



# J L Keel A #12

## REMEDIATION WORK PLAN

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API No. 30-015-05100

Release Date: February 3<sup>th</sup>, 2015

Unit Letter A, Section 7, Township 17 South, Range 31 East

February 18, 2015

**Prepared by:**

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

Heather Patterson  
Environmental Specialist  
NM Oil Conservation District-Division 2  
811 S. First St.  
Artesia, NM 88210

**RE: Linn Energy J L Keel A #12– Remediation Work Plan**  
UL/A, Section 07, T17S, R31E  
API No. 30-015-05100

Mrs. Patterson,

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 of an injection line. The impacted area is north of the J L Keel A #12 location, near the tin horns. A map of the affected area is attached. A C-141 was submitted to the NMOCD on February 4<sup>th</sup>, 2015.

### **Site Assessment and Delineation**

On February 3<sup>rd</sup>, 2015 DFSI personnel were called to the site to help contain the spread of contamination in the area. DFSI personal, using contaminated soil put a berm around the tin horns and scrapped up the saturated soil in the area. Contaminated soil was placed on plastic on the J L Keel A #12 location for removal. Field samples were taken on four sample points, each sample was tested for chlorides levels as well as TPH. The TPH samples were performed using a Mini Rae Photoionization Detector (PID). All samples that tested below regularity requirements were taken to a lab for confirmation. 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:

When Linn Energy fixes the injection line, the remaining contaminated soil will be removed to a 4' bgs depth and the area around SP #3 1' bgs that soil will be hauled to a NM approved disposal facility. The surrounding terrain will be used to backfill and re contour in and around the excavation. Then seed with a BLM, OCD approved seed mix.

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, BLM

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

# Site Diagram

Linn, JL Keel A #012  
 Eddy County, NM  
 Drafted By: Lance Crenshaw, 2-4-15

0 0.003 0.006 0.012 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

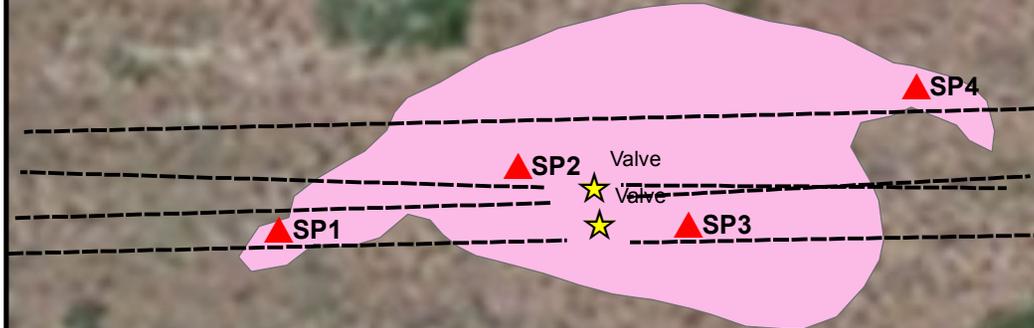
### Spill

- <all other values>

### Spill\_Media

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

Spill Area:  
5,652 sq. ft.



Lance Crenshaw  
GIS Technician

Soil Remediation and Ground Water Remediation  
Environmental Assessments  
Regulatory Compliance



Environmental **DFSI** 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



Photo Page





February 09, 2015

RICK RICKMAN

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL A #012

Enclosed are the results of analyses for samples received by the laboratory on 02/04/15 16:00.

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

Received:	02/04/2015	Sampling Date:	02/04/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #012	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP. 1 @ SURFACE AFTER SCRAPE (H500324-01)**

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	02/06/2015	ND	1.73	86.7	2.00	10.8		
Toluene*	<0.050	0.050	02/06/2015	ND	1.66	83.2	2.00	11.2		
Ethylbenzene*	<0.050	0.050	02/06/2015	ND	1.59	79.6	2.00	11.4		
Total Xylenes*	<0.150	0.150	02/06/2015	ND	4.74	79.0	6.00	12.6		
Total BTEX	<0.300	0.300	02/06/2015	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 102 % 61-154*

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	02/05/2015	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	02/06/2015	ND	195	97.3	200	2.01		
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21		

*Surrogate: 1-Chlorooctane 111 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 88.9 % 52.1-176*

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:	02/04/2015	Sampling Date:	02/04/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #012	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP. 2 @ SURFACE AFTER SCRAPE (H500324-02)**

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	02/06/2015	ND	1.73	86.7	2.00	10.8		
Toluene*	<0.050	0.050	02/06/2015	ND	1.66	83.2	2.00	11.2		
Ethylbenzene*	<0.050	0.050	02/06/2015	ND	1.59	79.6	2.00	11.4		
Total Xylenes*	<0.150	0.150	02/06/2015	ND	4.74	79.0	6.00	12.6		
Total BTEX	<0.300	0.300	02/06/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>128</b>	16.0	02/05/2015	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	02/06/2015	ND	195	97.3	200	2.01		
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21		

Surrogate: 1-Chlorooctane 117 % 47.2-157

Surrogate: 1-Chlorooctadecane 119 % 52.1-176

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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:	02/04/2015	Sampling Date:	02/04/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #012	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP. 3 @ SURFACE AFTER SCRAPE (H500324-03)**

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	02/06/2015	ND	1.73	86.7	2.00	10.8		
Toluene*	<0.050	0.050	02/06/2015	ND	1.66	83.2	2.00	11.2		
Ethylbenzene*	<0.050	0.050	02/06/2015	ND	1.59	79.6	2.00	11.4		
Total Xylenes*	<0.150	0.150	02/06/2015	ND	4.74	79.0	6.00	12.6		
Total BTEX	<0.300	0.300	02/06/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>4400</b>	16.0	02/05/2015	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	02/06/2015	ND	195	97.3	200	2.01		
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21		

Surrogate: 1-Chlorooctane 108 % 47.2-157

Surrogate: 1-Chlorooctadecane 82.0 % 52.1-176

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:	02/04/2015	Sampling Date:	02/02/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #012	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP. 4 @ SURFACE AFTER SCRAPE (H500324-04)**

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	02/06/2015	ND	1.73	86.7	2.00	10.8		
Toluene*	<0.050	0.050	02/06/2015	ND	1.66	83.2	2.00	11.2		
Ethylbenzene*	<0.050	0.050	02/06/2015	ND	1.59	79.6	2.00	11.4		
Total Xylenes*	<0.150	0.150	02/06/2015	ND	4.74	79.0	6.00	12.6		
Total BTEX	<0.300	0.300	02/06/2015	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 102 % 61-154*

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	02/05/2015	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	02/06/2015	ND	195	97.3	200	2.01		
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21		

*Surrogate: 1-Chlorooctane 113 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 90.9 % 52.1-176*

Cardinal Laboratories

\*=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



---

Celey D. Keene, Lab Director/Quality Manager

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Lim Energy  
 Project Manager: Rick Rickman  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_  
 Project #: \_\_\_\_\_ Project Owner: \_\_\_\_\_  
 Project Name: Samples after scrape  
 Project Location: Steel A 012 Eddy CO  
 Sampler Name: Michael Alvarez  
 FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	CC	714	DTR
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
<u>H500304</u>	<u>SP.1 @ surf after scrape</u>	<u>g</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
	<u>SP.2 @ surf after scrape</u>	<u>g</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
	<u>SP.3 @ surf after scrape</u>	<u>g</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
	<u>SP.4 @ surf after scrape</u>	<u>g</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

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Relinquished By: \_\_\_\_\_ Date: 2/9/15  
 Received By: Joedi Benson  
 Requisitioned By: \_\_\_\_\_ Date: 9:00  
 Time: \_\_\_\_\_

Delivered By: (Circle One) UPS - UPS - Bus - Other: \_\_\_\_\_  
 Sample Condition: Cool  Intact   
 Yes  No  Yes  No   
 CHECKED BY: \_\_\_\_\_  
 REMARKS: burton @ diversified.com  
m alvaz @ diversified.com  
ngladden @ diversified.com

\* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326 #54

February 17, 2015

RICK RICKMAN

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL A #012

Enclosed are the results of analyses for samples received by the laboratory on 02/10/15 11:25.

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Sincerely,



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:	02/10/2015	Sampling Date:	02/09/2015
Reported:	02/17/2015	Sampling Type:	Soil
Project Name:	J. L. KEEL A #012	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	NOT GIVEN		

**Sample ID: SP. 3 @ 1' (H500387-01)**

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	02/10/2015	ND	1.79	89.3	2.00	6.35	
Toluene*	<0.050	0.050	02/10/2015	ND	1.72	86.1	2.00	9.37	
Ethylbenzene*	<0.050	0.050	02/10/2015	ND	1.67	83.5	2.00	8.28	
Total Xylenes*	<0.150	0.150	02/10/2015	ND	4.97	82.8	6.00	8.70	
Total BTEX	<0.300	0.300	02/10/2015	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 101 % 61-154*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	02/10/2015	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	02/16/2015	ND	193	96.3	200	0.260	
DRO >C10-C28	<10.0	10.0	02/16/2015	ND	190	94.8	200	6.11	

*Surrogate: 1-Chlorooctane 113 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 112 % 52.1-176*

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

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- \*\*\* 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



---

Celey D. Keene, Lab Director/Quality Manager





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

Form C-141  
Revised August 8, 2011

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

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 Inc.	Contact	E.L. Gonzales
Address	2130 W Bender Blvd Hobbs, NM 88240	Telephone No.	575-738-1739
Facility Name	JL Keel A #12	Facility Type	Injection

Surface Owner	Federal	Mineral Owner		API No.	30-015-05100
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	07	17S	31E	660	North	660	East	Eddy

Latitude 32.85442 Longitude -103.90174

**NATURE OF RELEASE**

Type of Release	Produced Water	Volume of Release	4 bbls	Volume Recovered	3 bbls
Source of Release	Pipeline-FG	Date and Hour of Occurrence	02/03/2015	Date and Hour of Discovery	02/03/215 11:00am
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
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.\* I was notified by the injection plant operator that the pressure was low on the header injection line #3. As I drove out the line I found the leak by the between the tinorns containing the block valves. Driving directions to site: from CR221 & US 82 go N on 221 1.4 miles, go R/NE .5m, E .4m, N.5m to Keel A #12

Describe Area Affected and Cleanup Action Taken.\* Leak is approx. 50yds N in pasture. Affected area roughly 8'widex25' long

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: 	<b><u>OIL CONSERVATION DIVISION</u></b>		
Printed Name: E.L. Gonzales	Approved by Environmental Specialist:		
Title: Production Supervisor	Approval Date:	Expiration Date:	
E-mail Address: elgonzales@linenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 02/04/2015	Phone: 505-504-8002		

\* Attach Additional Sheets If Necessary