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13 November 2014

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

Enclosed are the results of analyses for samples received by the laboratory on 10/24/14 16:55.
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 Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1024141230	1410240-01	Solid	10/24/14 12:30	10/24/14 16:55
1024141245	1410240-02	Solid	10/24/14 12:45	10/24/14 16:55
1024141300	1410240-03	Water	10/24/14 13:00	10/24/14 16:55

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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141230

1410240-01 (Solid)

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

% Dry Solids	93.9			%	1	10/29/14	EPA160.3		JGS
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Saturated Paste Extraction

Calcium	66.1	10.0	0.039	mg/L	10	11/07/14	EPA200.7		JGS
Conductivity	570			umhos/cm	1	11/06/14	ASA#9 10-3.3		ACH
Magnesium	<10.0	10.0	0.190	mg/L	10	11/07/14	EPA200.7		JGS
pH	8.32			pH Units	1	11/06/14	ASA#9 12-2.6		ACH
SAR	0.37			[blank]	1	11/07/14	Calculation		JGS
Sodium	11.7	10.0	0.041	mg/L	10	11/07/14	EPA200.7		JGS

Total Metals by ICP

Arsenic	12.5	10.0	3.94	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Barium	4520	1.00	0.368	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Cadmium	<5.00	5.00	0.125	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Chromium	25.4	5.00	0.767	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Copper	12.1	2.00	0.603	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Lead	15.6	10.0	1.95	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Nickel	23.7	5.00	1.27	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Selenium	<20.0	20.0	3.38	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Silver	<5.00	5.00	0.212	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Zinc	65.8	1.00	0.699	mg/kg dry	100	11/03/14	EPA6010 B		JGS

Total Mercury by CVAA

Mercury	<0.105	0.105	0.0198	mg/kg dry	495	11/04/14	EPA7471		JGS
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Debbie Zufelt, Reports Manager

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Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141230

1410240-01 (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	11/04/14	EPA200.7		JGS
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Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.004	mg/kg	50	10/29/14	8021B		ms
Toluene*	<0.050	0.050	0.015	mg/kg	50	10/29/14	8021B		ms
Ethylbenzene*	<0.050	0.050	0.008	mg/kg	50	10/29/14	8021B		ms
Total Xylenes*	<0.150	0.150	0.018	mg/kg	50	10/29/14	8021B		ms
Total BTEX	<0.300	0.300		mg/kg	50	10/29/14	8021B		ms

Surrogate: 4-Bromofluorobenzene (PID)	100 %	61-154		10/29/14	8021B		ms
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0	10.0	1.30	mg/kg	1	10/29/14	8015B		ms
DRO >C10-C28	<10.0	10.0	2.91	mg/kg	1	10/29/14	8015B		ms
EXT DRO >C28-C35	<10.0	10.0	2.91	mg/kg	1	10/29/14	8015B		ms

Surrogate: 1-Chlorooctane	89.6 %	47.2-157		10/29/14	8015B		ms
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Surrogate: 1-Chlorooctadecane	105 %	52.1-176		10/29/14	8015B		ms
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Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141230

1410240-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Semivolatile Organic Compounds by GCMS

Naphthalene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
2-Methylnaphthalene	<0.034	0.040	0.034	mg/kg	40	10/30/14	8270C		MS
1-Methylnaphthalene	<0.034	0.040	0.034	mg/kg	40	10/30/14	8270C		MS
Acenaphthylene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Acenaphthene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Fluorene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Phenanthrene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Carbazole	<0.004	0.040	0.004	mg/kg	40	10/30/14	8270C		MS
Fluoranthene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Pyrene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Benzo[a]anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Chrysene	<0.005	0.040	0.005	mg/kg	40	10/30/14	8270C		MS
Benzo[b]fluoranthene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Benzo[k]fluoranthene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Benzo[a]pyrene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Indeno[1,2,3-cd]pyrene	<0.001	0.040	0.001	mg/kg	40	10/30/14	8270C		MS
Dibenz[a,h]anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Benzo[g,h,i]perylene	<0.001	0.040	0.001	mg/kg	40	10/30/14	8270C		MS

Surrogate: Nitrobenzene-d5	87.6 %	20.4-109	10/30/14	8270C	MS
Surrogate: 2-Fluorobiphenyl	73.9 %	23.4-133	10/30/14	8270C	MS
Surrogate: Terphenyl-d14	83.3 %	38.4-163	10/30/14	8270C	MS

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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141245

1410240-02 (Solid)

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

% Dry Solids	73.0			%	1	10/29/14	EPA160.3		JGS
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Saturated Paste Extraction

Calcium	577	10.0	0.039	mg/L	10	11/07/14	EPA200.7		JGS
Conductivity	8400			umhos/cm	1	11/06/14	ASA#9 10-3.3		ACH
Magnesium	134	10.0	0.190	mg/L	10	11/07/14	EPA200.7		JGS
pH	7.79			pH Units	1	11/06/14	ASA#9 12-2.6		ACH
SAR	11.1			[blank]	1	11/07/14	Calculation		JGS
Sodium	1140	10.0	0.041	mg/L	10	11/07/14	EPA200.7		JGS

Total Metals by ICP

Arsenic	13.1	10.0	3.94	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Barium	207	1.00	0.368	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Cadmium	<5.00	5.00	0.125	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Chromium	10.4	5.00	0.767	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Copper	14.7	2.00	0.603	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Lead	11.8	10.0	1.95	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Nickel	20.8	5.00	1.27	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Selenium	<20.0	20.0	3.38	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Silver	<5.00	5.00	0.212	mg/kg dry	100	11/03/14	EPA6010 B		JGS
Zinc	71.6	1.00	0.699	mg/kg dry	100	11/03/14	EPA6010 B		JGS

Total Mercury by CVAA

Mercury	<0.130	0.130	0.0245	mg/kg dry	475	11/04/14	EPA7471		JGS
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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141245

1410240-02 (Solid)

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

Boron	1.82	1.50	0.163	mg/kg dry	5	11/04/14	EPA200.7		JGS
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Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.004	mg/kg	50	10/29/14	8021B		ms
Toluene*	<0.050	0.050	0.015	mg/kg	50	10/29/14	8021B		ms
Ethylbenzene*	<0.050	0.050	0.008	mg/kg	50	10/29/14	8021B		ms
Total Xylenes*	<0.150	0.150	0.018	mg/kg	50	10/29/14	8021B		ms
Total BTEX	<0.300	0.300		mg/kg	50	10/29/14	8021B		ms

Surrogate: 4-Bromofluorobenzene (PID)	102 %	61-154		10/29/14	8021B		ms
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0	10.0	1.30	mg/kg	1	10/29/14	8015B		ms
DRO >C10-C28	<10.0	10.0	2.91	mg/kg	1	10/29/14	8015B		ms
EXT DRO >C28-C35	<10.0	10.0	2.91	mg/kg	1	10/29/14	8015B		ms

Surrogate: 1-Chlorooctane	95.3 %	47.2-157		10/29/14	8015B		ms
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Surrogate: 1-Chlorooctadecane	130 %	52.1-176		10/29/14	8015B		ms
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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141245

1410240-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- **Cardinal Laboratories**

Semivolatile Organic Compounds by GCMS

Naphthalene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
2-Methylnaphthalene	<0.034	0.040	0.034	mg/kg	40	10/30/14	8270C		MS
1-Methylnaphthalene	<0.034	0.040	0.034	mg/kg	40	10/30/14	8270C		MS
Acenaphthylene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Acenaphthene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Fluorene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Phenanthrene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Carbazole	<0.004	0.040	0.004	mg/kg	40	10/30/14	8270C		MS
Fluoranthene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Pyrene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Benzo[a]anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Chrysene	<0.005	0.040	0.005	mg/kg	40	10/30/14	8270C		MS
Benzo[b]fluoranthene	<0.003	0.040	0.003	mg/kg	40	10/30/14	8270C		MS
Benzo[k]fluoranthene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Benzo[a]pyrene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Indeno[1,2,3-cd]pyrene	<0.001	0.040	0.001	mg/kg	40	10/30/14	8270C		MS
Dibenz[a,h]anthracene	<0.002	0.040	0.002	mg/kg	40	10/30/14	8270C		MS
Benzo[g,h,i]perylene	<0.001	0.040	0.001	mg/kg	40	10/30/14	8270C		MS
Surrogate: Nitrobenzene-d5			89.0 %	20.4-109		10/30/14	8270C		MS
Surrogate: 2-Fluorobiphenyl			76.0 %	23.4-133		10/30/14	8270C		MS
Surrogate: Terphenyl-dl4			83.5 %	38.4-163		10/30/14	8270C		MS

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112 Lincoln St.
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Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

1024141300

1410240-03 (Water)

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

Chloride*	1100	100	50.0	mg/L	10	11/05/14	4500-Cl- C		HRR
TDS*	3600	10.0		mg/L	1	10/28/14	EPA160.1		ABP
Sulfate	580	100	40.5	mg/L	10	10/30/14	4500-SO42- E		ABP

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.001	0.001	0.0001	mg/L	1	10/28/14	8021B		ms
Toluene*	<0.001	0.001	0.0002	mg/L	1	10/28/14	8021B		ms
Ethylbenzene*	<0.001	0.001	0.0002	mg/L	1	10/28/14	8021B		ms
Total Xylenes*	<0.003	0.003	0.0005	mg/L	1	10/28/14	8021B		ms
Total BTEX	<0.006	0.006		mg/L	1	10/28/14	8021B		ms

Surrogate: 4-Bromofluorobenzene (PID) 103 % 66.2-142 10/28/14 8021B ms

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Project Name / Number: [none]
Project Manager: Jim Hughes

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11/13/14 17:26

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B410296 - General Prep - Wet Chem

Blank (B410296-BLK1)

Prepared & Analyzed: 10/28/14

TDS	ND	10.0	mg/L
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Duplicate (B410296-DUP2)

Source: 1410230-02

Prepared & Analyzed: 10/28/14

TDS	17900	10.0	mg/L	18200	1.77	20
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Reference (B410296-SRM1)

Prepared & Analyzed: 10/28/14

TDS	280	10.0	mg/L	250	112	85-115
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Batch B410302 - General Prep - Wet Chem

Blank (B410302-BLK1)

Prepared & Analyzed: 10/30/14

Sulfate	ND	10.0	mg/L
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LCS (B410302-BS1)

Prepared & Analyzed: 10/30/14

Sulfate	51.0	10.0	mg/L	50.0	102	85-115
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LCS Dup (B410302-BSD1)

Prepared & Analyzed: 10/30/14

Sulfate	54.0	10.0	mg/L	50.0	108	85-115	5.71	20
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Batch B411042 - General Prep - Wet Chem

Blank (B411042-BLK1)

Prepared & Analyzed: 11/05/14

Chloride	ND	10.0	mg/L
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LCS (B411042-BS1)

Prepared & Analyzed: 11/05/14

Chloride	104	10.0	mg/L	100	104	85-115
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Debbie Zufelt, Reports Manager

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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B411042 - General Prep - Wet Chem

LCS Dup (B411042-BSD1)

Prepared & Analyzed: 11/05/14

Chloride	102	10.0	mg/L	100		102	85-115	1.94	20	
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Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

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 B411055 - General Prep - Wet Chem

Duplicate (B411055-DUP5)

Source: 1410240-02

Prepared: 11/05/14 Analyzed: 11/06/14

pH	7.79		pH Units		7.79			0.00	20	
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Batch B411062 - Dissolved Metals, E200.7/E200.8

Duplicate (B411062-DUP1)

Source: 1410240-02

Prepared & Analyzed: 11/07/14

Calcium	549	10.0	mg/L		577			4.97	20	
Magnesium	125	10.0	mg/L		134			7.35	20	
Sodium	1080	10.0	mg/L		1140			5.49	20	

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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

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 B411016 - EPA 3050

Blank (B411016-BLK1)

Prepared & Analyzed: 11/03/14

Arsenic	ND	0.100	mg/kg dry							
Barium	ND	0.010	mg/kg dry							
Cadmium	ND	0.050	mg/kg dry							
Chromium	ND	0.050	mg/kg dry							
Copper	0.031	0.020	mg/kg dry							B1
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	0.014	0.010	mg/kg dry							B1

LCS (B411016-BS1)

Prepared & Analyzed: 11/03/14

Arsenic	3.88	0.100	mg/kg dry	4.00		97.0	85-115			
Barium	1.92	0.010	mg/kg dry	2.00		96.0	85-115			
Cadmium	1.95	0.050	mg/kg dry	2.00		97.6	85-115			
Chromium	2.02	0.050	mg/kg dry	2.00		101	85-115			
Copper	4.20	0.020	mg/kg dry	4.00		105	85-115			
Lead	2.00	0.100	mg/kg dry	2.00		99.8	85-115			
Nickel	1.94	0.050	mg/kg dry	2.00		97.2	85-115			
Selenium	8.01	0.200	mg/kg dry	8.00		100	85-115			
Silver	0.112	0.050	mg/kg dry	0.100		112	85-115			
Zinc	1.88	0.010	mg/kg dry	2.00		93.8	85-115			

LCS Dup (B411016-BSD1)

Prepared & Analyzed: 11/03/14

Arsenic	3.90	0.100	mg/kg dry	4.00		97.4	85-115	0.370	20	
Barium	1.93	0.010	mg/kg dry	2.00		96.3	85-115	0.375	20	
Cadmium	1.96	0.050	mg/kg dry	2.00		98.2	85-115	0.608	20	
Chromium	2.03	0.050	mg/kg dry	2.00		102	85-115	0.608	20	
Copper	4.22	0.020	mg/kg dry	4.00		105	85-115	0.448	20	
Lead	2.01	0.100	mg/kg dry	2.00		100	85-115	0.723	20	
Nickel	1.95	0.050	mg/kg dry	2.00		97.3	85-115	0.194	20	
Selenium	7.99	0.200	mg/kg dry	8.00		99.9	85-115	0.218	20	
Silver	0.106	0.050	mg/kg dry	0.100		106	85-115	5.17	20	
Zinc	1.88	0.010	mg/kg dry	2.00		93.9	85-115	0.122	20	

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Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

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 B411026 - EPA 7471

Blank (B411026-BLK1)

Prepared & Analyzed: 11/04/14

Mercury ND 0.0002 mg/kg wet

LCS (B411026-BS1)

Prepared & Analyzed: 11/04/14

Mercury 0.0023 0.0002 mg/kg wet 0.00200 113 85-115

LCS Dup (B411026-BSD1)

Prepared & Analyzed: 11/04/14

Mercury 0.0022 0.0002 mg/kg wet 0.00200 109 85-115 3.96 20

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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

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 B411021 - Hot Water Soluble Metals Extract

Blank (B411021-BLK1)

Prepared & Analyzed: 11/04/14

Boron ND 0.300 mg/kg dry

LCS (B411021-BS1)

Prepared & Analyzed: 11/04/14

Boron 4.76 0.300 mg/kg dry 5.00 95.2 85-115

LCS Dup (B411021-BSD1)

Prepared & Analyzed: 11/04/14

Boron 4.79 0.300 mg/kg dry 5.00 95.8 85-115 0.617 20

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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4102803 - Volatiles

Blank (4102803-BLK1)

Prepared & Analyzed: 10/28/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0521		mg/L	0.0500		104	66.2-142			
Benzene	ND	0.001	mg/L							
Ethylbenzene	ND	0.001	mg/L							
Toluene	ND	0.001	mg/L							
Total BTEX	ND	0.006	mg/L							
Total Xylenes	ND	0.003	mg/L							

LCS (4102803-BS1)

Prepared & Analyzed: 10/28/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0512		mg/L	0.0500		102	66.2-142			
Benzene	0.019	0.001	mg/L	0.0200		94.1	82.6-128			
Ethylbenzene	0.019	0.001	mg/L	0.0200		96.0	80.2-131			
Toluene	0.020	0.001	mg/L	0.0200		99.5	84.2-128			
Total Xylenes	0.057	0.003	mg/L	0.0600		95.0	81.8-128			

LCS Dup (4102803-BSD1)

Prepared & Analyzed: 10/28/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0506		mg/L	0.0500		101	66.2-142			
Benzene	0.020	0.001	mg/L	0.0200		98.2	82.6-128	4.27	18.6	
Ethylbenzene	0.020	0.001	mg/L	0.0200		101	80.2-131	4.61	12.6	
Toluene	0.020	0.001	mg/L	0.0200		101	84.2-128	1.90	12.3	
Total Xylenes	0.059	0.003	mg/L	0.0600		99.0	81.8-128	4.07	12.8	

Batch 4102905 - Volatiles

Blank (4102905-BLK1)

Prepared & Analyzed: 10/29/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0507		mg/kg	0.0500		101	61-154			
Benzene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Total Xylenes	ND	0.150	mg/kg							

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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4102905 - Volatiles

LCS (4102905-BS1)

Prepared & Analyzed: 10/29/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0484		mg/kg	0.0500		96.7	61-154			
Benzene	1.98	0.050	mg/kg	2.00		98.8	77.1-114			
Ethylbenzene	1.77	0.050	mg/kg	2.00		88.3	63.5-121			
Toluene	1.87	0.050	mg/kg	2.00		93.3	67-114			
Total Xylenes	5.22	0.150	mg/kg	6.00		87.0	62.4-125			

LCS Dup (4102905-BSD1)

Prepared & Analyzed: 10/29/14

Surrogate: 4-Bromofluorobenzene (PID)	0.0489		mg/kg	0.0500		97.8	61-154			
Benzene	1.87	0.050	mg/kg	2.00		93.7	77.1-114	5.30	16.4	
Ethylbenzene	1.70	0.050	mg/kg	2.00		84.8	63.5-121	4.09	17	
Toluene	1.77	0.050	mg/kg	2.00		88.5	67-114	5.20	16.2	
Total Xylenes	5.01	0.150	mg/kg	6.00		83.6	62.4-125	4.03	17	

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Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Petroleum Hydrocarbons by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4102901 - General Prep - Organics

Blank (4102901-BLK1)

Prepared & Analyzed: 10/29/14

Surrogate: 1-Chlorooctadecane	47.3		mg/kg	50.0		94.7	52.1-176			
Surrogate: 1-Chlorooctane	36.4		mg/kg	50.0		72.8	47.2-157			
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
GRO C6-C10	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							

LCS (4102901-BS1)

Prepared & Analyzed: 10/29/14

Surrogate: 1-Chlorooctadecane	49.7		mg/kg	50.0		99.3	52.1-176			
Surrogate: 1-Chlorooctane	42.5		mg/kg	50.0		85.0	47.2-157			
DRO >C10-C28	184	10.0	mg/kg	200		92.1	81.3-118			
GRO C6-C10	177	10.0	mg/kg	200		88.6	72.5-115			
Total TPH C6-C28	361	10.0	mg/kg	400		90.4	80-113			

LCS Dup (4102901-BS1)

Prepared & Analyzed: 10/29/14

Surrogate: 1-Chlorooctadecane	46.3		mg/kg	50.0		92.5	52.1-176			
Surrogate: 1-Chlorooctane	42.7		mg/kg	50.0		85.3	47.2-157			
DRO >C10-C28	179	10.0	mg/kg	200		89.6	81.3-118	2.71	15.3	
GRO C6-C10	178	10.0	mg/kg	200		89.2	72.5-115	0.683	10.1	
Total TPH C6-C28	358	10.0	mg/kg	400		89.4	80-113	1.03	12.1	

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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4102902 - SW846-3510

Blank (4102902-BLK1)

Prepared: 10/29/14 Analyzed: 10/30/14

1-Methylnaphthalene	ND	0.040	mg/kg							
Surrogate: 2-Fluorobiphenyl	1.46		mg/kg	2.00		73.2	23.4-133			
2-Methylnaphthalene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Acenaphthylene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Benzo[b]fluoranthene	ND	0.040	mg/kg							
Benzo[g,h,i]perylene	ND	0.040	mg/kg							
Benzo[k]fluoranthene	ND	0.040	mg/kg							
Carbazole	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Naphthalene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	1.44		mg/kg	2.00		71.8	20.4-109			
Phenanthrene	ND	0.040	mg/kg							
Pyrene	ND	0.040	mg/kg							
Surrogate: Terphenyl-d14	1.70		mg/kg	2.00		85.1	38.4-163			

LCS (4102902-BS1)

Prepared: 10/29/14 Analyzed: 10/30/14

Surrogate: 2-Fluorobiphenyl	1.59		mg/kg	2.00		79.3	23.4-133			
2-Methylnaphthalene	0.348	0.040	mg/kg	0.400		86.9	41.4-151			
Acenaphthene	0.344	0.040	mg/kg	0.400		86.0	39.3-154			
Acenaphthylene	0.359	0.040	mg/kg	0.400		89.8	39.2-150			
Anthracene	0.359	0.040	mg/kg	0.400		89.7	33.5-162			
Benzo[a]anthracene	0.350	0.040	mg/kg	0.400		87.5	28.6-167			
Benzo[a]pyrene	0.349	0.040	mg/kg	0.400		87.1	27.2-163			
Benzo[b]fluoranthene	0.353	0.040	mg/kg	0.400		88.3	24-168			
Benzo[g,h,i]perylene	0.266	0.040	mg/kg	0.400		66.4	14.1-172			
Benzo[k]fluoranthene	0.357	0.040	mg/kg	0.400		89.1	28.9-170			
Carbazole	0.353	0.040	mg/kg	0.400		88.1	31.6-163			
Chrysene	0.352	0.040	mg/kg	0.400		87.9	27.7-171			
Dibenz[a,h]anthracene	0.293	0.040	mg/kg	0.400		73.3	19-164			
Fluoranthene	0.351	0.040	mg/kg	0.400		87.6	38.5-165			

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112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4102902 - SW846-3510

LCS (4102902-BS1)

Prepared: 10/29/14 Analyzed: 10/30/14

Fluorene	0.355	0.040	mg/kg	0.400		88.8	40.4-158			
Indeno[1,2,3-cd]pyrene	0.266	0.040	mg/kg	0.400		66.4	21.9-162			
Naphthalene	0.299	0.040	mg/kg	0.400		74.7	33.8-147			
Surrogate: Nitrobenzene-d5	1.70		mg/kg	2.00		84.8	20.4-109			
Phenanthrene	0.364	0.040	mg/kg	0.400		91.1	34.7-164			
Pyrene	0.347	0.040	mg/kg	0.400		86.8	28-180			
Surrogate: Terphenyl-dl4	1.79		mg/kg	2.00		89.4	38.4-163			

LCS Dup (4102902-BS1)

Prepared: 10/29/14 Analyzed: 10/30/14

Surrogate: 2-Fluorobiphenyl	1.54		mg/kg	2.00		77.2	23.4-133			
2-Methylnaphthalene	0.368	0.040	mg/kg	0.400		92.0	41.4-151	5.76	20	
Acenaphthene	0.344	0.040	mg/kg	0.400		86.0	39.3-154	0.0407	20	
Acenaphthylene	0.356	0.040	mg/kg	0.400		89.1	39.2-150	0.833	20	
Anthracene	0.363	0.040	mg/kg	0.400		90.8	33.5-162	1.22	20	
Benzo[a]anthracene	0.354	0.040	mg/kg	0.400		88.4	28.6-167	1.10	20	
Benzo[a]pyrene	0.352	0.040	mg/kg	0.400		87.9	27.2-163	0.871	20	
Benzo[b]fluoranthene	0.351	0.040	mg/kg	0.400		87.8	24-168	0.571	21.5	
Benzo[g,h,i]perylene	0.286	0.040	mg/kg	0.400		71.6	14.1-172	7.49	39.3	
Benzo[k]fluoranthene	0.376	0.040	mg/kg	0.400		94.1	28.9-170	5.36	20.5	
Carbazole	0.370	0.040	mg/kg	0.400		92.5	31.6-163	4.78	20	
Chrysene	0.357	0.040	mg/kg	0.400		89.2	27.7-171	1.55	20	
Dibenz[a,h]anthracene	0.309	0.040	mg/kg	0.400		77.1	19-164	5.03	30.5	
Fluoranthene	0.378	0.040	mg/kg	0.400		94.4	38.5-165	7.42	20	
Fluorene	0.355	0.040	mg/kg	0.400		88.8	40.4-158	0.0563	20	
Indeno[1,2,3-cd]pyrene	0.286	0.040	mg/kg	0.400		71.6	21.9-162	7.49	32.1	
Naphthalene	0.330	0.040	mg/kg	0.400		82.6	33.8-147	10.1	20	
Surrogate: Nitrobenzene-d5	1.80		mg/kg	2.00		90.2	20.4-109			
Phenanthrene	0.372	0.040	mg/kg	0.400		92.9	34.7-164	2.03	20	
Pyrene	0.360	0.040	mg/kg	0.400		89.9	28-180	3.57	20	
Surrogate: Terphenyl-dl4	1.81		mg/kg	2.00		90.7	38.4-163			

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Colorado Oil and Gas Conservation Commission
112 Lincoln St.
Denver CO, 80203

Project: Redwine Pit
Project Name / Number: [none]
Project Manager: Jim Hughes

Reported:
11/13/14 17:26

Notes and Definitions

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

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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CHAIN OF CUSTODY RECORD

Page ____ of ____

Client: COGCC

NOTES:

Contact: Jim Hughes

1) Ensure proper container packaging.

Address: P.O. Box 4453

2) Ship samples promptly following collection.

Durango, CO 81301

3) Designate Sample Reject Disposition.

Phone Number: 970-903-4072

PO#

Email: jim.hughes@state.co.us

Project Name: Redwine Pit

Samplers Signature: Jim Hughes

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 #
1410-240

Lab Name: Green Analytical Laboratories

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

Address: 75 Suttle Street, Durango, CO 81303

www.greenanalytical.com

Analyses Required

Sample ID	Collection		Date	Time	Collected by: (Init.)	Miscellaneous				Preservative(s)					Other (Specify)	Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Matrix Type From Table 1	No. of Containers				Sample Filtered ? Y/N	Unpreserved (Ice Only)	HNO3	HCL	H2SO4	NAOH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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* Sample Reject: [] Return [] Dispose [] Store (30 Days)