



Wednesday, July 20, 2016

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1606503
Project Name: 100-KW Rebound Study, May 31, 2016
Project Number: X16-037

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 6/25/2016. 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,

A handwritten signature in black ink, appearing to read "Julie Ellingson".

ALS Environmental
Julie Ellingson
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1606503

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: 100-KW Rebound Study, May 31, 2016

Client Project Number: X16-037

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35MK8	1606503-1		WATER	24-Jun-16	9:09
B35ML3	1606503-2		WATER	24-Jun-16	9:09

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-037-017**
Page 1 of 1

Collector: **Juan Aguilar @HPAC** Telephone No. **509-376-4650**

SAF No. **X16-037** Purchase Order/Charge Code **304027**

Project Title **100-KW Rebound Study, May 31, 2016** Logbook No. **HNF-N-506 79/28**

Shipped To (Lab) **ALS Environmental Ft. Collins** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **7764 05358679**

Protocol **CERCLA** Priority: **30 Days** **PRIORITY** Offsite Property No. **6773**

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** ** 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 **Hold Time** Total Activity Exemption: Yes No
 N/A
 Special Handling: N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35MK8 (1)	N	W	6-24-16	0909	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B35ML3 (2)	Y	W	6-24-16	0909	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

1606503

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Juan Aguilar			JUN 24 2016 1010	Troy Bacon	CHPRC		JUN 24 2016 1010	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
Troy Bacon	CHPRC		JUN 24 2016 1400	FEDEX				
Relinquished By		Felex	6-25-16 0900	Received By		Scott Malby	6-25-16 0900	
Relinquished By				Received By				

40

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

PRINTED ON 5/23/2016

FSR ID = FSR32433

A-6004-842 (REV 2)



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1606503
 Project Manager: Jme Initials: SDM Date: 6-25-16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	NONE	<input checked="" type="radio"/> YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>1.4</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

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

Project Manager Signature / Date: *Jme* 6/25/16

1606503

1606503

ORIGIN ID: PSCA (509) 373-3560
JANELLE ZUNKER
CH2M
8269 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 24JUN16
ACTWGT: 68.00 LB
CAD: 107066051/NET3730

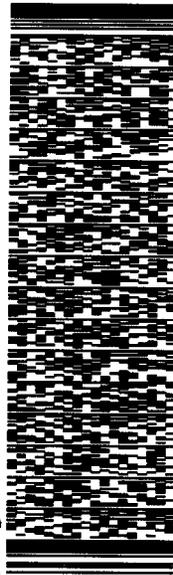
BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1511 REF: 673

PO.

DEPT.



16101002001v

1.4oz

TRK# 7766 0535 8679
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 FTCA

DSR 80524
CO-US DEN



12
-2

540.0200BD/727F

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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Metals Case Narrative

CH2M HILL Plateau Remediation Company

100-KW Rebound Study, May 31, 2016 -- X16-037

Work Order Number: 1606503

1. This report consists of 2 water samples for total recoverable or dissolved metals.
2. The samples were received cool and intact by ALS on 06/25/16.
3. The sample for dissolved metals had been filtered prior to receipt. Both samples 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 Trace ICP, the samples were digested following method 3005A and the current revision of SOP 806.

5. Analysis by Trace ICP followed method 6010B and the current revision of SOP 834.
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. Calcium and zinc were detected above the MDL. Sample results have been compared to the blank results.
 - All laboratory control sample criteria were met.



- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.
- The interference check samples and high standard readbacks associated with Method 6010B were within acceptance criteria.

9. Matrix specific quality control procedures.

Sample 1606474-1 was designated as the quality control sample for this analysis. Results for the shared quality control samples are included at the client's request.

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

- A matrix spike 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. 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.



Emily Knodel
Inorganics Primary Data Reviewer

7/8/16
Date



Julie Ellinger
Inorganics Final Data Reviewer

7/20/16
Date



Inorganic Data Reporting Qualifiers

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

- Result qualifier -- A "B" is entered if the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL). If the analyte was analyzed for but not detected a "U" is entered. For samples, negative values are reported as non-detects ("U" flagged). For blanks, if the absolute value of the negative value is above the MDL and below the reporting limit, then the result is "B" flagged.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.
 - C - The analyte was detected in both the sample and the associated QC blank, and the sample concentration was $\leq 20X$ the blank concentration.
 - D - Analyte was reported at a secondary dilution factor, typically $DF > 1$ (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Field ID:	B35MK8
Lab ID:	1606503-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Jun-16
Date Extracted: 01-Jul-16
Date Analyzed: 05-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160701-2
QCBatchID: IP160701-2-5
Run ID: IP160705-1A3
Cleanup: NONE
Basis: As Received
File Name:

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

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-36-0	ANTIMONY	1	5.6	20	5.6	U	
7440-38-2	ARSENIC	1	4.7	10	4.7	U	
7440-39-3	BARIUM	1	24	20	1.5		
7440-43-9	CADMIUM	1	0.39	5	0.39	U	
7440-70-2	CALCIUM	1	17000	1000	51		
7440-47-3	CHROMIUM	1	2.7	10	1.4	B	
7440-48-4	COBALT	1	1.6	10	1.6	U	
7440-50-8	COPPER	1	2.2	8	2.2	U	
7439-89-6	IRON	1	580	50	16		
7439-95-4	MAGNESIUM	1	4200	750	58		
7439-96-5	MANGANESE	1	11	5	0.86		
7440-02-0	NICKEL	1	1.6	20	1.6	U	
7440-09-7	POTASSIUM	1	1200	1000	86		
7440-22-4	SILVER	1	3	10	3	U	
7440-23-5	SODIUM	1	2500	500	61		
7440-62-2	VANADIUM	1	5.5	10	2	B	
7440-66-6	ZINC	1	5.6	20	4.6	BC	

Data Package ID: IP1606503-1

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Field ID:	B35ML3
Lab ID:	1606503-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Jun-16
Date Extracted: 01-Jul-16
Date Analyzed: 05-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160701-2
QCBatchID: IP160701-2-5
Run ID: IP160705-1A3
Cleanup: NONE
Basis: As Received
File Name:

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

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-36-0	ANTIMONY	1	5.6	20	5.6	U	
7440-38-2	ARSENIC	1	4.7	10	4.7	U	
7440-39-3	BARIUM	1	21	20	1.5		
7440-43-9	CADMIUM	1	0.39	5	0.39	U	
7440-70-2	CALCIUM	1	17000	1000	51		
7440-47-3	CHROMIUM	1	2.2	10	1.4	B	
7440-48-4	COBALT	1	1.6	10	1.6	U	
7440-50-8	COPPER	1	2.2	8	2.2	U	
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	4000	750	58		
7439-96-5	MANGANESE	1	0.86	5	0.86	U	
7440-02-0	NICKEL	1	1.6	20	1.6	U	
7440-09-7	POTASSIUM	1	1200	1000	86		
7440-22-4	SILVER	1	3	10	3	U	
7440-23-5	SODIUM	1	2500	500	61		
7440-62-2	VANADIUM	1	4.5	10	2	B	
7440-66-6	ZINC	1	4.6	20	4.6	U	

Data Package ID: IP1606503-1

July 20, 2016

ALS1606503

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Lab ID: IP160701-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 01-Jul-16

Date Analyzed: 05-Jul-16

Prep Batch: IP160701-2

QCBatchID: IP160701-2-5

Run ID: IP160705-1A3

Cleanup: NONE

Basis: N/A

File Name:

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-36-0	ANTIMONY	1	5.6	20	5.6	U	
7440-38-2	ARSENIC	1	4.7	10	4.7	U	
7440-39-3	BARIUM	1	1.5	20	1.5	U	
7440-43-9	CADMIUM	1	0.39	5	0.39	U	
7440-70-2	CALCIUM	1	59	1000	51	B	
7440-47-3	CHROMIUM	1	1.4	10	1.4	U	
7440-48-4	COBALT	1	1.6	10	1.6	U	
7440-50-8	COPPER	1	2.2	8	2.2	U	
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	58	750	58	U	
7439-96-5	MANGANESE	1	0.86	5	0.86	U	
7440-02-0	NICKEL	1	1.6	20	1.6	U	
7440-09-7	POTASSIUM	1	86	1000	86	U	
7440-22-4	SILVER	1	3	10	3	U	
7440-23-5	SODIUM	1	61	500	61	U	
7440-62-2	VANADIUM	1	2	10	2	U	
7440-66-6	ZINC	1	7.3	20	4.6	B	

Data Package ID: IP1606503-1

July 20, 2016

ALS1606503

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Lab ID: IP160701-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/01/2016

Date Analyzed: 07/05/2016

Prep Method: SW3005A

Prep Batch: IP160701-2

QCBatchID: IP160701-2-5

Run ID: IP160705-1A3

Cleanup: NONE

Basis: N/A

File Name:

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-36-0	ANTIMONY	500	527	20		105	80 - 120%
7440-38-2	ARSENIC	1000	1030	10		103	80 - 120%
7440-39-3	BARIUM	1000	1040	20		104	80 - 120%
7440-43-9	CADMIUM	50	53.9	5		108	80 - 120%
7440-70-2	CALCIUM	40000	39400	1000		98	80 - 120%
7440-47-3	CHROMIUM	200	197	10		98	80 - 120%
7440-48-4	COBALT	500	539	10		108	80 - 120%
7440-50-8	COPPER	250	274	8		110	80 - 120%
7439-89-6	IRON	1000	1010	50		101	80 - 120%
7439-95-4	MAGNESIUM	40000	39600	750		99	80 - 120%
7439-96-5	MANGANESE	500	499	5		100	80 - 120%
7440-02-0	NICKEL	500	497	20		99	80 - 120%
7440-09-7	POTASSIUM	40000	40900	1000		102	80 - 120%
7440-22-4	SILVER	100	105	10		105	80 - 120%
7440-23-5	SODIUM	40000	40800	500		102	80 - 120%
7440-62-2	VANADIUM	500	524	10		105	80 - 120%
7440-66-6	ZINC	500	534	20		107	80 - 120%

Data Package ID: IP1606503-1

July 20, 2016

ALS1606503

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Field ID: SHARED QC

LabID: 1606474-1MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 23-Jun-16

Date Extracted: 01-Jul-16

Date Analyzed: 05-Jul-16

Prep Method: SW3005 Rev A

Prep Batch: IP160701-2

QC BatchID: IP160701-2-5

Run ID: IP160705-1A3

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name:

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-36-0	ANTIMONY	5.6	U	526		20	500	105	80 - 120%
7440-38-2	ARSENIC	4.7	U	1050		10	1000	105	80 - 120%
7440-39-3	BARIUM	48		1100		20	1000	105	80 - 120%
7440-43-9	CADMIUM	0.39	U	53.4		5	50	107	80 - 120%
7440-70-2	CALCIUM	54000		93300		1000	40000	98	80 - 120%
7440-47-3	CHROMIUM	7.6	B	201		10	200	97	80 - 120%
7440-48-4	COBALT	1.6	U	528		10	500	106	80 - 120%
7440-50-8	COPPER	2.2	U	270		8	250	108	80 - 120%
7439-89-6	IRON	16	U	1020		50	1000	102	80 - 120%
7439-95-4	MAGNESIUM	14000		53400		750	40000	99	80 - 120%
7439-96-5	MANGANESE	1.2	B	497		5	500	99	80 - 120%
7440-02-0	NICKEL	4.6	B	498		20	500	99	80 - 120%
7440-09-7	POTASSIUM	5800		46100		1000	40000	101	80 - 120%
7440-22-4	SILVER	3	U	107		10	100	107	80 - 120%
7440-23-5	SODIUM	17000		56600		500	40000	100	80 - 120%
7440-62-2	VANADIUM	2	U	519		10	500	104	80 - 120%
7440-66-6	ZINC	4.6	U	528		20	500	106	80 - 120%

Data Package ID: IP1606503-1

July 20, 2016

ALS1606503

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1606503

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KW Rebound Study, May 31, 2016 X16-037

Field ID: SHARED QC

LabID: 1606474-1MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 23-Jun-16

Date Extracted: 01-Jul-16

Date Analyzed: 05-Jul-16

Prep Method: SW3005 Rev A

Prep Batch: IP160701-2

QC BatchID: IP160701-2-5

Run ID: IP160705-1A3

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name:

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-36-0	ANTIMONY	528		500	106	20	20	0
7440-38-2	ARSENIC	1050		1000	105	10	20	1
7440-39-3	BARIUM	1100		1000	105	20	20	0
7440-43-9	CADMIUM	53.8		50	108	5	20	1
7440-70-2	CALCIUM	94500		40000	101	1000	20	1
7440-47-3	CHROMIUM	206		200	99	10	20	3
7440-48-4	COBALT	534		500	107	10	20	1
7440-50-8	COPPER	273		250	109	8	20	1
7439-89-6	IRON	1020		1000	102	50	20	0
7439-95-4	MAGNESIUM	53500		40000	99	750	20	0
7439-96-5	MANGANESE	512		500	102	5	20	3
7440-02-0	NICKEL	499		500	99	20	20	0
7440-09-7	POTASSIUM	45700		40000	100	1000	20	1
7440-22-4	SILVER	109		100	109	10	20	2
7440-23-5	SODIUM	55800		40000	98	500	20	1
7440-62-2	VANADIUM	522		500	104	10	20	1
7440-66-6	ZINC	531		500	106	20	20	1

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