

Metals

Case Narrative

Colorado Oil & Gas Conservation Commission

Complaint 200339399

Work Order Number: 1202195

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 2/16/12.
3. The sample was to be analyzed for dissolved metals. The sample was filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.
4. The sample was prepared and analyzed based on Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures.

Prior to analysis by Trace ICP, an ionization buffer was added to the samples to improve the sodium and potassium quantitation.

For analysis by Trace ICP and ICP-MS, the sample was digested following method 200.2 and SOP 806 Rev. 15.

5. Analysis by Trace ICP followed method 200.7 and SOP 807 Rev. 13.

Analysis by ICP-MS followed method 200.8 and SOP 827 Rev. 8.

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 times.

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

8. General quality control procedures.



- A filter (method) blank and laboratory control sample were filtered, preserved, and digested at the same time as the sample.
- The preparation (method) blank associated with each digestion batch was below the practical quantitation limit for the requested analytes.
- All laboratory control sample criteria were met.
- All initial and continuing calibration blanks were below the practical quantitation limit for the requested analytes, with the exceptions of CCB3, 4, and 5 for thorium. None of the samples associated with this order number were bracketed by these CCBs.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes, with the exception of CCV3 for thorium. None of the samples associated with this order number were bracketed by this CCV.
- The interference check samples associated with Method 200.7 were within acceptance criteria.
- The interference check samples associated with Method 200.8 were analyzed.

9. Matrix specific quality control procedures.

Per method requirements, matrix QC was performed for each 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.

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

11. Sodium Adsorption Ratio (SAR) was determined by calculation based on a reference from the client. Calcium, magnesium, and sodium concentrations were determined by ICP, Method 200.7.

$$SAR = Na / (((Ca + Mg) / 2)^{1/2})$$

The analyte results are the me/L concentrations based on conversions from their mg/L concentrations. Please note that the SAR value is unitless.



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.

Jill Latelle
Jill Latelle
Inorganics Primary Data Reviewer

2-27-12
Date

[Signature]
Inorganics Final Data Reviewer

2-27-12
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.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

Client Project Name: Complaint 200339399

Client Project Number:

Client PO Number: PHA 12-10

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
705325 Nosaka WW	1202195-1		WATER	14-Feb-12	14:17

ALS Laboratory Group

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

Chain-of-Custody

Form 20278

WORKORDER # **1202195**

PROJECT NAME: **Complaints 200339399**

PROJECT No: **200339402**

COMPANY NAME: **Peter Gintantus**

SEND REPORT TO: **PO Box 108**

ADDRESS: **Trinidad CO 81062**

CITY / STATE / ZIP: **719-846-3091**

PHONE: **719-846-3091**

FAX: **719-846-3091**

E-MAIL: **peter.gintantus@state.ct.us**

SAMPLER: **PAG**

SITE ID: **15 Feb 2012**

DATE: **15 Feb 2012**

TURNAROUND: **14 days**

DISPOSAL: **1**

of **1**

Return to Client

Lab ID	Field ID	Matrix	Sample Date	Sample Time	Bottles	Pres	QC
	707183 Steiner WW	W	14 Feb	14:47	3	1	X
	Trip Blank	W	14 Feb	06:30	2	1	X
	707183 Steiner WW	W	14 Feb	14:47	1	3	X
	707183 Steiner WW	W	14 Feb	14:47	6	8	X
	Complaint 200339399	W	14 Feb	14:17	3	1	Y
	705325 Nosaka WW	W	14 Feb	14:17	1	3	X
	705325 Nosaka WW	W	14 Feb	14:17	6	8	X
	705325 Nosaka WW	W	14 Feb	14:17	6	8	X

Time 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 analytes below.

Comments: **Dissolved metals = Filter + Preserve**

upn Recip.

ANALS = Br, Cl, F, NO₃, NO₂, PO₄, SO₄

200.7-LOCIL-11, Br, 200.7-LOCIL

200.7-LOCIL-16, Na, 200.7, Th-200.7

Reservatory Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-NaHSO₄ 7-Other 8-4 degrees C 9-5035

SIGNATURE: **Peter Gintantus**

PRINTED NAME: **Peter Gintantus**

DATE: **15 Feb 2012**

TIME: **12:15**

RELINQUISHED BY: **Peter Gintantus**

RECEIVED BY: **Lauren Schmitz**

DATE: **2/16/12**

TIME: **0925**



CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC
Project Manager: ARWWorkorder No: 1202195
Initials: LAS Date: 2/16/12

1. Does this project require any special handling in addition to standard Paragon procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	NONE	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible ?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly ? (excluding volatiles)	N/A	<u>YES</u>	NO
9. Are all aqueous non-preserved samples pH 4-9 ?	N/A	<u>YES</u>	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact ? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u>X</u> < green pea _____ > green pea	N/A	YES	<u>NO</u> *
15. Do perchlorate LCMS-MS samples have headspace ? (at least 1/3 of container required)	<u>N/A</u>	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.)	<u>N/A</u>	YES	NO
17. Were the samples shipped on ice ?		<u>YES</u>	NO
18. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <u>#2</u> #4		<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>1.6</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>14</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

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

*14 1202195-1-6(705325 Ndsqka) for DISS. Gases arrived with headspace ≤ pea-size.If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____Project Manager Signature / Date: [Signature] 2/16/12

1202195

From: (719) 846-3091
Peter Gintautas
Colo. Oil & Gas Cons. Comm.
213 Conundrum RD
Trinidad, CO 81082

Origin ID: PUBA

FedEx
Express



J1210112190225

SHIP TO: (970) 490-1511

Amy Wolf
ALS Laboratory Group
225 COMMERCE DR

FORT COLLINS, CO 80524

BILL SENDER

Ship Date: 15FEB12
ActWgt: 34.0 LB
CAD: 4076443/NET3250

Delivery Address Bar Code



Ref # Complaint 200339399
Invoice #
PO #
Dept #

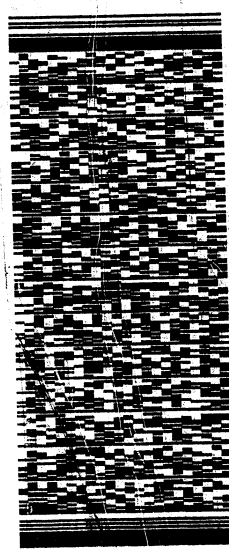
14

THU - 16 FEB A2
PRIORITY OVERNIGHT

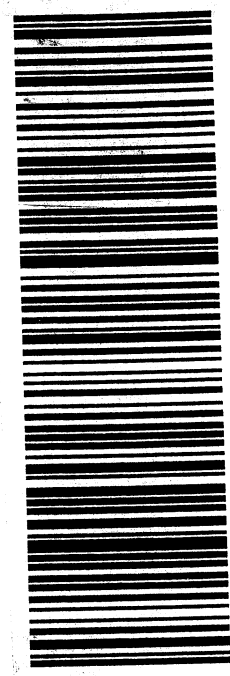
TRK# 7932 3213 0507
0201

80524
CO-US
DEN

72 FTCA



1.9



512G18F58A278

Dissolved Metals by 200.7

Method EPA200.7 Revision 4.4

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Field ID: 705325 Nosaka WW

Lab ID: 1202195-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 14-Feb-12

Date Extracted: 21-Feb-12

Date Analyzed: 22-Feb-12

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-3

Run ID: IT120222-2A6

Cleanup: NONE

Basis: As Received

File Name: 120222A.

Analyst: Mike Lundgr

Sample Aliquot: 50 G

Final Volume: 50 G

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-41-7	BERYLLIUM	1	0.002	0.002	U	
7440-42-8	BORON	1	0.1	0.1	U	
7440-70-2	CALCIUM	1	21	1		
7440-47-3	CHROMIUM	1	0.01	0.01	U	
7439-89-6	IRON	1	0.1	0.1	U	
7439-93-2	LITHIUM	1	0.023	0.01		
7439-95-4	MAGNESIUM	1	1	1	U	
7440-02-0	NICKEL	1	0.02	0.02	U	
7440-09-7	POTASSIUM	1	1.3	1		
7440-21-3	SILICON	1	3.7	0.05		
7440-23-5	SODIUM	1	110	1		
	SODIUM ADSORPTION RATIO	1	6.2	0.17	S	
7440-62-2	VANADIUM	1	0.01	0.01	U	

Data Package ID: *it1202195-1*

Date Printed: Monday, February 27, 2012

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Dissolved Metals by 200.8

Method EPA200.8 Revision 5.4

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Field ID: 705325 Nosaka WW

Lab ID: 1202195-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 14-Feb-12

Date Extracted: 21-Feb-12

Date Analyzed: 24-Feb-12

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-2

Run ID: IM120224-10A2

Cleanup: NONE

Basis: As Received

File Name: 024SMPL.

Analyst: Ross Miller

Sample Aliquot: 50 G

Final Volume: 50 G

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	0.05	0.05	U	
7440-36-0	ANTIMONY	10	0.00063	0.0003		
7440-38-2	ARSENIC	10	0.002	0.002	U	
7440-39-3	BARIUM	10	0.041	0.001		
7440-43-9	CADMIUM	10	0.0003	0.0003	U	
7440-48-4	COBALT	10	0.001	0.001	U	
7440-50-8	COPPER	10	0.01	0.01	U	
7439-92-1	LEAD	10	0.0005	0.0005	U	
7439-96-5	MANGANESE	10	0.002	0.002	U	
7439-98-7	MOLYBDENUM	10	0.0019	0.001		
7782-49-2	SELENIUM	10	0.001	0.001	U	
7440-22-4	SILVER	10	0.0001	0.0001	U	
7440-23-5	SODIUM	10	120	1		
7440-24-6	STRONTIUM	10	0.37	0.001		
7440-28-0	THALLIUM	10	0.0002	0.0002	U	
7440-29-1	THORIUM	10	0.0002	0.0002	U	
7440-61-1	URANIUM	10	0.00011	0.0001		
7440-66-6	ZINC	10	0.02	0.02	U	

Data Package ID: im1202195-1

Metals by 200.7

Method EPA200.7 Revision 4.4

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Lab ID: F120216-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Feb-12

Date Analyzed: 22-Feb-12

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-3

Run ID: IT120222-2A6

Cleanup: NONE

Basis: N/A

File Name: 120222A.

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-41-7	BERYLLIUM	1	0.002	0.002	U	
7440-42-8	BORON	1	0.1	0.1	U	
7440-70-2	CALCIUM	1	1	1	U	
7440-47-3	CHROMIUM	1	0.01	0.01	U	
7439-89-6	IRON	1	0.1	0.1	U	
7439-93-2	LITHIUM	1	0.01	0.01	U	
7439-95-4	MAGNESIUM	1	1	1	U	
7440-02-0	NICKEL	1	0.02	0.02	U	
7440-09-7	POTASSIUM	1	1	1	U	
7440-21-3	SILICON	1	0.05	0.05	U	
7440-23-5	SODIUM	1	1	1	U	
7440-62-2	VANADIUM	1	0.01	0.01	U	

Data Package ID: it1202195-1

Date Printed: Monday, February 27, 2012

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Metals by 200.7

Method EPA200.7 Revision 4.4

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Lab ID: F120216-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 02/21/2012

Date Analyzed: 02/22/2012

Prep Method: EPA200.22.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-3

Run ID: IT120222-2A6

Cleanup: NONE

Basis: N/A

File Name: 120222A.

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-41-7	BERYLLIUM	0.05	0.0465	0.002		93	85 - 115%
7440-42-8	BORON	1	0.977	0.1		98	85 - 115%
7440-70-2	CALCIUM	40	39	1		98	85 - 115%
7440-47-3	CHROMIUM	0.2	0.19	0.01		95	85 - 115%
7439-89-6	IRON	1	1.01	0.1		101	85 - 115%
7439-93-2	LITHIUM	0.5	0.47	0.01		94	85 - 115%
7439-95-4	MAGNESIUM	40	38.8	1		97	85 - 115%
7440-02-0	NICKEL	0.5	0.466	0.02		93	85 - 115%
7440-09-7	POTASSIUM	40	40.5	1		101	85 - 115%
7440-21-3	SILICON	2	2.07	0.05		104	85 - 115%
7440-23-5	SODIUM	40	37.8	1		94	85 - 115%
7440-62-2	VANADIUM	0.5	0.485	0.01		97	85 - 115%

Data Package ID: *it1202195-1*

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Metals by 200.8

Method EPA200.8 Revision 5.4

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Lab ID: F120216-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Feb-12

Date Analyzed: 24-Feb-12

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-2

Run ID: IM120224-10A2

Cleanup: NONE

Basis: N/A

File Name: 016SMPL.

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	0.05	0.05	U	
7440-36-0	ANTIMONY	10	0.0003	0.0003	U	
7440-38-2	ARSENIC	10	0.002	0.002	U	
7440-39-3	BARIUM	10	0.001	0.001	U	
7440-43-9	CADMIUM	10	0.0003	0.0003	U	
7440-48-4	COBALT	10	0.001	0.001	U	
7440-50-8	COPPER	10	0.01	0.01	U	
7439-92-1	LEAD	10	0.0005	0.0005	U	
7439-96-5	MANGANESE	10	0.002	0.002	U	
7439-98-7	MOLYBDENUM	10	0.001	0.001	U	
7782-49-2	SELENIUM	10	0.001	0.001	U	
7440-22-4	SILVER	10	0.0001	0.0001	U	
7440-23-5	SODIUM	10	1	1	U	
7440-24-6	STRONTIUM	10	0.001	0.001	U	
7440-28-0	THALLIUM	10	0.0002	0.0002	U	
7440-29-1	THORIUM	10	0.0002	0.0002	U	
7440-61-1	URANIUM	10	0.0001	0.0001	U	
7440-66-6	ZINC	10	0.02	0.02	U	

Data Package ID: im1202195-1

Date Printed: Monday, February 27, 2012

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Metals by 200.8

Method EPA200.8 Revision 5.4

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1202195

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200339399

Lab ID: FM120216-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 02/21/2012

Date Analyzed: 02/24/2012

Prep Method: EPA200.22.8

Prep Batch: IP120221-1

QCBatchID: IP120221-1-2

Run ID: IM120224-10A2

Cleanup: NONE

Basis: N/A

File Name: 018SMPL.

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7429-90-5	ALUMINUM	5	4.58	0.05		92	85 - 115%
7440-36-0	ANTIMONY	0.03	0.0294	0.0003		98	85 - 115%
7440-38-2	ARSENIC	0.1	0.0943	0.002		94	85 - 115%
7440-39-3	BARIUM	0.1	0.0964	0.001		96	85 - 115%
7440-43-9	CADMIUM	0.03	0.0307	0.0003		102	85 - 115%
7440-48-4	COBALT	0.1	0.0973	0.001		97	85 - 115%
7440-50-8	COPPER	1	1.01	0.01		101	85 - 115%
7439-92-1	LEAD	0.05	0.0496	0.0005		99	85 - 115%
7439-96-5	MANGANESE	0.2	0.192	0.002		96	85 - 115%
7439-98-7	MOLYBDENUM	0.1	0.0915	0.001		91	85 - 115%
7782-49-2	SELENIUM	0.1	0.0982	0.001		98	85 - 115%
7440-22-4	SILVER	0.01	0.00982	0.0001		98	85 - 115%
7440-23-5	SODIUM	10	10.1	1		101	85 - 115%
7440-24-6	STRONTIUM	0.1	0.0944	0.001		94	85 - 115%
7440-28-0	THALLIUM	0.002	0.00207	0.0002		103	85 - 115%
7440-29-1	THORIUM	0.01	0.00924	0.0002		92	85 - 115%
7440-61-1	URANIUM	0.01	0.00949	0.0001		95	85 - 115%
7440-66-6	ZINC	2	2.02	0.02		101	85 - 115%

Data Package ID: im1202195-1

Date Printed: Monday, February 27, 2012

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