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17 February 2015

Jim Hughes
Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver, CO 80203
RE: Redwine

Enclosed are the results of analyses for samples received by the laboratory on 02/06/15 16:45.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt".

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water



Colorado Oil and Gas Conservation Commission 112 Lincoln St. Denver CO, 80203	Project: Redwine Project Name / Number: Redwine Project Manager: Jim Hughes	Reported: 02/17/15 15:42
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0206151300	1502086-01	Solid	02/06/15 13:00	02/06/15 16:45
0206151315	1502086-02	Solid	02/06/15 13:15	02/06/15 16:45

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Colorado Oil and Gas Conservation Commission 112 Lincoln St. Denver CO, 80203	Project: Redwine Project Name / Number: Redwine Project Manager: Jim Hughes	Reported: 02/17/15 15:42
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0206151300

1502086-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

% Dry Solids	89.7			%	1	02/11/15	EPA160.3		LLG
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Saturated Paste Extraction

Calcium	41.0	1.00	0.004	mg/L	1	02/13/15	EPA200.7		JGS
Conductivity	270			umhos/cm	1	02/13/15	ASA#9 10-3.3		ACH
Magnesium	8.32	1.00	0.019	mg/L	1	02/13/15	EPA200.7		JGS
pH	7.71			pH Units	1	02/13/15	ASA#9 12-2.6		ACH
SAR	0.14			[blank]	1	02/13/15	Calculation		JGS
Sodium	3.85	2.00	0.004	mg/L	1	02/13/15	EPA200.7		JGS

Total Metals by ICP

Barium	143	1.00	0.368	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Cadmium	<5.00	5.00	0.125	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Chromium	6.19	5.00	0.767	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Copper	7.46	2.00	0.603	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Lead	15.6	10.0	1.95	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Nickel	15.8	5.00	1.27	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Selenium	<20.0	20.0	3.38	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Silver	<5.00	5.00	0.212	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Zinc	55.2	1.00	0.699	mg/kg dry	100	02/13/15	EPA6010 B		JGS

Total Metals by ICPMS

Arsenic	12.8	0.500	0.202	mg/kg dry	1000	02/16/15	6020 A		JGS
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Total Mercury by CVAA

Mercury	<0.108	0.108	0.0203	mg/kg dry	485	02/16/15	EPA7471		JGS
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0206151300

1502086-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Hot Water Extractable

Boron	<1.50	1.50	0.163	mg/kg dry	5	02/13/15	EPA200.7		JGS
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Colorado Oil and Gas Conservation Commission 112 Lincoln St. Denver CO, 80203	Project: Redwine Project Name / Number: Redwine Project Manager: Jim Hughes	Reported: 02/17/15 15:42
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0206151315

1502086-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

% Dry Solids	86.0			%	1	02/11/15	EPA160.3		LLG
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Saturated Paste Extraction

Calcium	275	10.0	0.039	mg/L	10	02/13/15	EPA200.7		JGS
Conductivity	1200			umhos/cm	1	02/13/15	ASA#9 10-3.3		ACH
Magnesium	19.4	10.0	0.190	mg/L	10	02/13/15	EPA200.7		JGS
pH	7.81			pH Units	1	02/13/15	ASA#9 12-2.6		ACH
SAR	0.12			[blank]	1	02/13/15	Calculation		JGS
Sodium	<20.0	20.0	0.041	mg/L	10	02/13/15	EPA200.7		JGS

Total Metals by ICP

Barium	244	1.00	0.368	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Cadmium	<5.00	5.00	0.125	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Chromium	9.44	5.00	0.767	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Copper	9.73	2.00	0.603	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Lead	<10.0	10.0	1.95	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Nickel	14.1	5.00	1.27	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Selenium	<20.0	20.0	3.38	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Silver	<5.00	5.00	0.212	mg/kg dry	100	02/13/15	EPA6010 B		JGS
Zinc	43.5	1.00	0.699	mg/kg dry	100	02/13/15	EPA6010 B		JGS

Total Metals by ICPMS

Arsenic	5.45	0.500	0.202	mg/kg dry	1000	02/16/15	6020 A		JGS
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Total Mercury by CVAA

Mercury	<0.120	0.120	0.0225	mg/kg dry	515	02/16/15	EPA7471		JGS
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0206151315

1502086-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Hot Water Extractable

Boron	2.97	1.50	0.163	mg/kg dry	5	02/13/15	EPA200.7		JGS
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Saturated Paste Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502126 - Dissolved Metals, E200.7/E200.8

Duplicate (B502126-DUP1)	Source: 1502086-02			Prepared & Analyzed: 02/13/15						
Calcium	274	10.0	mg/L		275			0.413	20	
Magnesium	19.0	10.0	mg/L		19.4			2.51	20	
Sodium	5.70	20.0	mg/L		7.59			28.6	20	R2

Batch B502129 - General Prep - Wet Chem

Duplicate (B502129-DUP1)	Source: 1502086-02			Prepared: 02/12/15 Analyzed: 02/13/15						
Conductivity	1200		umhos/cm		1200			0.00	20	
pH	7.82		pH Units		7.81			0.128	20	

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Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502127 - EPA 3050

Blank (B502127-BLK1)

Prepared & Analyzed: 02/13/15

Barium	ND	0.010	mg/kg dry							
Cadmium	ND	0.050	mg/kg dry							
Chromium	ND	0.050	mg/kg dry							
Copper	ND	0.020	mg/kg dry							
Lead	ND	0.100	mg/kg dry							
Nickel	ND	0.050	mg/kg dry							
Selenium	ND	0.200	mg/kg dry							
Silver	ND	0.050	mg/kg dry							
Zinc	ND	0.010	mg/kg dry							

LCS (B502127-BS1)

Prepared & Analyzed: 02/13/15

Barium	1.84	0.010	mg/kg dry	2.00		91.8	85-115			
Cadmium	1.87	0.050	mg/kg dry	2.00		93.3	85-115			
Chromium	1.92	0.050	mg/kg dry	2.00		96.1	85-115			
Copper	3.94	0.020	mg/kg dry	4.00		98.5	85-115			
Lead	1.92	0.100	mg/kg dry	2.00		95.8	85-115			
Nickel	1.85	0.050	mg/kg dry	2.00		92.3	85-115			
Selenium	7.68	0.200	mg/kg dry	8.00		96.0	85-115			
Silver	0.094	0.050	mg/kg dry	0.100		93.8	85-115			
Zinc	1.86	0.010	mg/kg dry	2.00		92.9	85-115			

LCS Dup (B502127-BSD1)

Prepared & Analyzed: 02/13/15

Barium	1.93	0.010	mg/kg dry	2.00		96.3	85-115	4.83	20	
Cadmium	1.96	0.050	mg/kg dry	2.00		98.0	85-115	4.98	20	
Chromium	2.02	0.050	mg/kg dry	2.00		101	85-115	5.05	20	
Copper	4.13	0.020	mg/kg dry	4.00		103	85-115	4.74	20	
Lead	2.01	0.100	mg/kg dry	2.00		100	85-115	4.57	20	
Nickel	1.93	0.050	mg/kg dry	2.00		96.6	85-115	4.53	20	
Selenium	8.06	0.200	mg/kg dry	8.00		101	85-115	4.90	20	
Silver	0.098	0.050	mg/kg dry	0.100		97.9	85-115	4.27	20	
Zinc	1.94	0.010	mg/kg dry	2.00		97.1	85-115	4.47	20	

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Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B502131 - EPA 3050M										
Blank (B502131-BLK1)										
Prepared & Analyzed: 02/16/15										
Arsenic	0.0005	0.0005	mg/kg dry							B1
LCS (B502131-BS1)										
Prepared & Analyzed: 02/16/15										
Arsenic	0.0539	0.0005	mg/kg dry	0.0500		108	85-115			
LCS Dup (B502131-BSD1)										
Prepared & Analyzed: 02/16/15										
Arsenic	0.0558	0.0005	mg/kg dry	0.0500		112	85-115	3.42	20	

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Total Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502135 - EPA 7471

Blank (B502135-BLK1)				Prepared & Analyzed: 02/16/15						
Mercury	ND	0.0002	mg/kg wet							
LCS (B502135-BS1)				Prepared & Analyzed: 02/16/15						
Mercury	0.0020	0.0002	mg/kg wet	0.00200		100	85-115			
LCS Dup (B502135-BSD1)				Prepared & Analyzed: 02/16/15						
Mercury	0.0020	0.0002	mg/kg wet	0.00200		100	85-115	0.300	20	

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Hot Water Extractable - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502125 - Hot Water Soluble Metals Extract

Blank (B502125-BLK1)				Prepared & Analyzed: 02/13/15						
Boron	ND	0.300	mg/kg dry							
LCS (B502125-BS1)				Prepared & Analyzed: 02/13/15						
Boron	4.94	0.300	mg/kg dry	5.00		98.8	85-115			
LCS Dup (B502125-BSD1)				Prepared & Analyzed: 02/13/15						
Boron	5.04	0.300	mg/kg dry	5.00		101	85-115	2.04	20	

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Notes and Definitions

- R2 Duplicate sample RPD exceeded the method control limit. One or more of the duplicates was less than 5X reporting limit.
- B1 Target analyte detected in method blank at or above method reporting limit. Sample concentration found to be 10 times above the concentration found in the method blank or less than the reporting limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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CHAIN OF CUSTODY RECORD

Page ___ of ___

Client: COGCC

Contact: Jim Hughes

Address: _____

Phone Number: 970-903-4072

Email: jmhughes@state.co.us

NOTES:

- 1) Ensure proper container packaging.
- 2) Ship samples promptly following collection.
- 3) Designate Sample Reject Disposition.

PO# _____

Project Name: Redwine

Samplers Signature: _____

Table 1 - Matrix Type

- 1 = Surface Water, 2 = Ground Water
- 3 = Soil/Sediment, 4 = Prod. W., 5 = Oil
- 6 = Waste, 7 = Other (Specify) _____

FOR GAL USE ONLY

GAL JOB #

1502-086

Lab Name: Green Analytical Laboratories

Address: 75 Suttle Street, Durango, CO 81303

(970) 247-4220 FAX (970) 247-4227

www.greenanalytical.com

Analyses Required

Sample ID	Date	Time	Collected by: (Init.)	Miscellaneous			Preservative(s)				Comments	
				Matrix Type From Table 1	No. of Containers	Sample Filtered ? Y/N	Unpreserved (Ice Only)	HNO3	HCL	H2SO4		NAOH
1. 0206151300	2/6/15	1300	SH	3	2							
2. 0206151315	2/6/15	1315	SH	3	2						X	COGCC 910-1 metals pH, EC, SAR
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
Relinquished by: _____			Date: <u>2/6/15</u>	Time: <u>1645</u>	Received by: _____			Date: <u>2-6-15</u>	Time: <u>1645</u>			
Relinquished by: _____			Date: _____	Time: _____	Received by: _____			Date: _____	Time: _____			

9.6°C #18
on ice

* Sample Reject: [] Return [] Dispose [] Store (30 Days)