

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Elm Ridge Exploration Co LLC	Contact Amy Archuleta
Address Po Box 156 Bloomfield NM 87413	Telephone No. (505) 632-3476
Facility Name Lybrook South #16	Facility Type Oil Well

NOV 05 2014

Surface Owner BLM	Mineral Owner BLM	API No. 30-043-20845
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LOCATION OF RELEASE

Unit Letter J	Section 19	Township 23N	Range 06W	Feet from the 1975'	North/South Line SOUTH	Feet from the 1978'	East/West Line EAST	County SANDOVAL
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Latitude 36.209335 Longitude -107.50705

NATURE OF RELEASE

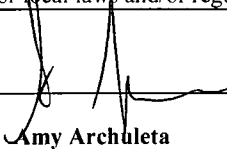
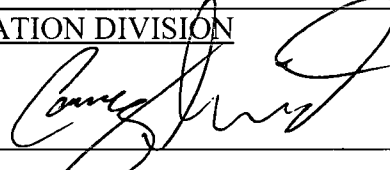
Type of Release Oil, Frac Fluid, sand, produced water	Volume of Release: 400 bbls of Frac Fluid, Frac sand and water. 5 bbls of oil.	Volume Recovered: Approx: 120 bbls
Source of Release: Wellhead valve burst	Dt & Hr of Occurrence: 7-31-14 11:00PM	Dt & Hr of Discovery: 8-1-14 6:00 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD, BLM, EPA, and the NRC	
By Whom? RICHARD GRAVES	Date and Hour 8-1-14 8:00 AM (Open hours)	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. 200 bbls of fluid	

If a Watercourse was Impacted, Describe Fully. * **Approximately 200 bbls of frac fluid, frac sand, and water with traces of oil was sent down the wash after the pipeline ruptured on the road and the location was flooded. It was raining and the ground was already wet allowing the fluid to flow down the wash.**

Describe Cause of Problem and Remedial Action Taken. * **SEE ATTACHED**

Describe Area Affected and Cleanup Action Taken. * **SEE ATTACHED**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: Amy Archuleta		Approved by Environmental Specialist: 	
Title: Sr. Regulatory Supervisor		Approval Date: 11/12/14	Expiration Date:
E-mail Address: aarchuleta@elmridge.net		Conditions of Approval:	
Date: 11-3-14 Phone: 505 632-3476 x 201		Attached ☐	

* Attach Additional Sheets If Necessary

#NCS 14316 31097

103

South Lybrook #14

- 8-7-14 Arrive on Location, well still blowing out, to much pressure. While waiting on well to die down, we began to take shovels and make bumps across Road to stop water, from going down Road. Vacuum Truck shows up to clean up pools of fluid. Three loads of dirt show up. That W.P.X order, we continued to clean up ditch line and dig out blow out area.
- 8-10-14 Continue to work spill along Road, use backhoe to clean up at Culvert areas, and where flowline was ruptured. And spread dirt that had been hauled in. Shovel material from around well head.
- 8-11-14 Start. Work for new Pipe Line, to replace 3" poly line, also continue to work on wash clean up. shovel and bag contaminated soil, load in Dump Truck and haul to Land Farm.
- 8-12-14 Continue to ditch, and strong slide and continue to clean up wash.
- 8-13-14 Continue clean up wash, strong pipe level out (3) loads of material, on location.
- 8-14-14 Continue clean up on wash, also clean up 2-track Road. W.P.X called for testing wash, but did not pass.
- 8-17-14 Continue clean up, and Jap and lower pipe, and start clean up on R.O.W.
- 8-19-14 Continue clean up, on wash, and clean up on R.O.W. haul off dirt to Land Farm.
- 9-8-14 Move Tractor with disk and disk, wash disk cut ranged from 0"-6" depending on wash, some was sand, some was sandstone then scattered gypsum into ruts.



October 31, 2014

Project Number: 03056-0503

Ms. Amy Archuleta
Elm Ridge Exploration
20 Road 5060
Bloomfield, New Mexico 87413

Phone: (505) 215-3625

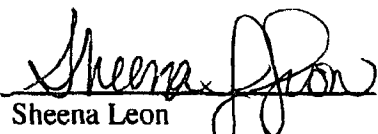
**RE: CONFIRMATION SAMPLING REPORT FOR ACTIVITIES PERFORMED AT THE
LYBROOK SOUTH #16 LOCATED IN SECTION 19, TOWNSHIP 23 NORTH, RANGE 6
WEST, SANDOVAL COUNTY, NEW MEXICO**

Dear Ms. Archuleta,

Enclosed please find the *Confirmation Sampling Report* detailing confirmation sampling activities performed at the Lybrook South #16 located in Section 19, Township 23 North, Range 6 West, Sandoval County, New Mexico.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully submitted,
ENVIROTECH, INC.


Sheena Leon
Environmental Field Technician
sleon@envirotech-inc.com

Enclosures: Confirmation Sampling Report

Cc: Client File No. 03056



CONFIRMATION SAMPLING REPORT

**LOCATED AT:
LYBROOK SOUTH #16
SECTION 19, TOWNSHIP 23 NORTH, RANGE 6 WEST
SANDOVAL COUNTY, NEW MEXICO**

**PREPARED FOR:
ELM RIDGE EXPLORATION
MS. AMY ARCHULETA
20 ROAD 5060
BLOOMFIELD, NEW MEXICO 87413**

PROJECT NUMBER: 03056-0503

AUGUST 2014

**ELM RIDGE EXPLORATION
CONFIRMATION SAMPLING REPORT
LYBROOK SOUTH #16
SECTION 19, TOWNSHIP 23 NORTH, RANGE 6 WEST
SANDOVAL COUNTY, NEW MEXICO**

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Tables:	Table 1, Summary of Analytical Results
Appendices:	Appendix A, Analytical Results Appendix B, Bills of Lading

INTRODUCTION

Envirotech, Inc. of Farmington, New Mexico, was contracted by Elm Ridge Exploration to provide confirmation sampling activities for a release from a broken pipeline at the Lybrook South #16 in Section 19, Township 23 North, Range 6 West, Sandoval County, New Mexico; see enclosed **Figure 1, Vicinity Map**. Three (3) main areas were impacted; see enclosed **Figure 2, Site Map**. Prior to Envirotech's arrival on site, visual staining had been excavated from all three (3) areas. *Location Area*, directly west of the well head was impacted when the well head exploded. *West Excavation* and *East Excavation* were both impacted when two (2) pipelines broke. Activities included sample collection and analysis, contaminated soil disposal, reclamation, documentation, and reporting.

ACTIVITIES PERFORMED

Because depth to groundwater was greater than 100 feet, nearest surface water was less than 200 feet, and the well site was not located within a well head protection area, the regulatory standards for the area were determined to be 100 parts per million (ppm) total petroleum hydrocarbons (TPH) and 100 ppm organic vapors, pursuant to New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases.

August 5, 2014

Envirotech, Inc. was contacted on August 5, 2014, with a request to perform confirmation sampling for a broken pipeline that occurred at the above referenced location. Upon arrival on-site, a brief site assessment was conducted and a Job Safety Analysis (JSA) was completed.

One (1) five (5)-point composite sample was collected from the walls and bottom of each of the three (3) excavated areas, *Location Area*, *West Excavation*, and *East Excavation*; see enclosed **Figure 2, Site Map – 8/5/14**. All three (3) samples were analyzed in the field for TPH using USEPA Method 418.1 and for organic vapors using a photoionization detector (PID). *Location Area* and *West Excavation* returned results below the regulatory standard for TPH and organic vapor; see enclosed **Appendix A, Analytical Results**, and **Table 1, Summary of Analytical Results**. *East Excavation* returned results above the regulatory standard for TPH but below the regulatory standard for organic vapor; see enclosed **Appendix A, Analytical Results**, and **Table 1, Summary of Analytical Results**.

August 14, 2014

On August 14, 2014, Envirotech, Inc. returned to the Lybrook South #16 well site for continued confirmation sampling activities. Upon arrival on-site, a brief site assessment was conducted and a Job Safety Analysis (JSA) was completed.

The broken pipeline had released condensate into the wash, located north of the Lybrook South #16 well site. Prior to Envirotech's arrival, all visual contamination was excavated. The wash

was divided into 11, approximately 200 foot sections. One (1) five (5)-point composite sample was collected from each of the 11 sections: *Wash #1 - #11*; see enclosed **Figure 3, Site Map – 8/14/14 (1)** for sample locations. All 11 samples were placed into four (4)-ounce glass jars, capped head space free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015, benzene and total BTEX using USEPA Method 8021, and for cation/anion analysis using USEPA Method 6010. All 11 samples returned results below regulatory standards for benzene and total BTEX; see enclosed **Appendix A, Analytical Results** and **Table 1, Summary of Analytical Results**. Three (3) sections, *Wash #4, Wash #5, and Wash #8*, returned results above the regulatory standard for TPH. Envirotech, Inc. was later informed that the NMOCD made the decision to show leniency on the two (2) sections, *Wash #4 and Wash #5*, because they were less than four (4) ppm from meeting regulatory standards. Regarding *Wash #8*, Envirotech Inc. made the recommendation to further excavate followed by re-sampling for closure.

Five (5) additional five (5)-point composite samples (*Site Composite, 2 Track Wash #1, 2 Track Wash #2, Pipe Ditch, and 2 Track Area*) were collected from the release area; see enclosed **Figure 4, Site Map – 8/14/14 (2)** for sample locations. All five (5) samples were placed into four (4)-ounce glass jars, capped head space free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015, benzene and total BTEX using USEPA Method 8021, and for cation/anion analysis using USEPA Method 6010. All five (5) samples returned results below regulatory standards for every constituent analyzed except for the sample, *2 Track Wash #2*, which returned a result above the regulatory standard for TPH; see enclosed **Appendix A, Analytical Results** and **Table 1, Summary of Analytical Results**. Envirotech, Inc. was later informed that the NMOCD made the decision to show leniency on this area, because it was only 11 ppm above their standard.

Four (4) grab samples (*2 Track Grab, Grab #1, Grab #2, and Grab #3*) were collected from the release area; see enclosed **Figure 4, Site Map – 8/14/14 (2)** for sample locations. All four (4) samples were placed into four (4)-ounce glass jars, capped head space free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015, benzene and total BTEX using USEPA Method 8021, and for cation/anion analysis using USEPA Method 6010. All four (4) samples returned results below regulatory standards for every constituent analyzed except for the sample, *2 Track Grab*, which returned a result above the regulatory standard for TPH; see enclosed **Appendix A, Analytical Results** and **Table 1, Summary of Analytical Results**. Envirotech, Inc. was later informed that the NMOCD made the decision to show leniency on this area, because it was only nine (9) ppm above their standard.

September 3, 2014

On September 3, 2014, Envirotech, Inc. returned to the Lybrook South #16 well site for continued confirmation sampling activities. Upon arrival on-site, a brief site assessment was

conducted and a Job Safety Analysis (JSA) was completed.

Envirotech was informed that since the previous sampling event, *Wash #8*, had been further excavated. One (1) five (5)-point composite sample was collected from *Wash #8*; see enclosed ***Figure 5, Site Map – 9/3/14***. The sample was placed into a four (4)-ounce glass jar, capped head space free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015. The sample returned a result below the regulatory standard for TPH; see enclosed ***Appendix A, Analytical Results*** and ***Table 1, Summary of Analytical Results***.

One (1) five (5)-point composite sample was also collected from a new section of the wash; see enclosed ***Figure 5, Site Map – 9/3/14*** for sample locations. The sample was placed into a four (4)-ounce glass jar, capped head space free, and transported on ice, under chain of custody, to Envirotech's Analytical Laboratory to be analyzed for TPH using USEPA Method 8015, benzene and total BTEX using USEPA Method 8021, and for cation/anion analysis using USEPA Method 6010. The sample returned a result above the regulatory standard for TPH but below the regulatory standard for benzene and total BTEX; see enclosed ***Appendix A, Analytical Results*** and ***Table 1, Summary of Analytical Results***. Envirotech, Inc. was later informed that the NMOCD made the decision to show leniency on this area, because it was only 17 ppm above their standard.

SUMMARY AND CONCLUSIONS

Confirmation sampling activities were performed at the Lybrook South #16 well site for a release of condensate from a broken pipeline at the Lybrook South #16 in Section 19, Township 23 North, Range 6 West, Sandoval County, New Mexico.

Approximately 240 cubic yards of condensate contaminated soil, were transported to Envirotech's New Mexico Oil and Gas Conservation Division (NMOCD) permitted soil remediation facility, Landfarm 2, located near Hilltop, New Mexico; see enclosed ***Appendix B, Bills of Lading***.

Approximately 38 cubic yards of backfill and topsoil were transported from Envirotech's soil remediation facility to the Lybrook South #16 well site to later be used to re-contour the site to pre-incident conditions; see enclosed ***Appendix B, Bills of Lading***.

Since the NMOCD has informed Envirotech, Inc. that they are showing leniency on the few areas that are slightly above regulatory standards, Envirotech recommends no further action in regards to this project.

STATEMENT OF LIMITATIONS

Envirotech has completed confirmation sampling activities for a release of condensate from a

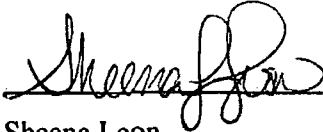
broken pipeline at the Lybrook South #16 in Section 19, Township 23 North, Range 6 West, Sandoval County, New Mexico. The work and services provided by Envirotech, Inc. were in accordance with the NMOCD standards. All observations and conclusions provided here are based on the information and current site conditions found at the site of the incident.

The undersigned has conducted this service at the above referenced site. This work has been conducted and reported in accordance with generally accepted professional practices in geology, engineering, environmental chemistry and hydrogeology.

We appreciate the opportunity to be of service. If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully submitted,

ENVIROTECH, INC.



Sheena Leon
Environmental Field Technician
lgarcia@envirotech-inc.com

Reviewed by:



Greg Crabtree, PE
Environmental Manager
gcrabtree@envirotech-inc.com

FIGURES

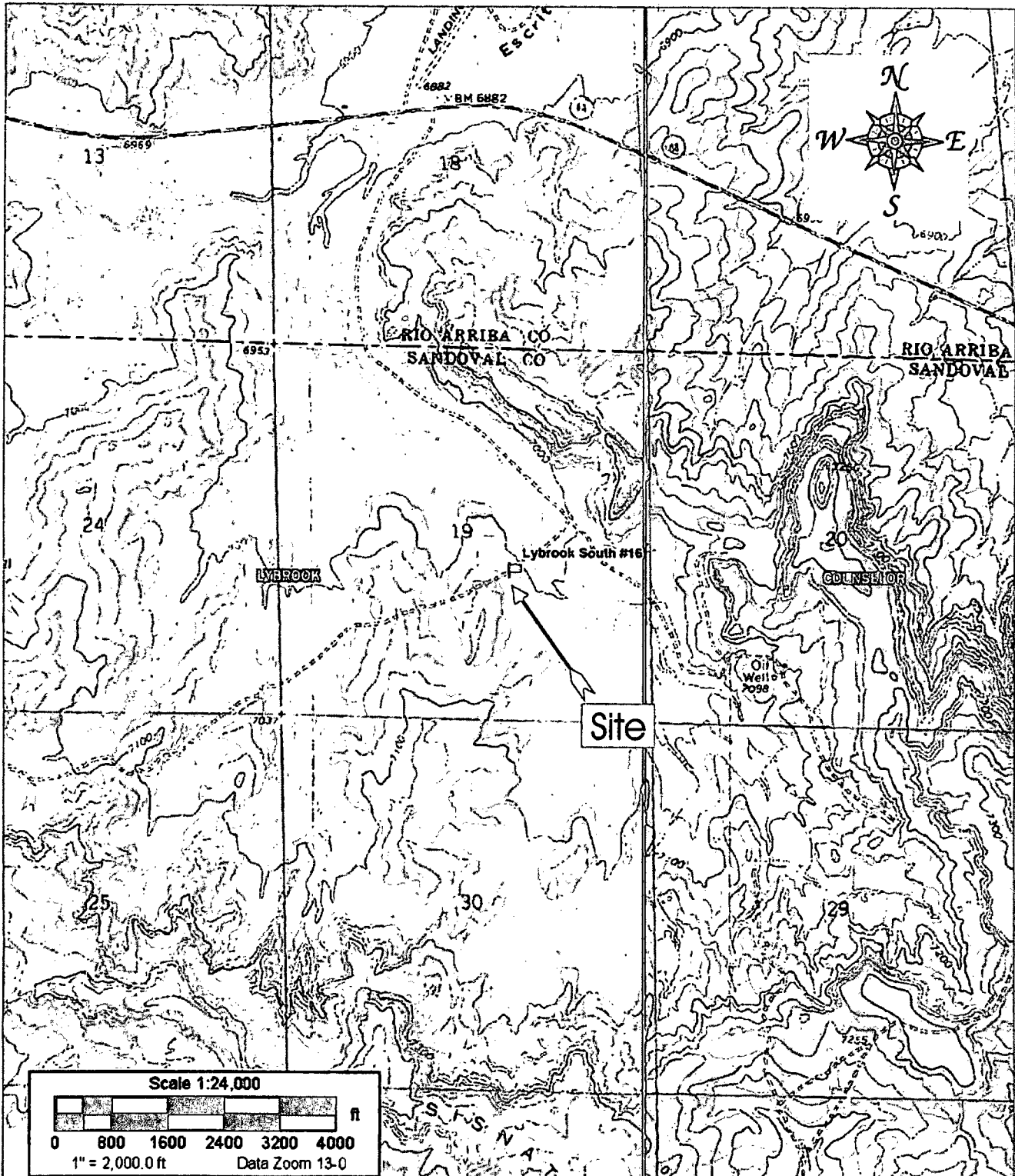
Figure 1, Vicinity Map

Figure 2, Site Map – 8/5/14

Figure 3, Site Map – 8/14/14 (1)

Figure 4, Site Map – 8/14/14 (2)

Figure 5, Site Map – 9/3/14



Elm Ridge Exploration Lybrook South #16 Section 19, Township 23N, Range 6W Sandoval County, New Mexico	envirotech ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64 Farmington, New Mexico 87401 505.632.0615	Vicinity Map	
PROJECT Number: 03056-0503 Date Drawn: 8/12/14		Figure #1 DRAWN BY: Tiffany McIntosh	PROJECT MANAGER: Greg Crabtree



LEGEND

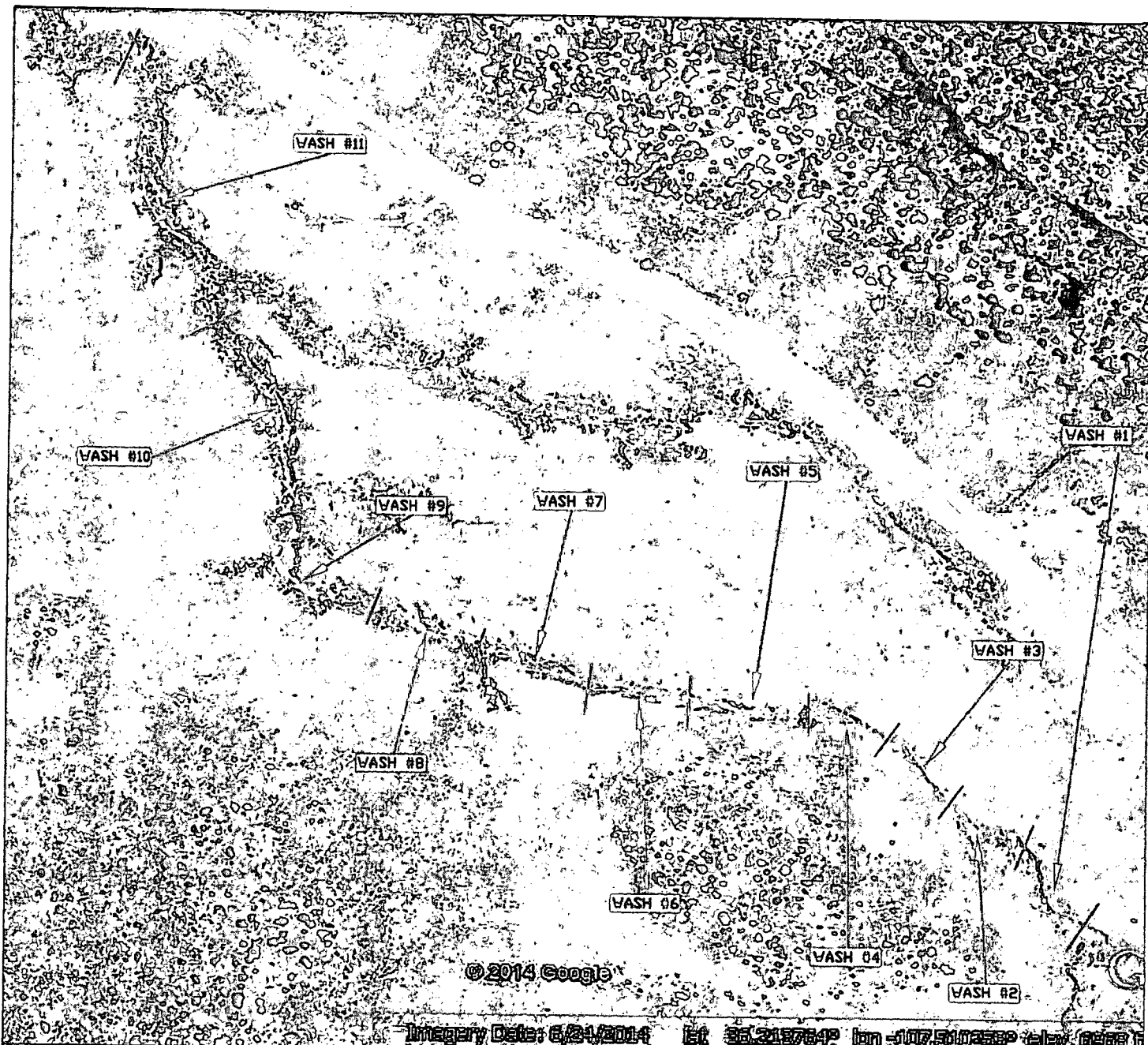
⊕ = WELL HEAD

X = SAMPLE LOCATION

SITE MAP - 8/5/14
Elm Ridge Exploration
 Lybrook South #16
 SECTION 19, TWP 23 NORTH, RANGE 6 WEST
 SANDOVAL COUNTY, NEW MEXICO

SECTION 13, SANDOVAL COUNTY, NEW MEXICO				REV
SCALE: NTS		FIGURE NO. 2		
PROJECT N003056-0503				
REVISIONS				
NO.	DATE	BY	DESCRIPTION	
MAP DRWN	TLM	8/13/14	BASE DRWN	TLM 2/25/13

 **envirotech**
 5796 U.S. HIGHWAY 64, FARMINGTON, NM 87401 505-632-0615



LEGEND

(5-POINT COMPOSITE SAMPLES)

11 WASH SAMPLES

SITE MAP - 8/14/14 (1)

Elm Ridge Exploration

Lybrook South #16

SECTION 19, TWP 23 NORTH, RANGE 6 WEST
SANDOVAL COUNTY, NEW MEXICO

SCALE: NTS

PROJECT NOD3056-0503

FIGURE NO. 3

REV

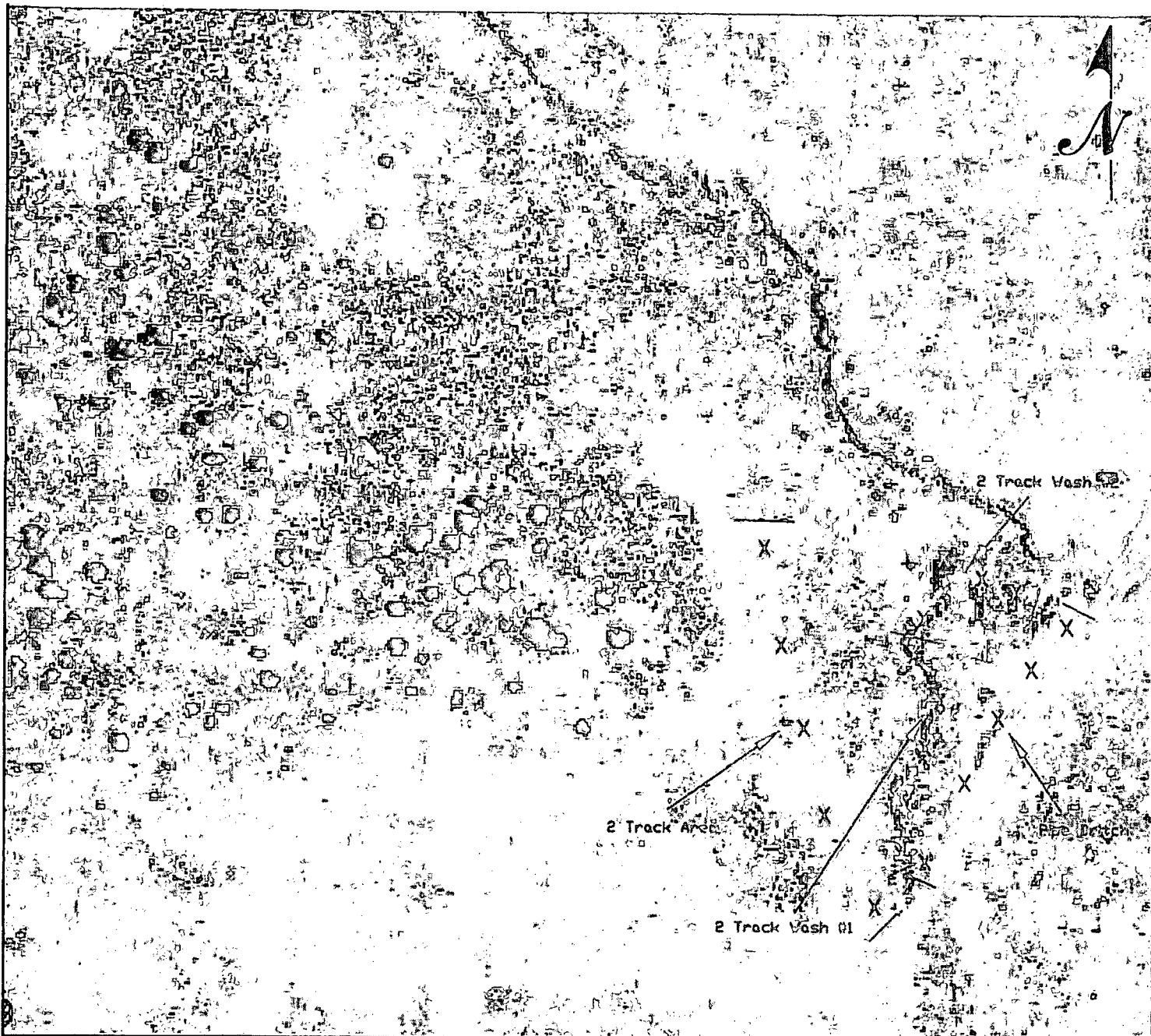
REVISIONS

NO.	DATE	BY	DESCRIPTION
MAP DRWN	TLM	9/30/14	BASE DRWN TLM 2/25/13



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5796 U.S. HIGHWAY 64, FARMINGTON, NM 87401 505-632-0615



LEGEND

X = SAMPLE LOCATIONS

SITE MAP - 8/14/14
Elm Ridge Exploration
 Lybrook South #16
 SECTION 19, TWP 23 NORTH, RANGE 6 WEST
 SANDOVAL COUNTY, NEW MEXICO

SCALE: NTS

PROJECT NO03056-0503

FIGURE NO. 4

REV

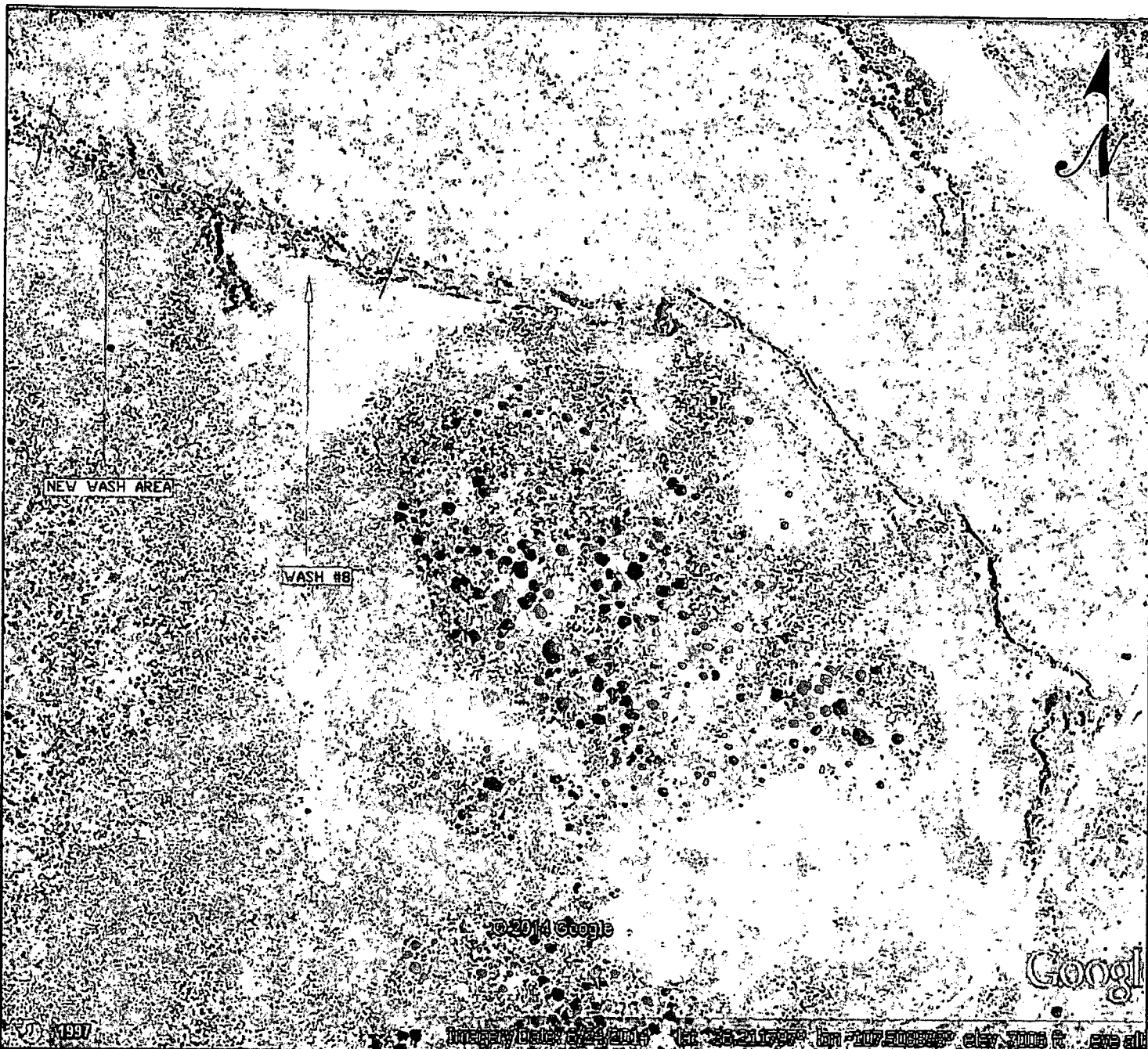
REVISIONS

NO.	DATE	BY	DESCRIPTION
MAP DRWN	TLM	8/13/14	BASE DRWN TLM 2/25/13



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5796 U.S. HIGHWAY 64, FARMINGTON, NM 87401 505-632-0615



LEGEND

(5-POINT COMPOSITE SAMPLES)

X = SAMPLE LOCATION

SITE MAP - 9/3/14
Elm Ridge Exploration
 Lybrook South #16
 SECTION 19, TWP 23 NORTH, RANGE 6 WEST
 SANDOVAL COUNTY, NEW MEXICO

SCALE: NTS

FIGURE NO. 5

REV

PROJECT NOD3056-0503

REVISIONS

NO.	DATE	BY	DESCRIPTION
MAP DRWN	TLM	9/30/14	BASE DRWN TLM 2/25/13



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5796 U.S. HIGHWAY 64, FARMINGTON, NM 87401 505-632-0615

TABLES

Table 1, Summary of Analytical Results

Table 1, Summary of Analytical Results
 Elm Ridge Exploration
 Lybrook South #16
 Confirmation Sampling Report
 Sandoval County, New Mexico
 Project Number 03056-0503

Sample Description	Sample Number	Date	TPH USEPA Method 418.1 (ppm)	TPH USEPA Method 8015 (ppm)	Benzene USEPA Method 8021 (ppm)	Total BTEX USEPA Method 8021 (ppm)	OVN (ppm)
NMOCD/RCRA Standards	NA	NA	100	100	10	50	100
Location Area	1	8/5/2014	840	NS	NS	NS	1.2
West Excavation	2	8/5/2014	812	NS	NS	NS	1.7
East Excavation	3	8/5/2014	444	NS	NS	NS	0.8
Site Composite	4	8/14/2014	NS	ND	ND	ND	NS
2 Track Wash #1	5	8/14/2014	NS	ND	ND	ND	NS
2 Track Wash #2	6	8/14/2014	NS	111	ND	ND	NS
Pipe Ditch	7	8/14/2014	NS	95.6	ND	ND	NS
2 Track Area	8	8/14/2014	NS	ND	ND	ND	NS
Wash #1	9	8/14/2014	NS	45.8	ND	ND	NS
Wash #2	10	8/14/2014	NS	44.1	ND	ND	NS
Wash #3	11	8/14/2014	NS	46.6	ND	ND	NS
Wash #4	12	8/14/2014	NS	104	ND	ND	NS
Wash #5	13	8/14/2014	NS	103	ND	ND	NS
Wash #6	14	8/14/2014	NS	47.1	ND	ND	NS
Wash #7	15	8/14/2014	NS	58.7	ND	ND	NS
Wash #8	16	8/14/2014	NS	1030	ND	ND	NS
Wash #9	17	8/14/2014	NS	87.5	ND	ND	NS
Wash #10	18	8/14/2014	NS	57.1	ND	ND	NS
Wash #11	19	8/14/2014	NS	ND	ND	ND	NS
2 Track Grab	20	8/14/2014	NS	109	ND	ND	NS
Grab #1	21	8/14/2014	NS	ND	ND	ND	NS
Grab #2	22	8/14/2014	NS	ND	ND	ND	NS
Grab #3	23	8/14/2014	NS	ND	ND	ND	NS
New Wash Area	24	9/3/2014	NS	117	ND	ND	NS
Wash #8	25	9/3/2014	NS	40.0	NS	NS	NS

NS = Not Sampled

ND = Non-Detect at Stated Method's Detection Limit

* Values in **BOLD** above regulatory standards

APPENDIX A

Analytical Results



**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Elm Ridge Exp
Sample No.: 1
Sample ID: Location Area
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03056-0503
Date Reported: 8/5/2014
Date Sampled: 8/5/2014
Date Analyzed: 8/5/2014
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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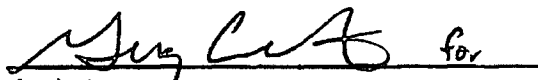
Total Petroleum Hydrocarbons	840	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Lybrook South #16**

Instrument calibrated to 200 ppm standard and zeroed before each sample.


Analyst

Isaac Garcia
Printed


Review

Toni McKnight, EIT
Printed



**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Exp	Project #:	03056-0503
Sample No.:	2	Date Reported:	8/5/2014
Sample ID:	West Excavation	Date Sampled:	8/5/2014
Sample Matrix:	Soil	Date Analyzed:	8/5/2014
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	812	5.0
-------------------------------------	------------	------------

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Lybrook South #16**

Instrument calibrated to 200 ppm standard and zeroed before each sample.


Analyst

Isaac Garcia
Printed


Review

Toni McKnight, EIT
Printed



**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Elm Ridge Exp
Sample No.: 3
Sample ID: East Excavation
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03056-0503
Date Reported: 8/5/2014
Date Sampled: 8/5/2014
Date Analyzed: 8/5/2014
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	444	5.0
-------------------------------------	------------	------------

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Lybrook South #16**

Instrument calibrated to 200 ppm standard and zeroed before each sample.


Analyst

Isaac Garcia
Printed


Review

Toni McKnight, EIT
Printed



CONTINUOUS CALIBRATION
EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Cal. Date: 5-Aug-14

Parameter	Standard Concentration mg/L	Concentration Reading mg/L
TPH	100	205
	200	
	500	
	1000	

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.


Analyst

8/12/2014
Date

Isaac Garcia
Print Name


Review

8/12/2014
Date

Toni McKnight, EIT
Print Name



Analytical Report

Report Summary

Client: Elm Ridge Resources
Chain Of Custody Number: 17331
Samples Received: 8/14/2014 5:08:00PM
Job Number: 03056-0503
Work Order: P408060
Project Name/Location: Lybrook South #16

Entire Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Tim Cain', is written over a horizontal line.

Date: 8/18/14

Tim Cain, Laboratory Manager

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



Elm Ridge Resources
PO Box 156
Bloomfield NM. 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Site Composite	P408060-01A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
2 Track Wash #1	P408060-02A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
2 Track Wash #2	P408060-03A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Pipe Ditch	P408060-04A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
2 Track Area	P408060-05A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #1	P408060-06A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #2	P408060-07A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #3	P408060-08A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #4	P408060-09A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #5	P408060-10A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Site Composite
P408060-01 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		99.5 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		99.7 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	29.9	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		135 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.2°C	8.46		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	944		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	1320		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	3.11		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO ₃	116	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO ₃	116	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO ₃	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO ₃	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	1.05	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	562	9.84	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	ND	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.92	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	16.7	9.84	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	10.9	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	13.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported: 18-Aug-14 15:17
PO Box 156	Project Number:	03056-0503	
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Site Composite
P408060-01 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	3.86	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	4.54	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	50.1	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

2 Track Wash #1
P408060-02 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		98.5 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		99.5 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	29.9	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		153 %	50-200		1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.3°C	7.76		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	59.8		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	719		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	0.437		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO ₃	36.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO ₃	36.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO ₃	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO ₃	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	4.37	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	ND	9.92	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	14.4	4.96	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	ND	9.92	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	32.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	8.29	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

2 Track Wash #1
P408060-02 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	8.64	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	15.7	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	7.53	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

2 Track Wash #2
P408060-03 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		101 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		100 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.98	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	111	40.0	mg/kg	2	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		104 %	50-200		1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.1°C	6.69		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	1810		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	4600		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	2.19		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	32.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	32.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	1.92	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	1330	9.90	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	3.11	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	13.8	4.95	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	15.5	9.90	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	50.4	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	9.01	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

2 Track Wash #2
P408060-03 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	12.9	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	23.8	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	43.8	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Pipe Ditch
P408060-04 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Volatile Organics by EPA 8021										
Benzene	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		94.7 %		50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		95.8 %		50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015										
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg	l		1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	95.6	35.0	mg/kg	l		1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		138 %		50-200		1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis										
pH @20.1°C	7.83		pH Units	l		1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	3640		umhos/cm	l		1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	4080		mg/L	l		1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	3.61		N/A	l		1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	30.0	0.01	mg/L	l		1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	30.0	0.01	mg/L	l		1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	l		1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	l		1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	1930	9.90	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	ND	0.99	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.95	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	10.8	9.90	mg/kg	l		1433029	08/15/14	08/15/14	EPA 300.0	
Iron	0.26	0.01	mg/L	l		1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	28.4	0.01	mg/L	l		1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Pipe Ditch
P408060-04 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	5.86	0.01	mg/L	1		1433031	08/15/14	08/16/14	EPA 6010C	
Potassium	4.79	0.01	mg/L	1		1433031	08/15/14	08/16/14	EPA 6010C	
Sodium	80.8	0.01	mg/L	1		1433031	08/15/14	08/16/14	EPA 6010C	

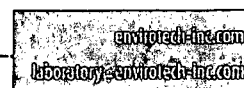
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

2 Track Area
P408060-05 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		99.5 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		99.3 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	30.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		151 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.3°C	7.00		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	4690		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	5360		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	6.82		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	28.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	28.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	2.94	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	2160	9.90	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	3.63	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	17.4	4.95	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	11.8	9.90	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	38.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	11.6	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

2 Track Area
P408060-05 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	9.70	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	22.0	0.01	mg/L	t	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	130	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Wash #1
P408060-06 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		91.0 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		88.6 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	45.8	34.9	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		85.4 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.2°C	8.46		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	2460		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	3840		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	2.76		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	69.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	69.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	762	9.93	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	1.29	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.96	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	15.8	9.93	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	65.1	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	16.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Wash #1
P408060-06 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	15.0	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	28.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	64.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #2
P408060-07 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		90.3 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		93.2 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	44.1	34.9	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		125 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.3°C	8.12		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	2790		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	1840		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	3.30		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	43.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	43.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	719	9.94	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	ND	0.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.97	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	ND	9.94	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	36.7	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	11.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Wash #2
P408060-07 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	7.99	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	15.6	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	59.3	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #3
P408060-08 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		91.0 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		94.6 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	46.6	30.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		142 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.3°C	7.88		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	3680		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	4000		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	8.09		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	40.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	40.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	2680	9.82	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	1.11	0.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.91	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	15.0	9.82	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	6.40	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	16.1	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported: 18-Aug-14 15:17
PO Box 156	Project Number:	03056-0503	
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #3
P408060-08 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	2.30	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	8.98	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	131	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources PO Box 156 Bloomfield NM, 87413	Project Name: Lybrook South #16 Project Number: 03056-0503 Project Manager: Sheena Leon	Reported: 18-Aug-14 15:17
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Wash #4
P408060-09 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		94.4 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		90.8 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	104	35.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		120 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.3°C	8.07		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	2330		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	2840		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	4.89		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	38.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	38.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	6.06	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	1230	10.0	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	ND	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	5.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	14.4	10.0	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	6.76	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	16.4	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #4
P408060-09 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	2.66	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	7.02	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	80.9	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #5
P408060-10 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		84.6 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		86.7 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	103	30.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzofalpyrene		153 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.4°C	8.14		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	3280		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	4760		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	14.2		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Nitrite-N	ND	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Chloride	2390	9.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Fluoride	1.68	1.00	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
o-Phosphate	ND	4.99	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Sulfate	15.1	9.98	mg/kg	1	1433029	08/15/14	08/15/14	EPA 300.0	
Iron	13.7	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	
Calcium	8.14	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Wash #5
P408060-10 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	3.52	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Potassium	13.7	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		
Sodium	192	0.01	mg/L	1	1433031	08/15/14	08/16/14	EPA 6010C		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1433027 - Purge and Trap EPA 5030A

Blank (1433027-BLK1)				Prepared & Analyzed: 15-Aug-14						
Benzene	ND	0.05	mg/kg							
Toluene	ND	0.05	"							
Ethylbenzene	ND	0.05	"							
p,m-Xylene	ND	0.10	"							
o-Xylene	ND	0.05	"							
Total Xylenes	ND	0.05	"							
Total BTEX	ND	0.05	"							
Surrogate: 1,3-Dichlorobenzene	46.3		ug/L	50.0		92.5	50-150			
Surrogate: Bromochlorobenzene	44.5		"	50.0		88.9	50-150			

Duplicate (1433027-DUP1)				Source: P408060-01		Prepared & Analyzed: 15-Aug-14				
Benzene	ND	0.05	mg/kg		ND				30	
Toluene	ND	0.05	"		ND				30	
Ethylbenzene	ND	0.05	"		ND				30	
p,m-Xylene	ND	0.10	"		ND				30	
o-Xylene	ND	0.05	"		ND				30	
Surrogate: 1,3-Dichlorobenzene	49.6		ug/L	50.0		99.1	50-150			
Surrogate: Bromochlorobenzene	49.7		"	50.0		99.4	50-150			

Matrix Spike (1433027-MS1)				Source: P408060-01		Prepared & Analyzed: 15-Aug-14				
Benzene	46.8		ug/L	50.0	ND	93.5	39-150			
Toluene	48.3		"	50.0	ND	96.5	46-148			
Ethylbenzene	47.7		"	50.0	ND	95.4	32-160			
p,m-Xylene	95.9		"	100	ND	95.9	46-148			
o-Xylene	47.7		"	50.0	ND	95.4	46-148			
Surrogate: 1,3-Dichlorobenzene	51.1		"	50.0		102	50-150			
Surrogate: Bromochlorobenzene	51.6		"	50.0		103	50-150			

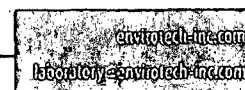
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1433026 - DRO Extraction EPA 3550M										
Blank (1433026-BLK1)				Prepared & Analyzed: 15-Aug-14						
Diesel Range Organics (C10-C28)	ND	24.9	mg/kg							
Surrogate: Benzo[a]pyrene	24.7		"	20.0		124	50-200			
LCS (1433026-BS1)				Prepared & Analyzed: 15-Aug-14						
Diesel Range Organics (C10-C28)	546	24.9	mg/kg	499		109	38-132			
Surrogate: Benzo[a]pyrene	23.0		"	20.0		115	50-200			
Matrix Spike (1433026-MS1)				Source: P408060-01		Prepared & Analyzed: 15-Aug-14				
Diesel Range Organics (C10-C28)	429	34.9	mg/kg	499	ND	86.1	38-132			
Surrogate: Benzo[a]pyrene	18.9		"	19.9		94.8	50-200			
Matrix Spike Dup (1433026-MSD1)				Source: P408060-01		Prepared: 15-Aug-14 Analyzed: 16-Aug-14				
Diesel Range Organics (C10-C28)	745	34.9	mg/kg	499	ND	149	38-132	53.7	20	SPK1
Surrogate: Benzo[a]pyrene	26.6		"	20.0		133	50-200			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1433027 - Purge and Trap EPA 5030A										
Blank (1433027-BLK1)				Prepared & Analyzed: 15-Aug-14						
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg							
Duplicate (1433027-DUP1)				Source: P408060-01 Prepared & Analyzed: 15-Aug-14						
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg		ND				30	
Matrix Spike (1433027-MS1)				Source: P408060-01 Prepared & Analyzed: 15-Aug-14						
Gasoline Range Organics (C6-C10)	0.45		mg/L	0.450	ND	101	75-125			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:17
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1433029 - Anion Extraction EPA 300.0										
Blank (1433029-BLK1)				Prepared & Analyzed: 15-Aug-14						
Nitrate-N	ND	0.99	mg/kg							
Nitrite-N	ND	0.99	"							
Chloride	ND	9.90	"							
Fluoride	ND	0.99	"							
o-Phosphate	ND	4.95	"							
Sulfate	ND	9.90	"							
LCS (1433029-BS1)				Prepared & Analyzed: 15-Aug-14						
Nitrate-N	49.4	1.00	mg/kg	50.0		98.9	90-110			
Nitrite-N	50.7	1.00	"	50.0		101	90-110			
Chloride	495	9.99	"	500		99.1	90-110			
Fluoride	49.8	1.00	"	50.0		99.8	90-110			
o-Phosphate	240	5.00	"	250		96.1	90-110			
Sulfate	493	9.99	"	500		98.6	90-110			
Matrix Spike (1433029-MS1)				Source: P408057-01	Prepared & Analyzed: 15-Aug-14					
Nitrate-N	51.4	0.99	mg/kg	49.7	1.32	101	80-120			
Nitrite-N	51.8	0.99	"	49.7	ND	104	80-120			
Chloride	505	9.94	"	497	ND	102	80-120			
Fluoride	53.3	0.99	"	49.7	7.30	92.7	80-120			
o-Phosphate	36.3	4.97	"	248	ND	14.6	80-120			SPK1
Sulfate	2570	9.94	"	497	5310	NR	80-120			SPK1
Matrix Spike Dup (1433029-MSD1)				Source: P408057-01	Prepared & Analyzed: 15-Aug-14					
Nitrate-N	51.8	1.00	mg/kg	49.8	1.32	101	80-120	0.740	20	
Nitrite-N	51.6	1.00	"	49.8	ND	104	80-120	0.416	20	
Chloride	506	9.96	"	498	ND	102	80-120	0.301	20	
Fluoride	59.3	1.00	"	49.8	7.30	104	80-120	10.5	20	
o-Phosphate	63.8	4.98	"	249	ND	25.6	80-120	54.9	20	SPK1
Sulfate	2690	9.96	"	498	5310	NR	80-120	4.62	20	SPK1

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:17

Notes and Definitions

SPK1 The spike recovery for this QC sample is outside of control limits.
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
RPD Relative Percent Difference

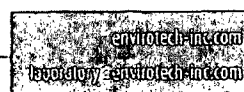
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CHAIN OF CUSTODY RECORD

17331

Client: Elmridge			Project Name / Location: Lybrook South #16			ANALYSIS / PARAMETERS													
Email results to: S. Leon			Sampler Name: S. Leon			TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact
Client Phone No.:			Client No.: 02056-0583																
Sample No. / Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative HNO ₃ HCl CeD														
Site Composite	8/14/14	12:10	P408060-01	1-4oz glass jar			X	X	X									Y	Y
2 track Wash #1		12:15	P408060-02				X	X	X									Y	Y
2 track Wash #2		12:20	P408060-03				X	X	X									Y	Y
Pipe Ditch		12:35	P408060-04				X	X	X									Y	Y
2 track Area		12:45	P408060-05				X	X	X									Y	Y
Wash #1		9:50	P408060-06				X	X	X									Y	Y
Wash #2		10:05	P408060-07				X	X	X									Y	Y
Wash #3		10:15	P408060-08				X	X	X									Y	Y
Wash #4		10:25	P408060-09				X	X	X									Y	Y
Wash #5		10:30	P408060-10				X	X	X									Y	Y
Relinquished by: (Signature) Shoona Leon				Date	Time	Received by: (Signature) Gene Zizzin				Date	Time								
Relinquished by: (Signature)						Received by: (Signature)													
Sample Matrix Soil ☒ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐																			
☐ Sample(s) dropped off after hours to secure drop off area. RUSH				 12.3 11.9 12.3															



Analytical Report

Report Summary

Client: Elm Ridge Resources
Chain Of Custody Number: 17332
Samples Received: 8/14/2014 5:12:00PM
Job Number: 03056-0503
Work Order: P408061
Project Name/Location: Lybrook South #16

Entire Report Reviewed By:

A handwritten signature in black ink, appearing to read "Tim Cain", is written over a horizontal line.

Date: 8/18/14

Tim Cain, Laboratory Manager

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.





Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM. 87413	Project Manager:	Sheena Leon	

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Wash #6	P408061-01A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #7	P408061-02A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #8	P408061-03A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #9	P408061-04A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #10	P408061-05A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Wash #11	P408061-06A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
2 Track Grab	P408061-07A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Grab #1	P408061-08A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Grab #2	P408061-09A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.
Grab #3	P408061-10A	Soil	08/14/14	08/14/14	Glass Jar, 4 oz.

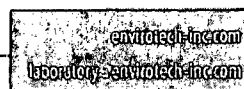
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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #6
P408061-01 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: Bromochlorobenzene		101 %		50-150	1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		103 %		50-150	1433027	08/15/14	08/16/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8015D	
Diesel Range Organics (C10-C28)	47.1	29.9	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		138 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @25.1°C	9.05		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	1570		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	3680		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	4.59		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	52.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Itach Method 8203	
Bicarbonate as CaCO3	52.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Itach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Itach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Itach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	944	9.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.97	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	11.9	9.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	44.0	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	7.44	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

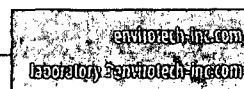
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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #6
P408061-01 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	8.77	0.01	mg/L	1		1433034	08/16/14	08/16/14	EPA 6010C	
Potassium	18.7	0.01	mg/L	1		1433034	08/16/14	08/16/14	EPA 6010C	
Sodium	78.0	0.01	mg/L	1		1433034	08/16/14	08/16/14	EPA 6010C	

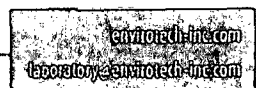
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #7
P408061-02 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: Bromochlorobenzene		99.3 %		50-150	1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		99.3 %		50-150	1433027	08/15/14	08/16/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8015D	
Diesel Range Organics (C10-C28)	58.7	35.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo(a)pyrene		114 %		50-200	1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @24.5°C	9.01		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	1360		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	2400		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	3.67		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	37.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	37.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	634	9.83	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.91	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	ND	9.83	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	34.2	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	6.52	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #7
P408061-02 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	6.81	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	13.4	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	56.1	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #8
P408061-03 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: Bromochlorobenzene		100 %	50-150		1433027	08/15/14	08/16/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		99.3 %	50-150		1433027	08/15/14	08/16/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/16/14	EPA 8015D	
Diesel Range Organics (C10-C28)	1030	30.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		149 %	50-200		1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @21°C	7.67		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	4600		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	342000		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	6.81		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	31.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	31.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	2040	9.90	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.95	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	16.4	9.90	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	10.8	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	9.89	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #8
P408061-03 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	2.59	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	8.07	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	93.1	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

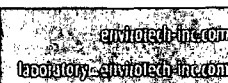
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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #9
P408061-04 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		104 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		102 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	87.5	35.0	mg/kg	1	1433026	08/15/14	08/15/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		124 %	50-200		1433026	08/15/14	08/15/14	EPA 8015D	
Cation/Anion Analysis									
pH @25°C	9.19		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	693		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	1320		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	2.18		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	41.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	41.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	1.00	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	1.00	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	328	9.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	ND	1.00	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	5.00	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	ND	9.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	26.4	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	5.98	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #9
P408061-04 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	5.64	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	10.5	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	30.9	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

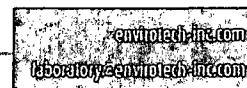
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #10
P408061-05 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		101 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		97.2 %	50-150		1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	57.1	29.9	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		134 %	50-200		1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @24.6°C	9.49		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	219		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	1760		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	0.831		N/A	1	1433045	08/16/14	08/16/14	{CALC}	
Total Alkalinity as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	24.8	9.84	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	ND	0.98	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.92	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	ND	9.84	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	49.9	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	9.23	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #10
P408061-05 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	10.6	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	16.4	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	15.6	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

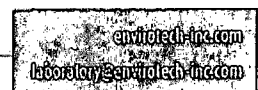
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Wash #11
P408061-06 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		96.6 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		93.2 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	30.0	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		114 %		50-200	1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @21°C	7.78		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	1700		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	2360		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	2.37		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	33.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	33.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	1.88	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	1250	9.86	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	2.00	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	14.1	9.86	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	7.77	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	16.4	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Wash #11
P408061-06 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	2.64	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	5.52	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	39.2	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

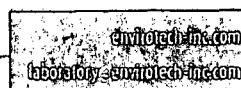
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

**2 Track Grab
P408061-07 (Solid)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		99.2 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		96.0 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	109	29.9	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		128 %		50-200	1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.7°C	8.64		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	1350		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	3360		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	1.68		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	46.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	ND	9.91	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	3.67	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.95	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	11.9	9.91	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	26.9	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	8.53	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

2 Track Grab
P408061-07 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	6.06	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	9.29	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	26.3	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

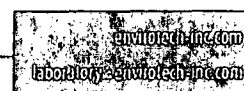
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Grab #1
P408061-08 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		92.0 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		89.4 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	34.9	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		99.2 %		50-200	1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @21°C	7.43		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	7970		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	8280		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	7.31		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	34.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	34.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	3810	9.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	8.39	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.97	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	20.9	9.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	0.06	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	46.3	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Grab #1

P408061-08 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	3.63	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	4.97	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	192	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

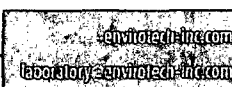
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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Grab #2
P408061-09 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		93.7 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		89.7 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	29.9	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		125 %		50-200	1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.8°C	7.57		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	9880		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	11400		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	3.68		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	24.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	24.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	5120	9.86	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	1.09	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.93	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	26.3	9.86	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	0.02	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	63.9	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Grab #2
P408061-09 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	5.41	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	4.91	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	114	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Grab #3
P408061-10 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: Bromochlorobenzene		95.3 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		90.2 %		50-150	1433027	08/15/14	08/15/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1433027	08/15/14	08/15/14	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	34.9	mg/kg	1	1433026	08/15/14	08/16/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		167 %		50-200	1433026	08/15/14	08/16/14	EPA 8015D	
Cation/Anion Analysis									
pH @20.9°C	7.73		pH Units	1	1433036	08/16/14	08/16/14	EPA 9045D	
Electrical Conductivity	13500		umhos/cm	1	1433036	08/16/14	08/16/14	EPA 120.1	
Total Dissolved Solids	20300		mg/L	1	1433042	08/16/14	08/16/14	EPA 160.1	
Sodium Absorption Ratio	6.11		N/A	1	1433045	08/16/14	08/16/14	[CALC]	
Total Alkalinity as CaCO3	35.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Bicarbonate as CaCO3	35.0	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Carbonate as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Hydroxide as CaCO3	ND	0.01	mg/L	1	1433041	08/16/14	08/16/14	Hach Method 8203	
Nitrate-N	1.46	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Nitrite-N	ND	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Chloride	8030	9.89	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Fluoride	11.6	0.99	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
o-Phosphate	ND	4.94	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Sulfate	31.9	9.89	mg/kg	1	1433035	08/16/14	08/16/14	EPA 300.0	
Iron	ND	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	
Calcium	150	0.01	mg/L	1	1433034	08/16/14	08/16/14	EPA 6010C	

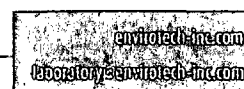
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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Grab #3
P408061-10 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Magnesium	12.7	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Potassium	10.1	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	
Sodium	290	0.01	mg/L	1	1433034	08/16/14	08/16/14	08/16/14	EPA 6010C	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

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

Batch 1433027 - Purge and Trap EPA 5030A

Blank (1433027-BLK1)				Prepared & Analyzed: 15-Aug-14						
Benzene	ND	0.05	mg/kg							
Toluene	ND	0.05	"							
Ethylbenzene	ND	0.05	"							
p,m-Xylene	ND	0.10	"							
o-Xylene	ND	0.05	"							
Total Xylenes	ND	0.05	"							
Total BTEX	ND	0.05	"							
Surrogate: 1,3-Dichlorobenzene	46.3		ug/L	50.0		92.5	50-150			
Surrogate: Bromochlorobenzene	44.5		"	50.0		88.9	50-150			

Duplicate (1433027-DUP1)				Source: P408060-01	Prepared & Analyzed: 15-Aug-14					
Benzene	ND	0.05	mg/kg		ND				30	
Toluene	ND	0.05	"		ND				30	
Ethylbenzene	ND	0.05	"		ND				30	
p,m-Xylene	ND	0.10	"		ND				30	
o-Xylene	ND	0.05	"		ND				30	
Surrogate: 1,3-Dichlorobenzene	49.6		ug/L	50.0		99.1	50-150			
Surrogate: Bromochlorobenzene	49.7		"	50.0		99.4	50-150			

Matrix Spike (1433027-MS1)				Source: P408060-01	Prepared & Analyzed: 15-Aug-14					
Benzene	46.8		ug/L	50.0	ND	93.5	39-150			
Toluene	48.3		"	50.0	ND	96.5	46-148			
Ethylbenzene	47.7		"	50.0	ND	95.4	32-160			
p,m-Xylene	95.9		"	100	ND	95.9	46-148			
o-Xylene	47.7		"	50.0	ND	95.4	46-148			
Surrogate: 1,3-Dichlorobenzene	51.1		"	50.0		102	50-150			
Surrogate: Bromochlorobenzene	51.6		"	50.0		103	50-150			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1433026 - DRO Extraction EPA 3550M										
Blank (1433026-BLK1)				Prepared & Analyzed: 15-Aug-14						
Diesel Range Organics (C10-C28)	ND	24.9	mg/kg							
Surrogate: Benzo[a]pyrene	24.7		"	20.0		124	50-200			
LCS (1433026-BS1)				Prepared & Analyzed: 15-Aug-14						
Diesel Range Organics (C10-C28)	546	24.9	mg/kg	499		109	38-132			
Surrogate: Benzo[a]pyrene	23.0		"	20.0		115	50-200			
Matrix Spike (1433026-MS1)				Source: P408060-01		Prepared & Analyzed: 15-Aug-14				
Diesel Range Organics (C10-C28)	429	34.9	mg/kg	499	ND	86.1	38-132			
Surrogate: Benzo[a]pyrene	18.9		"	19.9		94.8	50-200			
Matrix Spike Dup (1433026-MSD1)				Source: P408060-01		Prepared: 15-Aug-14 Analyzed: 16-Aug-14				
Diesel Range Organics (C10-C28)	745	34.9	mg/kg	499	ND	149	38-132	53.7	20	SPK1
Surrogate: Benzo[a]pyrene	26.6		"	20.0		133	50-200			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported: 18-Aug-14 15:27
PO Box 156	Project Number:	03056-0503	
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 1433027 - Purge and Trap EPA 5030A									
Blank (1433027-BLK1)					Prepared & Analyzed: 15-Aug-14				
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg						
Duplicate (1433027-DUP1)					Source: P408060-01 Prepared & Analyzed: 15-Aug-14				
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg		ND			30	
Matrix Spike (1433027-MS1)					Source: P408060-01 Prepared & Analyzed: 15-Aug-14				
Gasoline Range Organics (C6-C10)	0.45		mg/L	0.450	ND	101	75-125		

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	18-Aug-14 15:27
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Cation/Anion Analysis - Quality Control
Envirotech Analytical Laboratory

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

Batch 1433035 - Anion Extraction EPA 300.0

Blank (1433035-BLK1)				Prepared & Analyzed: 16-Aug-14						
Nitrate-N	ND	0.98	mg/kg							
Nitrite-N	ND	0.98	"							
Chloride	ND	9.84	"							
Fluoride	ND	0.98	"							
o-Phosphate	ND	4.92	"							
Sulfate	ND	9.84	"							

LCS (1433035-BS1)				Prepared & Analyzed: 16-Aug-14						
Nitrate-N	48.0	0.98	mg/kg	49.2		97.5	90-110			
Nitrite-N	49.2	0.98	"	49.2		100	90-110			
Chloride	478	9.84	"	492		97.1	90-110			
Fluoride	46.9	0.98	"	49.2		95.4	90-110			
o-Phosphate	231	4.92	"	246		93.9	90-110			
Sulfate	479	9.84	"	492		97.4	90-110			

Matrix Spike (1433035-MS1)				Source: P408061-01		Prepared & Analyzed: 16-Aug-14				
Nitrate-N	49.0	0.99	mg/kg	49.4	ND	99.2	80-120			
Nitrite-N	49.4	0.99	"	49.4	ND	100	80-120			
Chloride	1510	9.88	"	494	944	114	80-120			
Fluoride	47.5	0.99	"	49.4	ND	96.1	80-120			
o-Phosphate	199	4.94	"	247	ND	80.7	80-120			
Sulfate	492	9.88	"	494	11.9	97.1	80-120			

Matrix Spike Dup (1433035-MSD1)				Source: P408061-01		Prepared & Analyzed: 16-Aug-14				
Nitrate-N	49.2	0.99	mg/kg	49.5	ND	99.4	80-120	0.359	20	
Nitrite-N	49.8	0.99	"	49.5	ND	101	80-120	0.716	20	
Chloride	1470	9.90	"	495	944	106	80-120	2.58	20	
Fluoride	47.9	0.99	"	49.5	ND	96.8	80-120	0.925	20	
o-Phosphate	214	4.95	"	247	ND	86.7	80-120	7.35	20	
Sulfate	495	9.90	"	495	11.9	97.6	80-120	0.683	20	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
18-Aug-14 15:27

Notes and Definitions

SPK1 The spike recovery for this QC sample is outside of control limits.
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
RPD Relative Percent Difference

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CHAIN OF CUSTODY RECORD

17332

Client: <u>Elmridge</u>			Project Name / Location: <u>Lynbrook South #16</u>			ANALYSIS / PARAMETERS													
Email results to: <u>S. Leon</u>			Sampler Name: <u>S. Leon</u>			TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact
Client Phone No.:			Client No.: <u>030502-0503</u>																
Sample No. / Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative														
					HNO ₃	HCl													
Wash #6	8/14/14	11:10	P408061-01	142g jar				X	X			X						Y	Y
Wash #7		11:20	P408061-02					X	X			X							
Wash #8		11:25	P408061-03					X	X			X							
Wash #9		11:35	P408061-04					X	X			X							
Wash #10		11:45	P408061-05					X	X			X							
Wash #11		11:55	P408061-06					X	X			X							
2 track Arab		12:25	P408061-07					X	X			X							
Grab #1		10:55	P408061-08					X	X			X							
Grab #2		11:15	P408061-09					X	X			X							
Grab #3		11:50	P408061-10					X	X			X							
Relinquished by: (Signature) <u>Sheena Leon</u>				Date	Time	Received by: (Signature) <u>Gene Z...</u>				Date	Time								
				8/14/14	11:10					8/14/14	11:12								
Relinquished by: (Signature)						Received by: (Signature)													
Sample Matrix																			
Soil ☒ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐																			
☐ Sample(s) dropped off after hours to secure drop off area.																			

Ruon



18.2
16.4
17.3



Analytical Report

Report Summary

Client: Elm Ridge Resources

Chain Of Custody Number: 17387

Samples Received: 9/3/2014 2:48:00PM

Job Number: 03056-0503

Work Order: P409011

Project Name/Location: Lybrook South #16

Entire Report Reviewed By:

A handwritten signature in black ink, appearing to read "Tim Cain", is written over a horizontal line.

Date: 9/5/14

Tim Cain, Laboratory Manager

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
05-Sep-14 10:16

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
New Wash Area	P409011-01A	Soil	09/03/14	09/03/14	Glass Jar, 4 oz.
Wash #8	P409011-02A	Soil	09/03/14	09/03/14	Glass Jar, 4 oz.

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South.#16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
05-Sep-14 10:16

**New Wash Area
P409011-01 (Solid)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
Toluene	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
Ethylbenzene	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
p,m-Xylene	ND	0.10	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
o-Xylene	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
Total Xylenes	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
Total BTEX	ND	0.05	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8021B	
Surrogate: Bromochlorobenzene		98.1 %		50-150	1436019	09/03/14	09/04/14	EPA 8021B	
Surrogate: 1,3-Dichlorobenzene		98.0 %		50-150	1436019	09/03/14	09/04/14	EPA 8021B	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.98	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8015D	
Diesel Range Organics (C10-C28)	117	30.0	mg/kg	1	1436020	09/03/14	09/04/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		118 %		50-200	1436020	09/03/14	09/04/14	EPA 8015D	
Cation/Anion Analysis									
pH @19.4°C	8.93		pH Units	1	1436029	09/04/14	09/04/14	EPA 9045D	
Electrical Conductivity	1550		umhos/cm	1	1436029	09/04/14	09/04/14	EPA 120.1	
Total Dissolved Solids	4000		mg/L	1	1436030	09/04/14	09/04/14	EPA 160.1	
Sodium Absorption Ratio	2.97		N/A	1	1436035	09/04/14	09/04/14	[CALC]	
Total Alkalinity as CaCO3	121	10.0	mg/L	1	1436032	09/04/14	09/04/14	Hach Method 8203	
Total Hardness as CaCO3	61.8	0.07	mg/L		[CALC]	09/04/14	09/04/14	[CALC]	
Bicarbonate as CaCO3	121	10.0	mg/L	1	1436032	09/04/14	09/04/14	Hach Method 8203	
Carbonate as CaCO3	ND	10.0	mg/L	1	1436032	09/04/14	09/04/14	Hach Method 8203	
Hydroxide as CaCO3	ND	10.0	mg/L	1	1436032	09/04/14	09/04/14	Hach Method 8203	
Nitrate-N	ND	0.98	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
Nitrite-N	ND	0.98	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
Chloride	688	9.85	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
Fluoride	1.43	0.98	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
o-Phosphate	ND	4.92	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
Sulfate	12.9	9.85	mg/kg	1	1436015	09/03/14	09/03/14	EPA 300.0	
Iron	41.6	0.01	mg/L	1	1436028	09/04/14	09/04/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
05-Sep-14 10:16

New Wash Area
P409011-01 (Solid)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cation/Anion Analysis										
Calcium	9.24	0.01	mg/L	1	1436028	09/04/14	09/04/14	09/04/14	EPA 6010C	
Magnesium	9.41	0.01	mg/L	1	1436028	09/04/14	09/04/14	09/04/14	EPA 6010C	
Potassium	16.3	0.01	mg/L	1	1436028	09/04/14	09/04/14	09/04/14	EPA 6010C	
Sodium	53.6	0.01	mg/L	1	1436028	09/04/14	09/04/14	09/04/14	EPA 6010C	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
05-Sep-14 10:16

Wash #8
P409011-02 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg	1	1436019	09/03/14	09/04/14	EPA 8015D	
Diesel Range Organics (C10-C28)	40.0	29.9	mg/kg	1	1436020	09/03/14	09/04/14	EPA 8015D	
Surrogate: Benzo[a]pyrene		98.3 %		50-200	1436020	09/03/14	09/04/14	EPA 8015D	

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	05-Sep-14 10:16
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1436019 - Purge and Trap EPA 5030A

Blank (1436019-BLK1) Prepared: 03-Sep-14 Analyzed: 04-Sep-14

Benzene	ND	0.05	mg/kg							
Toluene	ND	0.05	"							
Ethylbenzene	ND	0.05	"							
p,m-Xylene	ND	0.10	"							
o-Xylene	ND	0.05	"							
Total Xylenes	ND	0.05	"							
Total BTEX	ND	0.05	"							
Surrogate: 1,3-Dichlorobenzene	0.0496		"	0.0498		99.5	50-150			
Surrogate: Bromochlorobenzene	0.0496		"	0.0498		99.6	50-150			

Duplicate (1436019-DUP1) Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14

Benzene	ND	0.05	mg/kg		ND				30	
Toluene	ND	0.05	"		ND				30	
Ethylbenzene	ND	0.05	"		ND				30	
p,m-Xylene	ND	0.10	"		ND				30	
o-Xylene	ND	0.05	"		ND				30	
Surrogate: 1,3-Dichlorobenzene	0.0508		"	0.0499		102	50-150			
Surrogate: Bromochlorobenzene	0.0492		"	0.0499		98.6	50-150			

Matrix Spike (1436019-MS1) Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14

Benzene	45.4		ug/L	50.0	ND	90.9	39-150			
Toluene	45.6		"	50.0	ND	91.3	46-148			
Ethylbenzene	45.0		"	50.0	ND	90.1	32-160			
p,m-Xylene	90.7		"	100	ND	90.7	46-148			
o-Xylene	45.3		"	50.0	ND	90.5	46-148			
Surrogate: 1,3-Dichlorobenzene	2.59		mg/kg	2.50		104	50-150			
Surrogate: Bromochlorobenzene	2.56		"	2.50		102	50-150			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	05-Sep-14 10:16
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1436019 - Purge and Trap EPA 5030A										
Blank (1436019-BLK1)					Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Gasoline Range Organics (C6-C10)	ND	4.98	mg/kg							
Duplicate (1436019-DUP1)					Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Gasoline Range Organics (C6-C10)	ND	4.99	mg/kg		ND				30	
Matrix Spike (1436019-MS1)					Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Gasoline Range Organics (C6-C10)	0.41		mg/L	0.450	ND	90.2	75-125			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	05-Sep-14 10:16
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1436020 - DRO Extraction EPA 3550M										
Blank (1436020-BLK1)					Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Diesel Range Organics (C10-C28)	ND	24.9	mg/kg							
Surrogate: Benzo[a]pyrene	18.3		"	19.9		92.0	50-200			
LCS (1436020-BS1)					Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Diesel Range Organics (C10-C28)	491	25.0	mg/kg	500		98.4	38-132			
Surrogate: Benzo[a]pyrene	20.7		"	20.0		104	50-200			
Matrix Spike (1436020-MS1)					Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Diesel Range Organics (C10-C28)	645	29.9	mg/kg	499	40.0	121	38-132			
Surrogate: Benzo[a]pyrene	24.8		"	20.0		124	50-200			
Matrix Spike Dup (1436020-MSD1)					Source: P409011-02 Prepared: 03-Sep-14 Analyzed: 04-Sep-14					
Diesel Range Organics (C10-C28)	788	30.0	mg/kg	499	40.0	150	38-132	20.0	20	SPK1
Surrogate: Benzo[a]pyrene	21.8		"	20.0		109	50-200			

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Elm Ridge Resources	Project Name:	Lybrook South #16	Reported:
PO Box 156	Project Number:	03056-0503	05-Sep-14 10:16
Bloomfield NM, 87413	Project Manager:	Sheena Leon	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1436015 - Anion Extraction EPA 300.0										
Blank (1436015-BLK1)				Prepared & Analyzed: 03-Sep-14						
Nitrate-N	ND	0.99	mg/kg							
Nitrite-N	ND	0.99	"							
Chloride	ND	9.88	"							
Fluoride	ND	0.99	"							
o-Phosphate	ND	4.94	"							CCV4
Sulfate	ND	9.88	"							
LCS (1436015-BS1)				Prepared & Analyzed: 03-Sep-14						
Nitrate-N	49.4	0.98	mg/kg	49.2		100	90-110			
Nitrite-N	50.1	0.98	"	49.2		102	90-110			
Chloride	498	9.85	"	492		101	90-110			
Fluoride	48.4	0.98	"	49.2		98.2	90-110			
o-Phosphate	235	4.92	"	246		95.6	90-110			CCV4
Sulfate	496	9.85	"	492		101	90-110			
Matrix Spike (1436015-MS1)				Source: P409003-01		Prepared & Analyzed: 03-Sep-14				
Nitrate-N	56.2	0.99	mg/kg	49.3	5.54	103	80-120			
Nitrite-N	50.7	0.99	"	49.3	ND	103	80-120			
Chloride	612	9.86	"	493	102	103	80-120			
Fluoride	48.2	0.99	"	49.3	4.04	89.5	80-120			
o-Phosphate	92.6	4.93	"	246	ND	37.5	80-120			SPK1
Sulfate	1170	9.86	"	493	809	73.7	80-120			SPK1
Matrix Spike Dup (1436015-MSD1)				Source: P409003-01		Prepared & Analyzed: 03-Sep-14				
Nitrate-N	56.5	0.99	mg/kg	49.3	5.54	103	80-120	0.437	20	
Nitrite-N	50.7	0.99	"	49.3	ND	103	80-120	0.156	20	
Chloride	618	9.86	"	493	102	105	80-120	1.01	20	
Fluoride	46.1	0.99	"	49.3	4.04	85.3	80-120	4.39	20	
o-Phosphate	93.2	4.93	"	246	ND	37.8	80-120	0.743	20	CCV4, SPK1
Sulfate	1290	9.86	"	493	809	97.4	80-120	9.50	20	

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Elm Ridge Resources
PO Box 156
Bloomfield NM, 87413

Project Name: Lybrook South #16
Project Number: 03056-0503
Project Manager: Sheena Leon

Reported:
05-Sep-14 10:16

Notes and Definitions

SPK1 The spike recovery for this QC sample is outside of control limits.
CCV4 CCV recovery was below method acceptance limits.
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
RPD Relative Percent Difference

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CHAIN OF CUSTODY RECORD

17387

Client: Elmridge			Project Name / Location: Lynbrook South #16			ANALYSIS / PARAMETERS														
Email results to: S. Leon			Sampler Name: S. Leon			TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	PCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact	
Client Phone No.:			Client No.: 03050-0003																	
Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative															
					HNO ₃	HCl	As													
New Wash Area	9/3/14	11:00	P409011-01	14oz glass jar			X	X	X										Y	Y
Wash #8	9/3/14	11:30	P409011-02	14oz glass jar			X	X											Y	Y
Relinquished by: (Signature) <i>[Signature]</i>					Date	Time	Received by: (Signature) <i>[Signature]</i>										Date	Time		
Relinquished by: (Signature)							Received by: (Signature)													
Sample Matrix																				
Soil ☒ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐																				
☐ Sample(s) dropped off after hours to secure drop off area.																				

Rush



12.9 14.3

APPENDIX B

Bills of Lading



MANIFEST # 47765

DATE 8-1-14

JOB #

03056-0503

ॐ नमो भगवते वासुदेवाय

[illegible]

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. Rosenbaum

NAME Jennifer Shortt

SIGNATURE

COMPANY CONTACT OSCAR

PHONE (505) 947-4221

DATE 8/01/14

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White Canyon, Nevada. Volcanic. 30000 3' 1 2 4



Bill of Lading

MANIFEST # 4776703056-0503DATE 8-1-14JOB # 03056-0503

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLS	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	WPX / Elm Ridge Lybrook South U216	LF 2-5	Contam Soil	F16	4	-	Adobe	349	1400	
2	"	"	"	F16	10	-	Adobe	11	1500	
3	"	"	"	F16	10	-	Adobe	126	1500	
4	"	"	"	F16	4	-	Adobe	349	0630	
5	"	"	"	F16	10	-	Adobe	11	1710	
6	"	"	"	F16	10	-	Adobe	126	1710	
					48					
RESULTS:		LANDFARM		NOTES: Plastic bags & sticks						
< 2.5% CHLORIDE TEST		EMPLOYEE:								
PAINT FILTER TEST		Certification of above receipt & placement		ENTERED AUG 07 2014						

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. Adobe Cont. Inc.NAME Ivan Garcia

SIGNATURE

COMPANY CONTACT (505) 632-1786PHONE (505) 330-5957DATE 8-1-14

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Bill of Lading

MANIFEST # 47774

DATE 8-1-14

JOB #

03056-0503
सुभाष चन्द्र बोस

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLS	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	WPX / Elm Ridge Lybrook UT66	LF 2-5	Contamin Soil	F 16	15	-	Swazee	002	1700	Clay Denege
2				E-16	18	-		002	18:50	Clay Swazee
					33					
RESULTS:		LANDFARM EMPLOYEE:	 EL				NOTES:			
CHLORIDE TEST	1									
PAINT FILTER TEST		1	Certification of above receipt & placement				ENTERED AUG 07 2015			

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. Sweezer Tech

NAME _____

Clear

SIGNATURE

Clay Amaze

COMPANY CONTACT Clay

PHONE

505-320-5801

DATE _____

8-1-14

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500 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000 8500 9000 9500 10000

**envirotech**

Bill of Lading

MANIFEST # 47775

DATE 8-2-14

JOB #

03056-0503

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PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY				
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLs	COMPANY	TRK#	TIME	DRIVER SIGNATURE	
1	WPA / Elm Ridge Lybrook ^{South} UTR16	LF 2-5	Contam Soil	E16	10	-	Adobe	J1	0940	<i>[Signature]</i>	
2	" " " " " "			E16	<u>10</u> 20	-	Adobe	AF4	0955	<i>[Signature]</i>	
RESULTS:		LANDFARM EMPLOYEE:	<i>[Signature]</i> EL				NOTES:		ENTERED AUG 07 2014		
<i>L284</i> CHLORIDE TEST	<i>2</i>										
PAINT FILTER TEST			Certification of above receipt & placement				<i>J1</i> <i>said he was not Adobe but Jaquez trucking?</i>				

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. *Adobe*

NAME**PHONE**

SIGNATURE

DATE _____

COMPANY CONTACT J. Jaquez Trucking

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ISSN 1473-2925 (print) 1473-2933 (online)



MANIFEST # 47776

०३०७६-०५०३

DATE 8-2-14

JOB # 61105-0372

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. Yucca 4E-4 NAME Henry SIGNATURE [Signature]
COMPANY CONTACT Adobe PHONE _____ DATE 8-2-74

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50th ANN. REPRODUCTION 678-125



Bill of Lading

MANIFEST # 47777

DATE 8-2-14

JOB #

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DISTINATION	MATERIAL	GRID	YDS	BBLs	COMPANY	TRK#	TIME	DRIVER SIGNATURE
1	Lybrook WPA/Elm Ridge South Utah	LF 2-5	coarse soil	E16	<u>16</u> 16	-	Sweezer Trucking	002	0955	Clay Sweezer
RESULTS:		LANDFARM EMPLOYEE:	E2			NOTES: ENTERED AUG 07 2014				
< 204	CHLORIDE TEST									
	PAIN FILTER TEST		Certification of above receipt & placement							

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. *Sweaze* *pc*

NAME Clay

SIGNATURE Clay Dwyer

COMPANY CONTACT Clay

PHONE 605-320-5801

DATE 8-2-57

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Bill of Lading

MANIFEST # 47769

DATE 8-1-14

JOB #

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

[illegible]

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TRANSPORTER CO. Adobe

NAME Joe

SIGNATURE

COMPANY CONTACT L. J. Laver Trucking

PHONE 327-2550

DATE _____

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4572 6.571 7000000000 578.128



Bill of Lading

MANIFEST # 47768 03056-6583

DATE 8-1-14 JOB # 8-1-14

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

[illegible]

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. Sherrill NAME Clay SIGNATURE Clay
COMPANY CONTACT Clay PHONE 505-320-5801 DATE 8-1-14

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800 444 6600 ext 573-126



envirotech

Bill of Lading

MANIFEST # 48011

DATE 9-14-14 JOB # 030510-0503

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

[illegible]

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO.	<u>Souland</u>	NAME	<u>GUYST ALOR</u>	SIGNATURE	<u>[Signature]</u>
COMPANY CONTACT	<u>Souland's Cargo</u>	PHONE	<u>334-4350</u>	DATE	<u>8-14-14</u>

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410 410 mandator 570 17

**envirotech**

Bill of Lading

MANIFEST # 48263

DATE 8-28-14

JOB #

03056-0503

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

[illegible]

By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.

TRANSPORTER CO. YOA KUM Services Inc NAME JAY YOA KUM

SIGNATURE

COMPANY CONTACT JAY YORKER PHONE 592-4096

DATE 8-28-14

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