CH2MHill Plateau Remediation Company

1605530

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F16-007-153

COLLECTOR Troy Bacon CHPRC

COMPANY CONTACT TODAK, D

TELEPHONE NO. 376-6427

PROJECT COORDINATOR TODAK, D

PRICE CODE 7H

DATA TURNAROUND 30 Days / 30 Days

SAMPLING LOCATION C9415, I-010

PROJECT DESIGNATION FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water

SAF NO. F16-007

AIR QUALITY ☐

ICE CHEST NO. GWS-2920

FIELD LOGBOOK NO. HNF-N-645 4 - 9

ACTUAL SAMPLE DEPTH 316.65

COA 300192

METHOD OF SHIPMENT FEDERAL EXPRESS

ORIGINAL

SHIPPED TO ALS Environmental Ft. Collins

OFFSITE PROPERTY NO. 66666

BILL OF LADING/AIR BILL NO. 7763 7516 2300

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME	
B349P6	1	WATER	MAY 24 2016	1022	✓

Filter

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Troy Bacon CHPRC Troy L. Bacon	MAY 24 2016 1115	SSU #1	MAY 24 2016 1115
SSU-1	MAY 25 2016 1000	J.C. Fulton/CHPRC	MAY 25 2016 1000
J.C. Fulton/CHPRC	MAY 25 2016 1400		
Fedex		FEDEX Rebecca Merola	5/26/16 1000

SPECIAL INSTRUCTIONS
FILTER
(1) 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Uranium};

Filter

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 3/14/2016

FSR ID = FSR20448

TRVL NUM = TRVL-16-062

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company

1605530

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F16-007-154

COLLECTOR
Troy Bacon
CHPRC

COMPANY CONTACT
TODAK, D

TELEPHONE NO.
376-6427

PROJECT COORDINATOR
TODAK, D

PRICE CODE 7H

DATA TURNAROUND
30 Days / 30 Days

AIR QUALITY ☐

SAMPLING LOCATION
C9415, I-010

PROJECT DESIGNATION
FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water

SAF NO.
F16-007

ICE CHEST NO.
GWS-292

FIELD LOGBOOK NO.
HNF-N-645 4 - pg 9

ACTUAL SAMPLE DEPTH
316.65

COA
300192

METHOD OF SHIPMENT
FEDERAL EXPRESS

ORIGINAL

SHIPPED TO
ALS Environmental Ft. Collins

OFFSITE PROPERTY NO.
6666

BILL OF LADING/AIR BILL NO.
7763751623000

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HCl or H2SO4 to pH <2/Cool
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B349P7 2	WATER	MAY 24 2016	1022	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Troy Bacon CHPRC	MAY 24 2016 1115	SSU #1	MAY 24 2016 1115
SSU-1	MAY 25 2016 1000	J.C. Fulton/CHPRC	MAY 25 2016 1000
J.C. Fulton/CHPRC	MAY 25 2016 1400	FEDEX	
Fedex		Rebecca Merola 5/26/16	1000

SPECIAL INSTRUCTIONS
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Trichloroethene};

LABORATORY SECTION | **RECEIVED BY** | **TITLE** | **DATE/TIME**

FINAL SAMPLE DISPOSITION | **DISPOSAL METHOD** | **DISPOSED BY** | **DATE/TIME**

PRINTED ON 3/14/2016 **FSR ID = FSR20448** **TRVL NUM = TRVL-16-062** A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company | 1605530 | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | **F16-007-045** | **PAGE 1 OF 1**

COLLECTOR Troy Bacon CHPRC	**COMPANY CONTACT** TODAK, D	**TELEPHONE NO.** 376-6427	**PROJECT COORDINATOR** TODAK, D
PRICE CODE 7H	**DATA TURNAROUND** 30 Days / 30 Days	**AIR QUALITY** ☐	
SAMPLING LOCATION C9414, I-003	**PROJECT DESIGNATION** FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water	**SAF NO.** F16-007	
ICE CHEST NO. GLS-292	**FIELD LOGBOOK NO.** HNF-N-645 3 - pg 77	**ACTUAL SAMPLE DEPTH** ~~276.87~~ 304.27 FT 5-25-16	**COA** 300192
METHOD OF SHIPMENT FEDERAL EXPRESS	**ORIGINAL**	**SHIPPED TO** ALS Environmental Ft. Collins	**OFFSITE PROPERTY NO.** 6666
BILL OF LADING/AIR BILL NO. 7763 7516 2300			

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B34959 3	WATER	MAY 25 2016	1230	✓

FILTER

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Troy Bacon CHPRC Troy L Bacon	MAY 25 2016 1310	Lesly Wall /CHPRC Lesly Wall	MAY 25 2016 1310
Lesly Wall /CHPRC Lesly Wall	MAY 25 2016 1400	FEDEX	
Fedex		Rebecca Merola	5/26/16 1000

SPECIAL INSTRUCTIONS
FILTER
(1) 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Uranium};

FILTER

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 1/13/2016 **FSR ID = FSR19882** **TRVL NUM = TRVL-16-059** A-6003-618 (REV 2).

CH2MHill Plateau Remediation Company

1605530

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F16-007-046

COLLECTOR: Troy Bacon CHPRC	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D
PRICE CODE: 7H	DATA TURNAROUND: 30 Days / 30 Days	AIR QUALITY: ☐	SAMPLING LOCATION: C9414, I-003
PROJECT DESIGNATION: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water	SAF NO.: F16-007	ICE CHEST NO.: GWS-292	FIELD LOGBOOK NO.: HNF-N-645 3 - pg 77
ACTUAL SAMPLE DEPTH: ~~276.87~~ 304.27 FT. TLB 5-25-16	COA: 300192	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: ALS Environmental Ft. Collins	OFFSITE PROPERTY NO.: 6666	BILL OF LADING/AIR BILL NO.: 7763751623 00	

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HCl or H2SO4 to pH <2/Cool
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B34960 4	WATER	MAY 25 2016	1230	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Troy Bacon CHPRC Troy L. Bacon	MAY 25 2016 1310	Lesly Wall CHPRC	MAY 25 2016 1310
Lesly Wall CHPRC Lesly Wall	MAY 25 2016 1400	FEDEX	
Fedex		Rebecca Meola	5/26/16 1000

SPECIAL INSTRUCTIONS
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Trichloroethene};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 1/13/2016 FSR ID = FSR19882 TRVL NUM = TRVL-16-059 A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1605530

Project Manager: JE Initials: RLM Date: 5/26/16

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

Cooler #:	1							
Temperature (°C):	1.2°C							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	12							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (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.

15) Sample 8M4 has dusting of sediment in all bottles noted

If applicable, was the client contacted? **YES / NO / (NA)** Contact: _____ Date/Time: _____

Project Manager Signature / Date: 5/27/16

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

ORIGIN ID:PSCA (509) 373-3580
JANELLE ZUNKER
CH2M
6269 LATAH ST.

RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 25MAY16
ACTWGT: 50.00 LB
CAD: 107066051/INET3730

BILL THIRD PARTY

1605530

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511 REF: 6666
INV:
PO: DEPT:

1.20c 11 -2

540J163237/27F

FedEx. Express

THU - 26 MAY 10:30A
PRIORITY OVERNIGHT
DSR
80524
CO-US DEN

TRK# 0201 7763 7516 2300

XH FTCA

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

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

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis – F16-007

Work Order Number: 1605530

1. This report consists of 2 water samples.

2. The samples were received cool and intact by ALS on 05/26/16.

3. The samples were to be analyzed for dissolved metals. The samples had been filtered prior to receipt, and had a pH less than 2 upon receipt.

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

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

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

6. All standards and solutions are NIST traceable and were used within their recommended shelf life.

7. The samples were prepared and analyzed within the established hold time.

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

8. General quality control procedures.

   - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
   - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes. Sample results have been compared to the blank results.
   - All laboratory control sample criteria were met.

- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.
- The interference check samples associated with Method 6020A were analyzed.

9. Matrix specific quality control procedures.

   Sample 1605530-1 was designated as the quality control sample for this analysis.

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

   - A matrix spike and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for accuracy were met.
   - A serial dilution was analyzed with this ICP batch. Acceptance criteria was not met.

Analyte	Sample ID
Uranium	1605530-1L

   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 — 6/15/16
Jill Latelle — Date
Inorganics Primary Data Reviewer

Julie Ellis — 6/17/16
Inorganics Final Data Reviewer — Date

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR16-530
REV NUM	0
DATE INITIATED	8/1/2016

SAMPLE EVENT INFORMATION

SAF NUM(S)	F16-007
OPERABLE UNIT(S)	200-UP-1
PROJECT(S)	200 AREA SGRP
SAMPLE EVENT TITLE(S)	200-UP-1 Remedial Action Wells
LABORATORY	ALS Environmental Ft. Collins

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B34960
SAMPLE MATRIX	WATER
COLLECTION DATE	5/25/2016 - 5/25/2016
SDG NUM	ALS1605530

ISSUE BACKGROUND

CLASS	Chain of Custody Issue (Field)
TYPE	No/Illegible Relinquisher/Receiver Listed on COC
DESCRIPTION	COC F16-007-046, SAMPLE B34960. MISSING SIGNATURE IN FIRST RECEIVED BY BOX.

DISPOSITION

DESCRIPTION	DOCUMENT AND CLOSE
JUSTIFICATION	DOCUMENT AND CLOSE
	SUBMITTED BY: Bruce Hey DATE: 7/26/2016 ACCEPTED BY: Kirsten Killand DATE: 08/01/2016

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 <=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 MANGANESE

Method SW6020A

Sample Results

Lab Name: **ALS Environmental -- FC**
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Water
Work Order Number: 1605530 **Final Volume:** 50 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Brent A. Stanfield **Result Units:** UG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Flag	Sample Aliquot
B349P6	1605530-1	5/24/2016	6/1/2016	06/14/2016	N/A	10	24	5	0.3		50 ml
B34959	1605530-3	5/25/2016	6/1/2016	06/14/2016	N/A	10	98	5	0.3		50 ml

Comments:

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

Data Package ID: *im1605530-1*

Dissolved URANIUM

Method SW6020A

Sample Results

Lab Name: **ALS Environmental -- FC**
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Water
Work Order Number: 1605530 **Final Volume:** 50 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Brent A. Stanfield **Result Units:** UG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Flag	Sample Aliquot
B349P6	1605530-1	5/24/2016	6/1/2016	06/14/2016	N/A	10	2.3	0.1	0.027	E	50 ml
B34959	1605530-3	5/25/2016	6/1/2016	06/14/2016	N/A	10	210	0.1	0.027		50 ml

Comments:

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

Data Package ID: *im1605530-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: IP160601-4MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 01-Jun-16
Date Analyzed: 14-Jun-16

Prep Batch: IP160601-4
QCBatchID: IP160601-4-3
Run ID: IM160614-11A4
Cleanup: NONE
Basis: N/A
File Name: 032SMPL_

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
7439-96-5	MANGANESE	10	0.3	5	0.3	U	
7440-61-1	URANIUM	10	0.027	0.1	0.027	U	

Data Package ID: *im1605530-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: IM160601-4LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 06/01/2016
Date Analyzed: 06/14/2016
Prep Method: SW3005A

Prep Batch: IP160601-4
QCBatchID: IP160601-4-3
Run ID: IM160614-11A4
Cleanup: NONE
Basis: N/A
File Name: 033SMPL_

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
7439-96-5	MANGANESE	100	108	5		108	80 - 120%
7440-61-1	URANIUM	10	9.79	0.1		98	80 - 120%

Data Package ID: *im1605530-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Anal

Field ID: B349P6
LabID: 1605530-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-May-16
Date Extracted: 01-Jun-16
Date Analyzed: 14-Jun-16
Prep Method: SW3005 Rev A

Prep Batch: IP160601-4
QCBatchID: IP160601-4-3
Run ID: IM160614-11A4
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 038SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7439-96-5	MANGANESE	24		132		5	100	109	75 - 125%
7440-61-1	URANIUM	2.3		12.3		0.1	10	100	75 - 125%

Field ID: B349P6
LabID: 1605530-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-May-16
Date Extracted: 01-Jun-16
Date Analyzed: 14-Jun-16
Prep Method: SW3005 Rev A

Prep Batch: IP160601-4
QCBatchID: IP160601-4-3
Run ID: IM160614-11A4
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 039SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7439-96-5	MANGANESE	132		100	109	5	20	0
7440-61-1	URANIUM	12.6		10	103	0.1	20	2

Data Package ID: *im1605530-1*

GC/MS Volatiles

Case Narrative

CH2M HILL Plateau Remediation Company

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-water -- F16-007

Work Order Number: 1605530

1. This report consists of 2 water samples. The samples were received cool and intact by ALS on 05/26/16.

   The samples were free of headspace prior to analysis.

   Sample -2 had a pH > 2 at the time of analysis. Sample -1 had a pH < 2.

2. The samples were prepared according to SW-846, 3rd Edition procedures. Specifically, the water samples were prepared using purge and trap procedures based on Method 5030C.

3. The samples were analyzed using GC/MS with an RTX-624, RTX-VMS, or equivalent capillary column according to the current revision of SOP 525 based on SW-846 Method 8260. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

4. All initial calibration criteria were met.

5. All initial calibrations are verified by comparing a second source standard calibration verification (ICV) against the calibration curve. All criteria for initial calibration verification were met.

6. All compounds in the daily (continuing) calibration verifications were within 20%D.

7. Methylene chloride, acetone and 2-butanone are common laboratory contaminants. In order to minimize the levels of these compounds detected in the gc/ms analysis, ALS has designated its volatile laboratory as a restricted access area. In addition, the laboratory has been equipped with a dedicated, air intake and exhaust system that operates under positive pressure in order to minimize cross contamination of these compounds. Due to fluctuations in ambient laboratory

conditions, reported sample values for common laboratory contaminants may be due to lab contamination even if the compound in question is not detected in the associated method blank.

All method blank criteria were met.

8. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.

9. A matrix spike and matrix spike duplicate were not performed because of insufficient sample. A laboratory control sample and laboratory control sample duplicate were performed instead.

10. The samples were analyzed within the established holding time.

11. All surrogate recoveries were within acceptance criteria.

12. All internal standard recoveries were within acceptance criteria.

13. Due to the concentration of a target analyte, the sample was analyzed at a dilution. The reporting limit has been adjusted accordingly.

14. 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.

Emily Lyons
Organics Primary Data Reviewer

6/9/16
Date

Organics Final Data Reviewer

6/17/16
Date

ALS
Data Qualifier Flags
Organics

U or ND:	**This flag indicates that the compound was analyzed for but not detected.**
J:	**This flag indicates an estimated value. This flag is used as follows: (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.**
B:	**This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.**
E:	**This flag identifies compounds whose concentration exceeds the upper level of the calibration range.**
A:	**This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.**
X:	**This flag indicates that the analyte was diluted below an accurate quantitation level.**
***:**	**This flag indicates that a spike recovery is equal to or outside the control criteria used.**
+:	**This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.**
D:	**This flag indicates that the compound was reported at a dilution greater than 1.**

GC/MS Volatiles

Method SW8260_25C
Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160528-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-May-16
Date Analyzed: 28-May-16

Prep Batch: VL160528-3
QCBatchID: VL160528-3-1
Run ID: VL160528-3A
Cleanup: NONE
Basis: N/A
File Name: C68901

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
56-23-5	CARBON TETRACHLORIDE	1	0.3	1	0.3	U	
79-01-6	TRICHLOROETHENE	1	0.3	1	0.3	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.4		25	102	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25.6		25	102	84 - 118
2037-26-5	TOLUENE-D8	26.3		25	105	85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C
Method Blank

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160531-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 31-May-16
Date Analyzed: 31-May-16

Prep Batch: VL160531-3
QCBatchID: VL160531-3-1
Run ID: VL160531-3A
Cleanup: NONE
Basis: N/A
File Name: C68932

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
56-23-5	CARBON TETRACHLORIDE	1	0.3	1	0.3	U	
79-01-6	TRICHLOROETHENE	1	0.3	1	0.3	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	24.8		25	99	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25.9		25	103	84 - 118
2037-26-5	TOLUENE-D8	26.2		25	105	85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Field ID: B349P7
Lab ID: 1605530-2

Analysis ReqCode: **8260_VOA_GCM**

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-May-16
Date Extracted: 28-May-16
Date Analyzed: 28-May-16
Prep Method: SW5030 Rev C

Prep Batch: VL160528-3
QCBatchID: VL160528-3-1
Run ID: VL160528-3A
Cleanup: NONE
Basis: As Received
File Name: C68913

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
56-23-5	CARBON TETRACHLORIDE	1	1.3	1	0.3		
79-01-6	TRICHLOROETHENE	1	0.33	1	0.3	J	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	24.7		25	99	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	26.2		25	105	84 - 118
2037-26-5	TOLUENE-D8	26		25	104	85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Field ID: B34960
Lab ID: 1605530-4

Analysis ReqCode: **8260_VOA_GCM**

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 25-May-16
Date Extracted: 28-May-16
Date Analyzed: 28-May-16
Prep Method: SW5030 Rev C

Prep Batch: VL160528-3
QCBatchID: VL160528-3-1
Run ID: VL160528-3A
Cleanup: NONE
Basis: As Received
File Name: C68914

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
79-01-6	TRICHLOROETHENE	1	1.1	1	0.3		

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	24.9		25	99	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25.9		25	104	84 - 118
2037-26-5	TOLUENE-D8	26.1		25	104	85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Field ID: B34960
Lab ID: 1605530-4RR1

Analysis ReqCode: **8260_VOA_GCM**

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 25-May-16
Date Extracted: 31-May-16
Date Analyzed: 31-May-16
Prep Method: SW5030 Rev C

Prep Batch: VL160531-3
QCBatchID: VL160531-3-1
Run ID: VL160531-3A
Cleanup: NONE
Basis: As Received
File Name: C68939

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
56-23-5	CARBON TETRACHLORIDE	25	390	25	7.5	D	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	610	D	625	98	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	661	D	625	106	84 - 118
2037-26-5	TOLUENE-D8	642	D	625	103	85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160528-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/28/2016
Date Analyzed: 05/28/2016
Prep Method: SW5030C

Prep Batch: VL160528-3
QCBatchID: VL160528-3-1
Run ID: VL160528-3A
Cleanup: NONE
Basis: N/A
File Name: C68898

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
56-23-5	CARBON TETRACHLORIDE	10	11.6	1		116	77 - 122%
79-01-6	TRICHLOROETHENE	10	11.4	1		114	83 - 117%

Lab ID: VL160528-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/28/2016
Date Analyzed: 05/28/2016
Prep Method: SW5030C

Prep Batch: VL160528-3
QCBatchID: VL160528-3-1
Run ID: VL160528-3A
Cleanup: NONE
Basis: N/A
File Name: C68899

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
56-23-5	CARBON TETRACHLORIDE	10	11.2	1		112	20	4
79-01-6	TRICHLOROETHENE	10	10.8	1		108	20	6

Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25	97		98		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	106		105		84 - 118
2037-26-5	TOLUENE-D8	25	104		105		85 - 115

Data Package ID: *VL1605530-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605530
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160531-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/31/2016
Date Analyzed: 05/31/2016
Prep Method: SW5030C

Prep Batch: VL160531-3
QCBatchID: VL160531-3-1
Run ID: VL160531-3A
Cleanup: NONE
Basis: N/A
File Name: C68929

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
56-23-5	CARBON TETRACHLORIDE	10	11.9	1		119	77 - 122%
79-01-6	TRICHLOROETHENE	10	11.5	1		115	83 - 117%

Lab ID: VL160531-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/31/2016
Date Analyzed: 05/31/2016
Prep Method: SW5030C

Prep Batch: VL160531-3
QCBatchID: VL160531-3-1
Run ID: VL160531-3A
Cleanup: NONE
Basis: N/A
File Name: C68930

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
56-23-5	CARBON TETRACHLORIDE	10	11.1	1		111	20	7
79-01-6	TRICHLOROETHENE	10	10.9	1		109	20	6

Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25	95		97		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	103		105		84 - 118
2037-26-5	TOLUENE-D8	25	102		102		85 - 115

Data Package ID: *VL1605530-1*