



# H E West B #40

## REMEDIATION WORK PLAN

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API No. 30-015-26024

Release Date: July 19<sup>th</sup>, 2014

Unit Letter D, Section 10, 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 H E West B #40 – Remediation Work Plan**  
UL/D, Section 10, T17S, R31E  
API No. 30-015-26024

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 a leak at the tin horn from the truck line. The impacted area is the caliche lease road and north into the pasture. Approximately 22 bbl of produced water was released. Approximately 15 bbls were recovered. On August 18<sup>th</sup>, 2014 another release occurred from the fiberglass under the tin horns. Approximately 9 bbls of produced water was released and 4 bbls recovered. A site map is attached. A C-141 was submitted to the NMOCD on July 21<sup>st</sup>, 2014 for the first release. A C-141 was submitted to the NMOCD on August 19<sup>th</sup>, 2014 for the second release. Both C-141's are attached.

### **Site Assessment and Delineation**

On May 18<sup>th</sup>, 2015 DFSI personnel sampled the spill area around the tin horns in three sample points. 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 sample. The results are attached.

On November 23, 2015, DFSI personnel returned to the location to re-sample the spill area, per a denial of the previous work plan submitted. DFSI samples four sample points of the area down to 2' BGS. All samples were clean and taken to a commercial laboratory for confirmation.

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:

Because the surface sample, along with vertical samples down to 2' BGS, came back clean, we propose to re seed the affected area 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 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

Form C-141  
Revised October 10, 2003

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	Contact: Brian Wall
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739
Facility Name: H.E. West B #40	Facility Type: Injection

Surface Owner: Federal	Mineral Owner:	API No.: 30-015-26024
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**LOCATION OF RELEASE**

Unit Letter D	Section 10	Township 17S	Range 31E	Feet from the 560	North/South Line North	Feet from the 660	East/West Line West	County Eddy
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**Latitude:** 32.8547837573781 **Longitude:** -103.864060735174

**NATURE OF RELEASE**

Type of Release: Produced Water	Volume of Release: 22 bbls	Volume Recovered: 15 bbls
Source of Release: fiberglass pipeline	Date and Hour of Occurrence: 07/19/2014	Date and Hour of Discovery: 07/19/2014 2:45pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jeff Robertson- BLM / Mike Bratcher-NMOCD	
By Whom? Brian Wall	Date and Hour 07/21/2014 0900	
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.\*: At 2:45P.M. Was notified by Mario Hernandez, That line 1 was down on low pressure. Went looking for leak on trunk line, upon driving on west B #40 looking east of location at 3:P.M. found water coming out of north tinhorn. At 3:15 P.M. called for a truck to pickup water. Notified Rick Rickman at 3:30 P.M. of leak.

Describe Area Affected and Cleanup Action Taken.\* : Area of water on ground was 22feet long X 21 feet wide by 2in deep. (pictures make the spill looking bigger than area actually was to due rain in area.) At 4:30 P.M. truck on location, went to emptying tinhorn to see if leak was on lateral line or on trunk line. After emptying tinhorn, determined that leak was on lateral line. was able to isolate lateral, to get field back going. Picked up about 7 barrells of water off of ground. Will have to do one call before line can be repaired.  
Directions to site: From Loco Hills N.M. go east on Hwy 82 3.5 miles, turn left on CR221 go 1.4 miles to dirt road on right, turn right go .5 mile, turn right go .6 mile turn left, go .5 mile turn right, go 2.0 miles to West B#40 spill is 25 yds east of location in pasture, at the tinhorns.

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: 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: 07/21/2014

Phone: 806-367-0645

\* Attach Additional Sheets If Necessary

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

Form C-141  
Revised October 10, 2003

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	Contact: Brian Wall
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739
Facility Name: H.E. West B # 40	Facility Type: Injection

Surface Owner: Federal	Mineral Owner:	API No.: 30-015-26024
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**LOCATION OF RELEASE**

Unit Letter D	Section 10	Township 17S	Range 31E	Feet from the 560	North/South Line North	Feet from the 660	East/West Line West	County Eddy
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**Latitude:** 32.8547837573781 **Longitude:** -103.864060735174

**NATURE OF RELEASE**

Type of Release: Produced Water	Volume of Release: 9	Volume Recovered: 4
Source of Release: 2" Fiber glass pipeline	Date and Hour of Occurrence: 08/18/2014	Date and Hour of Discovery: 08/18/2014 10:30am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jeff Robertson- BLM / Mike Bratcher- NM OCD	
By Whom? Brian Wall	Date and Hour 08/19/2014 0930 (written)	
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.\*: Matt Vella reported to me of a leak on header line 1 & 2 at Keel West injection station at 7:00 am. Started looking for leak on line. Found leak just east of West B. #40. at the tinorns on east side of road. Called Benco for to empty tinhorn & find leak. Found the 2 in fiberglass line in the south tinhorn had blowed into.. Had to leave lines 1 & 2 shutin due to leak on trunk line. Shut all laterals in on trunk line. Waiting on one call to clear for repairs.

Describe Area Affected and Cleanup Action Taken.\* : Area covered was 33 feet long, 16 feet long. Covering the area Of a previous leak, that is on agenda to be cleaned up.

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: 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: 08/18/2014 Phone: 806-367-0645		

\* Attach Additional Sheets If Necessary



# H E West B #40

## PHOTO PAGE

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5/18/2015



# Site Diagram

**Linn, H.E. West B #40**  
**UL/D, Sec. 10 T17S R31E**  
**Eddy County, NM**  
**Drafted By: Lance Crenshaw, 12-21-15**

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

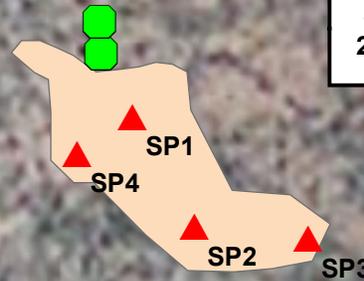
-  Above Ground Line
-  Buried Line

### Spill

-  <all other values>

### Spill\_Media

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



**Spill Area:**  
**2,030 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





May 21, 2015

MIKE BURTON

LINN ENERGY

RR1, BOX 24 B

KINGFISHER, OK 73750

RE: H. E. WEST B # 40

Enclosed are the results of analyses for samples received by the laboratory on 05/18/15 14:00.

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 ENERGY  
 MIKE BURTON  
 RR1, BOX 24 B  
 KINGFISHER OK, 73750  
 Fax To: (405) 375-6693

Received:	05/18/2015	Sampling Date:	05/18/2015
Reported:	05/21/2015	Sampling Type:	Soil
Project Name:	H. E. WEST B # 40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

**Sample ID: SP. 1 @ SURF (H501261-01)**

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	05/20/2015	ND	1.77	88.3	2.00	0.512	
Toluene*	<0.050	0.050	05/20/2015	ND	1.89	94.5	2.00	0.771	
Ethylbenzene*	<0.050	0.050	05/20/2015	ND	1.79	89.7	2.00	1.34	
Total Xylenes*	<0.150	0.150	05/20/2015	ND	5.33	88.8	6.00	0.885	
Total BTEX	<0.300	0.300	05/20/2015	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	05/20/2015	ND	400	100	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	05/18/2015	ND	173	86.6	200	1.90	
DRO >C10-C28	<10.0	10.0	05/18/2015	ND	198	99.0	200	1.16	

*Surrogate: 1-Chlorooctane 93.4 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 105 % 52.1-176*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN ENERGY  
 MIKE BURTON  
 RR1, BOX 24 B  
 KINGFISHER OK, 73750  
 Fax To: (405) 375-6693

 Received: 05/18/2015  
 Reported: 05/21/2015  
 Project Name: H. E. WEST B # 40  
 Project Number: NONE GIVEN  
 Project Location: NONE GIVEN

 Sampling Date: 05/18/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 2 @ SURF (H501261-02)**

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	05/20/2015	ND	1.77	88.3	2.00	0.512		
Toluene*	<0.050	0.050	05/20/2015	ND	1.89	94.5	2.00	0.771		
Ethylbenzene*	<0.050	0.050	05/20/2015	ND	1.79	89.7	2.00	1.34		
Total Xylenes*	<0.150	0.150	05/20/2015	ND	5.33	88.8	6.00	0.885		
Total BTEX	<0.300	0.300	05/20/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	05/20/2015	ND	400	100	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	05/19/2015	ND	173	86.6	200	1.90		
<b>DRO &gt;C10-C28</b>	<b>450</b>	10.0	05/19/2015	ND	198	99.0	200	1.16		

Surrogate: 1-Chlorooctane 90.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 121 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN ENERGY  
 MIKE BURTON  
 RR1, BOX 24 B  
 KINGFISHER OK, 73750  
 Fax To: (405) 375-6693

Received:	05/18/2015	Sampling Date:	05/18/2015
Reported:	05/21/2015	Sampling Type:	Soil
Project Name:	H. E. WEST B # 40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

**Sample ID: SP. 3 @ SURF (H501261-03)**

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	05/20/2015	ND	1.77	88.3	2.00	0.512		
Toluene*	<0.050	0.050	05/20/2015	ND	1.89	94.5	2.00	0.771		
Ethylbenzene*	<0.050	0.050	05/20/2015	ND	1.79	89.7	2.00	1.34		
Total Xylenes*	<0.150	0.150	05/20/2015	ND	5.33	88.8	6.00	0.885		
Total BTEX	<0.300	0.300	05/20/2015	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	05/20/2015	ND	400	100	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	05/19/2015	ND	173	86.6	200	1.90		
<b>DRO &gt;C10-C28</b>	<b>1450</b>	10.0	05/19/2015	ND	198	99.0	200	1.16		

*Surrogate: 1-Chlorooctane 92.7 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 136 % 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



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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: Linn Energy  
 Project Manager: Mike Burton  
 Address: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 City: \_\_\_\_\_  
 Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_  
 Project #: \_\_\_\_\_ Project Owner: \_\_\_\_\_  
 Project Name: \_\_\_\_\_  
 Project Location: H.E. West B #40  
 Sampler Name: Ruen Long  
 P.O. #: \_\_\_\_\_  
 Company: Linn Energy  
 Attn: Aick Rickman  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Phone #: \_\_\_\_\_  
 Fax #: \_\_\_\_\_

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	CL	TPH	B-tex
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
<u>H501201</u>	<u>SA.1 @ SUNF</u>	<u>9</u>	<u>1</u>			<u>X</u>					<u>5-18-15</u>	<u>11:01</u>	<u>X</u>		<u>X</u>
	<u>SA.2 @ SUNF</u>	<u>9</u>	<u>1</u>			<u>X</u>					<u>5-18-15</u>	<u>11:10</u>	<u>X</u>		<u>X</u>
	<u>SR.3 @ SUNF</u>	<u>9</u>	<u>1</u>			<u>X</u>					<u>5-18-15</u>	<u>11:17</u>	<u>X</u>		<u>X</u>

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 claims is based upon any of the above stated limitations or otherwise.

Relinquished By: \_\_\_\_\_  
 Date: 5/18/15  
 Time: 14:00  
 Received By: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Time: \_\_\_\_\_

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

Delivered By: (Circle One) UPS  
 Sampler - UPS - Bus - Other: UPS  
 Sample Condition: Cool  Intact   
 Yes  No  Yes  No

Checked By: \_\_\_\_\_  
 (Initials)  
mburton@diversifiedsi.com



December 01, 2015

RICK RICKMAN  
LINN OPERATING-HOBBS  
2130 W. BENDER  
HOBBS, NM 88240

RE: H.E. WEST B #40

Enclosed are the results of analyses for samples received by the laboratory on 11/23/15 15:58.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive 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:	11/23/2015	Sampling Date:	11/23/2015
Reported:	12/01/2015	Sampling Type:	Soil
Project Name:	H.E. WEST B #40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Judy Garcia
Project Location:	NOT GIVEN		

**Sample ID: SAMPLE POINT 1 @ 2' (H503091-01)**

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	11/25/2015	ND	2.11	106	2.00	3.99	
Toluene*	<0.050	0.050	11/25/2015	ND	2.11	105	2.00	4.90	
Ethylbenzene*	<0.050	0.050	11/25/2015	ND	2.22	111	2.00	4.05	
Total Xylenes*	<0.150	0.150	11/25/2015	ND	6.40	107	6.00	3.31	
Total BTEX	<0.300	0.300	11/25/2015	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	11/25/2015	ND	400	100	400	14.8	

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	11/24/2015	ND	198	98.8	200	2.97	
DRO >C10-C28	<10.0	10.0	11/24/2015	ND	197	98.6	200	3.60	

*Surrogate: 1-Chlorooctane 89.9 % 35-147*
*Surrogate: 1-Chlorooctadecane 97.8 % 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:	11/23/2015	Sampling Date:	11/23/2015
Reported:	12/01/2015	Sampling Type:	Soil
Project Name:	H.E. WEST B #40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Judy Garcia
Project Location:	NOT GIVEN		

**Sample ID: SAMPLE POINT 2 @ 2' (H503091-02)**

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	11/25/2015	ND	2.11	106	2.00	3.99	
Toluene*	<0.050	0.050	11/25/2015	ND	2.11	105	2.00	4.90	
Ethylbenzene*	<0.050	0.050	11/25/2015	ND	2.22	111	2.00	4.05	
Total Xylenes*	<0.150	0.150	11/25/2015	ND	6.40	107	6.00	3.31	
Total BTEX	<0.300	0.300	11/25/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	11/25/2015	ND	400	100	400	14.8	

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	11/24/2015	ND	198	98.8	200	2.97	
DRO >C10-C28	<10.0	10.0	11/24/2015	ND	197	98.6	200	3.60	

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 110 % 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:	11/23/2015	Sampling Date:	11/23/2015
Reported:	12/01/2015	Sampling Type:	Soil
Project Name:	H.E. WEST B #40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Judy Garcia
Project Location:	NOT GIVEN		

**Sample ID: SAMPLE POINT 3 @ 2' (H503091-03)**

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	11/25/2015	ND	2.11	106	2.00	3.99	
Toluene*	<0.050	0.050	11/25/2015	ND	2.11	105	2.00	4.90	
Ethylbenzene*	<0.050	0.050	11/25/2015	ND	2.22	111	2.00	4.05	
Total Xylenes*	<0.150	0.150	11/25/2015	ND	6.40	107	6.00	3.31	
Total BTEX	<0.300	0.300	11/25/2015	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	<16.0	16.0	11/25/2015	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	11/24/2015	ND	198	98.8	200	2.97	
<b>DRO &gt;C10-C28</b>	<b>15.6</b>	10.0	11/24/2015	ND	197	98.6	200	3.60	

Surrogate: 1-Chlorooctane 97.9 % 35-147

Surrogate: 1-Chlorooctadecane 104 % 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:	11/23/2015	Sampling Date:	11/23/2015
Reported:	12/01/2015	Sampling Type:	Soil
Project Name:	H.E. WEST B #40	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Judy Garcia
Project Location:	NOT GIVEN		

**Sample ID: SAMPLE POINT 4 @ 2' (H503091-04)**

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	11/25/2015	ND	2.11	106	2.00	3.99		
Toluene*	<0.050	0.050	11/25/2015	ND	2.11	105	2.00	4.90		
Ethylbenzene*	<0.050	0.050	11/25/2015	ND	2.22	111	2.00	4.05		
Total Xylenes*	<0.150	0.150	11/25/2015	ND	6.40	107	6.00	3.31		
Total BTEX	<0.300	0.300	11/25/2015	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	11/25/2015	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	11/24/2015	ND	198	98.8	200	2.97		
DRO >C10-C28	<10.0	10.0	11/24/2015	ND	197	98.6	200	3.60		

*Surrogate: 1-Chlorooctane 98.6 % 35-147*
*Surrogate: 1-Chlorooctadecane 106 % 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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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: Limn P.O. #:  
 Project Manager: Rick Pickman Company:  
 Address: State: Zip: Attn:  
 City: Address:  
 Phone #: Fax #: City:  
 Project #: Project Owner: State: Zip:  
 Project Name: Limn Phone #:  
 Project Location: H.E. West B #40 Fax #:  
 Sampler Name: Chris Flores

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	DATE	TIME	Chloride	BTEX	TPH
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :							
#503091	Sample PT 1 @ 2'	G	1								11/23/2005	9:30 AM	X	X	X	
	Sample PT 2 @ 2'	G	1								11:00 AM	11:00 AM	X	X	X	
	Sample PT 3 @ 2'	G	1								11:30 AM	11:30 AM	X	X	X	
	Sample PT 4 @ 2'	G	1										X	X	X	

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Relinquished By: [Signature] Date: 11/23/2005 Time: 5:58  
 Received By: [Signature] Date: 11/23/2005 Time: 9:00

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

Sample Condition: Intact Cool  
 Yes  No  Yes  No

Checked By: [Signature]

REMARKS: email to: crenshaw@diversifiedfsi.com  
mburton  
mpatterson  
cflores

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

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



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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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No records found.

**Basin/County Search:**

**County:** Eddy

**PLSS Search:**

**Section(s):** 10

**Township:** 17S

**Range:** 31E