RECEIVED
By JKeyes at 8:43 am, Mar 23, 2016

Conditionally
APPROVED

Stipulation:
Area around SP must be excavated to depth of 4' bgs and a liner installed. Synthetic liner only.

LINN Energy

MGU #008

REMEDIATION WORK PLAN

API No. 30-025-20318

Release Date: October 19, 2015

Unit Letter K, Section 03, Township 17 South, Range 32 East

November 19, 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

Kellie Jones
Environmental Specialist
NM Oil Conservation District-Division 2
1625 N. French
Hobbs, NM 88240

RE: **Linn Energy, MGU #008– Remediation Work Plan**
UL/K, Section 03, T17S, R32E
API No. 30-025-20318

Ms. Jones,

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

The site is located east of Maljamar, NM, in Lea County. The leak site resulted from the choke on the injection well breaking in half. The impacted area is on the pad and in the pasture. Approximately 10 bbls of produced water was released, with none recovered. The location is on top of the Caprock Escarpment, and the spill also ran down the slope of the Caprock Escarpment A site map is attached. A C-141 was drafted on October 19, 2015.

Site Assessment and Delineation

On October 19, 2015 DFSI personnel responded to the release site and dug up the line so a crew could fix it. DFSI then scraped up the affected area to minimize the environmental impact

On October 27, 2015 DFSI personnel returned to the site and sampled the spill area. DFSI sampled 10 points 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). Due to the Caprock Escarpment, DFSI personnel encountered auger refusal at depths of 1’ and 2’ BGS. The field sampling results are attached.

On November 12, 2015, DFSI personnel returned to the location and drilled two soil bores to fully delineate the spill. Those samples were sent to a commercial laboratory for confirmation. Those samples are also attached.

DFSI has conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer, and the Conoco-Phillips depth to groundwater map, there are no records of groundwater in the area.

Conclusion

After careful review DFSI, on behalf of Linn Energy, would like to propose the following: Excavate the entire spill on the pad area to 6" BGS, then backfill with fresh caliche. In the areas of SP #4, SP #6, SP #7 and SP #8, excavate to 4' BGS. Then install either a 20 mil liner or impervious river rock, and backfill with native topsoil. All contaminated materials will be hauled to an approved NM State Disposal. Once backfilled, the area will be seeded with an approved BLM mixture.

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

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

Attachments: Initial Form C-141
Site/Sample Map
Sample Data
Photo Page

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

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

Form C-141
Revised August 8, 2011

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 Maljamar Grayburg Unit #8	Facility Type Injection

Surface Owner Federal	Mineral Owner	API No. 30-025-20318

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	03	17S	32E	2140	South	2180	West	Lea

Latitude 32.862236 **Longitude** -103.7558517

NATURE OF RELEASE

Type of Release Produced Water / BS&W	Volume of Release 10 bbls / 15 gal.	Volume Recovered 0 / 0
Source of Release Valve Sensor /Alarm Failure	Date and Hour of Occurrence 10/19/2015	Date and Hour of Discovery 10/19/2015 8:00am
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* At about 8am this morning I pulled up to location and saw the injection line shooting water into the air. I quickly isolated the inj line to stop the leak. The leak was caused by the choke on the well breaking in half.

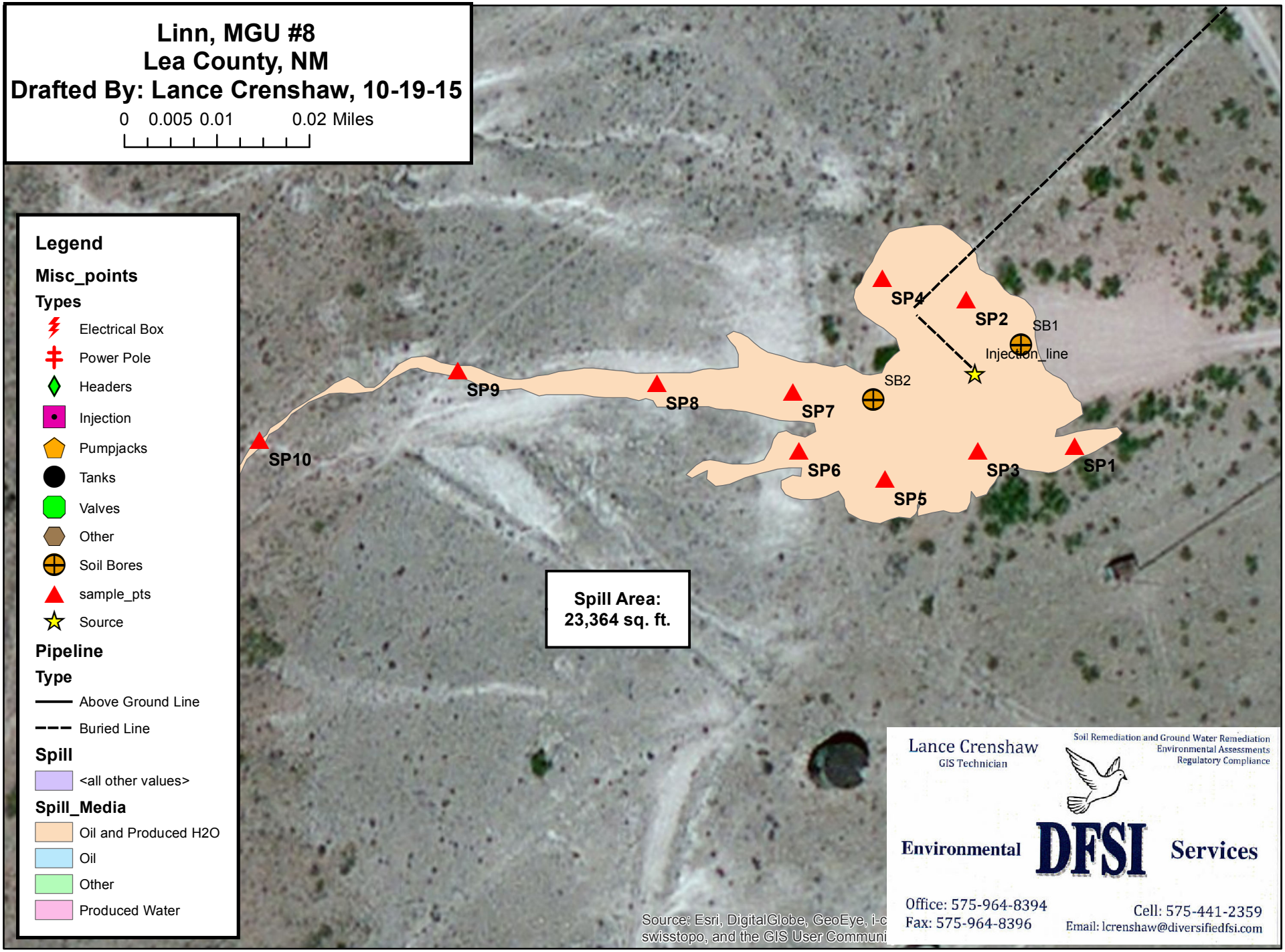
Describe Area Affected and Cleanup Action Taken.* About 10bbls of produced water was spilt. The leak ran south bound about 150 feet a radius of 20 feet of water was around the well head.

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: E.L. Gonzales	Approved by Environmental Specialist:	
Title: Production Supervisor	Approval Date:	Expiration Date:
E-mail Address: elgonzales@linnenergy.com	Conditions of Approval:	Attached ☐
Date: 10/20/2015 Phone: 505-504-8002		

* Attach Additional Sheets If Necessary

Site Diagram



MGU #008

PHOTO PAGE

Lease sign marking location

Spill area on pad

Spill area on pad/pasture

Spill area on slope of Caprock Escarpment

Spill area on pad after initial scrape

Using drill for confirmation samples

Obtaining samples from drilling

Diversified Environmental Services

Company Name: Linn
Location Name: MGU #8

SP Date: 10/27/2015 11/12/2015
Rel Date:

SP1	CHL	PID
Surface	11,349	1.1
1'	4,690	0.9
2'	REFUSAL	REFUSAL

SP2	CHL	PID
Surface	1,070	0.8
1'	971	0.3
2'	REFUSAL	REFUSAL

SP3	CHL	PID
Surface	1,158	1.9
1'	874	1.4
2'	REFUSAL	REFUSAL

SP4	CHL	PID
Surface	4,702	0.9
1'	7,487	10.1
2'	REFUSAL	REFUSAL

SP5	CHL
Surface	692
1'	634

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

SP6	CHL	PID
Surface	4,885	0.8
1'	7,974	1
2'	REFUSAL	REFUSAL

SP7	CHL	PID
Surface	7,742	0.6
1'	REFUSAL	REFUSAL

SP8	CHL	PID
Surface	3,107	0.8
1'	REFUSAL	REFUSAL

SP9	CHL	PID
Surface	618	0.4
1'	REFUSAL	REFUSAL

SP10	CHL
Surface	141
1'	REFUSAL

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

SB1	CHL	PID
15'	864	
20'	528	

SB2	CHL	PID
4'	560	
5'	256	

SP13	CHL	PID

SP14	CHL	PID

SP15	CHL	PID

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

CARDINAL Laboratories

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

November 18, 2015

JOE HERNANDEZ

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: MGU #8

Enclosed are the results of analyses for samples received by the laboratory on 11/12/15 16:50.

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/12/2015	Sampling Date:	11/12/2015
Reported:	11/18/2015	Sampling Type:	Soil
Project Name:	MGU #8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE 1 @ 15' (H503007-01)

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	11/17/2015	ND	1.96	98.0	2.00	0.526	
Toluene*	<0.050	0.050	11/17/2015	ND	2.22	111	2.00	0.925	
Ethylbenzene*	<0.050	0.050	11/17/2015	ND	2.06	103	2.00	1.09	
Total Xylenes*	<0.150	0.150	11/17/2015	ND	6.46	108	6.00	0.960	
Total BTEX	<0.300	0.300	11/17/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *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	**864**	16.0	11/13/2015	ND	432	108	400	7.69	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2015	ND	198	99.2	200	6.08	
DRO >C10-C28	<10.0	10.0	11/14/2015	ND	207	103	200	5.76	

Surrogate: 1-Chlorooctane *80.0 %* *35-147*

Surrogate: 1-Chlorooctadecane *86.7 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/12/2015	Sampling Date:	11/12/2015
Reported:	11/18/2015	Sampling Type:	Soil
Project Name:	MGU #8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE 1 @ 20' (H503007-02)

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	11/17/2015	ND	1.96	98.0	2.00	0.526	
Toluene*	<0.050	0.050	11/17/2015	ND	2.22	111	2.00	0.925	
Ethylbenzene*	<0.050	0.050	11/17/2015	ND	2.06	103	2.00	1.09	
Total Xylenes*	<0.150	0.150	11/17/2015	ND	6.46	108	6.00	0.960	
Total BTEX	<0.300	0.300	11/17/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *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	**528**	16.0	11/13/2015	ND	416	104	400	3.92	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2015	ND	198	99.2	200	6.08	
DRO >C10-C28	<10.0	10.0	11/14/2015	ND	207	103	200	5.76	

Surrogate: 1-Chlorooctane *85.3 %* *35-147*

Surrogate: 1-Chlorooctadecane *91.9 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/12/2015	Sampling Date:	11/12/2015
Reported:	11/18/2015	Sampling Type:	Soil
Project Name:	MGU #8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE 2 @ 4' (H503007-03)

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	11/17/2015	ND	1.96	98.0	2.00	0.526	
Toluene*	<0.050	0.050	11/17/2015	ND	2.22	111	2.00	0.925	
Ethylbenzene*	<0.050	0.050	11/17/2015	ND	2.06	103	2.00	1.09	
Total Xylenes*	<0.150	0.150	11/17/2015	ND	6.46	108	6.00	0.960	
Total BTEX	<0.300	0.300	11/17/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.8 %* *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	**560**	16.0	11/13/2015	ND	432	108	400	7.69	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2015	ND	198	99.2	200	6.08	
DRO >C10-C28	<10.0	10.0	11/14/2015	ND	207	103	200	5.76	

Surrogate: 1-Chlorooctane *77.4 %* *35-147*

Surrogate: 1-Chlorooctadecane *82.7 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/12/2015	Sampling Date:	11/12/2015
Reported:	11/18/2015	Sampling Type:	Soil
Project Name:	MGU #8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE 2 @ 5' (H503007-04)

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	11/17/2015	ND	1.96	98.0	2.00	0.526	
Toluene*	<0.050	0.050	11/17/2015	ND	2.22	111	2.00	0.925	
Ethylbenzene*	<0.050	0.050	11/17/2015	ND	2.06	103	2.00	1.09	
Total Xylenes*	<0.150	0.150	11/17/2015	ND	6.46	108	6.00	0.960	
Total BTEX	<0.300	0.300	11/17/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *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	**256**	16.0	11/13/2015	ND	416	104	400	3.92	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2015	ND	198	99.2	200	6.08	
DRO >C10-C28	<10.0	10.0	11/14/2015	ND	207	103	200	5.76	

Surrogate: 1-Chlorooctane *82.9 %* *35-147*

Surrogate: 1-Chlorooctadecane *89.0 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Linn Operating
Project Manager:	Joe Hernandez
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	Linn
Project Location:	MGU #8
Sampler Name:	Chris Flores

BILL TO

P.O. #:	
Company:	Linn Operating
Attn:	Joe Hernandez
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chloride	BTEX	TPH
H503007																	
1	Soil Bore 1 @ 15'	G	1			✓					✓		11-12-2015	10:30 AM	X	X	X
2	Soil Bore 1 @ 20'	G	1			✓					✓			10:45 AM	X	X	X
3	Soil Bore 2 @ 4'	G	1			✓					✓			11:40 AM	X	X	X
4	Soil Bore 2 @ 5'	G	1			✓					✓			11:55 AM	X	X	X

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 analyses. 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: 11-12-2015	Received By: Jodi Henson	
	Time: 4:50		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 3.2°C

Sample Condition: Cool: ☑ Yes ☐ No; Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:
email to: lcrenshaw@diversifiedfsi.com
malves@
mburton@
mpatterson@
cflores@

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

#54

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

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 04021 POD3	L		LE	3	4		03	17S	32E	616761	3636252*	247		
L 04021 S	L		LE	2	4	4	03	17S	32E	617262	3636354*	260		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 2

PLSS Search:

Section(s): 03 **Township:** 17S **Range:** 32E

***UTM location was derived from PLSS - see Help**