



Linn Energy Skelly #134

REMEDIATION PLAN

API No. 30-015-22268

Release Date: 11/18/2011

Unit Letter E, Section 27, Township 17 South, Range 31 East

RP# 2RP-966

BLM Event# NU12034TG

August 22, 2014

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 Skelly #134 – Remediation Work Plan
UL/E, Section 27, T17S, R31E
API No. 30-015-22268

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 south west of Maljamar NM, in Eddy County. The leak site resulted from a hydrocarbon and produced water leak. The source of the leak was due to corrosion on a nipple located on the wellhead. A C-141 was submitted to the NMOCD on November 18, 2011 (2RP-966).

Site Assessment and Delineation

On June 6th, 2014 DFSI personnel obtained surface and delineation samples of the leak area, which included SP1-SP4. All but SP1 and SP2 were sampled to 17'bgs and was determined to schedule a drilling rig to further delineate, SP3-SP4 were sampled to 8' and cleaned up to the reportable limits at 7', 8' and 9' was taken for confirmation and sent to the lab. At this time John Scarborough Drilling, Inc., was contracted to drill one bore hole at the Skelly Unit #134 site. On May 23, 2014 the borehole were drilled and was successful with finding the bottom of contamination at 25'bgs.

Field samples were taken on four sample points, along with one borehole, each sample was tested for chlorides levels as well as TPH. The TPH samples were performed using a Mini Rae Photoionization Detector (PID). All clean field samples found under the BLM/NMOCD standards, were taken to Cardinal Lab of Hobbs to obtain confirmation samples. And the results confirmed that bottom samples of each sample point were as follows:

DFSI has conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer there is no groundwater data for this area. 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:

Option 1

Excavate the entire 1,513 sq. ft. area of compacted soil to 4'bgs, haul the contaminated soil to an approved disposal site, line with a 20 mil liner and backfill with fresh imported topsoil. Then reseed the entire area with a native vegetation mixture as per the BLM's guidelines for returning the site to its natural state.

Option 2

Excavate the entire 1,513 sq. ft. area of compacted soil to 4'bgs. Excavate an 40' x 40' x 8' deep hole, line the bottom and sides with a 20 mil liner, bury the contaminated soil, install a cap at 4' by using a 20 mil liner and backfill with the clean excavated soil and reseed area. The contaminated area will also be lined at 4' with a 20mil liner and the remainder of the soil that was excavated for the deep bury area will be used as well as pushing in the native sand for surface reseeding procedures to return this site to its natural state. Some imported topsoil maybe needed to finalize this procedure to ensure proper growth. This option illuminates having to haul the contaminated soil to an approved facility and the disposal costs. The deep bury will be done on the Linn Energy Skelly #275.

Side wall samples will be taking during the excavation procedure to ensure that all contaminates have been remediated. These samples will also be taken to an approved lab for confirmation before backfilling will take place.

Following the approval of one of the above plans, either Option 1 or Option 2 above and after the remediation has taken place, 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,



Natalie Gladden
Environmental Consultant
Diversified Field Service, Inc.
315 S. Leech
Hobbs, NM 88240
Office: (575)964-8394
Mobile: (575)602-1786
Fax: (575)964-8396
Email: ngladden@diversifiedfsi.com

cc Jeffery Robertson
NM Bureau of Land Management

Attachments: Initial Form C-141
Site/Sample Map
Sample Data
Lab Analytical Data
Drilling Bore Logs
Ground Water Data

Site Diagram

Linn, Skelly 134
UL/E, Sec. 27 T17S R31E
Eddy County, NM
Drafted By: Lance Crenshaw, 5-22-14

0 0.00150.003 0.006 Miles

Legend

- Soil Bores
- sample_pts
- Source

Pipeline

Type

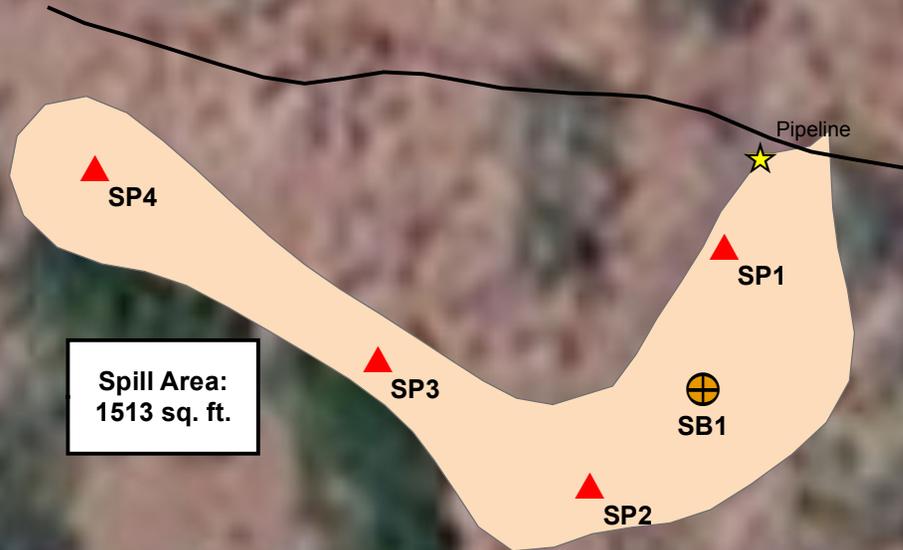
- Above Ground Line
- Buried Line

Spill

- <all other values>

Spill_Media

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



Spill Area:
1513 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, Aeri, GeoEye, and the GIS User Community

Diversified Environmental Services

Company Name: Linn Energy
 Location Name: Skelly #134

SP Date: 6/6/2014 8/4/2014
 Rel Date: 11/18/2011

SP1	CHL	TPH	SP2	CHL	TPH	SP3	CHL	TPH	SP4	CHL	TPH	BH1	CHL	TPH
1'	5723	271.1	1'	7747	999.8	1'	3873	0	1'	4448	1.2	20'	374	0
2'	3873	1174.3	2'	6023	1274.3	2'	3723	0.1	2'	4548	1	25'	374	0
3'	3773	978.4	3'	7222	1181.5	3'	3373	0.3	3'	1274	1.1	25'	176	19.1
4'	4973	16828	4'	6723	1682	4'	3423	0.1	4'	1299	0			
5'	5023	1683.2	5'	4973	1483	5'	1199	0.2	5'	1199	0			
6'	4973	998.8	6'	4977	1021.2	6'	1224	0.1	6'	1199	0			
7'	4923	1021.3	7'	3773	986.4	7'	449	0.2	7'	424	0			
8'	6023	906.4	8'	3873	783.9	8'	374	0.1	8'	374	0			
9'	7472	1071.4	9'	3698	583.4	8'	32	<10	8'	32	<10			
10'	7222	947.8	10'	5023	682.1									
11'	6198	952.3	11'	4973	582.3									
12'	6273	832.3	12'	4977	563.2									
13'	5623	772.1	13'	3623	532.4									
14'	5473	768.3	14'	3298	516									
15'	3948	751.4	15'	3623	487.1									
16'	3298	682.9	16'	3248	492.3									
17'	2974	551.4	17'	3323	482.5									

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



August 11, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: SKELLY UNIT #134

Enclosed are the results of analyses for samples received by the laboratory on 08/04/14 13:55.

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 style with a large, flowing "C" and "K".

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:	08/04/2014	Sampling Date:	08/04/2014
Reported:	08/11/2014	Sampling Type:	Soil
Project Name:	SKELLY UNIT #134	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 25' (H402380-01)

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	08/05/2014	ND	2.07	103	2.00	1.58	
Toluene*	<0.050	0.050	08/05/2014	ND	2.10	105	2.00	1.01	
Ethylbenzene*	<0.050	0.050	08/05/2014	ND	2.13	106	2.00	1.52	
Total Xylenes*	<0.150	0.150	08/05/2014	ND	6.66	111	6.00	3.49	
Total BTEX	<0.300	0.300	08/05/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	08/07/2014	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	<20.0	20.0	08/05/2014	10.1	197	98.5	200	1.02	
DRO >C10-C28	19.1	10.0	08/05/2014	ND	207	103	200	0.873	

Surrogate: 1-Chlorooctane 83.1 % 65.2-140
Surrogate: 1-Chlorooctadecane 89.5 % 63.6-154

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>Linn Energy</u> Project Manager: <u>Brian Wall</u>		BILL TO		P.O. #: _____ Company: <u>Linn Energy</u> Attn: <u>Brian Wall</u>	
Address: _____ City: _____ State: _____ Zip: _____		Address: _____ City: _____ State: _____ Zip: _____		Phone #: _____ Project Owner: _____	
Project #: _____ Project Name: _____		Project Location: <u>Stetly 134 - (San Bar)</u>		State: _____ Zip: _____ Phone #: _____ Fax #: _____	
Sampler Name: <u>Michael Alva</u>		FOR LAB USE ONLY		PRESERV. _____ SAMPLING _____	
Lab I.D. <u>H408380</u>		Sample I.D. _____		MATRIX:	
<u>1 SBL @ 25'</u>		(G)RAB OR (C)OMP. <u>8</u>		<input type="checkbox"/> GROUNDWATER <input type="checkbox"/> WASTEWATER <input checked="" type="checkbox"/> SOIL <input type="checkbox"/> OIL <input type="checkbox"/> SLUDGE OTHER: _____	
<u>8</u> # CONTAINERS		ACID/BASE: _____ ICE / COOL _____ OTHER: _____		DATE <u>8/4/14</u> TIME <u>11:36</u>	
RECEIVED BY: _____		DATE: _____		<input checked="" type="checkbox"/> CC <input checked="" type="checkbox"/> TNA <input checked="" type="checkbox"/> BTEX	

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: _____ Date: 8/4/14 Time: 1:55
 Received By: Scott Jensen
 Delivered By: (Circle One) UPS - Bus - Other: _____
 Sample Condition: Cool Intact
 Checked By: (Initials) SA
 Phone Result: Yes No Add'l Phone #: _____
 Fax Result: Yes No Add'l Fax #: _____
 REMARKS: _____
 E-mail Results To:
 Ngladden@diversifiedfsi.com
 Rpons@diversifiedfsi.com
 Tjennings@diversifiedfsi.com



June 17, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: SKELLY UNIT #134

Enclosed are the results of analyses for samples received by the laboratory on 06/10/14 15:45.

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.

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

Received:	06/10/2014	Sampling Date:	06/06/2014
Reported:	06/17/2014	Sampling Type:	Soil
Project Name:	SKELLY UNIT #134	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 3 @ 8' (H401765-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/12/2014	ND	2.10	105	2.00	2.72	
Toluene*	<0.050	0.050	06/12/2014	ND	2.25	113	2.00	3.44	
Ethylbenzene*	<0.050	0.050	06/12/2014	ND	2.03	102	2.00	3.01	
Total Xylenes*	<0.150	0.150	06/12/2014	ND	6.28	105	6.00	3.21	
Total BTEX	<0.300	0.300	06/12/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/16/2014	ND	400	100	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	06/16/2014	ND	178	88.9	200	3.26	
DRO >C10-C28	<10.0	10.0	06/16/2014	ND	186	93.2	200	10.1	

Surrogate: 1-Chlorooctane 70.9 % 65.2-140
Surrogate: 1-Chlorooctadecane 82.0 % 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: 06/10/2014
 Reported: 06/17/2014
 Project Name: SKELLY UNIT #134
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 06/06/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 4 @ 8' (H401765-02)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/12/2014	ND	2.10	105	2.00	2.72	
Toluene*	<0.050	0.050	06/12/2014	ND	2.25	113	2.00	3.44	
Ethylbenzene*	<0.050	0.050	06/12/2014	ND	2.03	102	2.00	3.01	
Total Xylenes*	<0.150	0.150	06/12/2014	ND	6.28	105	6.00	3.21	
Total BTEX	<0.300	0.300	06/12/2014	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/16/2014	ND	400	100	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	06/16/2014	ND	178	88.9	200	3.26	
DRO >C10-C28	<10.0	10.0	06/16/2014	ND	186	93.2	200	10.1	

Surrogate: 1-Chlorooctane 77.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 85.3 % 63.6-154

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

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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

Monte Moore Drilling



FORMATION LOG AND NOTES

TO: VIPER PRODUCTS

REF: DIVERSIFIED August 4, 2014

SKELLY UNIT #134

HOLE LOG #1

0-15 TOP SOIL

15-35 SANDY CALICHE

35-40 RED CLAY

GROUND WATER SEARCH

Linn Energy Skelly Unit #134

UL: E

Sec: 27

T: 17S

R: 31E

Groundwater Depth: NA ft.

- = NM Office of the State Engineer
- = U.S. Geological Survey (unknown well)
- ✕ = Site Location

Date: 12/10/13

By: Rebecca Pons

	16S 30E	16S 31E	16S 32E	
	17S 30E	17S 31E ✕	17S 32E	
	18S 30E	18S 31E	18S 32E	