Metals

Case Narrative

COGCC

Inspection 697601450

Work Order Number: 2107471

1. This report consists of 2 soil samples and 2 saturation extracts.

2. The samples were received intact at varying temperatures by ALS on 07/22/21.

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

   For analysis by Trace ICP and ICP-MS, the samples were digested following method 3050B and the current revision of SOP 806.

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

5. Analysis by ICP-MS followed method 6020B 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 times.

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

8. General quality control procedures.

   - A preparation (method) blank, laboratory control sample and laboratory control sample duplicate were digested and analyzed with the samples in each digestion batch.
   - The preparation (method) blank associated with each digestion batch was below the reporting limit for the requested analytes.
   - All laboratory control sample criteria were met.

- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.

- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.

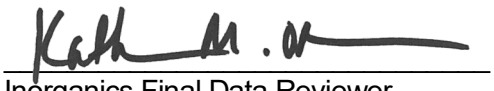
- The interference check samples and high standard read-backs associated with Method 6010D were within acceptance criteria.
- The interference check samples associated with Method 6020B were analyzed.

9. Matrix specific quality control procedures.

   Due to limited sample volume, a laboratory control sample duplicate (LCSD) was performed in place of matrix QC for each analysis.

10. It is a standard practice that samples for ICP-MS are analyzed at 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.



Inorganics Final Data Reviewer

8/31/21
Date

Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses:

- Result qualifier -- A “J” 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 “J” 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.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2107471
Client Name: COGCC
Client Project Name: Inspection 697601450
Client Project Number:
Client PO Number: GAE- PHAA 2021*056

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
118086 #1 0-8"	2107471-1		SOIL	21-Jul-21	8:26
118086 #2 0-8"	2107471-2		SOIL	21-Jul-21	8:39
118086 #1 0-8"	2107471-3		SatExtract	21-Jul-21	8:26
118086 #2 0-8"	2107471-4		SatExtract	21-Jul-21	8:39

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.

Turnaround time for samples received Saturday will be calculated beginning from the next business day.

2107471-C

TURNAROUND TIME	5 business days	SAMPLER	PAG	PAGE	1 of 1
PROJECT NAME	Inspection 697601450	SITE ID		DISPOSAL	BY LAB or
PROJECT No.		EDD FORMAT	COGCC	PARAMETER/METHOD REQUEST FOR ANALYSIS	
		PURCHASE ORDER	GAE- PHAA 2021*056	A	8015 extended range (DRO and ORO)
COMPANY NAME	Colorado Oil & Gas Conservation Commission	BILL TO COMPANY		B	8270 SIM PAHs
SEND REPORT TO	Peter Gintautas	INVOICE ATTN TO		C	SW6010 and/or SW6020 metals
ADDRESS	1120 Lincoln St., Suite 801	ADDRESS		D	
CITY / STATE / ZIP	Denver, CO 80203	CITY / STATE / ZIP		E	Saturated Paste prep with SAR, pH amd EC on extract
PHONE	719-679-1326	PHONE		F	Hot water soluble boron extractoion with SW6010 or SW6020 analysis
FAX		FAX		G	
E-MAIL	peter.gintautas@state.co.us	E-MAIL		H	
				I	
				J	

LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
1	118086 #1 0-8"	S	7/21/21	08:26	1	7		X	X	X								
2	118086 #2 0-8"	S	7/21/21	08:39	1	7		X	X	X								
3	118086 #1 0-8"	S	7/21/21	08:26	1	8						X	X					
4	118086 #2 0-8"	S	7/21/21	08:39	1	8						X	X					

*Time Zone (Circle): MST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

NOTES

METALS = As, Ba, Cd, Cu, Pb, Ni, Se, Ag, Zn 1.7

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REPORT LEVEL / QC REQUIRED	
	Summary (Standard QC)
X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

PRESERVATION KEY: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other

Form 202r9

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	P Gintautas	Peter Gintautas	7/21/2021	1446
RECEIVED BY	Claire Thennes	Claire Thennes	7/22/21	1446
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC 3 Workorder No: 2107471

Project Manager: KMO Initials: CXT Date: 07/22/21

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable? Tracking number:	X		
2. Are custody seals on shipping containers intact?	X		
3. Are custody seals on sample containers intact?	X		
4. Is there a COC (chain-of-custody) present?		X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6. Are short-hold samples present?			X
7. Are all samples within holding times for the requested analyses?		X	
8. Were all sample containers received intact? (not broken or leaking)		X	
9. Is there sufficient sample for the requested analyses?		X	
10. Are samples in proper containers for requested analyses? (form 250, *Sample Handling Guidelines*)		X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	X		
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X		
13. Were the samples shipped on ice?		X	
14. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #5	RAD ONLY	X	

Cooler #:	1	2	3				
Temperature (°C):	1.7	1.7	!Yō				
# of custody seals on cooler:	0	0	0				
External µR/hr reading:	NA	NA	NA				
Background µR/hr reading:	11	11	11				

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

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? N/A All client bottle ID's vs ALS lab ID's double-checked by CT

If applicable, was the client contacted? NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: _____ 8/01/21

Form 201r30.xls
03/18/2021

*IR Gun #5, VWR SN 192272629

Water Soluble BORON

Method SW6010D

Sample Results

Lab Name: ALS -- Fort Collins
Client Name: COGCC
Client Project ID: Inspection 697601450
Work Order Number: 2107471
Reporting Basis: As Received
Analyst: Steve Workman

Final Volume: 20 ml
Matrix: SatExtract
Result Units: MG/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
118086 #1 0-8"	2107471-3	7/21/2021	8/10/2021	08/12/2021	N/A	1	2	0.2			10.071 g
118086 #2 0-8"	2107471-4	7/21/2021	8/10/2021	08/12/2021	N/A	1	5.4	0.2			10.007 g

Comments:

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

Data Package ID: *IT2107471-1*

Total ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Field ID: 118086 #1 0-8"
Lab ID: 2107471-1

Analysis ReqCode: AsBaCdCrCuPb

Sample Matrix: SOIL
% Moisture: 2.9
Date Collected: 21-Jul-21
Date Extracted: 10-Aug-21
Date Analyzed: 21-Aug-21
Prep Method: SW3050 Rev B

Prep Batch: IP210810-23
QCBatchID: IP210810-23-1
Run ID: IM210821-10A9
Cleanup: NONE
Basis: Dry Weight
File Name: 156SMPL.

Analyst: Jill M. Latelle
Sample Aliquot: 1.037 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-38-2	ARSENIC	10	1900		200	49
7440-39-3	BARIUM	10	110000		500	230
7440-43-9	CADMIUM	10	260		200	22
7440-47-3	CHROMIUM	10	4800		990	550
7440-50-8	COPPER	10	7400		2000	290
7439-92-1	LEAD	10	9400		200	66
7440-02-0	NICKEL	10	4600		2000	440
7782-49-2	SELENIUM	10	550	J	990	200
7440-22-4	SILVER	10	68		50	8.2
7440-66-6	ZINC	10	29000		9900	4100

Data Package ID: *IM2107471-1*

Total ICPMS Metals

Method SW6020B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Field ID: 118086 #2 0-8"
Lab ID: 2107471-2

Analysis ReqCode: AsBaCdCrCuPb

Sample Matrix: SOIL
% Moisture: 5.3
Date Collected: 21-Jul-21
Date Extracted: 10-Aug-21
Date Analyzed: 21-Aug-21
Prep Method: SW3050 Rev B

Prep Batch: IP210810-23
QCBatchID: IP210810-23-1
Run ID: IM210821-10A9
Cleanup: NONE
Basis: Dry Weight
File Name: 157SMPL.

Analyst: Jill M. Latelle
Sample Aliquot: 1.012 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-38-2	ARSENIC	10	6900		210	51
7440-39-3	BARIUM	10	130000		520	240
7440-43-9	CADMIUM	10	440		210	23
7440-47-3	CHROMIUM	10	7600		1000	570
7440-50-8	COPPER	10	17000		2100	300
7439-92-1	LEAD	10	20000		210	69
7440-02-0	NICKEL	10	11000		2100	460
7782-49-2	SELENIUM	10	990	J	1000	210
7440-22-4	SILVER	10	150		52	8.7
7440-66-6	ZINC	10	55000		10000	4300

Data Package ID: *IM2107471-1*

ICP Metals

Method SW6010D

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Lab ID: IP210810-21MB

Sample Matrix: SatExtract
% Moisture: N/A
Date Collected: N/A
Date Extracted: 10-Aug-21
Date Analyzed: 12-Aug-21

Prep Batch: IP210810-21
QCBatchID: IP210810-21-1
Run ID: IT210812-1A1
Cleanup: NONE
Basis: N/A
File Name: 210812A.

Sample Aliquot: 10 g
Final Volume: 20 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7440-42-8	BORON	1	0.2	U	0.2	

Data Package ID: *IT2107471-1*

ICP Metals

Method SW6010D

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Lab ID: IP210810-21LCS

Sample Matrix: SatExtract
% Moisture: N/A
Date Collected: N/A
Date Extracted: 08/10/2021
Date Analyzed: 08/12/2021
Prep Method: HWS1

Prep Batch: IP210810-21
QCBatchID: IP210810-21-1
Run ID: IT210812-1A1
Cleanup: NONE
Basis: N/A
File Name: 210812A.

Sample Aliquot: 10 g
Final Volume: 20 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-42-8	BORON	2	1.97	0.2		99	80 - 120%

Lab ID: IP210810-21LCSD

Sample Matrix: SatExtract
% Moisture: N/A
Date Collected: N/A
Date Extracted: 08/10/2021
Date Analyzed: 08/12/2021
Prep Method: HWS1

Prep Batch: IP210810-21
QCBatchID: IP210810-21-1
Run ID: IT210812-1A1
Cleanup: NONE
Basis: N/A
File Name: 210812A.

Sample Aliquot: 10 g
Final Volume: 20 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-42-8	BORON	2	1.96	0.2		98	20	1

Data Package ID: *IT2107471-1*

ICPMS Metals

Method SW6020B

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Lab ID: IP210810-23MB

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: N/A
Date Extracted: 10-Aug-21
Date Analyzed: 21-Aug-21

Prep Batch: IP210810-23
QCBatchID: IP210810-23-1
Run ID: IM210821-10A9
Cleanup: NONE
Basis: N/A
File Name: 142SMPL.

Sample Aliquot: 1 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7440-38-2	ARSENIC	10	49	U	200	49
7440-39-3	BARIUM	10	230	U	500	230
7440-43-9	CADMIUM	10	22	U	200	22
7440-47-3	CHROMIUM	10	550	U	1000	550
7440-50-8	COPPER	10	290	U	2000	290
7439-92-1	LEAD	10	66	U	200	66
7440-02-0	NICKEL	10	440	U	2000	440
7782-49-2	SELENIUM	10	200	U	1000	200
7440-22-4	SILVER	10	8.3	U	50	8.3
7440-66-6	ZINC	10	4100	U	10000	4100

Data Package ID: *IM2107471-1*

ICPMS Metals

Method SW6020B

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Lab ID: IM210810-23LCS

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: N/A
Date Extracted: 08/10/2021
Date Analyzed: 08/21/2021
Prep Method: SW3050B

Prep Batch: IP210810-23
QCBatchID: IP210810-23-1
Run ID: IM210821-10A9
Cleanup: NONE
Basis: N/A
File Name: 143SMPL.

Sample Aliquot: 1 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-38-2	ARSENIC	10000	10200	200		102	80 - 120%
7440-39-3	BARIUM	10000	9780	500		98	80 - 120%
7440-43-9	CADMIUM	3000	3010	200		100	80 - 120%
7440-47-3	CHROMIUM	50000	48000	1000		96	80 - 120%
7440-50-8	COPPER	100000	108000	2000		108	80 - 120%
7439-92-1	LEAD	5000	5370	200		107	80 - 120%
7440-02-0	NICKEL	50000	52300	2000		105	80 - 120%
7782-49-2	SELENIUM	10000	10500	1000		105	80 - 120%
7440-22-4	SILVER	1000	981	50		98	80 - 120%
7440-66-6	ZINC	200000	216000	10000		108	80 - 120%

Data Package ID: *IM2107471-1*

ICPMS Metals

Method SW6020B

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 2107471
Client Name: COGCC
ClientProject ID: Inspection 697601450

Lab ID: IM210810-23LCSD

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: N/A
Date Extracted: 08/10/2021
Date Analyzed: 08/21/2021
Prep Method: SW3050B

Prep Batch: IP210810-23
QCBatchID: IP210810-23-1
Run ID: IM210821-10A9
Cleanup: NONE
Basis: N/A
File Name: 144SMPL.

Sample Aliquot: 1 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-38-2	ARSENIC	10000	9660	200		97	20	6
7440-39-3	BARIUM	10000	9370	500		94	20	4
7440-43-9	CADMIUM	3000	2970	200		99	20	2
7440-47-3	CHROMIUM	50000	47500	1000		95	20	1
7440-50-8	COPPER	100000	101000	2000		101	20	7
7439-92-1	LEAD	5000	5110	200		102	20	5
7440-02-0	NICKEL	50000	50700	2000		101	20	3
7782-49-2	SELENIUM	10000	10500	1000		105	20	0
7440-22-4	SILVER	1000	989	50		99	20	1
7440-66-6	ZINC	200000	203000	10000		102	20	6

Data Package ID: *IM2107471-1*