Ft. Collins, Colorado LIMS Version: 6.892 

Thursday, January 24, 2019

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

Re: ALS Workorder: 1901132
Project Name: RCRA, JANUARY 2019
Project Number: W19-001

Dear Ms. Waters-Husted:

Four water samples were received from CH2M HILL Plateau Remediation Company, on 1/11/2019. The samples were scheduled for the following analysis:

Metals

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
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.

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522
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Environmental www.alsglobal.com
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# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**Client Project Name:** RCRA, JANUARY 2019
**Client Project Number:** W19-001
**Client PO Number:** BOA 54854

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| B3MM01 | 1901132-1 | | WATER | 10-Jan-19 | 9:37 |
| B3MM05 | 1901132-2 | | WATER | 10-Jan-19 | 9:37 |
| B3MPT8 | 1901132-3 | | WATER | 10-Jan-19 | 9:10 |
| B3MPT7 | 1901132-4 | | WATER | 10-Jan-19 | 9:10 |

ALS1901132

Jan. 24, 2019

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 1901132 | C.O.C. # W19-001-004 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector:** | Larry Rosene /CHPRC | **Contact/Requester:** | Karen Waters-Husted | **Telephone No.:** | 509-376-4650 |
| **SAF No.:** | W19-001 | **Sampling Origin:** | Hanford Site | **Purchase Order/Charge Code:** | 300071 |
| **Project Title:** | RCRA, JANUARY 2019 | **Logbook No.:** | HNF-N-506 105/27 | **Ice Chest No.:** | 6605-6656 |
| **Shipped To (Lab):** | ALS Environmental Ft. Collins | **Method of Shipment:** | Commercial Carrier | **Bill of Lading/Air Bill No.:** | 7741 6534 7512 |
| **Protocol:** | RCRA | **Priority:** | 30 Days | **Offsite Property No.:** | 10493 |

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

**SPECIAL INSTRUCTIONS**
N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B3MM01 1 | N | W | JAN 10 2019 | 0937 | 1x500-mL G/P | 6010_METALS_ICP: COMMON | 6 Months | HNO3 to pH <2 |
| B3MM05 2 | Y | W | JAN 10 2019 | 0937 | 1x500-mL G/P | 6010_METALS_ICP: COMMON | 6 Months | HNO3 to pH <2 |

| Relinquished By | Print First and Last Name | Signature | Date/Time | Received By | Print First and Last Name | Signature | Date/Time |
|---|---|---|---|---|---|---|---|
| Larry Rosene /CHPRC | Larry Rosene | | JAN 10 2019 0950 | Roy Shepard /CHPRC | | | JAN 10 2019 0950 |
| Roy Shepard /CHPRC | | | JAN 10 2019 1400 | FEDEX | | | |
| FedEX | | | | Erik Evans | | | 1/11/19 910a |
| | | | | | | | |

Matrix *

| | |
|---|---|
| S = Soil | DS = Drum Solids |
| SE = Sediment | DL = Drum Liquids |
| 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: |
|---|---|---|---|

Printed On 11/19/2018 FSR ID = FSR72521 A-6004-842 (REV 3)

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Rev. 0

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 1901132 | C.O.C. # W19-001-268 Page 1 of 1 |
|---|---|---|

| | | |
|---|---|---|
| **Collector:** C.C. HOFFMAN/CHPRC | **Contact/Requester:** Karen Waters-Husted | **Telephone No.:** 509-376-4650 |
| **SAF No.:** W19-001 | **Sampling Origin:** Hanford Site | **Purchase Order/Charge Code:** 300071 |
| **Project Title:** RCRA, JANUARY 2019 | **Logbook No.:** HNF-N-506 ~104 | **Ice Chest No.:** GWS-656 |
| **Shipped To (Lab):** ALS Environmental Ft. Collins | **Method of Shipment:** Commercial Carrier | **Bill of Lading/Air Bill No.:** 7741 6534 7512 |
| **Protocol:** RCRA | **Priority:** 30 Days | **Offsite Property No.:** 10493 |

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

**SPECIAL INSTRUCTIONS**
N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B3MPT8 3 | N | W | JAN 10 2019 | 0910 | 1x500-mL G/P | 6010_METALS_ICP: COMMON | 6 Months | HNO3 to pH <2 |
| B3MPV7 4 | Y | W | ↓ | ↓ | 1x500-mL G/P | 6010_METALS_ICP: COMMON | 6 Months | HNO3 to pH <2 |

| Relinquished By | Print First and Last Name | Signature | Date/Time | Received By | Print First and Last Name | Signature | Date/Time |
|---|---|---|---|---|---|---|---|
| C.C. HOFFMAN/CHPRC | | | JAN 10 2019 1015 | Troy Bacon CHPRC | | Troy L. Bacon | JAN 10 2019 1015 |
| Troy Bacon CHPRC | | Troy L. Bacon | JAN 10 2019 1400 | FEDEX | | | |
| FedEx | | | | Erik Evans | | | 1/11/19 910a |
| | | | | | | | |

Matrix *

| | |
|---|---|
| S = Soil | DS = Drum Solids |
| SE = Sediment | DL = Drum Liquids |
| 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: |
|---|---|---|---|

Printed On 12/13/2018 FSR ID = FSR73502 A-6004-842 (REV 3)

ALS1901132 Jan. 24, 2019 Rev. 0

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: CHPRC Workorder No: 1901132

Project Manager: KMD Initials: EE Date: 1/11/19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | 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? | | YES | NO |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | YES | NO |
| 6. | Are short-hold samples present? | | YES | NO |
| 7. | Are all samples within holding times for the requested analyses? | | YES | NO |
| 8. | Were all sample containers received intact? (not broken or leaking) | | YES | NO |
| 9. | Is there sufficient sample for the requested analyses? | | YES | NO |
| 10. | Are all samples in the proper containers for the requested analyses? | | YES | NO |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | YES | NO |
| 12. | Are all aqueous non-preserved samples pH 4-9? | N/A | YES | NO |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | N/A | YES | NO |
| 14. | Were the samples shipped on ice? | | YES | NO |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? | RAD ONLY | YES | NO |

| IR gun used*: | #1 | #3 | #4 |
|---|---|---|---|
| Cooler #: | 1 | | |
| Temperature (°C): | | | |
| No. of custody seals on cooler: | 2 | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 10 | | |
| DOT Survey/ Acceptance Information — Background µR/hr reading: | 11 | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)

**Additional Information:** **Please provide details here for any NO responses to gray-shaded boxes above, or any other issues noted:**

All client bottle ID's vs ALS lab ID's double-checked by: EE

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

**Project Manager Signature / Date:** 1-14-19

Form 201r26.xls
(06/29/2018)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

1901132

ORIGIN ID:PSCA (509) 376-0951
MALCOM CHUNN
6287 LATAH ST
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 10JAN19
ACTWGT: 48.00 LB
CAD: 10706605/INET4040

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE
FORT COLLINS CO 80524
(970) 490-1511
INV:
PO:
REF: PTR# 10493
DEPT:

10-2

552J2/D74C/DCA5

FedEx Express

J1021180801691

FRI - 11 JAN 10:30A
PRIORITY OVERNIGHT
DSR
80524
DEN
CO-US

TRK# 0201 7741 6534 7512

XH FTCA

5.6

**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

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## CH2M HILL Plateau Remediation Company

RCRA, JANUARY 2019 -- W19-001

Work Order Number: 1901132

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

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

2. 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. Sodium was 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.

6. Matrix specific quality control procedures.

   Sample 1901132-1 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 the ICP batch. All acceptance criteria were met.

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

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Megan Johnstone — 1/23/19
Megan Johnstone
Inorganics Primary Data Reviewer
Date

1/24/19
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 <=20X the blank concentration.

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

# Total Recoverable ICP Metals

## Method SW6010D

## Sample Results

**Lab Name:** **ALS -- Fort Collins**
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MM01
**Lab ID:** 1901132-1

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received
**File Name:** 190122A.

**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 |
|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 1 | 0.75 | U | 20 | 0.75 |
| 7440-38-2 | ARSENIC | 1 | 0.46 | U | 10 | 0.46 |
| 7440-39-3 | BARIUM | 1 | 70 | | 20 | 2.6 |
| 7440-43-9 | CADMIUM | 1 | 0.11 | U | 5 | 0.11 |
| 7440-70-2 | CALCIUM | 1 | 51000 | | 1000 | 210 |
| 7440-47-3 | CHROMIUM | 1 | 2.4 | U | 10 | 2.4 |
| 7440-48-4 | COBALT | 1 | 0.19 | U | 10 | 0.19 |
| 7440-50-8 | COPPER | 1 | 0.51 | U | 8 | 0.51 |
| 7439-89-6 | IRON | 1 | 30 | U | 50 | 30 |
| 7439-95-4 | MAGNESIUM | 1 | 18000 | | 750 | 89 |
| 7439-96-5 | MANGANESE | 1 | 0.49 | U | 5 | 0.49 |
| 7440-02-0 | NICKEL | 1 | 1.1 | U | 20 | 1.1 |
| 7440-09-7 | POTASSIUM | 1 | 6200 | | 1000 | 130 |
| 7440-22-4 | SILVER | 1 | 0.73 | U | 10 | 0.73 |
| 7440-23-5 | SODIUM | 1 | 19000 | | 500 | 38 |
| 7440-62-2 | VANADIUM | 1 | 18 | | 10 | 0.43 |
| 7440-66-6 | ZINC | 1 | 0.62 | U | 20 | 0.62 |

**Data Package ID:** *IT1901132-1*

# Dissolved ICP Metals

## Method SW6010D

## Sample Results

**Lab Name:** **ALS -- Fort Collins**
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MM05
**Lab ID:** 1901132-2

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received
**File Name:** 190122A.

**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 |
|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 1 | 0.75 | U | 20 | 0.75 |
| 7440-38-2 | ARSENIC | 1 | 5.2 | B | 10 | 0.46 |
| 7440-39-3 | BARIUM | 1 | 71 | | 20 | 2.6 |
| 7440-43-9 | CADMIUM | 1 | 0.11 | U | 5 | 0.11 |
| 7440-70-2 | CALCIUM | 1 | 52000 | | 1000 | 210 |
| 7440-47-3 | CHROMIUM | 1 | 2.4 | U | 10 | 2.4 |
| 7440-48-4 | COBALT | 1 | 0.3 | B | 10 | 0.19 |
| 7440-50-8 | COPPER | 1 | 0.51 | U | 8 | 0.51 |
| 7439-89-6 | IRON | 1 | 30 | U | 50 | 30 |
| 7439-95-4 | MAGNESIUM | 1 | 18000 | | 750 | 89 |
| 7439-96-5 | MANGANESE | 1 | 0.49 | U | 5 | 0.49 |
| 7440-02-0 | NICKEL | 1 | 1.1 | U | 20 | 1.1 |
| 7440-09-7 | POTASSIUM | 1 | 6200 | | 1000 | 130 |
| 7440-22-4 | SILVER | 1 | 0.73 | U | 10 | 0.73 |
| 7440-23-5 | SODIUM | 1 | 19000 | | 500 | 38 |
| 7440-62-2 | VANADIUM | 1 | 19 | | 10 | 0.43 |
| 7440-66-6 | ZINC | 1 | 0.62 | U | 20 | 0.62 |

**Data Package ID:** *IT1901132-1*

# Total Recoverable ICP Metals

## Method SW6010D

## Sample Results

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MPT8
**Lab ID:** 1901132-3

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received
**File Name:** 190122A.

**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 |
|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 1 | 0.75 | U | 20 | 0.75 |
| 7440-38-2 | ARSENIC | 1 | 3.9 | B | 10 | 0.46 |
| 7440-39-3 | BARIUM | 1 | 36 | | 20 | 2.6 |
| 7440-43-9 | CADMIUM | 1 | 0.11 | U | 5 | 0.11 |
| 7440-70-2 | CALCIUM | 1 | 54000 | | 1000 | 210 |
| 7440-47-3 | CHROMIUM | 1 | 2.4 | U | 10 | 2.4 |
| 7440-48-4 | COBALT | 1 | 0.19 | U | 10 | 0.19 |
| 7440-50-8 | COPPER | 1 | 0.51 | U | 8 | 0.51 |
| 7439-89-6 | IRON | 1 | 30 | U | 50 | 30 |
| 7439-95-4 | MAGNESIUM | 1 | 16000 | | 750 | 89 |
| 7439-96-5 | MANGANESE | 1 | 0.49 | U | 5 | 0.49 |
| 7440-02-0 | NICKEL | 1 | 1.5 | B | 20 | 1.1 |
| 7440-09-7 | POTASSIUM | 1 | 6300 | | 1000 | 130 |
| 7440-22-4 | SILVER | 1 | 0.73 | U | 10 | 0.73 |
| 7440-23-5 | SODIUM | 1 | 15000 | | 500 | 38 |
| 7440-62-2 | VANADIUM | 1 | 20 | | 10 | 0.43 |
| 7440-66-6 | ZINC | 1 | 0.62 | U | 20 | 0.62 |

**Data Package ID:** *IT1901132-1*

# Dissolved ICP Metals

## Method SW6010D

## Sample Results

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MPT7
**Lab ID:** 1901132-4

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received
**File Name:** 190122A.

**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 |
|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 1 | 0.75 | U | 20 | 0.75 |
| 7440-38-2 | ARSENIC | 1 | 4.3 | B | 10 | 0.46 |
| 7440-39-3 | BARIUM | 1 | 35 | | 20 | 2.6 |
| 7440-43-9 | CADMIUM | 1 | 0.11 | U | 5 | 0.11 |
| 7440-70-2 | CALCIUM | 1 | 53000 | | 1000 | 210 |
| 7440-47-3 | CHROMIUM | 1 | 2.4 | U | 10 | 2.4 |
| 7440-48-4 | COBALT | 1 | 0.19 | U | 10 | 0.19 |
| 7440-50-8 | COPPER | 1 | 0.51 | U | 8 | 0.51 |
| 7439-89-6 | IRON | 1 | 30 | U | 50 | 30 |
| 7439-95-4 | MAGNESIUM | 1 | 16000 | | 750 | 89 |
| 7439-96-5 | MANGANESE | 1 | 0.49 | U | 5 | 0.49 |
| 7440-02-0 | NICKEL | 1 | 1.1 | U | 20 | 1.1 |
| 7440-09-7 | POTASSIUM | 1 | 6200 | | 1000 | 130 |
| 7440-22-4 | SILVER | 1 | 0.73 | U | 10 | 0.73 |
| 7440-23-5 | SODIUM | 1 | 15000 | | 500 | 38 |
| 7440-62-2 | VANADIUM | 1 | 20 | | 10 | 0.43 |
| 7440-66-6 | ZINC | 1 | 0.62 | U | 20 | 0.62 |

**Data Package ID:** *IT1901132-1*

# ICP Metals

## Method SW6010D
## Method Blank

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Lab ID:** IP190122-3MB

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** N/A
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** N/A
**File Name:** 190122A.

**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 |
|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 1 | 0.75 | U | 20 | 0.75 |
| 7440-38-2 | ARSENIC | 1 | 0.46 | U | 10 | 0.46 |
| 7440-39-3 | BARIUM | 1 | 2.6 | U | 20 | 2.6 |
| 7440-43-9 | CADMIUM | 1 | 0.11 | U | 5 | 0.11 |
| 7440-70-2 | CALCIUM | 1 | 210 | U | 1000 | 210 |
| 7440-47-3 | CHROMIUM | 1 | 2.4 | U | 10 | 2.4 |
| 7440-48-4 | COBALT | 1 | 0.19 | U | 10 | 0.19 |
| 7440-50-8 | COPPER | 1 | 0.51 | U | 8 | 0.51 |
| 7439-89-6 | IRON | 1 | 30 | U | 50 | 30 |
| 7439-95-4 | MAGNESIUM | 1 | 89 | U | 750 | 89 |
| 7439-96-5 | MANGANESE | 1 | 0.49 | U | 5 | 0.49 |
| 7440-02-0 | NICKEL | 1 | 1.1 | U | 20 | 1.1 |
| 7440-09-7 | POTASSIUM | 1 | 130 | U | 1000 | 130 |
| 7440-22-4 | SILVER | 1 | 0.73 | U | 10 | 0.73 |
| 7440-23-5 | SODIUM | 1 | 92 | B | 500 | 38 |
| 7440-62-2 | VANADIUM | 1 | 0.43 | U | 10 | 0.43 |
| 7440-66-6 | ZINC | 1 | 0.62 | U | 20 | 0.62 |

**Data Package ID:** *IT1901132-1*

# ICP Metals

## Method SW6010D

## Laboratory Control Sample

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Lab ID:** IP190122-3LCS

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** N/A
**Date Extracted:** 01/22/2019
**Date Analyzed:** 01/22/2019
**Prep Method:** SW3005A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** N/A
**File Name:** 190122A.

**Sample Aliquot:** 50 ml
**Final Volume:** 50 ml
**Result Units:** UG/L
**Clean DF:** 1

| CASNO | Target Analyte | Spike Added | LCS Result | Reporting Limit | Result Qualifier | LCS % Rec. | Control Limits |
|---|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 500 | 477 | 20 | | 95 | 80 - 120% |
| 7440-38-2 | ARSENIC | 1000 | 963 | 10 | | 96 | 80 - 120% |
| 7440-39-3 | BARIUM | 1000 | 1010 | 20 | | 101 | 80 - 120% |
| 7440-43-9 | CADMIUM | 50 | 49.6 | 5 | | 99 | 80 - 120% |
| 7440-70-2 | CALCIUM | 40000 | 37100 | 1000 | | 93 | 80 - 120% |
| 7440-47-3 | CHROMIUM | 200 | 207 | 10 | | 104 | 80 - 120% |
| 7440-48-4 | COBALT | 500 | 518 | 10 | | 104 | 80 - 120% |
| 7440-50-8 | COPPER | 250 | 263 | 8 | | 105 | 80 - 120% |
| 7439-89-6 | IRON | 1000 | 936 | 50 | | 94 | 80 - 120% |
| 7439-95-4 | MAGNESIUM | 40000 | 40500 | 750 | | 101 | 80 - 120% |
| 7439-96-5 | MANGANESE | 500 | 518 | 5 | | 104 | 80 - 120% |
| 7440-02-0 | NICKEL | 500 | 507 | 20 | | 101 | 80 - 120% |
| 7440-09-7 | POTASSIUM | 40000 | 36900 | 1000 | | 92 | 80 - 120% |
| 7440-22-4 | SILVER | 100 | 99.5 | 10 | | 100 | 80 - 120% |
| 7440-23-5 | SODIUM | 40000 | 38100 | 500 | | 95 | 80 - 120% |
| 7440-62-2 | VANADIUM | 500 | 491 | 10 | | 98 | 80 - 120% |
| 7440-66-6 | ZINC | 500 | 516 | 20 | | 103 | 80 - 120% |

**Data Package ID:** *IT1901132-1*

# ICP Metals

## Method SW6010D

## Matrix Spike And Matrix Spike Duplicate

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MM01
**LabID:** 1901132-1MS

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 50 ml
**Final Volume:** 50 ml
**Result Units:** UG/L
**File Name:** 190122A.

| CASNO | Target Analyte | Sample Result | Samp Qual | MS Result | MS Qual | Reporting Limit | Spike Added | MS % Rec. | Control Limits |
|---|---|---|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 0.75 | U | 477 | | 20 | 500 | 95 | 80 - 120% |
| 7440-38-2 | ARSENIC | 0.46 | U | 972 | | 10 | 1000 | 97 | 80 - 120% |
| 7440-39-3 | BARIUM | 70 | | 1080 | | 20 | 1000 | 101 | 80 - 120% |
| 7440-43-9 | CADMIUM | 0.11 | U | 49.3 | | 5 | 50 | 99 | 80 - 120% |
| 7440-70-2 | CALCIUM | 51000 | | 89300 | | 1000 | 40000 | 94 | 80 - 120% |
| 7440-47-3 | CHROMIUM | 2.4 | U | 206 | | 10 | 200 | 103 | 80 - 120% |
| 7440-48-4 | COBALT | 0.19 | U | 509 | | 10 | 500 | 102 | 80 - 120% |
| 7440-50-8 | COPPER | 0.51 | U | 264 | | 8 | 250 | 106 | 80 - 120% |
| 7439-89-6 | IRON | 30 | U | 932 | | 50 | 1000 | 93 | 80 - 120% |
| 7439-95-4 | MAGNESIUM | 18000 | | 58600 | | 750 | 40000 | 102 | 80 - 120% |
| 7439-96-5 | MANGANESE | 0.49 | U | 511 | | 5 | 500 | 102 | 80 - 120% |
| 7440-02-0 | NICKEL | 1.1 | U | 496 | | 20 | 500 | 99 | 80 - 120% |
| 7440-09-7 | POTASSIUM | 6200 | | 46300 | | 1000 | 40000 | 100 | 80 - 120% |
| 7440-22-4 | SILVER | 0.73 | U | 99.2 | | 10 | 100 | 99 | 80 - 120% |
| 7440-23-5 | SODIUM | 19000 | | 60400 | | 500 | 40000 | 102 | 80 - 120% |
| 7440-62-2 | VANADIUM | 18 | | 504 | | 10 | 500 | 97 | 80 - 120% |
| 7440-66-6 | ZINC | 0.62 | U | 507 | | 20 | 500 | 101 | 80 - 120% |

**Data Package ID:** *IT1901132-1*

# ICP Metals

## Method SW6010D

## Matrix Spike And Matrix Spike Duplicate

**Lab Name:** ALS -- Fort Collins
**Work Order Number:** 1901132
**Client Name:** CH2M HILL Plateau Remediation Company
**ClientProject ID:** RCRA, JANUARY 2019 W19-001

**Field ID:** B3MM01
**LabID:** 1901132-1MSD

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 10-Jan-19
**Date Extracted:** 22-Jan-19
**Date Analyzed:** 22-Jan-19
**Prep Method:** SW3005 Rev A

**Prep Batch:** IP190122-3
**QCBatchID:** IP190122-3-2
**Run ID:** IT190122-1A3
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 50 ml
**Final Volume:** 50 ml
**Result Units:** UG/L
**File Name:** 190122A.

| CASNO | Target Analyte | MSD Result | MSD Qual | Spike Added | MSD % Rec. | Reporting Limit | RPD Limit | RPD |
|---|---|---|---|---|---|---|---|---|
| 7440-36-0 | ANTIMONY | 475 | | 500 | 95 | 20 | 20 | 0 |
| 7440-38-2 | ARSENIC | 979 | | 1000 | 98 | 10 | 20 | 1 |
| 7440-39-3 | BARIUM | 1080 | | 1000 | 101 | 20 | 20 | 0 |
| 7440-43-9 | CADMIUM | 49.4 | | 50 | 99 | 5 | 20 | 0 |
| 7440-70-2 | CALCIUM | 89700 | | 40000 | 96 | 1000 | 20 | 0 |
| 7440-47-3 | CHROMIUM | 208 | | 200 | 104 | 10 | 20 | 1 |
| 7440-48-4 | COBALT | 510 | | 500 | 102 | 10 | 20 | 0 |
| 7440-50-8 | COPPER | 265 | | 250 | 106 | 8 | 20 | 0 |
| 7439-89-6 | IRON | 946 | | 1000 | 95 | 50 | 20 | 1 |
| 7439-95-4 | MAGNESIUM | 58800 | | 40000 | 102 | 750 | 20 | 0 |
| 7439-96-5 | MANGANESE | 513 | | 500 | 103 | 5 | 20 | 0 |
| 7440-02-0 | NICKEL | 499 | | 500 | 100 | 20 | 20 | 1 |
| 7440-09-7 | POTASSIUM | 46600 | | 40000 | 101 | 1000 | 20 | 1 |
| 7440-22-4 | SILVER | 99.3 | | 100 | 99 | 10 | 20 | 0 |
| 7440-23-5 | SODIUM | 60600 | | 40000 | 103 | 500 | 20 | 0 |
| 7440-62-2 | VANADIUM | 506 | | 500 | 97 | 10 | 20 | 0 |
| 7440-66-6 | ZINC | 510 | | 500 | 102 | 20 | 20 | 0 |

**Data Package ID:** *IT1901132-1*

# Prep Batch ID: IP190122-3

**Start Date:** 01/22/19
**Start Time:** 12:22
**Prep Analyst:** Jill M. Latelle

**End Date:** 01/22/19
**End Time:** 18:00

**Concentration Method:** NONE
**Extract Method:** SW3005A
**Initial Volume Units:** ml
**Final Volume Units:** ml

**Batch Created By:** jml
**Date Created:** 01/22/19
**Time Created:** 12:22
**Validated By:** jml
**Date Validated:** 01/22/19
**Time Validated:** 13:08

**Comments:**

**QC Batch ID:** IP190122-3-2

| Lab ID | QC Type | Field ID | Matrix | Date Collected | Initial Wt/Vol | Final Wt/Vol | Cleanup Method | Cleanup DF | Order Number |
|---|---|---|---|---|---|---|---|---|---|
| IP190122-3 | MB | XXXXXX | WATER | XXXXXX | 50 | 50 | NONE | 1 | 1901132 |
| IP190122-3 | LCS | XXXXXX | WATER | XXXXXX | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-1 | MS | B3MM01 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-1 | MSD | B3MM01 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-1 | SMP | B3MM01 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-2 | SMP | B3MM05 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-3 | SMP | B3MPT8 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |
| 1901132-4 | SMP | B3MPT7 | WATER | 1/10/2019 | 50 | 50 | NONE | 1 | 1901132 |

**QC Types**

| | | | |
|---|---|---|---|
| CAR | Carrier reference sample | DUP | Laboratory Duplicate |
| LCS | Laboratory Control Sample | LCSD | Laboratory Control Sample Duplicat |
| 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 | | |