ALS Environmental

Ft. Collins, Colorado LIMS Version: 6.815

Tuesday, May 31, 2016

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

Re: ALS Workorder: 1605432
Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Wa
Project Number: F16-025

Dear Mr. Todak:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 5/21/2016. The samples were scheduled for the following analyses:

GC/MS Volatiles
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,

for

ALS Environmental
Julie Ellingson
Project Manager

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522
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ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1605432
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-
Client Project Number: F16-025
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B34953	1605432-1		WATER	19-May-16	14:34
B34954	1605432-2		WATER	19-May-16	14:34

74195

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F16-007-039	PAGE 1 OF 1

COLLECTOR: K.C. Patterson/CHPRC	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D
SAMPLING LOCATION: C9414, I-001	PROJECT DESIGNATION: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water		SAF NO.: F16-007
ICE CHEST NO.: GW3-2941	FIELD LOGBOOK NO.: HNF-N-645-5	ACTUAL SAMPLE DEPTH: 284.54'	COA: 300192
SHIPPED TO: ALS Environmental Ft. Collins	OFFSITE PROPERTY NO.: 6654		BILL OF LADING/AIR BILL NO.: 7831697510 12

PRICE CODE: 7H

AIR QUALITY: ☐

DATA TURNAROUND: 30 Days / 30 Days

METHOD OF SHIPMENT: FEDERAL EXPRESS

ORIGINAL

1605432

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	
B34953 (1)	WATER	MAY 19 2016	1434	✓

FILTER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: K.C. Patterson/CHPRC	DATE/TIME: MAY 19 2016 1515	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: MAY 19 2016 1515
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: MAY 20 2016 1213	RECEIVED BY/STORED IN: J.C. Fulton/CHPRC	DATE/TIME: MAY 20 2016 1213
RELINQUISHED BY/REMOVED FROM: J.C. Fulton/CHPRC	DATE/TIME: MAY 20 2016 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 5-21-16 0900	RECEIVED BY/STORED IN: Scott Malby	DATE/TIME: 5-21-16 0900
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

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 = FSR19881 TRVL NUM = TRVL-16-059 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-007-040	PAGE 1 OF 1
COLLECTOR K.C. Patterson/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7H	DATA TURNAROUND
SAMPLING LOCATION C9414, I-001	PROJECT DESIGNATION FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water		SAF NO. F16-007	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. FWS-294	FIELD LOGBOOK NO. CA 5-19-16 HNF-N-645-4	ACTUAL SAMPLE DEPTH 284.54	COA 300192	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO ALS Environmental Ft. Collins	OFFSITE PROPERTY NO. 5 6654		BILL OF LADING/AIR BILL NO. 7831697 5)0)0		

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

1605432

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B34954 (2)	WATER	MAY 19 2016	1434	✓

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K.E. Patterson/CHPRC	MAY 19 2016 1515	SSU #1	MAY 19 2016 1515
J.C. Fulton/CHPRC	MAY 20 2016 1213	J.C. Fulton/CHPRC	MAY 20 2016 1213
SSU-1	MAY 20 2016 1400	FEDEX	
Fedex	5-21-16 0900	Scott Malkey	5-21-16 0900

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 = FSR19881 TRVL NUM = TRVL-16-059 A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1605432

Project Manager: JMF Initials: SDM Date: 5-21-16

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	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: ____ 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):	1.8							
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.

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

Project Manager Signature / Date: [signature] 5-23-16

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

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

1605432

ORIGIN ID:PSCA (509) 373-3547
CHRIS FULTON
CH-2M
6267 LATAH ST
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 20MAY16
ACTWGT: 44.00 LB
CAD: 1070660/INET3730

BILL THIRD PARTY

TO JULIE ELLINGSON
225 COMMERCE DRIVE
FORT COLLINS CO 80524
(970) 490-1511
INV:
PO:
REF: PTR86554
DEPT:

1605432

11

-2

1.82

540J1/6323/727F

FedEx Express

TRK# 0201 7831 6975 1012

SATURDAY 12:00P
PRIORITY OVERNIGHT
DSR

X0 FTCA

80524
CO-US DEN

After printing this label:
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GC/MS Volatiles

Case Narrative

CH2M HILL Plateau Remediation Company

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis- -- F16-025

Work Order Number: 1605432

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 05/21/16.

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

3. The sample was 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. Matrix QC was performed for this analysis. Since a sample from this client was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

10. The sample was 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 Knodel — 5/31/16
Organics Primary Data Reviewer — Date

Organics Final Data Reviewer — 5/31/16
Date

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR16-525
REV NUM	0
DATE INITIATED	7/28/2016

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	B34954
SAMPLE MATRIX	WATER
COLLECTION DATE	5/19/2016 - 5/19/2016
SDG NUM	ALS1605432

ISSUE BACKGROUND

CLASS	Chain of Custody Issue (Field)
TYPE	Personnel in Custody of Sample Did Not Relinquish
DESCRIPTION	COC F16-007-040, SAMPLE B34954. PERSONNEL THAT RECEIVED SAMPLE DID NOT RELINQUISH SAMPLE.

DISPOSITION

DESCRIPTION	DOCUMENT AND CLOSE
JUSTIFICATION	DOCUMENT AND CLOSE

SUBMITTED BY: Piper Benjamin DATE: 7/25/2016
ACCEPTED BY: Kirsten Killand DATE: 07/26/2016

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: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160523-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 23-May-16
Date Analyzed: 23-May-16

Prep Batch: VL160523-3
QCBatchID: VL160523-3-3
Run ID: VL160523-3A
Cleanup: NONE
Basis: N/A
File Name: C68735

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	25.2		25	101	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	26.2		25	105	84 - 118
2037-26-5	TOLUENE-D8	25.3		25	101	85 - 115

Data Package ID: *VL1605432-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Field ID: B34954
Lab ID: 1605432-2

Analysis ReqCode: **8260_VOA_GCM**

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 19-May-16
Date Extracted: 23-May-16
Date Analyzed: 23-May-16
Prep Method: SW5030 Rev C

Prep Batch: VL160523-3
QCBatchID: VL160523-3-3
Run ID: VL160523-3A
Cleanup: NONE
Basis: As Received
File Name: C68743

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	0.94	1	0.3	J	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25		25	100	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	26.9		25	108	84 - 118
2037-26-5	TOLUENE-D8	25.2		25	101	85 - 115

Data Package ID: *VL1605432-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analy

Field ID: B34954
Lab ID: 1605432-2RR1

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 19-May-16
Date Extracted: 23-May-16
Date Analyzed: 23-May-16
Prep Method: SW5030 Rev C

Prep Batch: VL160523-3
QCBatchID: VL160523-3-3
Run ID: VL160523-3A
Cleanup: NONE
Basis: As Received
File Name: C68745

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	240	25	7.5	D	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	619	D	625	99	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	667	D	625	107	84 - 118
2037-26-5	TOLUENE-D8	638	D	625	102	85 - 115

Data Package ID: *VL1605432-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: VL160523-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/23/2016
Date Analyzed: 05/23/2016
Prep Method: SW5030C

Prep Batch: VL160523-3
QCBatchID: VL160523-3-3
Run ID: VL160523-3A
Cleanup: NONE
Basis: N/A
File Name: C68732

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	11.1	1		111	77 - 122%
79-01-6	TRICHLOROETHENE	10	10.3	1		103	83 - 117%

Lab ID: VL160523-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/23/2016
Date Analyzed: 05/23/2016
Prep Method: SW5030C

Prep Batch: VL160523-3
QCBatchID: VL160523-3-3
Run ID: VL160523-3A
Cleanup: NONE
Basis: N/A
File Name: C68733

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	10.4	1		104	20	6
79-01-6	TRICHLOROETHENE	10	10	1		100	20	2

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		96		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	106		106		84 - 118
2037-26-5	TOLUENE-D8	25	102		101		85 - 115

Data Package ID: *VL1605432-1*

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis- -- F16-025

Work Order Number: 1605432

1. This report consists of 1 water sample.

2. The sample was received cool and intact by ALS on 05/21/16.

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

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

   For analysis by ICP-MS, the sample was 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 sample was 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 sample 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 1605432-1 was designated as the quality control sample for this analysis.

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

   - A matrix spike and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for accuracy were met.
   - A sample duplicate and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for precision were met.
   - A serial dilution was analyzed with this ICP batch. All acceptance criteria were met.

10. It is a standard practice that samples for ICP-MS are analyzed at a 10X dilution. This dilution factor can be considered an artifact of the prep, and does not indicate a secondary dilution. Therefore, it is 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.

Emily Knodel — 5/31/16
Emily Knodel — Date
Inorganics Primary Data Reviewer

5/31/16
Inorganics Final Data Reviewer — 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 <=5X the blank concentration.

  D - Analyte was reported at a secondary dilution factor, typically DF>1 (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-

Field ID: B34953
Lab ID: 1605432-1

Analysis ReqCode: **6020_METALS_I**

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 19-May-16
Date Extracted: 25-May-16
Date Analyzed: 26-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160525-5
QCBatchID: IP160525-5-4
Run ID: IM160526-10A5
Cleanup: NONE
Basis: As Received
File Name: 097SMPL_

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

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7439-96-5	MANGANESE	10	35	5	0.3		
7440-61-1	URANIUM	10	200	0.1	0.027		

Data Package ID: *IM1605432-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-

Lab ID: IP160525-5MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 25-May-16
Date Analyzed: 26-May-16

Prep Batch: IP160525-5
QCBatchID: IP160525-5-4
Run ID: IM160526-10A5
Cleanup: NONE
Basis: N/A
File Name: 084SMPL_

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	0.76	5	0.3	B	
7440-61-1	URANIUM	10	0.027	0.1	0.027	U	

Data Package ID: *IM1605432-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-

Lab ID: IM160525-5LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/25/2016
Date Analyzed: 05/26/2016
Prep Method: SW3005A

Prep Batch: IP160525-5
QCBatchID: IP160525-5-4
Run ID: IM160526-10A5
Cleanup: NONE
Basis: N/A
File Name: 085SMPL_

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	105	5		105	80 - 120%
7440-61-1	URANIUM	10	10.5	0.1		105	80 - 120%

Data Package ID: *IM1605432-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605432
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Anal

Field ID: B34953
LabID: 1605432-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 19-May-16
Date Extracted: 25-May-16
Date Analyzed: 26-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160525-5
QCBatchID: IP160525-5-4
Run ID: IM160526-10A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 100SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7439-96-5	MANGANESE	35		138		5	100	103	75 - 125%
7440-61-1	URANIUM	200		206		0.1	10	99	75 - 125%

Field ID: B34953
LabID: 1605432-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 19-May-16
Date Extracted: 25-May-16
Date Analyzed: 26-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160525-5
QCBatchID: IP160525-5-4
Run ID: IM160526-10A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 101SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7439-96-5	MANGANESE	138		100	103	5	20	0
7440-61-1	URANIUM	209		10	133	0.1	20	2

Data Package ID: *IM1605432-1*