



LINN ENERGY

2130 W. Bender Blvd.
Hobbs, NM 88241
Phone 575.738.1739

H.E. West B #83 (2RP-2032)

Updated Corrective Action Plan

API No. 3001528483

Release Date: Unknown

Unit Letter D, Section 4, Township 17S, Range 31E

September 9th, 2014

Mike Bratcher

New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District 2
811 S. First St.
Artesia, NM 88210

**RE: Updated Corrective Action Plan
Linn Energy – H.E. West B #83 (2RP-2032)
UL/D sec. 4 T17S R31E
API No. 3001528483**

Mr. Bratcher:

Linn Energy (Linn) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

Background and Previous Work

The site is located approximately 6.8 miles northeast of Loco Hills, New Mexico at UL/D sec. 4 T17S R31E. This site is in an area of no known groundwater.

A total of 4,180 square feet of pasture land was affected by a release of 12 barrels of oil. None of this fluid was recovered. An initial C-141 was submitted to NMOCD on October 30th, 2013 and approved on October 31st, 2013 (Appendix A).

Another environmental company had control of the remediation process for this site prior to RECS obtaining it on August 27th, 2013. The previous company sampled the site at the surface and with depth and representative samples were taken to a commercial laboratory for analysis (Figure 1). SP-4 through SP-8 returned laboratory chloride readings near or at non-detectable levels at the surface and with depth (Appendix B). Gasoline Range Organics (GRO) returned readings of non-detect at all points and all depths. Diesel Range Organics (DRO) readings were below regulatory standards at all depth in SP-5. SP-4 and SP-8 returned elevated DRO readings at all depths, and SP-6 and SP-7 returned DRO readings below regulatory standards at 2 ft bgs.

RECS personnel were on site beginning on September 3rd, 2013. The site was GPS mapped and two samples, SP-1 and SP-2, were sampled at the surface and with depth to replace the samples taken by the previous environmental company. The previous company took sample points at such impractical depths that it was impossible to tell at what depths contamination levels dropped below regulatory standards. Representative samples from SP-1 and SP-2 were taken to a commercial laboratory for analysis. SP-1 returned laboratory chloride readings below regulatory standards starting at 1 ft bgs, and SP-2 returned laboratory chloride readings below

regulatory standards starting at 6 inches bgs. GRO values were non-detect in both sample points at all depths, except for SP-2 at 1 ft bgs, where the GRO value was 106 mg/kg. DRO values in SP-1 returned readings at or near non-detectable levels, and SP-2 returned a DRO reading of 3,830 mg/kg at 6 inches bgs and 4,680 mg/kg at 1 ft bgs. BTEX readings in both SP-1 and SP-2 returned readings of non-detect at all depths.

A Corrective Action Plan (CAP) was submitted to NMOCD and BLM on April 4th, 2014. BLM denied the CAP on April 8th, 2014. BLM stated that SP-2, SP-4 and SP-8 had to be delineated further to find the bottom of the DRO contamination.

On May 8th, 2014, RECS personnel were on site to conduct verticals at SP-2, SP-4 and SP-8. SP-4 was advanced to a depth of 3.5 ft bgs, and the 3 ft bgs and 3.5 ft bgs samples were taken to a commercial laboratory for analysis. Both samples returned laboratory chloride, GRO and BTEX readings of non-detect. The 3 ft bgs sample returned a DRO reading of 1,920 mg/kg and the 3.5 ft bgs sample returned a DRO reading of 56.8 mg/kg. SP-8 was advanced to a depth of 7 ft bgs, and the 6.5 ft bgs and 7 ft bgs samples were taken to a commercial laboratory for analysis. The 6.5 ft bgs sample returned a laboratory chloride reading of non-detect, a GRO reading of 180 mg/kg, a DRO reading of 8,360 mg/kg and a BTEX reading of 0.857 mg/kg. The 7 ft bgs sample returned a laboratory chloride reading, a GRO reading and a BTEX reading of non-detect. The 7 ft bgs sample returned a DRO reading of 53 mg/kg.

SP-2 was advanced to a depth of 5 ft bgs, and the sample was taken to a commercial laboratory for analysis. The 5 ft bgs sample returned a laboratory chloride reading of 800 mg/kg, a DRO reading of 6,880 mg/kg and a GRO and BTEX reading of non-detect. Based on this sampling data, a soil bore was installed at this point on July 18th, 2014. SB-1 was installed to a depth of 30 ft bgs, and soil samples were taken every 5 ft. The samples were field tested for chlorides and organic vapors, and representative samples were taken to a commercial laboratory for analysis (Appendix C). The 25 ft bgs and 30 ft bgs samples returned laboratory chloride, GRO, DRO and BTEX readings below regulatory standards.

Photo documentation of the field activities can be found in Appendix D.

Updated Corrective Action Plan

Based on the laboratory sampling data, the areas around SP-1, SP-6 and SP-7 will be scraped down 1 ft, and the area around SP-4 will be scraped down 3.5 ft (Figure 2). Once these excavations have been completed, a bottom composite sample will be taken at each scrape and sent to a commercial laboratory for analysis to confirm that chloride, GRO and DRO readings return values below regulatory standards. SP-2 and SP-8 will be excavated to 4 ft bgs. At the base of both excavations, a 20-mil reinforced poly liner will be installed and properly seated. SP-5 returned sampling data of non-detect for all constituents at the surface and at 2 ft bgs; although, some asphaltine is present on the surface. Therefore, this area will be scraped down 6 inches.

Linn will dispose or remediate the excavated soil in one of two ways. Of the two options, the one implemented will depend on NMOCD and BLM approval and on the ease of implementation of either option once site activities have begun.

Option 1: The excavated soil will be taken to the adjacent H.E. West B #83 lease pad and direct buried (Figure 3). Caliche will be scraped from the pad and piled off to the side. A repository will be excavated to a volume which will encompass the excavated soil from the release, including an additional 4 ft cap of clean top soil. The repository will be lined in entirety with a 20-mil reinforced poly liner. The excavated soil from the release will then be placed in the lined repository, and the top of the repository will be capped with a 20-mil reinforced poly liner. Four feet of clean top soil will be placed over the capped repository, and the scraped caliche will be backfilled over the top soil.

The top soil removed from the lease pad to create the repository will be used to backfill the excavations at the release site and to contour the site to the surrounding area. A sample of the top soil removed from the lease pad will be taken to a commercial laboratory to confirm that chloride, GRO and DRO readings are all below regulatory standards. Clean caliche will be imported to the site to backfill the lease pad. After the site is backfilled, the disturbed area will be seeded with a blend of native vegetation.

Option 2: Excavated soils will be evaluated for use as backfill and any soils that do not meet regulatory standards will be taken to a NMOCD approved facility for disposal. Clean soil will be imported to the site to replace any soils taken for disposal. The clean soil will be blended with the excavated soils to use as backfill. A sample of the blended soil will be taken to a commercial laboratory to confirm that chloride, GRO and DRO readings are all below regulatory standards. The site will be backfilled, and the disturbed area will be seeded with a blend of native vegetation.

Once activities for one of the approved options has been completed, a final report will be submitted to NMOCD and BLM requesting 'remediation termination' and site closure.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Lara Weinheimer'.

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

Figure 1 – Initial Sampling Data

Figure 2 – Proposed Corrective Actions

Figure 3 – Direct Bury Under Lease Pad

Appendix A – Initial C-141

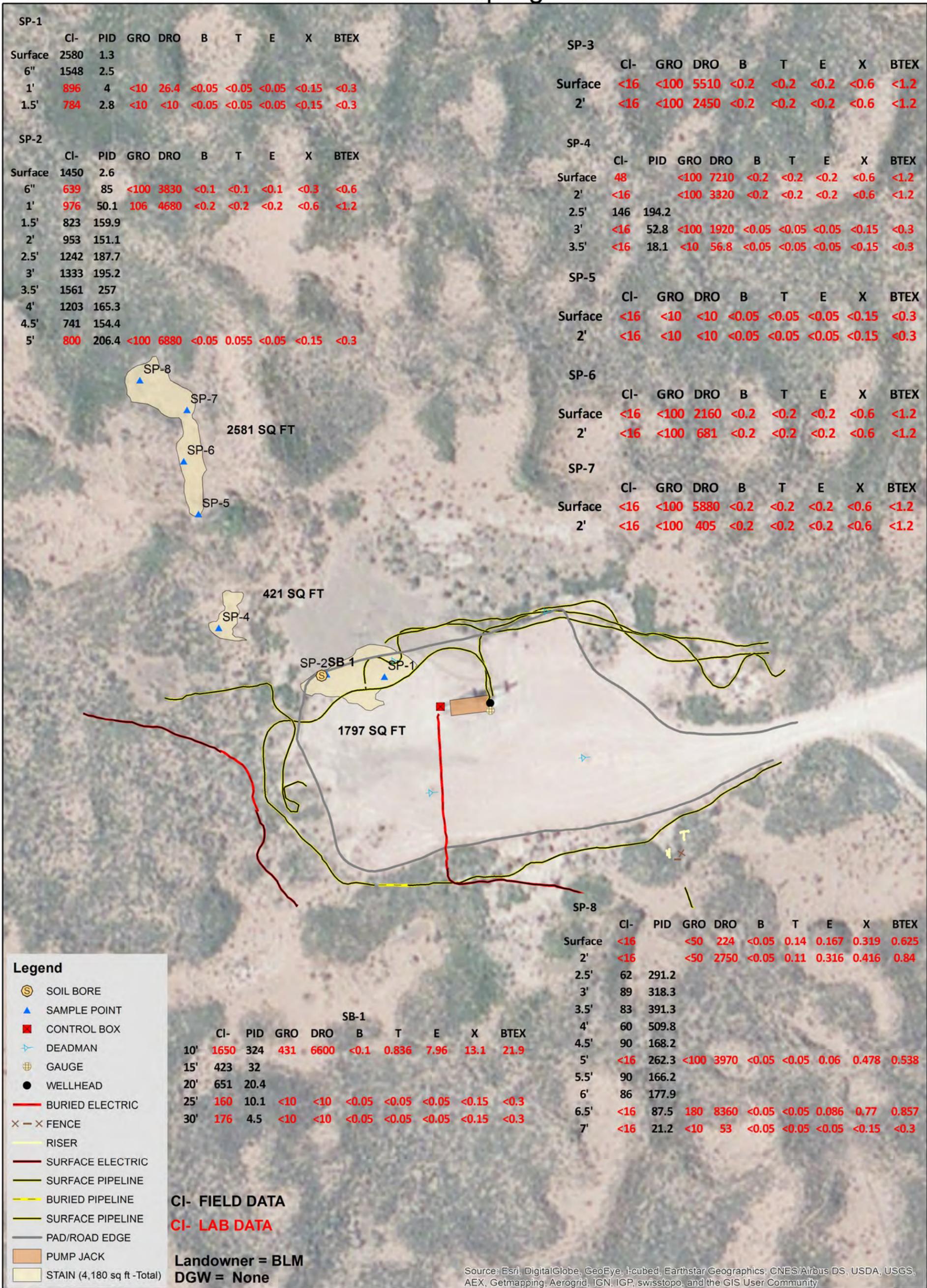
Appendix B – Initial Sampling Labs

Appendix C – Soil Bore Documentation

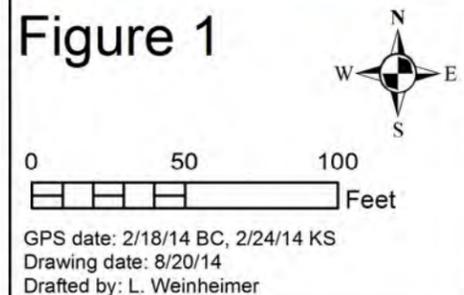
Appendix D – Photo Documentation

Figures

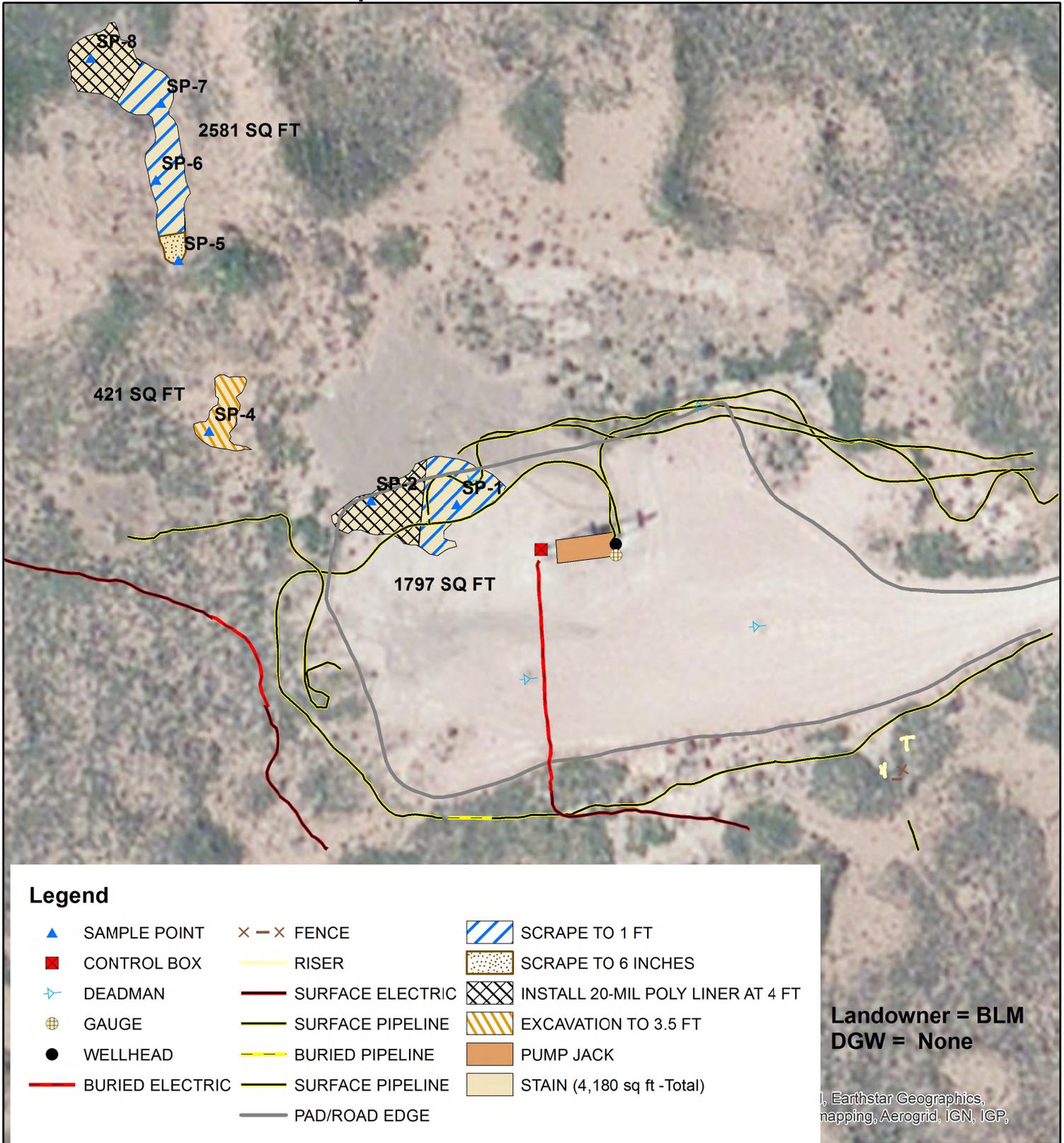
Initial Sampling Data



LINN H.E.
WEST B #83
2RP-2032
LEGALS: UL/ D SEC. 4
T17S - R31E
EDDY COUNTY, NM



Proposed Corrective Actions



Legend

- | | | |
|-------------------|--------------------|-------------------------------------|
| ▲ SAMPLE POINT | × - × FENCE | ▨ SCRAPE TO 1 FT |
| ■ CONTROL BOX | — RISER | ▩ SCRAPE TO 6 INCHES |
| ⚡ DEADMAN | — SURFACE ELECTRIC | ▧ INSTALL 20-MIL POLY LINER AT 4 FT |
| ⊕ GAUGE | — SURFACE PIPELINE | ▨ EXCAVATION TO 3.5 FT |
| ● WELLHEAD | — BURIED PIPELINE | ■ PUMP JACK |
| — BURIED ELECTRIC | — SURFACE PIPELINE | ■ STAIN (4,180 sq ft -Total) |
| | — PAD/ROAD EDGE | |

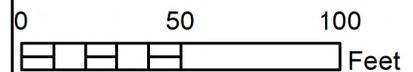
Landowner = BLM
DGW = None

Earthstar Geographics,
mapping, Aerogrid, IGP, IGP



LINN H.E.
WEST B #83
2RP-2032
LEGALS: UL/ D SEC. 4
T17S - R31E
EDDY COUNTY, NM

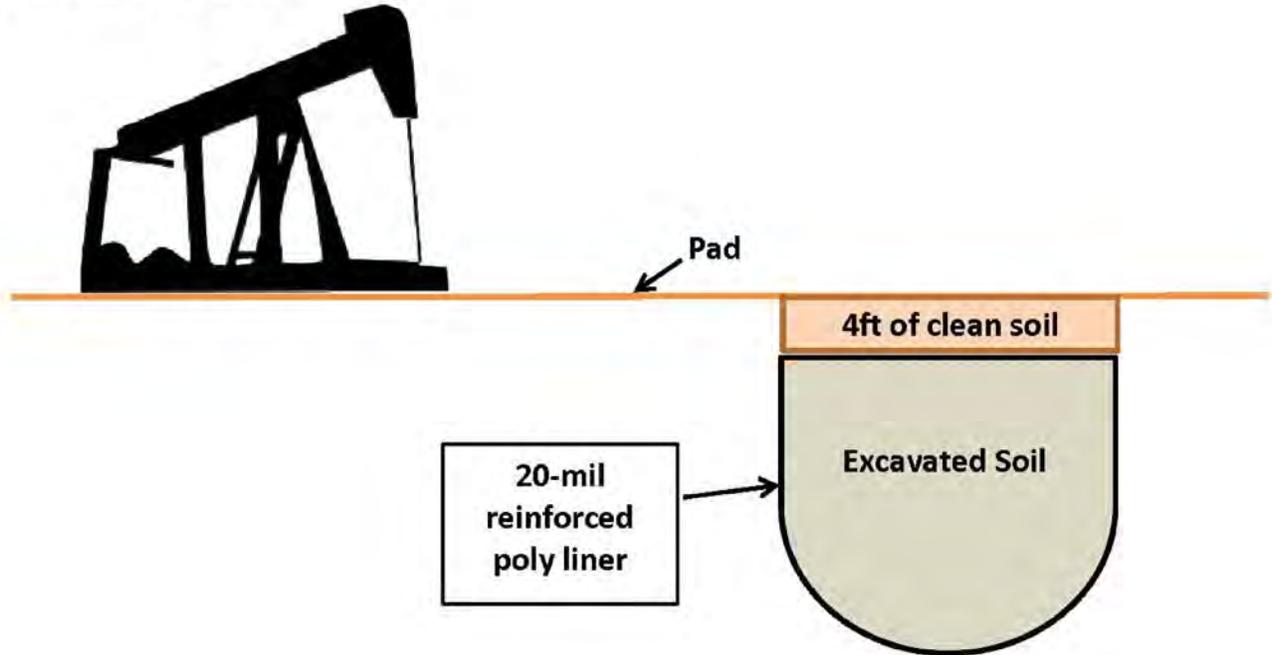
Figure 2



GPS date: 2/18/14 BC, 2/24/14 KS
Drawing date: 8/29/14
Drafted by: L. Weinheimer

Direct Bury Under Lease Pad

Linn HE West B #83



**LINN H.E.
WEST B #83**
2RP-2032
LEGALS: UL/ D SEC. 4
T17S - R31E
EDDY COUNTY, NM

Figure 3



Drawing date: 8/21/14
Drafted by: L. Weinheimer

Appendix A

Initial C-141

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

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 Energy	Contact Brian Wall
Address 2130 W. Bender Blvd., Hobbs, NM 88240	Telephone No. (806) 367-0645
Facility Name H.E. West B #83	Facility Type Unknown

Surface Owner BLM	Mineral Owner	API No. 3001528483
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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
D	4	17S	31E	1143	FNL	1263	FWL	Eddy

Latitude 32°52'3.417"N Longitude 103°52'45.861"W

NATURE OF RELEASE

Type of Release Oil	Volume of Release 12 bbls	Volume Recovered 0 bbls
Source of Release Unknown	Date and Hour of Occurrence Unknown	Date and Hour of Discovery Unknown
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" 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.*

A total of 4,180 sq ft of lease pad and pasture land was affected by the release of 12 bbls of oil. On August 1st, 2013, personnel were on site to assess the release.

Describe Area Affected and Cleanup Action Taken.*

The site will be assessed vertically and horizontally and a Corrective Action Plan will be written with recommendations to remediate the site.

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: <i>Fred B Wall</i>	OIL CONSERVATION DIVISION	
Printed Name: Brian Wall	Approved by Environmental Specialist:	
Title: Construction Foreman II	Approval Date:	Expiration Date:
E-mail Address: Bwall@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date:	Phone: (806) 367-0645	

* Attach Additional Sheets If Necessary

Appendix B

Initial Sampling Labs

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

August 26, 2013

BRIAN WALL

LINN ENERGY

RR1, BOX 24 B

KINGFISHER, OK 73750

RE: H. E. WEST B #83

Enclosed are the results of analyses for samples received by the laboratory on 08/20/13 16:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/20/2013	Sampling Date:	08/16/2013
Reported:	08/26/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 2 @ 13' (H301988-01)

BTEX 8021B		mg/kg		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2013	ND	2.22	111	2.00	0.267	
Toluene*	<0.050	0.050	08/24/2013	ND	2.24	112	2.00	0.586	
Ethylbenzene*	<0.050	0.050	08/24/2013	ND	2.31	116	2.00	1.26	
Total Xylenes*	<0.150	0.150	08/24/2013	ND	7.01	117	6.00	1.16	
Total BTEX	<0.300	0.300	08/24/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 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	720	16.0	08/22/2013	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	08/23/2013	ND	190	94.8	200	4.64	
DRO >C10-C28	12.4	10.0	08/23/2013	ND	194	97.1	200	5.21	

Surrogate: 1-Chlorooctane 66.0 % 65.2-140
Surrogate: 1-Chlorooctadecane 81.9 % 63.6-154

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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Linn Energy</u>		BILL TO				ANALYSIS REQUEST																							
Project Manager: <u>Brian Wall</u>		P.O. #:																											
Address:		Company:																											
City: State: Zip:		Attn:																											
Phone #: Fax #:		Address: <u>SAME</u>																											
Project #: Project Owner:		City:																											
Project Name: <u>HE West B #83</u>		State: Zip:																											
Project Location: <u>Maljamar</u>		Phone #:																											
Sampler Name: <u>Daniel</u>		Fax #:																											
FOR LAB USE ONLY																													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX														PRESERV.	SAMPLING										
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME															
<u>H301988</u>	<u>SP2 @ 13'</u>	<u>G</u>	<u>1</u>			<input checked="" type="checkbox"/>							<u>8-16-13</u>	<u>8:47</u>	<u>Btex</u>	<u>TPH 8015m</u>	<u>CI-</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 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: <u>Daniel Wall</u>	Date: <u>8/20/13</u>	Received By: <u>Jodi Jensen</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Time: <u>4:15</u>	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Date:	Time:	REMARKS: <u>Email results:</u> <u>bwall@linenergy.com</u> <u>aruth@diversifiedfsi.com</u>	
			Sample Condition Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	
			CHECKED BY: (Initials) <u>JAW</u>	

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

#54

August 12, 2013

GARY WINK

LINN ENERGY

RR1, BOX 24 B

KINGFISHER, OK 73750

RE: H. E. WEST B #83

Enclosed are the results of analyses for samples received by the laboratory on 08/06/13 16:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/01/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 1 @ SURFACE (H301837-01)

BTEX 8260B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<0.300	0.300	08/09/2013	ND					

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 95.1 % 71.3-129

Surrogate: 4-Bromofluorobenzene 99.2 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	08/08/2013	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	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	125	10.0	08/09/2013	ND	190	95.0	200	11.6	

Surrogate: 1-Chlorooctane 94.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 63.6-154

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
 GARY WINK
 RR1, BOX 24 B
 KINGFISHER OK, 73750
 Fax To: (405) 375-6693

Received:	08/06/2013	Sampling Date:	08/01/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 1 @ 4' (H301837-02)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<0.300	0.300	08/09/2013	ND						

Surrogate: Dibromofluoromethane 99.7 % 61.3-142

Surrogate: Toluene-d8 94.5 % 71.3-129

Surrogate: 4-Bromofluorobenzene 96.0 % 65.7-141

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	08/08/2013	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	08/09/2013	ND	184	92.1	200	8.72		
DRO >C10-C28	<10.0	10.0	08/09/2013	ND	190	95.0	200	11.6		

Surrogate: 1-Chlorooctane 98.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/01/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 2 @ SURFACE (H301837-03)

BTEX 8260B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	0.285	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	0.408	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	0.834	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	1.53	1.20	08/09/2013	ND					

Surrogate: Dibromofluoromethane 99.5 % 61.3-142

Surrogate: Toluene-d8 95.3 % 71.3-129

Surrogate: 4-Bromofluorobenzene 103 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	08/08/2013	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72		
DRO >C10-C28	13500	100	08/09/2013	ND	190	95.0	200	11.6		

Surrogate: 1-Chlorooctane 91.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 360 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 2 @ 5' (H301837-04)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 98.0 % 61.3-142

Surrogate: Toluene-d8 95.4 % 71.3-129

Surrogate: 4-Bromofluorobenzene 118 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	08/08/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<200	200	08/09/2013	ND	184	92.1	200	8.72			
DRO >C10-C28	7600	200	08/09/2013	ND	190	95.0	200	11.6			

Surrogate: 1-Chlorooctane 97.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 253 % 63.6-154

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Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 3 @ SURFACE (H301837-05)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 94.7 % 71.3-129

Surrogate: 4-Bromofluorobenzene 103 % 65.7-141

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	08/08/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72			
DRO >C10-C28	5510	100	08/09/2013	ND	190	95.0	200	11.6			

Surrogate: 1-Chlorooctane 92.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 227 % 63.6-154

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Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 3 @ 2' (H301837-06)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 98.2 % 61.3-142

Surrogate: Toluene-d8 96.9 % 71.3-129

Surrogate: 4-Bromofluorobenzene 106 % 65.7-141

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	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72			
DRO >C10-C28	2450	100	08/09/2013	ND	190	95.0	200	11.6			

Surrogate: 1-Chlorooctane 92.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 170 % 63.6-154

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Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 4 @ SURFACE (H301837-07)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 97.4 % 61.3-142

Surrogate: Toluene-d8 97.2 % 71.3-129

Surrogate: 4-Bromofluorobenzene 120 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72			
DRO >C10-C28	7210	100	08/09/2013	ND	190	95.0	200	11.6			

Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 243 % 63.6-154

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Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 4 @ 2' (H301837-08)

BTEX 8260B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 98.3 % 61.3-142

Surrogate: Toluene-d8 95.1 % 71.3-129

Surrogate: 4-Bromofluorobenzene 142 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	08/09/2013	ND	191	95.5	200	0.596		
DRO >C10-C28	3320	100	08/09/2013	ND	204	102	200	0.0598		

Surrogate: 1-Chlorooctane 107 % 65.2-140

Surrogate: 1-Chlorooctadecane 181 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 5 @ SURFACE (H301837-09)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<0.300	0.300	08/09/2013	ND						

Surrogate: Dibromofluoromethane 97.5 % 61.3-142

Surrogate: Toluene-d8 96.0 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.5 % 65.7-141

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	08/09/2013	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	08/10/2013	ND	183	91.3	200	3.63		
DRO >C10-C28	<10.0	10.0	08/10/2013	ND	189	94.4	200	3.98		

Surrogate: 1-Chlorooctane 99.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 121 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 5 @ 2' (H301837-10)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<0.300	0.300	08/09/2013	ND						

Surrogate: Dibromofluoromethane 99.4 % 61.3-142

Surrogate: Toluene-d8 95.5 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.1 % 65.7-141

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	08/09/2013	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	08/10/2013	ND	183	91.3	200	3.63		
DRO >C10-C28	<10.0	10.0	08/10/2013	ND	189	94.4	200	3.98		

Surrogate: 1-Chlorooctane 97.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 6 @ SURFACE (H301837-11)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 99.8 % 61.3-142

Surrogate: Toluene-d8 96.0 % 71.3-129

Surrogate: 4-Bromofluorobenzene 97.8 % 65.7-141

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	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63			
DRO >C10-C28	2160	100	08/10/2013	ND	189	94.4	200	3.98			

Surrogate: 1-Chlorooctane 91.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 213 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 6 @ 2' (H301837-12)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 98.6 % 61.3-142

Surrogate: Toluene-d8 95.8 % 71.3-129

Surrogate: 4-Bromofluorobenzene 99.1 % 65.7-141

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	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63			
DRO >C10-C28	681	100	08/10/2013	ND	189	94.4	200	3.98			

Surrogate: 1-Chlorooctane 95.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 180 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 7 @ SURFACE (H301837-13)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 97.2 % 61.3-142

Surrogate: Toluene-d8 97.2 % 71.3-129

Surrogate: 4-Bromofluorobenzene 99.4 % 65.7-141

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	08/09/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63			
DRO >C10-C28	5880	100	08/10/2013	ND	189	94.4	200	3.98			

Surrogate: 1-Chlorooctane 87.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 282 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 7 @ 2' (H301837-14)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28		
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44		
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12		
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13		
Total BTEX	<1.20	1.20	08/09/2013	ND						

Surrogate: Dibromofluoromethane 97.9 % 61.3-142

Surrogate: Toluene-d8 96.1 % 71.3-129

Surrogate: 4-Bromofluorobenzene 99.7 % 65.7-141

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	08/09/2013	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	08/10/2013	ND	183	91.3	200	3.63		
DRO >C10-C28	405	10.0	08/10/2013	ND	189	94.4	200	3.98		

Surrogate: 1-Chlorooctane 98.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 128 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 8 @ SURFACE (H301837-15)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/10/2013	ND	2.17	108	2.00	3.04		
Toluene*	0.139	0.050	08/10/2013	ND	1.97	98.7	2.00	2.03		
Ethylbenzene*	0.167	0.050	08/10/2013	ND	1.97	98.5	2.00	2.23		
Total Xylenes*	0.319	0.150	08/10/2013	ND	5.82	97.0	6.00	2.41		
Total BTEX	0.625	0.300	08/10/2013	ND						

Surrogate: Dibromofluoromethane 97.8 % 61.3-142

Surrogate: Toluene-d8 94.1 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.7 % 65.7-141

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	08/09/2013	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	<50.0	50.0	08/10/2013	ND	183	91.3	200	3.63		
DRO >C10-C28	224	50.0	08/10/2013	ND	189	94.4	200	3.98		

Surrogate: 1-Chlorooctane 93.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/06/2013	Sampling Date:	08/02/2013
Reported:	08/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #83	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALJAMAR, NM		

Sample ID: SP 8 @ 2' (H301837-16)

BTEX 8260B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/10/2013	ND	2.17	108	2.00	3.04	
Toluene*	0.108	0.050	08/10/2013	ND	1.97	98.7	2.00	2.03	
Ethylbenzene*	0.316	0.050	08/10/2013	ND	1.97	98.5	2.00	2.23	
Total Xylenes*	0.416	0.150	08/10/2013	ND	5.82	97.0	6.00	2.41	
Total BTEX	0.840	0.300	08/10/2013	ND					

Surrogate: Dibromofluoromethane 99.6 % 61.3-142

Surrogate: Toluene-d8 95.0 % 71.3-129

Surrogate: 4-Bromofluorobenzene 162 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	2750	50.0	08/10/2013	ND	189	94.4	200	3.98	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 168 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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



March 05, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 03/04/14 16:30.

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, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	03/04/2014	Sampling Date:	03/04/2014
Reported:	03/05/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 1 @ 1' (H400660-01)

BTEX 8260B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/05/2014	ND	2.24	112	2.00	0.979	
Toluene*	<0.050	0.050	03/05/2014	ND	2.33	117	2.00	0.332	
Ethylbenzene*	<0.050	0.050	03/05/2014	ND	2.28	114	2.00	2.39	
Total Xylenes*	<0.150	0.150	03/05/2014	ND	6.91	115	6.00	1.92	
Total BTEX	<0.300	0.300	03/05/2014	ND					

Surrogate: Dibromofluoromethane 97.0 % 61.3-142

Surrogate: Toluene-d8 102 % 71.3-129

Surrogate: 4-Bromofluorobenzene 100 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	896	16.0	03/05/2014	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	03/05/2014	ND	208	104	200	7.01	
DRO >C10-C28	26.4	10.0	03/05/2014	ND	204	102	200	6.86	

Surrogate: 1-Chlorooctane 103 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	03/04/2014	Sampling Date:	03/04/2014
Reported:	03/05/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 1 @ 1.5' (H400660-02)

BTEX 8260B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	03/05/2014	ND	2.24	112	2.00	0.979		
Toluene*	<0.050	0.050	03/05/2014	ND	2.33	117	2.00	0.332		
Ethylbenzene*	<0.050	0.050	03/05/2014	ND	2.28	114	2.00	2.39		
Total Xylenes*	<0.150	0.150	03/05/2014	ND	6.91	115	6.00	1.92		
Total BTEX	<0.300	0.300	03/05/2014	ND						

Surrogate: Dibromofluoromethane 97.1 % 61.3-142

Surrogate: Toluene-d8 103 % 71.3-129

Surrogate: 4-Bromofluorobenzene 102 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	784	16.0	03/05/2014	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	03/05/2014	ND	208	104	200	7.01		
DRO >C10-C28	<10.0	10.0	03/05/2014	ND	204	102	200	6.86		

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 102 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	03/04/2014	Sampling Date:	03/04/2014
Reported:	03/05/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 2 @ 6" (H400660-03)

BTEX 8260B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.100	0.100	03/05/2014	ND	2.24	112	2.00	0.979		
Toluene*	<0.100	0.100	03/05/2014	ND	2.33	117	2.00	0.332		
Ethylbenzene*	<0.100	0.100	03/05/2014	ND	2.28	114	2.00	2.39		
Total Xylenes*	<0.300	0.300	03/05/2014	ND	6.91	115	6.00	1.92		
Total BTEX	<0.600	0.600	03/05/2014	ND						

Surrogate: Dibromofluoromethane 99.3 % 61.3-142

Surrogate: Toluene-d8 103 % 71.3-129

Surrogate: 4-Bromofluorobenzene 187 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	639	16.0	03/05/2014	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	03/05/2014	ND	208	104	200	7.01		
DRO >C10-C28	3830	100	03/05/2014	ND	204	102	200	6.86		

Surrogate: 1-Chlorooctane 83.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 192 % 63.6-154

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:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	03/04/2014	Sampling Date:	03/04/2014
Reported:	03/05/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 2 @ 1' (H400660-04)

BTEX 8260B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	03/05/2014	ND	2.24	112	2.00	0.979		
Toluene*	<0.200	0.200	03/05/2014	ND	2.33	117	2.00	0.332		
Ethylbenzene*	<0.200	0.200	03/05/2014	ND	2.28	114	2.00	2.39		
Total Xylenes*	<0.600	0.600	03/05/2014	ND	6.91	115	6.00	1.92		
Total BTEX	<1.20	1.20	03/05/2014	ND						

Surrogate: Dibromofluoromethane 99.0 % 61.3-142

Surrogate: Toluene-d8 99.5 % 71.3-129

Surrogate: 4-Bromofluorobenzene 171 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	976	16.0	03/05/2014	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	106	100	03/05/2014	ND	208	104	200	7.01		
DRO >C10-C28	4680	100	03/05/2014	ND	204	102	200	6.86		

Surrogate: 1-Chlorooctane 135 % 65.2-140

Surrogate: 1-Chlorooctadecane 301 % 63.6-154

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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



May 16, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 05/09/14 15:10.

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 cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	05/09/2014	Sampling Date:	05/09/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: PT. 2 @ 5' (H401421-01)

BTEX 8260B		mg/kg		Analyzed By: ms				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/14/2014	ND	2.57	128	2.00	1.88		
Toluene*	0.055	0.050	05/14/2014	ND	2.46	123	2.00	0.702		
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.31	115	2.00	1.10		
Total Xylenes*	<0.150	0.150	05/14/2014	ND	7.02	117	6.00	0.363		
Total BTEX	<0.300	0.300	05/14/2014	ND						

Surrogate: Dibromofluoromethane 96.5 % 61.3-142

Surrogate: Toluene-d8 98.5 % 71.3-129

Surrogate: 4-Bromofluorobenzene 171 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	05/14/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	05/14/2014	ND	191	95.3	200	6.37		
DRO >C10-C28	6880	100	05/14/2014	ND	205	102	200	7.53		

Surrogate: 1-Chlorooctane 94.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 224 % 63.6-154

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:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	05/09/2014	Sampling Date:	05/09/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: PT. 4 @ 3' (H401421-02)

BTEX 8260B		mg/kg		Analyzed By: ms				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/15/2014	ND	2.57	128	2.00	1.88		
Toluene*	<0.050	0.050	05/15/2014	ND	2.46	123	2.00	0.702		
Ethylbenzene*	<0.050	0.050	05/15/2014	ND	2.31	115	2.00	1.10		
Total Xylenes*	<0.150	0.150	05/15/2014	ND	7.02	117	6.00	0.363		
Total BTEX	<0.300	0.300	05/15/2014	ND						

Surrogate: Dibromofluoromethane 97.1 % 61.3-142

Surrogate: Toluene-d8 98.4 % 71.3-129

Surrogate: 4-Bromofluorobenzene 151 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	05/14/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	05/14/2014	ND	191	95.3	200	6.37		
DRO >C10-C28	1920	100	05/14/2014	ND	205	102	200	7.53		

Surrogate: 1-Chlorooctane 73.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 198 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	05/09/2014	Sampling Date:	05/09/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: PT. 4 @ 3.5' (H401421-03)

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/15/2014	ND	2.57	128	2.00	1.88		
Toluene*	<0.050	0.050	05/15/2014	ND	2.46	123	2.00	0.702		
Ethylbenzene*	<0.050	0.050	05/15/2014	ND	2.31	115	2.00	1.10		
Total Xylenes*	<0.150	0.150	05/15/2014	ND	7.02	117	6.00	0.363		
Total BTEX	<0.300	0.300	05/15/2014	ND						

Surrogate: Dibromofluoromethane 96.8 % 61.3-142

Surrogate: Toluene-d8 99.7 % 71.3-129

Surrogate: 4-Bromofluorobenzene 104 % 65.7-141

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	05/14/2014	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	<10.0	10.0	05/14/2014	ND	194	97.2	200	2.25		
DRO >C10-C28	56.8	10.0	05/14/2014	ND	211	105	200	2.97		

Surrogate: 1-Chlorooctane 116 % 65.2-140

Surrogate: 1-Chlorooctadecane 125 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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



ARDINAL LABORATORIES
 101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>RECS</u>		BILL TO				ANALYSIS REQUEST												
Project Manager: <u>Laura Flores, Jacob Kamplain</u>		P.O. #:				Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions TDS												
Address:		Company:																
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>		Attn:																
Phone #: Fax #:		Address:																
Project #: Project Owner:		City:																
Project Name:		State: Zip:																
Project Location: <u>H.E. West B #83</u>		Phone #:																
Sampler Name: <u>Kyle Schmidt</u>		Fax #:																
FOR LAB USE ONLY		MATRIX		PRESERV.	SAMPLING													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP. # CONTAINERS	GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	ACID/BASE: ICE / COOL OTHER:	DATE								TIME					
<u>H40421</u>																		
<u>1</u>	<u>point 2 @ 5'</u>	<u>6</u>	<u>X</u>	<u>X</u>	<u>5-7-14</u>	<u>1:20</u>	<u>X</u>	<u>X</u>	<u>X</u>									
<u>2</u>	<u>point 4 @ 3'</u>	<u>6</u>	<u>X</u>	<u>X</u>	<u>5</u>	<u>1:00</u>	<u>X</u>	<u>X</u>	<u>X</u>									
<u>3</u>	<u>point 4 @ 3.5'</u>	<u>6</u>	<u>X</u>	<u>X</u>	<u>5</u>	<u>1:05</u>	<u>X</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 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: <u>Kyle Schmidt</u>	Date: <u>5-7-14</u> Time: <u>3:10</u>	Received By: <u>Jodi Benson</u>	Date: <u>5-7-14</u> Time: <u>3:10</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:				Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		CHECKED BY: (Initials) <u>JST</u>	
REMARKS: email: <u>hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com</u> Environmental Tech: <u>@rice-ecs.com</u>							

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54



June 12, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 06/11/14 16:15.

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 cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	06/11/2014	Sampling Date:	06/11/2014
Reported:	06/12/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 8 @ 5' (H401789-01)

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	1.96	97.8	2.00	3.08	
Toluene*	<0.050	0.050	06/12/2014	ND	2.09	105	2.00	3.06	
Ethylbenzene*	0.060	0.050	06/12/2014	ND	1.89	94.6	2.00	3.08	
Total Xylenes*	0.478	0.150	06/12/2014	ND	5.94	99.0	6.00	2.18	
Total BTEX	0.538	0.300	06/12/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 87.8 % 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	<16.0	16.0	06/12/2014	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	<100	100	06/12/2014	ND	192	96.0	200	4.69	
DRO >C10-C28	3970	100	06/12/2014	ND	187	93.7	200	2.60	

Surrogate: 1-Chlorooctane 65.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 153 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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 SM450Cl-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



June 12, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 06/11/14 16:15.

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 cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	06/11/2014	Sampling Date:	06/11/2014
Reported:	06/12/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 8 @ 6.5' (H401790-01)

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	1.96	97.8	2.00	3.08	
Toluene*	<0.050	0.050	06/12/2014	ND	2.09	105	2.00	3.06	
Ethylbenzene*	0.086	0.050	06/12/2014	ND	1.89	94.6	2.00	3.08	
Total Xylenes*	0.770	0.150	06/12/2014	ND	5.94	99.0	6.00	2.18	
Total BTEX	0.857	0.300	06/12/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 441 % 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	<16.0	16.0	06/12/2014	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	180	100	06/12/2014	ND	192	96.0	200	4.69		
DRO >C10-C28	8360	100	06/12/2014	ND	187	93.7	200	2.60		

Surrogate: 1-Chlorooctane 74.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 258 % 63.6-154

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

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

RUSH!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: RECS		BILL TO				ANALYSIS REQUEST																																																																																																																																																																																																																											
Project Manager: Laura Flores, Jacob Kamplain		P.O. #:				<table border="1"> <tr><td>Chlorides</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>TPH 8015 M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>BTEX</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Texas TPH</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Complete Cations/Anions</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>TDS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>										Chlorides																					TPH 8015 M																					BTEX																					Texas TPH																					Complete Cations/Anions																					TDS																																																																																																								
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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: 6-11-14	Received By:	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Kyle Schwardt	Time: 4:15	Jodi Henson	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:		email: hconder@riceswd.com; lflores@rice-ecs.com;	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:	lweinheimer@rice-ecs.com; knorman@rice-ecs.com;	
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)	jkamplain@rice-ecs.com; sedwards@rice-ecs.com;	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	JH	cursanic@rice-ecs.com	
	<input type="checkbox"/> No <input type="checkbox"/> No		Environmental Tech: @rice-ecs.com	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54



June 12, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 06/11/14 16:15.

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 cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	06/11/2014	Sampling Date:	06/11/2014
Reported:	06/12/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: POINT 8 @ 7' (H401791-01)

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	1.96	97.8	2.00	3.08	
Toluene*	<0.050	0.050	06/12/2014	ND	2.09	105	2.00	3.06	
Ethylbenzene*	<0.050	0.050	06/12/2014	ND	1.89	94.6	2.00	3.08	
Total Xylenes*	<0.150	0.150	06/12/2014	ND	5.94	99.0	6.00	2.18	
Total BTEX	<0.300	0.300	06/12/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 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	<16.0	16.0	06/12/2014	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	06/12/2014	ND	192	96.0	200	4.69	
DRO >C10-C28	53.0	10.0	06/12/2014	ND	187	93.7	200	2.60	

Surrogate: 1-Chlorooctane 72.0 % 65.2-140
Surrogate: 1-Chlorooctadecane 83.5 % 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



Celey D. Keene, Lab Director/Quality Manager

RUSH!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

Company Name: RECS				BILL TO				ANALYSIS REQUEST																	
Project Manager: Laura Flores, Jacob Kamplain				P.O. #:				Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS												
Address:				Company:																					
City: Hobbs State: NM Zip: 88240				Attn:																					
Phone #: Fax #:				Address:																					
Project #: Project Owner:				City:																					
Project Name:				State: Zip:																					
Project Location: H.E. West B #83				Phone #:																					
Sampler Name: Kyle Schnaidt				Fax #:																					
FOR LAB USE ONLY																									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX										PRESERV.		SAMPLING									
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME											
H40791	1 point 8 @ 7'	G	1			X					X		6-11-14	9:50	X	X	X								

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Relinquished By: Kyle Schnaidt	Date: 6-11-14	Received By: Jodi Henson	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Time: 4:15	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Time:	Sample Condition	REMARKS:	
Sampler - UPS - Bus - Other:		Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com Environmental Tech: @rice-ecs.com	
		CHECKED BY: (Initials)		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54

Appendix C

Soil Bore Documentation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Logger:	Amber Groves		
Driller:	Harrison&Cooper Inc		
Drilling Method:	Air Rotary		
Start Date:	7/18/2014		
End Date:	7/18/2014		

Project Name: Linn H.E. West B #83
Well ID: SB-1
Project Consultant: RECS
Location: UL/D Sec. 4
T-17-S R-31-E
Lat: 32°52'3.383"N
Long: 103°52'46.246"W
County: Lea
State: NM

Comments: All samples were taken from cuttings.
DRAFTED BY: C. Uršanić
TD = 30 ft GW = None

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				No Lithology Documented		Bentonite Seal
SS						
5 ft						
10 ft	1328	Cl- 1650	324			
	B <0.1 T 0.836	GRO 431				
	E 7.96 X 13.1	DRO 6600		Brown Sand		
15 ft	423		32	Tan Sand		
20 ft	651		20.4			
25 ft	167	Cl- 160	10.1	Red Sand		
	B <0.05 T <0.05	GRO <10				
	E <0.05 X <0.15	DRO <10				
30 ft	176	Cl- 176	4.5			
	B <0.05 T <0.05	GRO <10				
	E <0.05 X <0.15	DRO <10				



July 24, 2014

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 07/18/14 12:30.

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:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/18/2014	Sampling Date:	07/18/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SB 1 @ 10' (H402194-01)

BTEX 8021B		mg/kg		Analyzed By: CK				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	07/23/2014	ND	2.41	120	2.00	2.72	
Toluene*	0.836	0.100	07/23/2014	ND	2.20	110	2.00	3.49	
Ethylbenzene*	7.96	0.100	07/23/2014	ND	2.45	122	2.00	4.14	
Total Xylenes*	13.1	0.300	07/23/2014	ND	7.86	131	6.00	4.44	
Total BTEX	21.9	0.600	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1650	16.0	07/22/2014	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	431	100	07/19/2014	ND	174	86.9	200	5.90	
DRO >C10-C28	6600	100	07/19/2014	ND	187	93.5	200	6.11	

Surrogate: 1-Chlorooctane 138 % 65.2-140

Surrogate: 1-Chlorooctadecane 238 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/18/2014	Sampling Date:	07/18/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SB 1 @ 25' (H402194-02)

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	07/23/2014	ND	1.80	90.2	2.00	2.23	
Toluene*	<0.050	0.050	07/23/2014	ND	1.86	93.1	2.00	2.92	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	1.88	94.2	2.00	2.95	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	5.68	94.7	6.00	3.26	
Total BTEX	<0.300	0.300	07/23/2014	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	160	16.0	07/22/2014	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	07/19/2014	ND	174	86.9	200	5.90	
DRO >C10-C28	<10.0	10.0	07/19/2014	ND	187	93.5	200	6.11	

Surrogate: 1-Chlorooctane 96.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 103 % 63.6-154

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 JACOB KAMPLAIN
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/18/2014	Sampling Date:	07/18/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B FEDERAL #083	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SB 1 @ 30' (H402194-03)

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	07/23/2014	ND	1.80	90.2	2.00	2.23	
Toluene*	<0.050	0.050	07/23/2014	ND	1.86	93.1	2.00	2.92	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	1.88	94.2	2.00	2.95	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	5.68	94.7	6.00	3.26	
Total BTEX	<0.300	0.300	07/23/2014	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	176	16.0	07/22/2014	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	07/19/2014	ND	174	86.9	200	5.90	
DRO >C10-C28	<10.0	10.0	07/19/2014	ND	187	93.5	200	6.11	

Surrogate: 1-Chlorooctane 107 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: KECS	BILL TO	ANALYSIS REQUEST									
Project Manager: Jacob Kamplain		P.O. #:									
Address:		Company:									
City: Hobbs State: NM Zip: 88240		Attn:									
Phone #: Fax #:		Address:									
Project #: Project Owner:		City:									
Project Name: H-E. West B#83		State: Zip:									
Project Location:		Phone #:									
Sampler Name: Amber Groves	Fax #:										

FOR LAB USE ONLY		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.		SAMPLING		Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
Lab I.D.	Sample I.D.			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:						
H402F14																		
1	SB1 @ 10ft	G	1			✓			✓		7-18-14	10:00	✓	✓	✓			
2	SB1 @ 25ft	G	1			✓			✓		7-18-14	10:10	✓	✓	✓			
3	SB1 @ 30ft	G	1			✓			✓		7-18-14	10:20	✓	✓	✓			

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Relinquished By: Amber Groves	Date: 7-18-14	Received By: Jodi Benson	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Time: 12:30	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Sample Condition	CHECKED BY: JG	REMARKS:	
Sampler - UPS - Bus - Other:	Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		email results Knorman@rice-ecs.com Kjones@riceswd.com; jkamplain@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; sedwards@rice-ecs.com; lflores@rice-ecs.com; agroves@rice-ecs.com	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54

Appendix D

Photo Documentation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Linn H.E. West B #83
Unit Letter D, Section 4, T17S, R31E



Initial site photo, facing east 9/3/13



Initial site photo, facing south 9/3/13



Initial site photo, facing northwest 9/3/13



Initial site photo, facing south 9/3/13



Hand auguring for depth, facing northeast 3/4/14



Installing verticals per BLM stipulations, facing southeast 5/8/14



Drilling SB-1, facing east 7/18/14



Plugging SB-1 in total with bentonite, facing west 7/18/14