ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division
Fort Collins, Colorado

Metals
Case Narrative

Colorado Oil & Gas Conservation Commission

Complaint 200247064

Work Order Number: 1005179

1. This report consists of 2 soil samples.

2. The samples were received intact at 18°C by ALS on 05/19/10.

3. The samples were prepared for analysis based on SW-846, 3rd Edition procedures.

   For analysis by Trace ICP, the samples were digested following method 3050B and SOP 806 Rev. 14.

4. The samples were analyzed following SW-846, 3rd Edition procedures.

   Analysis by Trace ICP followed method 6010B and SOP 834 Rev. 7.

   The relationship between intensity and concentration for each element is established using at least four standards, one of which is a blank solution.

   During sample analysis concentrations are computed by the software and the results are printed in mg/L. The instrument software does not provide a printout which gives both intensity and concentration. The validity of the calibration equation is tested by analyzing the following solutions: a blank, a low level check solution with concentrations near the reporting limit, an Initial Calibration Verification (ICV) standard from a 2nd source standard solution with concentrations near the middle of the analytical range, a Continuing Calibration Verification (CCV) standard with concentrations at two times those in the ICV, and a readback of the highest calibration standard.

   These solutions provide verification that the calibration equations are functioning properly throughout the analytical range of the instrument. During sample analysis dilutions are made for analytes found at concentrations above the highest calibration standard. No results are taken from extrapolations beyond the highest standard.

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

6. The samples were prepared and analyzed within the established hold times.

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

7. General quality control procedures.
   - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch. There were not more than 20 samples in the digestion batch.
   - The preparation (method) blank associated with this digestion batch was below the practical quantitation limit for the requested analytes.
   - The laboratory control sample associated with this digestion batch was within the acceptance limits. This indicates complete digestion according to the method.
   - All initial and continuing calibration blanks associated with this analytical batch were below the practical quantitation limits for the requested analytes with the exception of CCB3 for lead. The samples bracketed by this CCB either contained more than ten times the concentration of lead that was detected in the CCB or were re-analyzed with acceptable CCBs.
   - All initial and continuing calibration verifications associated with this analytical batch were within the acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
   - The interference check samples and high standard readbacks associated with Method 6010B were within acceptance criteria.
8. Matrix specific quality control procedures.

   Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

9. Sample 1005179-1 required a dilution to bring iron into the analytical range of the Trace ICP. Accurate quantitation of iron is necessary to correct for spectral interferences on cadmium, lead, selenium, and thallium. The cadmium, lead, selenium, and thallium results were determined from the diluted sample.

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

06-07-10
Date

Tom E. Miller
Inorganics Final Data Reviewer

6-07-10
Date

Inorganic Data Reporting Qualifiers

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

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- 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 Laboratory Group -- FC

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 1005179
Client Name: Colorado Oil & Gas Conservation Commission
Client Project Name: Complaint 200247064
Client Project Number:
Client PO Number: OE PHA 10-41

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
009-05308 Battery	1005179-1		SOIL	17-May-10	9:25
009-05308 Background	1005179-2		SOIL	17-May-10	10:00

ALS Laboratory Group

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

Chain-of-Custody

Date: 18 May 10 | Page: 1 of 1 | **Lab ID: 1005179**

Project Name/No.	Complaint 200747064
REPORT TO:	Peter Cintantes
PHONE:	719-946-3091
FAX:	
E-MAIL:	peter.cintantes@state.co.us
COMPANY:	Colo. DE Hlth Env. Comm.
ADDRESS:	PO Box 106 Trinidad CO 81082

Sampler(s): Cintantes

Turnaround: Standard or Due 14d

Disposal: By Lab or Return to Client

Provide additional information as needed in Comments below.

Circle Analytical Method Above

Sample ID	Date	Time *	Lab ID	Matrix	Preservative (Type HCl, etc.)	No. of Containers	TPH	VOCs	BTEX + MtBE	SVOCs	OC Pesticides	PCBs	Herbicides	Explosives	TCLP Organics SW1311	TCLP Metals SW1311	Total Metals (ICP) or Hg	Dissolved Metals (ICP) or Hg	Total Metals (ICP-MS)	Dissolved Metals (ICP-MS)	Hexavalent Chromium	Inorganic Anions	Solids	pH	Perchlorate	
009-05308 Battery	17 May	0925	(1)	S		2											X									X
009-05309 Background	17 May	1000	(2)	S		2											X									X

Circle Analytical Method Above

Sample ID	Actinides	Gamma Isotopes	Gross Alpha / Beta	Total Alpha-Emitting Radium	Radium 226	Radium 228	Strontium 90 (Total RadioSr)	Tritium	Radon 222	
	Circle: Am / Cm / Pu / Th / U	E901.1	SW9310 E900.0	SW9315 E903.0	E903.1	SW9320 E904.0	D5811	E906.0	SM7500Rn	(Gross)
009-05308 Battery										pH, EC, SAR
009-05309 Background										X

SW8015B GRO DRO Other | SW8260C | SW8260C | SW8270D | SW8081A | SW8082 | SW8151A | SW8330 SW8330B SW8321 by LC/MS/MS | SW8260C SW8270D SW8081A SW8151A | SW6010B SW7470A | SW6010B 7470A/7471A E200.7 E245.1 | SW6010B 7470A/7471A E200.7 E245.1 | SW6020A E200.8 | SW6020A E200.8 | SW7196A Alkaline Digestion? Y / N | SW9056 E300.0 | TDS: E160.1 TSS: E160.2 Total: E160.3 | SW9040B/SW9045C E150.1 | SW6850 by LC/MS/MS E314.0

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

For metals or anions, please detail analyte list below.

Comments:
TAL list (no Hg required)

Relinquished By: (1)	Relinquished By: (2)
Signature: [signature]	Signature:
Printed Name: Peter Cintantes	Printed Name:
Date: 18 May 2010 Time: 11:00	Date: Time:
Company: CDPHE	Company:

Received By: (1)	Received By: (2)
Signature: [signature]	Signature:
Printed Name: Lauren Schmitt	Printed Name:
Date: 5/19/10 Time: 0950	Date: Time:
Company: ALS	Company:

Originator: Retain pink page or a photocopy!

Form 202r7 (5/19/09)

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CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC Workorder No: 1005179

Project Manager: ARW Initials: LAS Date: 5/19/10

1. Does this project require any **special handling** in addition to standard Paragon 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 perchlorate LCMS-MS samples **have** headspace? (at least 1/3 of container required)	(N/A)	YES	NO
16. Were samples checked for and free from the presence of **residual chlorine?** (Applicable when PM has indicated samples are from a chlorinated water source; note if field preservation with sodium thiosulfate was not observed.)	(N/A)	YES	NO
17. Were the samples **shipped on ice**?		YES	(NO)
* 18. Were cooler temperatures measured at 0.1-6.0°C? **IR gun used*:** #2 #4	RAD ONLY	YES	(NO)

Cooler #:	1
Temperature (°C):	Amb (18.0) *
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	13
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: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16

* samples will be refrigerated at laboratory

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

Project Manager Signature / Date: [signature] 5/20/10

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

Form 201r22.xls (6/1/09)

Total ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Laboratory Group -- FC

Work Order Number: 1005179

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200247064

Field ID: 009-05308 Battery
Lab ID: 1005179-1

Sample Matrix: SOIL
% Moisture: 12.9
Date Collected: 17-May-10
Date Extracted: 25-May-10
Date Analyzed: 02-Jun-10
Prep Method: SW3050 Rev B

Prep Batch: IP100525-5
QCBatchID: IP100525-5-3
Run ID: IT100602-1A1
Cleanup: NONE
Basis: Dry Weight
File Name: T100601A

Sample Aliquot: 1.02 g
Final Volume: 100 ml
Result Units: MG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	1	5600	23		
7440-36-0	ANTIMONY	1	2.3	2.3	U	
7440-38-2	ARSENIC	1	3.9	1.1		
7440-39-3	BARIUM	1	160	11		
7440-41-7	BERYLLIUM	1	0.56	0.56	U	
7440-43-9	CADMIUM	5	2.9	2.8		
7440-70-2	CALCIUM	1	17000	110		
7440-47-3	CHROMIUM	1	13	1.1		
7440-48-4	COBALT	1	4.2	1.1		
7440-50-8	COPPER	1	13	1.1		
7439-89-6	IRON	5	56000	56		
7439-92-1	LEAD	5	10	1.7		
7439-95-4	MAGNESIUM	1	2500	110		
7439-96-5	MANGANESE	1	320	1.1		
7440-02-0	NICKEL	1	19	2.3		
7440-09-7	POTASSIUM	1	1800	110		
7782-49-2	SELENIUM	5	2.8	2.8	U	
7440-22-4	SILVER	1	1.1	1.1	U	
7440-23-5	SODIUM	1	4800	110		
7440-28-0	THALLIUM	5	5.6	5.6	U	
7440-62-2	VANADIUM	1	19	1.1		
7440-66-6	ZINC	1	55	2.3		

Data Package ID: *IT1005179-1*

Total ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Laboratory Group -- FC

Work Order Number: 1005179

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200247064

Field ID: 009-05308 Background
Lab ID: 1005179-2

Sample Matrix: SOIL
% Moisture: 14.1
Date Collected: 17-May-10
Date Extracted: 25-May-10
Date Analyzed: 02-Jun-10
Prep Method: SW3050 Rev B

Prep Batch: IP100525-5
QCBatchID: IP100525-5-3
Run ID: IT100602-1A1
Cleanup: NONE
Basis: Dry Weight
File Name: T100601A

Sample Aliquot: 1.015 g
Final Volume: 100 ml
Result Units: MG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	1	9800	23		
7440-36-0	ANTIMONY	1	2.3	2.3	U	
7440-38-2	ARSENIC	1	6.1	1.1		
7440-39-3	BARIUM	1	150	11		
7440-41-7	BERYLLIUM	1	0.6	0.57		
7440-43-9	CADMIUM	1	0.82	0.57		
7440-70-2	CALCIUM	1	20000	110		
7440-47-3	CHROMIUM	1	12	1.1		
7440-48-4	COBALT	1	5.9	1.1		
7440-50-8	COPPER	1	12	1.1		
7439-89-6	IRON	1	15000	11		
7439-92-1	LEAD	1	11	0.34		
7439-95-4	MAGNESIUM	1	3900	110		
7439-96-5	MANGANESE	1	290	1.1		
7440-02-0	NICKEL	1	12	2.3		
7440-09-7	POTASSIUM	1	2400	110		
7782-49-2	SELENIUM	1	0.57	0.57	U	
7440-22-4	SILVER	1	1.1	1.1	U	
7440-23-5	SODIUM	1	110	110	U	
7440-28-0	THALLIUM	1	1.1	1.1	U	
7440-62-2	VANADIUM	1	32	1.1		
7440-66-6	ZINC	1	38	2.3		

Data Package ID: *IT1005179-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS Laboratory Group -- FC

Work Order Number: 1005179

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200247064

Lab ID: IP100525-5MB

Sample Matrix: SOLID
% Moisture: N/A
Date Collected: N/A
Date Extracted: 25-May-10
Date Analyzed: 02-Jun-10
Prep Method: SW3050 Rev B

Prep Batch: IP100525-5
QCBatchID: IP100525-5-3
Run ID: IT100602-1A1
Cleanup: NONE
Basis: N/A
File Name: T100601A

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

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	1	20	20	U	
7440-36-0	ANTIMONY	1	2	2	U	
7440-38-2	ARSENIC	1	1	1	U	
7440-39-3	BARIUM	1	10	10	U	
7440-41-7	BERYLLIUM	1	0.5	0.5	U	
7440-43-9	CADMIUM	1	0.5	0.5	U	
7440-70-2	CALCIUM	1	100	100	U	
7440-47-3	CHROMIUM	1	1	1	U	
7440-48-4	COBALT	1	1	1	U	
7440-50-8	COPPER	1	1	1	U	
7439-89-6	IRON	1	10	10	U	
7439-92-1	LEAD	1	0.3	0.3	U	
7439-95-4	MAGNESIUM	1	100	100	U	
7439-96-5	MANGANESE	1	1	1	U	
7440-02-0	NICKEL	1	2	2	U	
7440-09-7	POTASSIUM	1	100	100	U	
7782-49-2	SELENIUM	1	0.5	0.5	U	
7440-22-4	SILVER	1	1	1	U	
7440-23-5	SODIUM	1	100	100	U	
7440-28-0	THALLIUM	1	1	1	U	
7440-62-2	VANADIUM	1	1	1	U	
7440-66-6	ZINC	1	2	2	U	

Data Package ID: *IT1005179-1*

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS Laboratory Group -- FC

Work Order Number: 1005179

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200247064

Lab ID: IP100525-5LCS

Sample Matrix: SOLID
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/25/2010
Date Analyzed: 06/02/2010
Prep Method: SW3050B

Prep Batch: IP100525-5
QCBatchID: IP100525-5-3
Run ID: IT100602-1A1
Cleanup: NONE
Basis: N/A
File Name: T100601A

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

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7429-90-5	ALUMINUM	200	200	20		100	80 - 120%
7440-36-0	ANTIMONY	50	47.6	2		95	80 - 120%
7440-38-2	ARSENIC	200	195	1		98	80 - 120%
7440-39-3	BARIUM	200	195	10		97	80 - 120%
7440-41-7	BERYLLIUM	5	5.06	0.5		101	80 - 120%
7440-43-9	CADMIUM	50	47.9	0.5		96	80 - 120%
7440-70-2	CALCIUM	4000	3970	100		99	80 - 120%
7440-47-3	CHROMIUM	20	21.1	1		105	80 - 120%
7440-48-4	COBALT	50	50.3	1		101	80 - 120%
7440-50-8	COPPER	25	26.4	1		106	80 - 120%
7439-89-6	IRON	100	110	10		110	80 - 120%
7439-92-1	LEAD	50	47.9	0.3		96	80 - 120%
7439-95-4	MAGNESIUM	4000	4030	100		101	80 - 120%
7439-96-5	MANGANESE	50	48.4	1		97	80 - 120%
7440-02-0	NICKEL	50	47.6	2		95	80 - 120%
7440-09-7	POTASSIUM	4000	4000	100		100	80 - 120%
7782-49-2	SELENIUM	200	178	0.5		89	80 - 120%
7440-22-4	SILVER	10	9.65	1		97	80 - 120%
7440-23-5	SODIUM	4000	3630	100		91	80 - 120%
7440-28-0	THALLIUM	200	190	1		95	80 - 120%
7440-62-2	VANADIUM	50	48.6	1		97	80 - 120%
7440-66-6	ZINC	50	50.2	2		100	80 - 120%

Data Package ID: *IT1005179-1*