



Metals

Case Narrative

Colorado Oil & Gas Conservation Commission

Complaint 200272771

Work Order Number: 1010128

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 10/08/10.
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 for analysis 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 sample and associated QC 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. 14.

5. The sample was analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures.

Analysis by Trace ICP followed method 200.7 and SOP 807 Rev. 12.

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.

Analysis by ICP-MS followed method 200.8 and SOP 827 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. A calibration equation relating instrument response to concentration is developed by the instrument software. The equation is a higher order polynomial. This type of equation is used to improve quantitation accuracy at lower concentrations where the relationship between concentration and instrument response is non-linear.

During sample analysis concentrations are computed by the software and the results are printed in ug/L. 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 near the middle of the analytical range but different than 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.

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 samples were filtered, preserved, and digested at the same time as the samples. There were not more than 20 samples associated with the filtered blank and laboratory control samples.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes.



- The laboratory control samples associated with this digestion batch were within the acceptance limits for the requested analytes.
- All initial and continuing calibration blanks associated with each analytical batch were below the practical quantitation limits for the requested analytes.
- All initial and continuing calibration verifications associated with each analytical batch were within the acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- The interference check samples associated with Method 200.7 were within acceptance criteria.
- The interference check samples associated with Method 200.8 were analyzed, and the high standard readbacks were within acceptance criteria.

9. Matrix specific quality control procedures.

Sample 1010128-1 was designated as the quality control sample for each 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 each batch. All acceptance criteria for accuracy were met.
- Matrix spike recoveries could not be evaluated for the following analyte:

<u>Analyte</u>	<u>Sample ID</u>
Silicon	1010128-1

The concentration of this analyte in the native sample was greater than four times the concentration of matrix spike added during the digestion. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The laboratory control sample indicates that the digestion and analysis were in control.

- A sample duplicate and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met.

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.

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

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.



Emily Knodel
Inorganics Primary Data Reviewer

11-08-10
Date



Tom E. Miller
Inorganics Final Data Reviewer

11-08-10
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.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

Client Project Name: Complaint 200272771

Client Project Number:

Client PO Number: OE PHA 11000000014

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Burge WW	1010128-1		WATER	06-Oct-10	11:25
Trip Blank	1010128-2		WATER	06-Oct-10	



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 202r8

WORKORDER #

1010128

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of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME Complaint 200272771

SAMPLER

DATE

TURNAROUND

14 day

PROJECT No.

SITE ID

EDD FORMAT

PURCHASE ORDER

PHA ~~1006~~ 11-14

COMPANY NAME

Colo Oil & Gas Cons. Comm.

BILL TO COMPANY

SEND REPORT TO

Peter Gintautas

INVOICE ATTN TO

ADDRESS

PO Box 108

ADDRESS

CITY / STATE / ZIP

Trinidad CO 81082

CITY / STATE / ZIP

PHONE

719 846-3091

PHONE

FAX

FAX

E-MAIL

peter.gintautas@state.co.us

E-MAIL

200.7 12008 dissolved
Dissolved Gases
8260-25 + TICs
8070 + TICs
TEPH - DRO
ANIONS
pH, cond
TPS + TSS
Alk - Tot, HCO₃, CO₃
SAR calc
Cation Anion Balance
TUC

Lab ID Field ID Matrix Sample Date Sample Time # Bottles Pres. QC

1	Burge WW	W	10/6/10	11:25A	1	99	X	X	X	X	X	X	X	X	X	X	X	X	X
	Burge WW		↓	↓	1	100%													X
2	Trip Blanks	W	↓	↓	2	1													

Anions = Br, Cl, F, NO₂, NO₃, SO₄
200.8 = Al, Sb, As, Cd, Pb, Mo, Se, Ag, Te, U
200.7 = Ba, B, Bi, Br, Ca, Cr, Co, Cu, Fe, Li, Mg, Mn, Ni, K, Si, Na, Sr, Zn

Time Zone (Circle): EST CST 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 = Filter + preserve at lab.

QC PACKAGE (check below)
<input checked="" type="checkbox"/> LEVEL II (Standard QC)
<input type="checkbox"/> LEVEL III (Std QC + forms)
<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)

SIGNATURE	PRINTED NAME	DATE	TIME
<i>[Signature]</i>	Angela Belloniani	10/7/10	9:00A
<i>[Signature]</i>	C. Cochran	10/8/10	0945
RELINQUISHED BY			
RECEIVED BY			
RELINQUISHED BY			
RECEIVED BY			
RELINQUISHED BY			
RECEIVED BY			

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

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CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1010128

Project Manager: AW

Initials: AW Date: 10-8-10

1. Does this project require any special handling in addition to standard Paragon procedures?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	<input checked="" type="radio"/> YES	<input type="radio"/> NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	<input checked="" type="radio"/> YES	<input type="radio"/> NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	<input type="radio"/> 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	<input type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	<input type="radio"/> DROP OFF	<input checked="" type="radio"/> YES	<input type="radio"/> NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input type="radio"/> N/A	<input checked="" type="radio"/> YES	<input type="radio"/> NO
9. Are all aqueous non-preserved samples pH 4-9?	<input type="radio"/> N/A	<input checked="" type="radio"/> YES	<input type="radio"/> NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	<input type="radio"/> NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u> </u> < green pea <u> </u> > green pea	<input type="radio"/> N/A	<input checked="" type="radio"/> YES	<input type="radio"/> NO
15. Do perchlorate LCMS-MS samples have headspace? (at least 1/3 of container required)	<input checked="" type="radio"/> N/A	<input type="radio"/> YES	<input type="radio"/> 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.)	<input checked="" type="radio"/> N/A	<input type="radio"/> YES	<input type="radio"/> NO
17. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	<input type="radio"/> NO
18. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u> </u> #4 <u> </u>	<input type="radio"/> RAD ONLY	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4.5</u>			
No. of custody seals on cooler: <u>1</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? 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

received out of hotel with only a few hours of hold time remaining.
AW 10/8/10

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

Project Manager Signature / Date: _____

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

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

Dissolved Metals by 200.7

Method EPA200.7 Revision 4.4

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID:	Burge WW
Lab ID:	1010128-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 06-Oct-10

Date Extracted: 14-Oct-10

Date Analyzed: 18-Oct-10

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP101014-5

QCBatchID: IP101014-5-1

Run ID: IT101018-2A3

Cleanup: NONE

Basis: As Received

File Name: 101018a.

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
7440-39-3	BARIUM	1	0.1	0.1	U	
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	88	1		
7440-47-3	CHROMIUM	1	0.01	0.01	U	
7440-48-4	COBALT	1	0.01	0.01	U	
7440-50-8	COPPER	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	18	1		
7439-96-5	MANGANESE	1	0.072	0.01		
7440-02-0	NICKEL	1	0.02	0.02	U	
7440-09-7	POTASSIUM	1	1.2	1		
7440-21-3	SILICON	1	8.5	0.05		
7440-23-5	SODIUM	1	96	1		
	SODIUM ADSORPTION RATIO	1	2.4	0.17		
7440-24-6	STRONTIUM	1	1.9	0.01		
7440-62-2	VANADIUM	1	0.01	0.01	U	
7440-66-6	ZINC	1	0.022	0.02		

Data Package ID: IT1010128-1

Dissolved Metals by 200.8

Method EPA200.8 Revision 5.4

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID:	Burge WW
Lab ID:	1010128-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 06-Oct-10

Date Extracted: 14-Oct-10

Date Analyzed: 18-Oct-10

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP101014-5

QCBatchID: IP101014-5-2

Run ID: IM101018-10A3

Cleanup: NONE

Basis: As Received

File Name: 036SMPL_

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	50	50	U	
7440-36-0	ANTIMONY	10	0.3	0.3	U	
7440-38-2	ARSENIC	10	2	2	U	
7440-43-9	CADMIUM	10	0.3	0.3	U	
7439-92-1	LEAD	10	0.5	0.5	U	
7439-98-7	MOLYBDENUM	10	2.1	1		
7782-49-2	SELENIUM	10	1	1	U	
7440-22-4	SILVER	10	0.1	0.1	U	
7440-28-0	THALLIUM	10	0.2	0.2	U	
7440-61-1	URANIUM	10	0.26	0.1		

Data Package ID: IM1010128-1

Metals by 200.7

Method EPA200.7 Revision 4.4

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Lab ID: F101014-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 14-Oct-10

Date Analyzed: 18-Oct-10

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP101014-5

QCBatchID: IP101014-5-1

Run ID: IT101018-2A3

Cleanup: NONE

Basis: N/A

File Name: 101018a.

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
7440-39-3	BARIUM	1	0.1	0.1	U	
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	
7440-48-4	COBALT	1	0.01	0.01	U	
7440-50-8	COPPER	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	
7439-96-5	MANGANESE	1	0.01	0.01	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	
7440-24-6	STRONTIUM	1	0.01	0.01	U	
7440-62-2	VANADIUM	1	0.01	0.01	U	
7440-66-6	ZINC	1	0.02	0.02	U	

Data Package ID: IT1010128-1

Date Printed: Sunday, November 07, 2010

ALS Environmental -- FC

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LIMS Version: 6.427A

Metals by 200.7

Method EPA200.7 Revision 4.4

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Lab ID: F101014-1LCS

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: N/A
 Date Extracted: 10/14/2010
 Date Analyzed: 10/18/2010
 Prep Method: EPA200.22.8

Prep Batch: IP101014-5
 QCBatchID: IP101014-5-1
 Run ID: IT101018-2A3
 Cleanup: NONE
 Basis: N/A
 File Name: 101018a.

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
7440-39-3	BARIUM	2	1.94	0.1		97	85 - 115%
7440-41-7	BERYLLIUM	0.05	0.046	0.002		92	85 - 115%
7440-42-8	BORON	1	0.98	0.1		98	85 - 115%
7440-70-2	CALCIUM	40	39.1	1		98	85 - 115%
7440-47-3	CHROMIUM	0.2	0.189	0.01		95	85 - 115%
7440-48-4	COBALT	0.5	0.476	0.01		95	85 - 115%
7440-50-8	COPPER	0.25	0.242	0.01		97	85 - 115%
7439-89-6	IRON	1	0.956	0.1		96	85 - 115%
7439-93-2	LITHIUM	0.5	0.492	0.01		98	85 - 115%
7439-95-4	MAGNESIUM	40	41	1		102	85 - 115%
7439-96-5	MANGANESE	0.5	0.481	0.01		96	85 - 115%
7440-02-0	NICKEL	0.5	0.459	0.02		92	85 - 115%
7440-09-7	POTASSIUM	40	40.6	1		102	85 - 115%
7440-21-3	SILICON	2	2.05	0.05		102	85 - 115%
7440-23-5	SODIUM	40	39	1		97	85 - 115%
7440-24-6	STRONTIUM	0.5	0.48	0.01		96	85 - 115%
7440-62-2	VANADIUM	0.5	0.485	0.01		97	85 - 115%
7440-66-6	ZINC	0.5	0.49	0.02		98	85 - 115%

Data Package ID: *IT1010128-1*

Metals by 200.7

Method EPA200.7 Revision 4.4

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID: Burge WW LabID: 1010128-1MS	Sample Matrix: WATER % Moisture: N/A Date Collected: 06-Oct-10 Date Extracted: 14-Oct-10 Date Analyzed: 18-Oct-10 Prep Method: EPA200.2 Rev 2.8	Prep Batch: IP101014-5 QCBatchID: IP101014-5-1 Run ID: IT101018-2A3 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 g Final Volume: 50 g Result Units: mg/l File Name: 101018a.
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CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-39-3	BARIUM	0.1	U	1.89		0.1	2	94	70 - 130%
7440-41-7	BERYLLIUM	0.002	U	0.045		0.002	0.05	90	70 - 130%
7440-42-8	BORON	0.1	U	1.01		0.1	1	101	70 - 130%
7440-70-2	CALCIUM	88		131		1	40	107	70 - 130%
7440-47-3	CHROMIUM	0.01	U	0.185		0.01	0.2	93	70 - 130%
7440-48-4	COBALT	0.01	U	0.466		0.01	0.5	93	70 - 130%
7440-50-8	COPPER	0.01	U	0.239		0.01	0.25	95	70 - 130%
7439-89-6	IRON	0.1	U	0.953		0.1	1	95	70 - 130%
7439-93-2	LITHIUM	0.01	U	0.559		0.01	0.5	112	70 - 130%
7439-95-4	MAGNESIUM	18		58.6		1	40	102	70 - 130%
7439-96-5	MANGANESE	0.072		0.544		0.01	0.5	94	70 - 130%
7440-02-0	NICKEL	0.02	U	0.448		0.02	0.5	90	70 - 130%
7440-09-7	POTASSIUM	1.2		48.6		1	40	118	70 - 130%
7440-21-3	SILICON	8.5		10.4		0.05	2	97	70 - 130%
7440-23-5	SODIUM	96		141		1	40	112	70 - 130%
7440-24-6	STRONTIUM	1.9		2.4		0.01	0.5	95	70 - 130%
7440-62-2	VANADIUM	0.01	U	0.474		0.01	0.5	95	70 - 130%
7440-66-6	ZINC	0.022		0.483		0.02	0.5	92	70 - 130%

Data Package ID: IT1010128-1

Metals by 200.7

Method EPA200.7 Revision 4.4

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID: Burge WW LabID: 1010128-1MSD	Sample Matrix: WATER % Moisture: N/A Date Collected: 06-Oct-10 Date Extracted: 14-Oct-10 Date Analyzed: 18-Oct-10 Prep Method: EPA200.2 Rev 2.8	Prep Batch: IP101014-5 QCBatchID: IP101014-5-1 Run ID: IT101018-2A3 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 g Final Volume: 50 g Result Units: mg/l File Name: 101018a.
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CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-39-3	BARIUM	1.87		2	93	0.1	20	1
7440-41-7	BERYLLIUM	0.0443		0.05	89	0.002	20	2
7440-42-8	BORON	0.996		1	100	0.1	20	2
7440-70-2	CALCIUM	129		40	101	1	20	2
7440-47-3	CHROMIUM	0.183		0.2	91	0.01	20	1
7440-48-4	COBALT	0.46		0.5	92	0.01	20	1
7440-50-8	COPPER	0.236		0.25	94	0.01	20	1
7439-89-6	IRON	0.926		1	93	0.1	20	3
7439-93-2	LITHIUM	0.552		0.5	110	0.01	20	1
7439-95-4	MAGNESIUM	57.7		40	99	1	20	1
7439-96-5	MANGANESE	0.536		0.5	93	0.01	20	1
7440-02-0	NICKEL	0.442		0.5	88	0.02	20	1
7440-09-7	POTASSIUM	48.1		40	117	1	20	1
7440-21-3	SILICON	10.4		2	92	0.05	20	1
7440-23-5	SODIUM	139		40	106	1	20	2
7440-24-6	STRONTIUM	2.37		0.5	89	0.01	20	1
7440-62-2	VANADIUM	0.468		0.5	94	0.01	20	1
7440-66-6	ZINC	0.47		0.5	90	0.02	20	3

Data Package ID: IT1010128-1

Metals by 200.8

Method EPA200.8 Revision 5.4

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Lab ID: F101014-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 14-Oct-10

Date Analyzed: 18-Oct-10

Prep Method: EPA200.2 Rev 2.8

Prep Batch: IP101014-5

QCBatchID: IP101014-5-2

Run ID: IM101018-10A3

Cleanup: NONE

Basis: N/A

File Name: 041SMPL_

Sample Aliquot: 50 g

Final Volume: 50 g

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	50	50	U	
7440-36-0	ANTIMONY	10	0.3	0.3	U	
7440-38-2	ARSENIC	10	2	2	U	
7440-43-9	CADMIUM	10	0.3	0.3	U	
7439-92-1	LEAD	10	0.5	0.5	U	
7439-98-7	MOLYBDENUM	10	1	1	U	
7782-49-2	SELENIUM	10	1	1	U	
7440-22-4	SILVER	10	0.1	0.1	U	
7440-28-0	THALLIUM	10	0.2	0.2	U	
7440-61-1	URANIUM	10	0.1	0.1	U	

Data Package ID: IM1010128-1

Date Printed: Sunday, November 07, 2010

ALS Environmental -- FC

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LIMS Version: 6.427A

Metals by 200.8

Method EPA200.8 Revision 5.4

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Lab ID: FM101014-1LCS

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: N/A
 Date Extracted: 10/14/2010
 Date Analyzed: 10/18/2010
 Prep Method: EPA200.22.8

Prep Batch: IP101014-5
 QCBatchID: IP101014-5-2
 Run ID: IM101018-10A3
 Cleanup: NONE
 Basis: N/A
 File Name: 043SMPL_

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

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7429-90-5	ALUMINUM	5000	5030	50		101	85 - 115%
7440-36-0	ANTIMONY	30	30	0.3		100	85 - 115%
7440-38-2	ARSENIC	100	94.3	2		94	85 - 115%
7440-43-9	CADMIUM	30	31.3	0.3		104	85 - 115%
7439-92-1	LEAD	50	50.4	0.5		101	85 - 115%
7439-98-7	MOLYBDENUM	100	99.1	1		99	85 - 115%
7782-49-2	SELENIUM	100	98.5	1		99	85 - 115%
7440-22-4	SILVER	10	10	0.1		100	85 - 115%
7440-28-0	THALLIUM	1	1.09	0.2		109	85 - 115%
7440-61-1	URANIUM	10	10.2	0.1		102	85 - 115%

Data Package ID: IM1010128-1

Metals by 200.8

Method EPA200.8 Revision 5.4

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID: Burge WW LabID: 1010128-1MS	Sample Matrix: WATER % Moisture: N/A Date Collected: 06-Oct-10 Date Extracted: 14-Oct-10 Date Analyzed: 18-Oct-10 Prep Method: EPA200.2 Rev 2.8	Prep Batch: IP101014-5 QCBatchID: IP101014-5-2 Run ID: IM101018-10A3 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 g Final Volume: 50 g Result Units: UG/L File Name: 039SMPL_
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CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	50	U	5350		50	5000	107	70 - 130%
7440-36-0	ANTIMONY	0.3	U	30.9		0.3	30	103	70 - 130%
7440-38-2	ARSENIC	2	U	98.3		2	100	98	70 - 130%
7440-43-9	CADMIUM	0.3	U	32.1		0.3	30	107	70 - 130%
7439-92-1	LEAD	0.5	U	53.3		0.5	50	107	70 - 130%
7439-98-7	MOLYBDENUM	2.1		104		1	100	101	70 - 130%
7782-49-2	SELENIUM	1	U	103		1	100	103	70 - 130%
7440-22-4	SILVER	0.1	U	10.4		0.1	10	104	70 - 130%
7440-28-0	THALLIUM	0.2	U	1.21		0.2	1	121	70 - 130%
7440-61-1	URANIUM	0.26		11.2		0.1	10	109	70 - 130%

Data Package ID: *IM1010128-1*

Metals by 200.8

Method EPA200.8 Revision 5.4

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1010128

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200272771

Field ID: Burge WW LabID: 1010128-1MSD	Sample Matrix: WATER % Moisture: N/A Date Collected: 06-Oct-10 Date Extracted: 14-Oct-10 Date Analyzed: 18-Oct-10 Prep Method: EPA200.2 Rev 2.8	Prep Batch: IP101014-5 QCBatchID: IP101014-5-2 Run ID: IM101018-10A3 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 g Final Volume: 50 g Result Units: UG/L File Name: 040SMPL_
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CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	51.10		5000	102	50	20	4
7440-36-0	ANTIMONY	30.9		30	103	0.3	20	0
7440-38-2	ARSENIC	98.7		100	99	2	20	0
7440-43-9	CADMIUM	31.3		30	104	0.3	20	3
7439-92-1	LEAD	53.1		50	106	0.5	20	0
7439-98-7	MOLYBDENUM	105		100	103	1	20	2
7782-49-2	SELENIUM	99.3		100	99	1	20	4
7440-22-4	SILVER	10.4		10	104	0.1	20	0
7440-28-0	THALLIUM	1.29		1	129	0.2	20	6
7440-61-1	URANIUM	11		10	108	0.1	20	1

Data Package ID: *IM1010128-1*