



# Linn Energy JL Keel B #58

## REMEDIATION WORK PLAN

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API No. 30-015-28077

Release Date: October 10, 2011

Unit Letter M, Section 08, Township 17 South, Range 31 East

RP# 2RP-930

BLM Event# NU12007TG

November 20, 2015

**Prepared by:**

Environmental Department  
Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
Phone: (575)964-8394  
Fax: (575)393-8396

Mike Bratcher  
Environmental Specialist  
NM Oil Conservation District – Division 2  
811 S. First St.  
Artesia, NM 88210

**RE: Linn Energy JL Keel B 58 – Remediation Work Plan**  
UL/M, Section 08, T17S, R31E  
API No. 30-015-28077

Mr. Bratcher,

Linn Energy (Linn) has retained Diversified Field Service, Inc. (DFSI) to address environmental issues for the site detailed herein.

The site is located northeast of Loco Hills NM, in Eddy County. The leak site resulted from a failure in the stuffing box when the tubing over-pressured. The impacted area is on the pad and in and around the wellhead. A site map is attached. A C-141 was submitted to the NMOCD on October 14, 2011.

### **Site Assessment and Delineation**

On September 4, 2014, 2015 DFSI personnel responded to the location to begin soil sampling. Samples were taken on five points of the spill, and all samples were clean under state/BLM requirements. The samples were tested for chloride levels as well as BTEX. The BTEX samples were performed using a Mini Rae Photoionization Detector (PID). All field samples that field tested below state/BLM requirements were taken to Cardinal Lab of Hobbs to obtain confirmation sample. The results are attached.

DFSI has conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer the average depth to groundwater for this area is 250 foot below ground surface. Therefore, no eminent danger of groundwater impact or threat to life is anticipated.

### **Conclusion**

After careful review DFSI, on behalf of Linn Energy, would like to propose the following:

All samples, from surface to 2' bgs, were clean under the state/BLM requirements. Therefore, DFSI proposes this location spill incident be closed out.

Following the approval of the above plan, DFSI will submit all proper closure documentation to the NMOCD and BLM in accordance to the State and Federal Guidelines set forth.

Please feel free to contact me with any questions concerning this remediation plan request.

Sincerely,



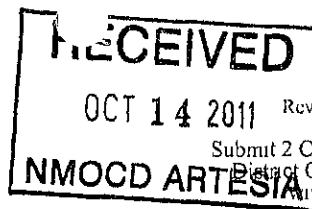
Michael Burton  
Environmental Operations Director  
Diversified Field Service, Inc.  
206 West Snyder  
Hobbs, NM 88240  
Office: (575)964-8394  
Mobile: (575)390-5454  
Fax: (575)964-8396  
Email: Mburton@diversifiedfsi.com

cc Jeff Robertson

Attachments: Initial Form C-141  
Site/Sample Map  
Sample Data  
Lab Analytical Data

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, 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 October 10, 2003  
Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

0MLB1129356355 OPERATOR ☒ Initial Report ☐ Final Report  
Name of Company: LINN Energy 269324 Contact: Joe Hernandez  
Address: 2130 W Bender Blvd. - Hobbs, NM Telephone No.: 575-942-8675  
Facility Name: JL Keel B #58 Facility Type: Producing Oil Well  
Surface Owner: BLM Mineral Owner: BLM Lease No.: 3001528077

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	8	17S	31E	1300	S	1290	W	Eddy

Latitude: 32 50' 43.0" Longitude: -103 53' 47.4

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 15 bbls	Volume Recovered 0
Source of Release: Stuffing Box Leak	Date and Hour of Occurrence: 10/10/11 - 1400	Date and Hour of Discovery: 10/10/11 - 1430
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? T. Gregston BLM, M. Bratcher, NMOC D	
By Whom? Fred Holmes	Date and Hour: 10/14/11 - 1600	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*:

Describe Cause of Problem and Remedial Action Taken.\*: Stuffing box leaked when tubing over-pressured. Shut well in, replaced packing.

Describe Area Affected and Cleanup Action Taken.\*: Impacted 10' x 15' area around wellhead, spill migrated down slope ~100' long x 1' wide. Assessment and Corrective action plan pending.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC D 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 NMOC D 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, NMOC D 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: Jose Hernandez	Approved by <u>Mike Bratcher</u>	
Title: Foreman	Approval Date: <u>OCT 20 2011</u>	Expiration Date:
E-mail Address: jhernandez@linneenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: Phone: 575-738-1739		

\* Attach Additional Sheets If Necessary

Remediation per OCD Rules &  
Guidelines. **SUBMIT REMEDIATION  
PROPOSAL NOT LATER THAN:**  
11/20/2011

2RP-930



# JL Keel B #58

## PHOTO PAGE

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9/24/15



Sign marking location





Stuffing box where spill occurred



Pad area where spill occurred

# Site Diagram











Linn, JL Keel B 58  
UL/M, Sec. 8 T17S R31E  
Eddy County, NM  
Drafted By: Lance Crenshaw, 9-4-14

0 0.00325 0.0065 0.013 Miles

## Legend



### Misc\_points

#### Types


-  Electrical Box
-  Power Pole
-  Headers
-  Injection
-  Pumpjacks
-  Tanks
-  Valves
-  Other
-  sample\_pts
-  Source

### Pipeline





#### Type

-  Above Ground Line
-  Buried Line

### Spill

-  <all other values>

### Spill\_Media

-  Oil and Produced H2O
-  Oil
-  Other
-  Produced Water

Spill Area:  
1,451 sq. ft.

Wellhead  
SP1  
SP2  
SP3  
SP4  
SP5

Lance Crenshaw  
GIS Technician

Soil Remediation and Ground Water Remediation  
Environmental Assessments  
Regulatory Compliance



Environmental

**DFS**

Services

Office: 575-964-8394  
Fax: 575-964-8396

Cell: 575-441-2359  
Email: lcrenshaw@diversifiedfsi.com

Source: Esri, DigitalGlobe, GeoEye, IGN, swisstopo, and the GIS User Community

## Diversified Environmental Services

**Company Name:** LINN ENERGY  
**Location Name:** J.L. KEEL B #58

SP Date: 9/4/2014  
Rel Date:

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



September 11, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL B #58

Enclosed are the results of analyses for samples received by the laboratory on 09/04/14 16:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 1 @ SURFACE (H402755-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/10/2014	ND	2.04	102	2.00	3.90	
Toluene*	<0.050	0.050	09/10/2014	ND	1.83	91.4	2.00	3.90	
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.70	84.8	2.00	3.77	
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.15	85.8	6.00	3.51	
Total BTX	<0.300	0.300	09/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	09/10/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 98.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 09/04/2014  
 Reported: 09/11/2014  
 Project Name: J. L. KEEL B #58  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/04/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: SP. 1 @ 1' (H402755-02)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	2.04	102	2.00	3.90		
Toluene*	<0.050	0.050	09/10/2014	ND	1.83	91.4	2.00	3.90		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.70	84.8	2.00	3.77		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.15	85.8	6.00	3.51		
Total BTEx	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	09/10/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 104 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 1 @ 2' (H402755-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	09/10/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 09/04/2014  
 Reported: 09/11/2014  
 Project Name: J. L. KEEL B #58  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/04/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: SP. 2 @ SURFACE (H402755-04)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4	
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4	
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7	
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8	
Total BTX	<0.300	0.300	09/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	09/10/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 102 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 2 @ 1' (H402755-05)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 93.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 99.4 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 2 @ 2' (H402755-06)**

BTX 8021B			mg/kg							
			Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B			mg/kg							
			Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M			mg/kg							
			Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39		
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98		

Surrogate: 1-Chlorooctane 99.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 09/04/2014  
 Reported: 09/11/2014  
 Project Name: J. L. KEEL B #58  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/04/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: SP. 3 @ SURFACE (H402755-07)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4	
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4	
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7	
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8	
Total BTX	<0.300	0.300	09/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 09/04/2014  
 Reported: 09/11/2014  
 Project Name: J. L. KEEL B #58  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/04/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: SP. 3 @ 1' (H402755-08)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 102 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 3 @ 2' (H402755-09)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/10/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	09/10/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 09/04/2014  
 Reported: 09/11/2014  
 Project Name: J. L. KEEL B #58  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 09/04/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: SP. 4 @ SURFACE (H402755-10)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/10/2014	ND	1.83	91.7	2.00	13.4	
Toluene*	<0.050	0.050	09/10/2014	ND	1.65	82.5	2.00	14.4	
Ethylbenzene*	<0.050	0.050	09/10/2014	ND	1.73	86.7	2.00	14.7	
Total Xylenes*	<0.150	0.150	09/10/2014	ND	5.36	89.3	6.00	14.8	
Total BTX	<0.300	0.300	09/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 99.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 4 @ 1' (H402755-11)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/11/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/11/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/11/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/11/2014	ND	5.36	89.3	6.00	14.8		
Total BTEx	<0.300	0.300	09/11/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 102 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 4 @ 2' (H402755-12)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/11/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/11/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/11/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/11/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/11/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/06/2014	ND	190	94.9	200	2.39	
DRO >C10-C28	<10.0	10.0	09/06/2014	ND	192	95.9	200	5.98	

Surrogate: 1-Chlorooctane 103 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 5 @ SURFACE (H402755-13)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/11/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/11/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/11/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/11/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/11/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/08/2014	ND	157	78.7	200	3.06	
DRO >C10-C28	<10.0	10.0	09/08/2014	ND	182	90.8	200	10.2	

Surrogate: 1-Chlorooctane 82.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 87.9 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 5 @ 1' (H402755-14)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/11/2014	ND	1.83	91.7	2.00	13.4		
Toluene*	<0.050	0.050	09/11/2014	ND	1.65	82.5	2.00	14.4		
Ethylbenzene*	<0.050	0.050	09/11/2014	ND	1.73	86.7	2.00	14.7		
Total Xylenes*	<0.150	0.150	09/11/2014	ND	5.36	89.3	6.00	14.8		
Total BTX	<0.300	0.300	09/11/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/10/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/08/2014	ND	157	78.7	200	3.06	
DRO >C10-C28	<10.0	10.0	09/08/2014	ND	182	90.8	200	10.2	

Surrogate: 1-Chlorooctane 95.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	09/04/2014	Sampling Date:	09/04/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #58	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: SP. 5 @ 2' (H402755-15)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2014	ND	1.83	91.7	2.00	13.4	
Toluene*	<0.050	0.050	09/11/2014	ND	1.65	82.5	2.00	14.4	
Ethylbenzene*	<0.050	0.050	09/11/2014	ND	1.73	86.7	2.00	14.7	
Total Xylenes*	<0.150	0.150	09/11/2014	ND	5.36	89.3	6.00	14.8	
Total BTX	<0.300	0.300	09/11/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	09/10/2014	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/08/2014	ND	157	78.7	200	3.06	
DRO >C10-C28	<10.0	10.0	09/08/2014	ND	182	90.8	200	10.2	

Surrogate: 1-Chlorooctane 87.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.3 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

**(575) 393-2326 FAX (575) 393-2476**

[illegible]





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# GROUND WATER SEARCH

Linn Energy Turner B #78

UL:     M    

Sec:     8    

T:   17S  

R:   31E  

Groundwater Depth:                     227                     ft. averaged

● = NM Office of the State Engineer

● = U.S. Geological Survey (unknown well)

✕ = Site Location

Date: 6/17/14

By: Rebecca Pons

	16S 30E	288' 314' <b>16S 31E</b> 295'	65' 260' 265' 248' 275' <b>16S 32E</b> 254' 215' 210' 210' 221' 200'	
	17S 30E	✕ <b>17S 31E</b>	132' <b>17S 32E</b>	
	44' <b>18S 30E</b>	98' <b>18S 31E</b>	65' 430' <b>18S 32E</b> 460'	