



J L Keel A #11

REMEDIATION WORK PLAN

API No. 30-015-05099

Release Date: April 14, 2014

Unit Letter H, Section 07, Township 17 South, Range 31 East

December 21, 2015

Prepared by:

Lance Crenshaw, Project Manager
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 J L Keel A #11– Remediation Work Plan**
UL/H, Section 07, T17S, R31E
API No. 30-015-05099

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 an injection line failure. The impacted area is south of the location approximately 300 yards, in the pasture. Approximately 4 bbl of produced water was released. Nothing was recovered. A site map is attached. A C-141 was submitted to the NMOCD on April 16, 2014.

Site Assessment and Delineation

On May 15, 2015 DFSI personnel sampled the spill area. We took four samples of the spill area. The samples were tested for chloride levels as well as BTEX. The BTEX samples were performed using a Mini Rae Photoionization Detector (PID). The field samples that field tested below state/BLM requirements were taken to Cardinal Lab of Hobbs to obtain confirmation samples. The results are attached.

DFSI personnel returned to the site to re-sample and fully delineate the spill area. Four samples were taken once again, and all cleaned up except for SP2. DFSI encountered drill refusal at SP2 at 10' BGS. 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 350 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:

In the area of SP2, we will excavate to 4' BGS and install a 20 mil liner or impervious river rock. The area will then be backfilled with native topsoil, and seeded with a BLM, OCD approved mix. The rest of the spill area will be reseeded with a BLM, OCD approved seed mix, since the samples came back.

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 Shelly Tucker

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 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: Linn Operating	Contact: Brian Wall	
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739	
Facility Name: JL Keel A # 11	Facility Type: Injection	
Surface Owner: Federal	Mineral Owner:	API No.: 30-015-05099

LOCATION OF RELEASE

Unit Letter H	Section 07	Township 17S	Range 31E	Feet from the 1980	North/South Line North	Feet from the 660	East/West Line West	County Eddy
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Latitude: 32.85081 Longitude: -103.90279

NATURE OF RELEASE


Type of Release: Produced Water / Fresh Water	Volume of Release: 5 bbls / 10 bbls	Volume Recovered: 0 / 0
Source of Release: Fiber glass line	Date and Hour of Occurrence: 04/14/2014	Date and Hour of Discovery: 04/14/2014 0800
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Burton- BLM Mike Bratcher- NM OCD	
By Whom? Brian Wall	Date and Hour 04/15/2014 0715	
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.*: Was notified of possible injection leak, header pressure at the injection station was low. He ordered a pump truck to pressure up lines with fresh water. After pumping water into trunk line and pressuring up lateral lines were opened one by one to find leak. the 2 inch fiberglass line feeding the #11 did not hold pressure. walked line out and found the leak on a buried fiberglass line approx.

Describe Area Affected and Cleanup Action Taken.* : 15 barrels of produced water and fresh water were lost to an affected area about 20'W x50'L

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: Brian Wall	Approved by District Supervisor:		
Title: Construction Foreman II	Approval Date:	Expiration Date:	
E-mail Address: bwall@linenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 04/16/2014	Phone: 806-367-0645		

* Attach Additional Sheets If Necessary



J L Keel A #11

PHOTO PAGE

12/21/2015





Site Diagram

Linn, JL Keel A #11
UL/H, Sec. 07 T17S R31E
Eddy County, NM
Drafted By: Lance Crenshaw, 5-15-15

0 0.00375 0.0075 0.015 Miles

Legend



Misc_points

Types


-  Electrical Box
-  Power Pole
-  Headers
-  Injection
-  Pumpjacks
-  Tanks
-  Valves
-  Other
-  Soil Bores
-  sample_pts
-  Source

Pipeline





Type

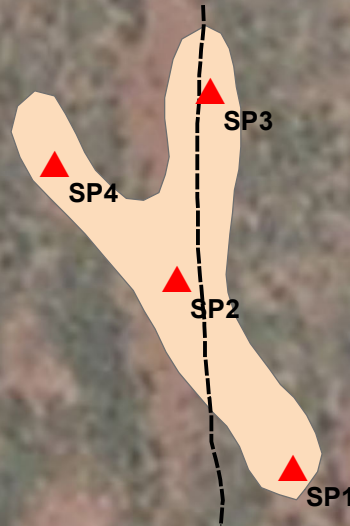
-  Above Ground Line
-  Buried Line

Spill

-  <all other values>

Spill_Media

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



Spill Area:
2643 sq. ft.

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
Location Name:	JL Keel A #11

SP Date: 12/9/2015
Rel Date: 4/14/2014

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 16, 2015

RICK RICKMAN

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL A #11

Enclosed are the results of analyses for samples received by the laboratory on 12/10/15 8:25.

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.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	12/10/2015	Sampling Date:	12/09/2015
Reported:	12/16/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SAMPLE PT. 1 @ 3' (H503213-01)

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	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	<0.050	0.050	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	<0.050	0.050	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	<0.150	0.150	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTX	<0.300	0.300	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

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	12/11/2015	ND	448	112	400	3.64		

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	12/14/2015	ND	203	101	200	3.17	
DRO >C10-C28	<10.0	10.0	12/14/2015	ND	199	99.5	200	5.34	

Surrogate: 1-Chlorooctane 94.0 % 35-147

Surrogate: 1-Chlorooctadecane 92.6 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/10/2015
 Reported: 12/16/2015
 Project Name: J. L. KEEL A #11
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

Sampling Date: 12/09/2015
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SAMPLE PT. 3 @ 3' (H503213-02)

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	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	<0.050	0.050	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	<0.050	0.050	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	<0.150	0.150	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTX	<0.300	0.300	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	12/11/2015	ND	448	112	400	3.64	

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	12/14/2015	ND	203	101	200	3.17	
DRO >C10-C28	<10.0	10.0	12/14/2015	ND	199	99.5	200	5.34	

Surrogate: 1-Chlorooctane 100 % 35-147

Surrogate: 1-Chlorooctadecane 98.1 % 28-171

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/10/2015
 Reported: 12/16/2015
 Project Name: J. L. KEEL A #11
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

Sampling Date: 12/09/2015
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SAMPLE PT. 4 @ 3' (H503213-03)

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	12/15/2015	ND	1.70	85.2	2.00	0.0320	
Toluene*	<0.050	0.050	12/15/2015	ND	1.72	85.8	2.00	0.311	
Ethylbenzene*	<0.050	0.050	12/15/2015	ND	1.75	87.7	2.00	0.503	
Total Xylenes*	<0.150	0.150	12/15/2015	ND	5.25	87.4	6.00	0.204	
Total BTX	<0.300	0.300	12/15/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	12/11/2015	ND	448	112	400	3.64	

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	12/14/2015	ND	203	101	200	3.17	
DRO >C10-C28	<10.0	10.0	12/14/2015	ND	199	99.5	200	5.34	

Surrogate: 1-Chlorooctane 95.2 % 35-147

Surrogate: 1-Chlorooctadecane 95.6 % 28-171

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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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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

BILL TO ANALYSIS REQUEST

Company Name: <u>Linn</u>	P.O. #:
Project Manager: <u>Robert Rick Rickman</u>	Company:
Address:	Attn:
City:	Address:
State:	City:
Zip:	State:
Phone #:	Zip:
Fax #:	Phone #:
Project #:	Fax #:
Project Owner:	
Project Name: <u>Linn</u>	
Project Location: <u>IL Keel A #11</u>	
Sampler Name: <u>Chris Flores</u>	

FOR LAB USE ONLY		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX				PRESERV.		SAMPLING																	
Lab I.D.																															
H503213		Sample Pt 1 0 3		1		1		GROUNDWATER																							
		Sample Pt 3 0 3		1		1		WASTEWATER																							
		Sample Pt 4 0 3		1		1		SOIL				✓																			
								OIL				✓																			
								SLUDGE																							
								OTHER :																							
								ACID/BASE:																							
								ICE / COOL				✓																			
								OTHER :				✓																			

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Relinquished By: <u>Chris Flores</u>	Date: <u>12-10-2004</u>	Received By: <u>Scott Jensen</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Yes <input type="checkbox"/> No <input type="checkbox"/>	Add'l Phone #: _____
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Yes <input type="checkbox"/> No <input type="checkbox"/>	Add'l Fax #: _____
Time:	Time:		REMARKS: Email to: <u>lvershaw@diversifiedsi.com</u>		
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)	Email to: <u>mvaldes@mburton.com</u>		
Sampler - UPS - Bus - Other:	Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Email to: <u>mpaterson@cflores.com</u>		
	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



New Mexico Office of the State Engineer **Water Column/Average Depth to Water**

No records found.

PLSS Search:

Section(s): 7

Township: 17S

Range: 31E