



Linn Energy Skelly Unit #85

REMEDIATION WORK PLAN

API No. 30-015-05422

Release Date: 01/24/2014

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

RP#2RP-2196

BLM Event# Unknown

July 23, 2014

Prepared by:

Environmental Department
Diversified Field Service, Inc.
3412 N. Dal Paso
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 Unit #85 – Remediation Work Plan
UL/B, Section 27, T17S, R31E
API No. 30-015-05422

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 produced water leak. The source of the leak was due to corrosion on a 2" nipple and flange located on the injection line header. A C-141 was submitted to the NMOCD on March 27, 2014 (2RP-2196).

Site Assessment and Delineation

On January 30, 2014 DFSI personnel obtained surface and delineation samples of the leak area, which included SP1-SP8. Auger refusal was obtained on all of the eight sample points in and around 12' to 15'bgs. On June 6, 2014 four soil-bores were drilled and fully delineated to find the bottom of contamination.

Field samples were taken on eight sample points, along with four boreholes, 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:

SB1: 30'bgs – 288ppm Chlorides, <1.20 BTEX and <10 DRO/GRO
SB2: 40'bgs – 416ppm Chlorides, <0.30 BTEX and <10 DRO/GRO
SB3: 30'bgs – 368ppm Chlorides, <0.30 BTEX and <10 DRO/GRO
SB4: 25;bgs – 864ppm Chlorides, <0.30 BTEX and <10 DRO/GRO

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 236 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:

Option 1

Excavate the entire 5,712 sq. ft. area of compacted soil to 3'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 5,712 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.

Side wall samples will be taking during the excavation procedure to ensure that all contaminants 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.
206 W. Snyder
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

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: Skelly # 85	Facility Type: Injection	
Surface Owner: Federal	Mineral Owner:	API No.: 30-015-05422

LOCATION OF RELEASE

Unit Letter B	Section 27	Township 17S	Range 31E	Feet from the 660	North/South Line North	Feet from the 1980	East/West Line East	County Eddy
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Latitude: 32.8110323221284 **Longitude:** -103.855372475824

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 45 bbls	Volume Recovered: 10 bbls
Source of Release: 2 " nipple and flange	Date and Hour of Occurrence: 01/24/2014	Date and Hour of Discovery: 01/24/2014 11:00am
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 01/27/2014 0833	
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 drove up to injection well #85 at 11:00am and I found a leak 50 foot north west of this injection well at the injection line header. The one inch line that feeds injection wells #86 and #107 was leaking. I shut the one inch line valve in to prevent the fluids from accumulating on the ground. I called Double R Trucking to pick up the produced water off of the ground.		
Describe Area Affected and Cleanup Action Taken.* : The impacted area was about 105 feet by 27 feet squared south east of the header. Called BSG roustabout to fix the leak. Water truck picked up about 10 barrels of fluid off of the ground. The cause of the leak was a bad steel flange and a bad 2 inch steel nipple.		
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: 01/27/2014	Phone: 806-367-0645	

* Attach Additional Sheets If Necessary

Site Diagram

Linn, Skelly 85
UL/N, Sec. 27 T17S R31E
Eddy County, NM
Drafted By: Lance Crenshaw, 3-10-14

0 0.005 0.01 0.02 Miles

Legend

- Soil Bores
- sample_pts
- Source

Pipeline

Type

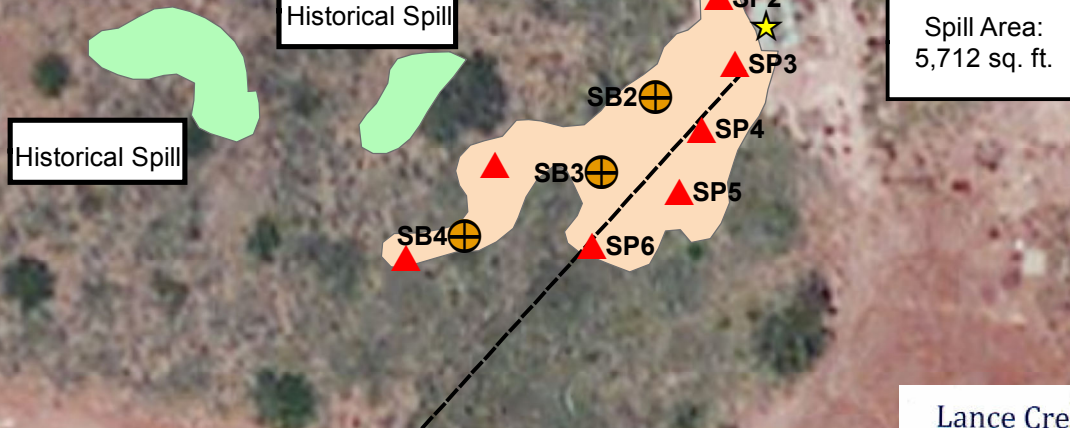
- Above Ground Line
- Buried Line

Spill

- <all other values>

Spill_Media

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



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, AeroGRID, IGN, and the GIS User Community

Diversified Environmental Services

Company Name:	<u>Linn Energy</u>
Location Name:	<u>Skelly #85</u>

SP Date: 1/28/2014 1/29/2014 1/30/2014 1/31/2014 6/2/2014
Rel Date: 1/24/2014

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



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

June 10, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: SKELLY #85

Enclosed are the results of analyses for samples received by the laboratory on 06/03/14 14:22.

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, stylized '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: 06/03/2014
 Reported: 06/10/2014
 Project Name: SKELLY #85
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

Sampling Date: 06/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Kathy Perez

Sample ID: SB1@30' (H401691-01)

BTX 8021B		mg/kg		Analyzed By: MS/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	06/06/2014	ND	2.00	99.9	2.00	2.96	
Toluene*	0.480	0.200	06/06/2014	ND	2.15	107	2.00	3.33	
Ethylbenzene*	<0.200	0.200	06/06/2014	ND	1.92	96.2	2.00	3.37	
Total Xylenes*	<0.600	0.600	06/06/2014	ND	5.97	99.5	6.00	3.41	
Total BTX	<1.20	1.20	06/06/2014	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	288	16.0	06/05/2014	ND	416	104	400	3.92		

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	06/08/2014	ND	143	71.7	200	7.16	
DRO >C10-C28	<10.0	10.0	06/08/2014	ND	141	70.4	200	4.92	

Surrogate: 1-Chlorooctane 73.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 81.2 % 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: 06/03/2014
 Reported: 06/10/2014
 Project Name: SKELLY #85
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

Sampling Date: 06/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Kathy Perez

Sample ID: SB2@40' (H401691-02)

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	06/06/2014	ND	2.00	99.9	2.00	2.96	
Toluene*	<0.050	0.050	06/06/2014	ND	2.15	107	2.00	3.33	
Ethylbenzene*	<0.050	0.050	06/06/2014	ND	1.92	96.2	2.00	3.37	
Total Xylenes*	<0.150	0.150	06/06/2014	ND	5.97	99.5	6.00	3.41	
Total BTX	<0.300	0.300	06/06/2014	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	416	16.0	06/05/2014	ND	416	104	400	3.92	

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	06/08/2014	ND	143	71.7	200	7.16	
DRO >C10-C28	<10.0	10.0	06/08/2014	ND	141	70.4	200	4.92	

Surrogate: 1-Chlorooctane 79.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 81.3 % 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: 06/03/2014
 Reported: 06/10/2014
 Project Name: SKELLY #85
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

Sampling Date: 06/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Kathy Perez

Sample ID: SB3@30' (H401691-03)

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	06/06/2014	ND	2.00	99.9	2.00	2.96	
Toluene*	<0.050	0.050	06/06/2014	ND	2.15	107	2.00	3.33	
Ethylbenzene*	<0.050	0.050	06/06/2014	ND	1.92	96.2	2.00	3.37	
Total Xylenes*	<0.150	0.150	06/06/2014	ND	5.97	99.5	6.00	3.41	
Total BTX	<0.300	0.300	06/06/2014	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	368	16.0	06/05/2014	ND	416	104	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	06/08/2014	ND	143	71.7	200	7.16	
DRO >C10-C28	<10.0	10.0	06/08/2014	ND	141	70.4	200	4.92	

Surrogate: 1-Chlorooctane 72.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 77.8 % 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: 06/03/2014
 Reported: 06/10/2014
 Project Name: SKELLY #85
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

Sampling Date: 06/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Kathy Perez

Sample ID: SB4@25' (H401691-04)

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	06/06/2014	ND	2.00	99.9	2.00	2.96	
Toluene*	<0.050	0.050	06/06/2014	ND	2.15	107	2.00	3.33	
Ethylbenzene*	<0.050	0.050	06/06/2014	ND	1.92	96.2	2.00	3.37	
Total Xylenes*	<0.150	0.150	06/06/2014	ND	5.97	99.5	6.00	3.41	
Total BTX	<0.300	0.300	06/06/2014	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	864	16.0	06/05/2014	ND	416	104	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	06/08/2014	ND	143	71.7	200	7.16	
DRO >C10-C28	<10.0	10.0	06/08/2014	ND	141	70.4	200	4.92	

Surrogate: 1-Chlorooctane 84.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 85.3 % 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

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 7 of 7

JOHN SCARBOROUGH DRILLING, INC.

**2001 S. Hwy 87
P O BOX 305
LAMESA, TX 79331**

Skelly 85:

SB1:

0 – 8	Topsoil
8 – 22	Caliche
22 – 28	Sand
28 – 30	Red Clay

SB2:

0 – 8	Topsoil
8 – 21	Caliche
21 – 30	Sand
30 – 40	Red Clay

SB3:

0 – 8	Topsoil
8 – 20	Caliche
20 – 30	Sand & Clay

SB4:

0 – 9	Topsoil
8 – 18	Caliche
18 – 25	Sand & Clay