

## **LINN ENERGY**

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

**West B #45**  
2RP-1862

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# Termination Request

API No. 3001526099

Release Date: August 18<sup>th</sup>, 2013

Unit Letter N, Section 9, Township 17S, Range 31E

# Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241

Phone 575.393.2967

**February 5<sup>th</sup>, 2014**

## **Mike Bratcher**

New Mexico Energy, Minerals, & Natural Resources

Oil Conservation Division, Environmental Bureau – District 2

811 S. First St.

Artesia, NM 88210

**RE: Termination Request**

**Linn Energy – West B #45 (2RP-1862)**

**UL/N sec. 9 T17S R31E**

**API No. 3001526099**

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 6.4 miles northeast of Loco Hills, New Mexico at UL/N sec. 9 T17S R31E. There is no known groundwater in this area.

On August 18<sup>th</sup>, 2013, a small pin hole developed in a produced water flow line and sprayed produced water over 2,115 square feet of lease road and pasture land. None of this fluid was recovered. Linn notified BLM of the release on August 19<sup>th</sup>, 2013 and an initial C-141 was approved by NMOCD on August 26<sup>th</sup>, 2013 (Appendix A).

RECS personnel were on site beginning on August 23<sup>rd</sup>, 2013 to assess the release. Three points within the release were sampled at the surface and at depth (Figure 1).

Representative samples were taken to a commercial laboratory for analysis (Appendix B). Point 1 and Point 3 returned laboratory chloride values below regulatory standards at 4 ft bgs. Point 2 returned a laboratory chloride value below regulatory standards at 7 ft bgs. Gasoline Range Organics (GRO) readings and Diesel Range Organics (DRO) readings were either non-detect or below regulatory standards at all points at all depths.

A Corrective Action Plan (CAP) was sent to NMOCD and BLM on October 29<sup>th</sup>, 2013 and was approved by BLM on October 29<sup>th</sup>, 2013 and by NMOCD on November 15<sup>th</sup>, 2013. As part of the CAP, RECS recommended that the site be excavated to a depth of 4 ft bgs. At 4 ft bgs, field testing of the bottom of the excavation would be conducted to determine if chloride levels and hydrocarbon levels were below 1,000 mg/kg. If field testing indicated that these readings were below 1,000 mg/kg, a 5 point bottom composite of the bottom of the excavation would be taken to a commercial laboratory to verify these results. If at 4 ft bgs, field sampling indicated chloride levels and hydrocarbon levels above 1,000 mg/kg, a 20-mil reinforced poly liner would be installed at the base of the

excavation and properly sealed. The site would be excavated horizontally until field testing indicated that the walls of the excavation were below 1,000 mg/kg for chlorides and for hydrocarbons. Wall samples would be taken to a commercial laboratory to verify that chloride and a combined GRO/DRO level were below 1,000 mg/kg.

All excavated soil would be disposed of at a NMOCD approved facility. The excavation in the pasture would be backfilled with clean, imported soil. The excavation in the lease road would be backfilled with clean, imported soil and then capped with clean, imported caliche to provide a stable driving surface. Once the site was backfilled, the pasture area would be seeded with a blend of native vegetation. Vegetation acts as an infiltration barrier for the site, since plants capture water through their roots thereby reducing the amount of water traveling through the vadose zone to groundwater.

CAP activities began at the site on December 2<sup>nd</sup>, 2013. The release area was excavated to 4 ft bgs and 228 yards of contaminated soil was taken to a NMOCD approved facility for disposal (Figure 2). Once the excavation was completed, wall samples and a 5 point composite bottom sample were taken to a commercial laboratory for analysis (Appendix C). Based on the elevated laboratory wall samples, the excavation was expanded and wall samples were re-taken and sent to a commercial laboratory for analysis. All samples returned laboratory chloride readings below regulatory standards and GRO, DRO and BTEX values were non-detect.

A request to backfill the site was sent to NMOCD and BLM on December 16<sup>th</sup>, 2013. NMOCD and BLM approved the site to be backfilled on December 17<sup>th</sup>, 2013.

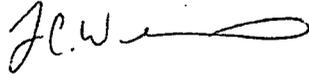
A total of 312 yards of caliche and top soil were imported to the site to serve as backfill. A sample of each was taken to a commercial laboratory for analysis and returned values of non-detect. In the pasture area, 2 ft of caliche was placed at the base of the excavation. Two ft of top soil was used to complete the backfilling of the site and to contour the site to the surrounding location. In the lease road, the excavation was backfilled in entirety with caliche.

On December 31<sup>st</sup>, 2013, soil amendments were added to the pasture area and the area was seeded with LPC mix. Photo documentation of all activities can be found in Appendix D.

Given that the site was excavated to remove the contaminated soil and backfilled with clean, imported soil as stated in the approved CAP; Linn respectfully requests 'remediation termination' and closure for the site. The final C-141 can be found in Appendix E.

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 black ink, appearing to read "L.W.", followed by a long, horizontal flourish.

Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

Attachments:

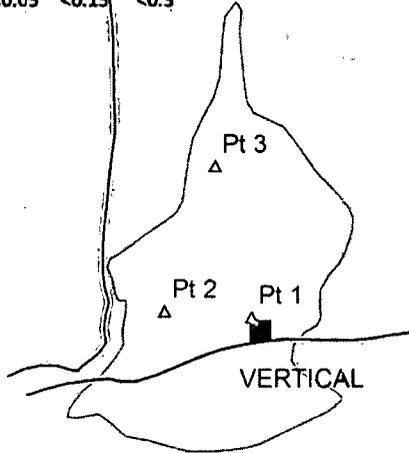
- Figure 1 – Initial Sampling Data
- Figure 2 – Excavation Data
- Appendix A – Initial C-141
- Appendix B – Initial Sampling Labs
- Appendix C – Excavation Sampling Labs
- Appendix D – Photo Documentation
- Appendix E – Final C-141

# Figures

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

# Initial Sampling Data

Point 1									
Depth	CI-	PID	GRO	DRO	B	T	E	X	BTEX
SS	10900	0.4	<10	110	<0.05	<0.05	<0.05	<0.15	<0.3
6"	2502	7.7							
1'	1535	93							
1.5'	1219	25.5							
2'	3395	7.7							
2.5'	3930	105.7							
3'	3280	49.7	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
3.5'	304	3.9	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
4'	160	3.8	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3



Point 2									
Depth	CI	PID	GRO	DRO	B	T	E	X	BTEX
SS	10500	0.6	<10	145	<0.05	<0.05	<0.05	<0.15	<0.3
6"	2218	10.2							
1'	2911	11.9							
1.5'	3165	5.8							
2'	7482	13.6							
2.5'	7044	96.9							
3'	5469	5.1							
3.5'	3109	18.6							
4'	1939	17.5							
4.5'	1660	13.6							
5'	2140	7.4							
5.5'	2437	5.2							
6'	2065	3.4							
6.5'	592	7.8	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
7'	192	15.7	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3

Point 3									
Depth	CI	PID	GRO	DRO	B	T	E	X	BTEX
SS	17400	1.2	<50	4510	<0.05	<0.05	<0.05	<0.15	<0.3
6"	2362	36.7							
1'	3099	115.2							
1.5'	5532	6.1							
2'	6164	62.3							
2.5'	7451	4.2							
3'	974	3.1							
3.5'	336	1.4	<10	18.2	<0.05	<0.05	<0.05	<0.15	<0.3
4'	240	13.5	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3

## Legend

- △ SAMPLE POINTS
- VERTICAL
- SURFACE PIPELINE
- STAIN (2115 sq ft)

CI- FIELD DATA  
 CI- LAB DATA

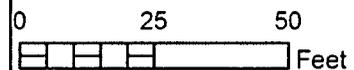
Landowner = BLM

DGW = None



**LINN**  
**WEST B #45**  
**(2RP-1862)**  
 LEGALS: UL/N Sec. 9  
 T17S - R31E  
 EDDY COUNTY, NM

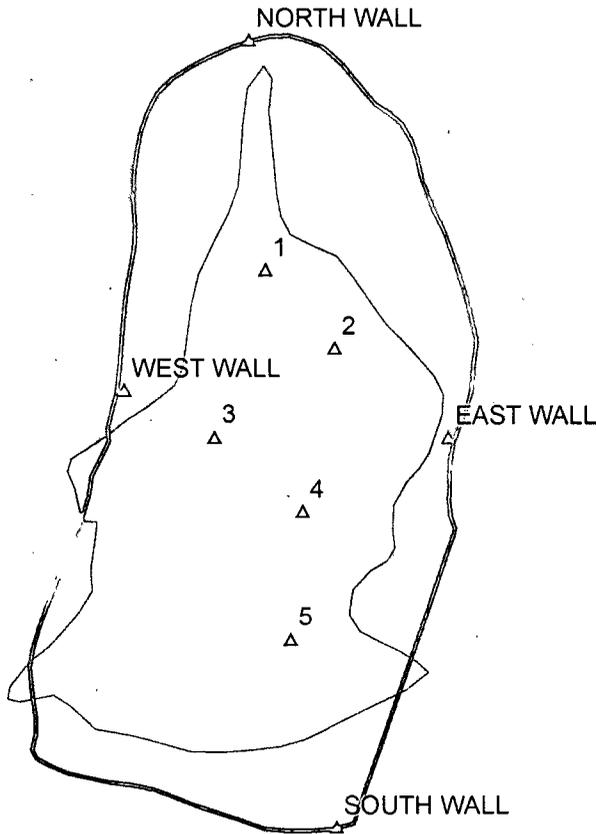
Figure 1



GPS date: 9/9/13  
 Drawing date: 10/11/13  
 Drafted by: L. Weinheimer

# Excavation Data

Wall Samples	CI-	PID	GRO	DRO	B	T	E	X	BTEX
E Wall	144	14.5	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
W Wall	<16	3.2	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
S Wall	<16	6.4	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
N Wall	80	24.5	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
5 Pt Composite	480	1.3	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
Imported Top Soil	<16	1.2							
Caliche Import	<16	18.1							



### Legend

- △ BOTTOM POINT
- △ WALL POINT
- EXCAVATION AT 4 FT BGS
- STAIN (2115 sq ft)
- CI- FIELD DATA
- CI- LAB DATA

Landowner = BLM

DGW = None



**LINN**  
**WEST B #45**  
**(2RP-1862)**  
 LEGALS: UL/N Sec. 9  
 T17S - R31E  
 EDDY COUNTY, NM

Figure 2



0 10 20  
 Feet

GPS date: 12/10/13  
 Drawing date: 12/16/13  
 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  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

**RECEIVED**  
AUG 22 2013  
NMOCD ARTESIA

Form C-141  
Revised October 10, 2003

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC

**Release Notification and Corrective Action**

*J.M.W.* 1323831822

OPERATOR  Initial Report  Final Report

Name of Company: Linn Operating 269324 Contact: Brian Wall  
Address: 2430 W. Bender Hobbs, NM 88240 Telephone No.: 575-738-1739  
Facility Name: West B#45 Facility Type: Oil Producer

Surface Owner: Federal Mineral Owner: API No.: 3001526099

**LOCATION OF RELEASE:**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	09	17S	31E	660	South	1980	West	Eddy

Latitude: 32.84369 Longitude: -103.87608

**NATURE OF RELEASE:**

Type of Release: Produced Water Volume of Release: Seal Volume Recovered: 0  
Source of Release: Poly Pipeline Date and Hour of Occurrence: 08/18/2013 10:30am Date and Hour of Discovery: 08/18/2013 10:30am  
Was Immediate Notice Given?  Yes  No  Not Required If YES: To Whom? Mike Burton - BLM  
By Whom? Brian Wall Date and Hour: 08/19/2013 2:00pm  
Was a Watercourse Reached?  Yes  No If YES, Volume Impacting the Watercourse:

If a Watercourse was Impacted, Describe Fully:

Describe Cause of Problem and Remedial Action Taken: A Small pin hole in flowline developed resulting in spraying water mist. I shut in well head to stop the spraying. Possible line fatigue.

Describe Area Affected and Cleanup Action Taken: 15' x 10' area

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: *Brian Wall*  
Printed Name: Brian Wall  
Approved by District Supervisor Signed By: *Mike Burton*

Title: Construction Foreman, II  
Approval Date: **AUG 26 2013** Expiration Date:

Email Address: bwall@linnenergy.com Conditions of Approval: Attached   
Date: 08/20/2013 Phone: 806-367-0645

Remediation per OGD Rule & Guidelines & like approval by BLM. SUBMIT REMEDIATION PROPOSAL NO LATER THAN: **September 6, 2013**  
2.R.P. = 1862



# Appendix B

## Initial Sampling Labs

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

September 16, 2013

HACK CONDER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 09/12/13 8:45.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

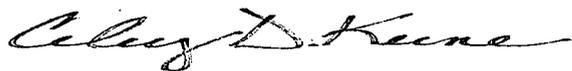
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	09/12/2013	Sampling Date:	09/09/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 1 @ SURFACE (H302206-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 111 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10900	16.0	09/16/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/12/2013	ND	202	101	200	1.28		
DRO >C10-C28	110	10.0	09/12/2013	ND	198	98.9	200	0.838		

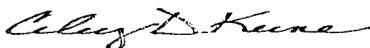
Surrogate: 1-Chlorooctane 82.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.1 % 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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

 Received: 09/12/2013  
 Reported: 09/16/2013  
 Project Name: H. E. WEST B #45  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/10/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: PT. 1 @ 3' (H302206-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141	
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10	
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19	
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34	
Total BTEX	<0.300	0.300	09/13/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 110 % 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	3280	16.0	09/16/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/12/2013	ND	202	101	200	1.28	
DRO >C10-C28	<10.0	10.0	09/12/2013	ND	198	98.9	200	0.838	

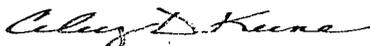
Surrogate: 1-Chlorooctane 89.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.9 % 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

**Analytical Results For:**

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

Received:	09/12/2013	Sampling Date:	09/09/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 2 @ SURFACE (H302206-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PIC)*      108 %      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	
<b>Chloride</b>	<b>10500</b>	16.0	09/16/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/12/2013	ND	202	101	200	1.28		
<b>DRO &gt;C10-C28</b>	<b>145</b>	10.0	09/12/2013	ND	198	98.9	200	0.838		

*Surrogate: 1-Chlorooctane*      97.1 %      65.2-140

*Surrogate: 1-Chlorooctadecane*      110 %      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:**

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 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	09/12/2013	Sampling Date:	09/10/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 2 @ 6.5' (H302206-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141	
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10	
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19	
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34	
Total BTEX	<0.300	0.300	09/13/2013	ND					

*Surrogate: 4-Bromofluorobenzene (PII)*      109 %      89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>592</b>	16.0	09/16/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/12/2013	ND	200	100	200	4.71	
DRO >C10-C28	<10.0	10.0	09/12/2013	ND	192	96.1	200	3.84	

*Surrogate: 1-Chlorooctane*      89.6 %      65.2-140

*Surrogate: 1-Chlorooctadecane*      99.5 %      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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	09/12/2013	Sampling Date:	09/10/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 2 @ 7' (H302206-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PIC)*      108 %      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	
<b>Chloride</b>	<b>192</b>	16.0	09/16/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/12/2013	ND	200	100	200	4.71		
DRO >C10-C28	<10.0	10.0	09/12/2013	ND	192	96.1	200	3.84		

*Surrogate: 1-Chlorooctane*      87.9 %      65.2-140

*Surrogate: 1-Chlorooctadecane*      97.5 %      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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	09/12/2013	Sampling Date:	09/09/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 3 @ SURFACE (H302206-06)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 108 % 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	17400	16.0	09/16/2013	ND	400	100	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	<50.0	50.0	09/13/2013	ND	200	100	200	4.71			
DRO >C10-C28	4510	50.0	09/13/2013	ND	192	96.1	200	3.84			

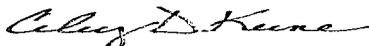
Surrogate: 1-Chlorooctane 72.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 234 % 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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	09/12/2013	Sampling Date:	09/10/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 3 @ 3.5' (H302206-07)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PIC) 109 % 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	
<b>Chloride</b>	<b>336</b>	16.0	09/16/2013	ND	400	100	400	3.92		

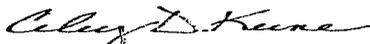
TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/13/2013	ND	200	100	200	4.71		
<b>DRO &gt;C10-C28</b>	<b>18.2</b>	10.0	09/13/2013	ND	192	96.1	200	3.84		

*Surrogate: 1-Chlorooctane 75.6 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 85.0 % 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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	09/12/2013	Sampling Date:	09/10/2013
Reported:	09/16/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: PT. 3 @ 4' (H302206-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/13/2013	ND	2.05	103	2.00	0.141		
Toluene*	<0.050	0.050	09/13/2013	ND	2.19	110	2.00	1.10		
Ethylbenzene*	<0.050	0.050	09/13/2013	ND	2.30	115	2.00	1.19		
Total Xylenes*	<0.150	0.150	09/13/2013	ND	6.96	116	6.00	1.34		
Total BTEX	<0.300	0.300	09/13/2013	ND						

Surrogate: 4-Bromofluorobenzene (PII) 111 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	09/16/2013	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	09/13/2013	ND	200	100	200	4.71		
DRO >C10-C28	<10.0	10.0	09/13/2013	ND	192	96.1	200	3.84		

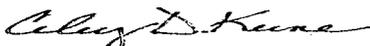
Surrogate: 1-Chlorooctane 83.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.6 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

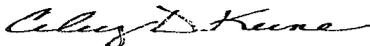
- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

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

Company Name: <u>Linn Energy</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																				
Project Manager: <u>Rick Rickman</u>		P.O. #:																						
Address:		Company:																						
City:	State:	Zip:	Attn:																					
Phone #:	Fax #:	Address:																						
Project #:	Project Owner:		City:																					
Project Name:		State:	Zip:																					
Project Location: <u>H.E. West B #45</u>		Phone #:																						
Sampler Name: <u>Chris Flores, Kyle Schnaidt</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>H302200</u>																								
<u>1</u>	<u>Point 1 @ Surface</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-9-13</u>	<u>3:10</u>										
<u>2</u>	<u>Point 1 @ 3'</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-10-13</u>	<u>12:25</u>										
<u>3</u>	<u>Point 2 @ surface</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-9-13</u>	<u>3:40</u>										
<u>4</u>	<u>Point 2 @ 6.5'</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-10-13</u>	<u>1:10</u>										
<u>5</u>	<u>Point 2 @ 7'</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-10-13</u>	<u>1:15</u>										
<u>6</u>	<u>Point 3 @ surface</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-9-13</u>	<u>4:10</u>										
<u>7</u>	<u>Point 3 @ 3.5'</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-10-13</u>	<u>1:25</u>										
<u>8</u>	<u>Point 3 @ 4'</u>	<u>G</u>	<u>1</u>			<u>/</u>							<u>9-10-13</u>	<u>1:30</u>										
	<u>Point 3</u>																							

Chloride  
~~TPH~~  
~~BTEX~~

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Relinquished By: <u>Chris Flores</u>	Date: <u>9-12-13</u>	Received By: <u>Jodi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <u>8:45</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:			
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<u>JFB</u>		

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

#54



October 11, 2013

HACK CONDER  
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC  
419 W. CAIN  
HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 10/07/13 16:35.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/07/2013	Sampling Date:	10/04/2013
Reported:	10/11/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: POINT 1 @ 3.5' (H302426-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/08/2013	ND	1.90	94.8	2.00	0.414		
Toluene*	<0.050	0.050	10/08/2013	ND	1.90	94.8	2.00	0.152		
Ethylbenzene*	<0.050	0.050	10/08/2013	ND	1.93	96.5	2.00	0.113		
Total Xylenes*	<0.150	0.150	10/08/2013	ND	5.83	97.2	6.00	0.0192		
Total BTEX	<0.300	0.300	10/08/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PID 120 % 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	<b>304</b>	16.0	10/08/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/08/2013	ND	201	101	200	0.560		
DRO >C10-C28	<10.0	10.0	10/08/2013	ND	211	105	200	8.27		

*Surrogate: 1-Chlorooctane 92.6 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 90.5 % 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  
 HACK CONDER  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	10/07/2013	Sampling Date:	10/04/2013
Reported:	10/11/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: POINT 1 @ 4' (H302426-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/08/2013	ND	1.90	94.8	2.00	0.414		
Toluene*	<0.050	0.050	10/08/2013	ND	1.90	94.8	2.00	0.152		
Ethylbenzene*	<0.050	0.050	10/08/2013	ND	1.93	96.5	2.00	0.113		
Total Xylenes*	<0.150	0.150	10/08/2013	ND	5.83	97.2	6.00	0.0192		
Total BTEX	<0.300	0.300	10/08/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 125 % 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	<b>160</b>	16.0	10/08/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/08/2013	ND	201	101	200	0.560		
DRO >C10-C28	<10.0	10.0	10/08/2013	ND	211	105	200	8.27		

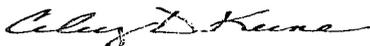
Surrogate: 1-Chlorooctane 97.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.7 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager





# Appendix C

## Excavation Sampling Labs

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

December 10, 2013

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 12/04/13 16:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

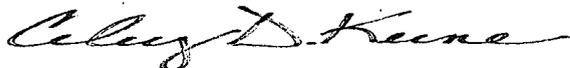
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	12/04/2013	Sampling Date:	12/04/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: CALICHE IMPORT (H302946-01)**

Chloride, SM4500CI-B	mg/kg	Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/09/2013	ND	432	108	400	3.64	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

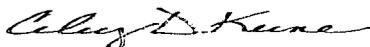
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C .Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



# CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 - 2444 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: <b>BECS</b>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																																																																																																																																																																																																																											
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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: <b>Amber Groves</b>	Date: <b>12-4-13</b> Time: <b>4:00</b>	Received By: <b>Jodi Henson</b>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:			REMARKS: email results knorman@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; sedwards@rice-ecs.com agroves@rice-ecs.com	
Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: <b>JH</b>		

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

**#54**

December 10, 2013

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 12/09/13 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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	12/09/2013	Sampling Date:	12/06/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: EAST WALL (H302967-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/10/2013	ND	1.85	92.7	2.00	0.310		
Toluene*	<0.050	0.050	12/10/2013	ND	1.85	92.6	2.00	0.214		
Ethylbenzene*	<0.050	0.050	12/10/2013	ND	1.82	90.8	2.00	0.456		
Total Xylenes*	<0.150	0.150	12/10/2013	ND	5.32	88.6	6.00	0.866		
Total BTEX	<0.300	0.300	12/10/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 94.5 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1250	16.0	12/10/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/10/2013	ND	198	99.0	200	3.86		
DRO >C10-C28	30.2	10.0	12/10/2013	ND	207	103	200	3.24		

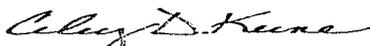
Surrogate: 1-Chlorooctane 76.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 80.1 % 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:	12/09/2013	Sampling Date:	12/06/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: WEST WALL (H302967-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/10/2013	ND	1.85	92.7	2.00	0.310		
Toluene*	<0.050	0.050	12/10/2013	ND	1.85	92.6	2.00	0.214		
Ethylbenzene*	<0.050	0.050	12/10/2013	ND	1.82	90.8	2.00	0.456		
Total Xylenes*	<0.150	0.150	12/10/2013	ND	5.32	88.6	6.00	0.866		
Total BTEX	<0.300	0.300	12/10/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PIL) 100 % 89.4-126*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1180</b>	16.0	12/10/2013	ND	416	104	400	3.92		

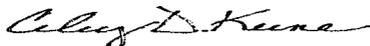
TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/10/2013	ND	198	99.0	200	3.86		
DRO >C10-C28	<10.0	10.0	12/10/2013	ND	207	103	200	3.24		

*Surrogate: 1-Chlorooctane 87.9 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 86.5 % 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:	12/09/2013	Sampling Date:	12/06/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: 5 PT. COMP (H302967-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/10/2013	ND	1.85	92.7	2.00	0.310		
Toluene*	<0.050	0.050	12/10/2013	ND	1.85	92.6	2.00	0.214		
Ethylbenzene*	<0.050	0.050	12/10/2013	ND	1.82	90.8	2.00	0.456		
Total Xylenes*	<0.150	0.150	12/10/2013	ND	5.32	88.6	6.00	0.866		
Total BTEX	<0.300	0.300	12/10/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PIL) 96.5 % 89.4-126*

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>480</b>	16.0	12/10/2013	ND	416	104	400	3.92		

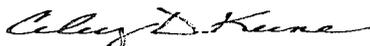
TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/10/2013	ND	198	99.0	200	3.86		
DRO >C10-C28	<10.0	10.0	12/10/2013	ND	207	103	200	3.24		

*Surrogate: 1-Chlorooctane 91.8 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 88.6 % 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:	12/09/2013	Sampling Date:	12/09/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: NORTH WALL (H302967-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/10/2013	ND	1.85	92.7	2.00	0.310		
Toluene*	<0.050	0.050	12/10/2013	ND	1.85	92.6	2.00	0.214		
Ethylbenzene*	<0.050	0.050	12/10/2013	ND	1.82	90.8	2.00	0.456		
Total Xylenes*	<0.150	0.150	12/10/2013	ND	5.32	88.6	6.00	0.866		
Total BTEX	<0.300	0.300	12/10/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 98.2 % 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	
<b>Chloride</b>	<b>80.0</b>	16.0	12/10/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/10/2013	ND	198	99.0	200	3.86		
DRO >C10-C28	<10.0	10.0	12/10/2013	ND	207	103	200	3.24		

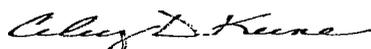
Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 100 % 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:	12/09/2013	Sampling Date:	12/09/2013
Reported:	12/10/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: SOUTH WALL (H302967-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/10/2013	ND	1.85	92.7	2.00	0.310		
Toluene*	<0.050	0.050	12/10/2013	ND	1.85	92.6	2.00	0.214		
Ethylbenzene*	<0.050	0.050	12/10/2013	ND	1.82	90.8	2.00	0.456		
Total Xylenes*	<0.150	0.150	12/10/2013	ND	5.32	88.6	6.00	0.866		
Total BTEX	<0.300	0.300	12/10/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PII)* 97.5 % 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	
<b>Chloride</b>	<b>1140</b>	16.0	12/10/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/10/2013	ND	198	99.0	200	3.86		
DRO >C10-C28	<10.0	10.0	12/10/2013	ND	207	103	200	3.24		

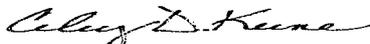
*Surrogate: 1-Chlorooctane* 100 % 65.2-140

*Surrogate: 1-Chlorooctadecane* 97.4 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

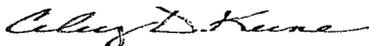
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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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: <b>RECS</b>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																																																																																																																																																																																																																											
Project Manager: <b>Jacob Lampain</b>		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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Relinquished By: <b>Amber Groves</b>	Date: <b>12-9-13</b>	Received By: <b>Jodi Henson</b>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: <b>4:30</b>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:		email results <b>RUSH!!</b>	
Delivered By: (Circle One)		Sample Condition	CHECKED BY: <b>JH</b>	
Sampler - UPS - Bus - Other:		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

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

#54

December 12, 2013

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 12/11/13 15:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

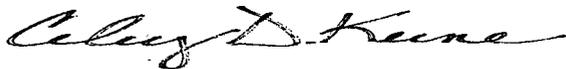
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	12/11/2013	Sampling Date:	12/11/2013
Reported:	12/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: EAST WALL (H302993-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/12/2013	ND	1.94	96.9	2.00	1.16		
Toluene*	<0.050	0.050	12/12/2013	ND	1.95	97.5	2.00	0.216		
Ethylbenzene*	<0.050	0.050	12/12/2013	ND	1.95	97.6	2.00	1.18		
Total Xylenes*	<0.150	0.150	12/12/2013	ND	5.83	97.2	6.00	2.07		
Total BTEX	<0.300	0.300	12/12/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.5 % 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	<b>144</b>	16.0	12/12/2013	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	12/12/2013	ND	186	93.2	200	2.35		
DRO >C10-C28	<10.0	10.0	12/12/2013	ND	197	98.6	200	6.62		

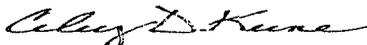
Surrogate: 1-Chlorooctane 104 % 65.2-140

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:	12/11/2013	Sampling Date:	12/11/2013
Reported:	12/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: WEST WALL (H302993-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/12/2013	ND	1.94	96.9	2.00	1.16		
Toluene*	<0.050	0.050	12/12/2013	ND	1.95	97.5	2.00	0.216		
Ethylbenzene*	<0.050	0.050	12/12/2013	ND	1.95	97.6	2.00	1.18		
Total Xylenes*	<0.150	0.150	12/12/2013	ND	5.83	97.2	6.00	2.07		
Total BTEX	<0.300	0.300	12/12/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 96.9 % 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	12/12/2013	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	12/12/2013	ND	186	93.2	200	2.35		
DRO >C10-C28	<10.0	10.0	12/12/2013	ND	197	98.6	200	6.62		

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 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:	12/11/2013	Sampling Date:	12/11/2013
Reported:	12/12/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

**Sample ID: SOUTH WALL (H302993-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/12/2013	ND	1.94	96.9	2.00	1.16		
Toluene*	<0.050	0.050	12/12/2013	ND	1.95	97.5	2.00	0.216		
Ethylbenzene*	<0.050	0.050	12/12/2013	ND	1.95	97.6	2.00	1.18		
Total Xylenes*	<0.150	0.150	12/12/2013	ND	5.83	97.2	6.00	2.07		
Total BTEX	<0.300	0.300	12/12/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PII)*      97.5 %      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	12/12/2013	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	12/12/2013	ND	186	93.2	200	2.35		
DRO >C10-C28	<10.0	10.0	12/12/2013	ND	197	98.6	200	6.62		

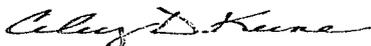
*Surrogate: 1-Chlorooctane*      99.2 %      65.2-140

*Surrogate: 1-Chlorooctadecane*      97.5 %      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

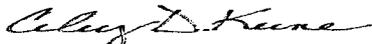
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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Celey D. Keene, Lab Director/Quality Manager



December 18, 2013

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #45

Enclosed are the results of analyses for samples received by the laboratory on 12/11/13 15:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	12/11/2013	Sampling Date:	12/11/2013
Reported:	12/18/2013	Sampling Type:	Soil
Project Name:	H. E. WEST B #45	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S R31E		

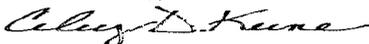
**Sample ID: IMPORTED TOPSOIL (H302994-01)**

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	12/18/2013	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
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-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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Celey D. Keene, Lab Director/Quality Manager



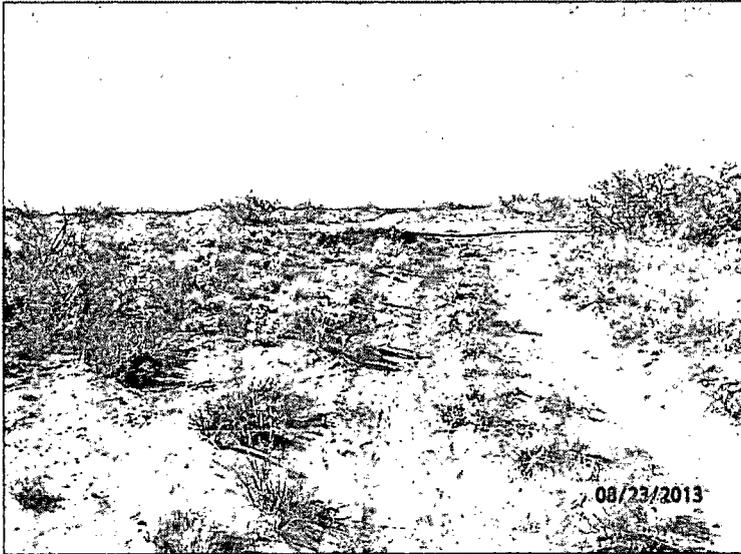
# Appendix D

## Photo Documentation

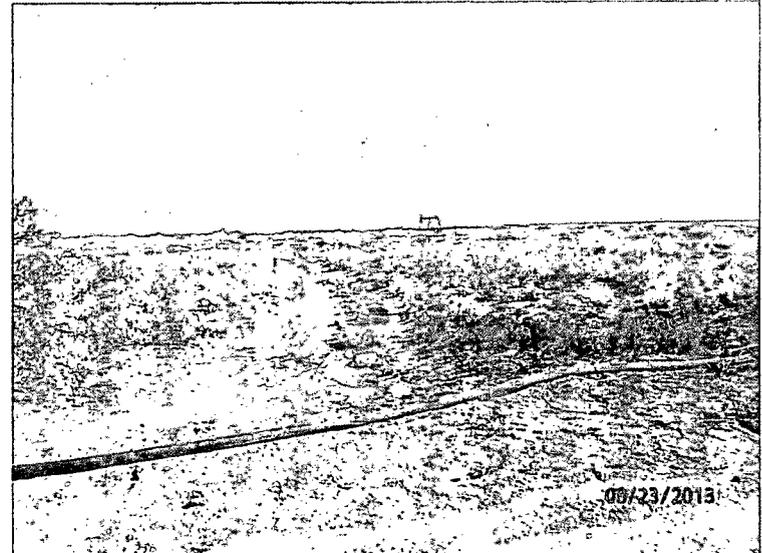
**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

# Linn West B #45

Unit Letter N, Section 9, T17S, R31E



Initial release area, facing south 8/23/13



Initial release area, facing north 8/23/13



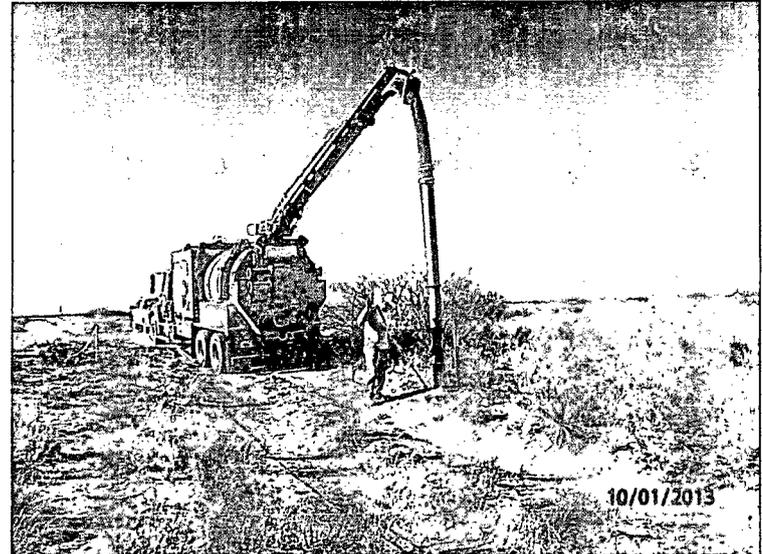
Collecting surface sample, facing north 9/9/13



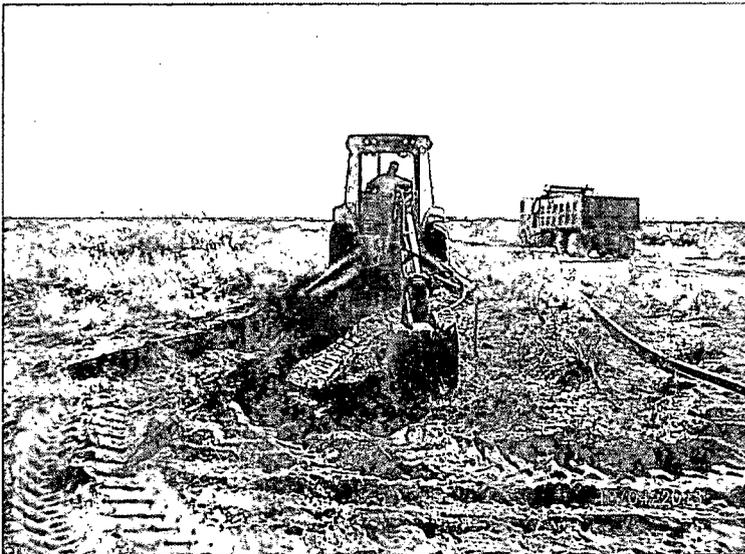
Field testing soil sample, facing southwest 9/9/13



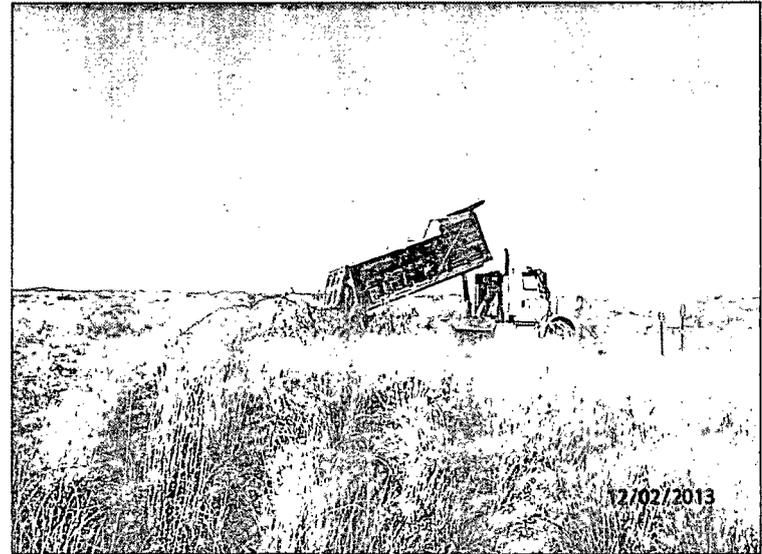
Hand auguring for depth, facing north 9/9/13



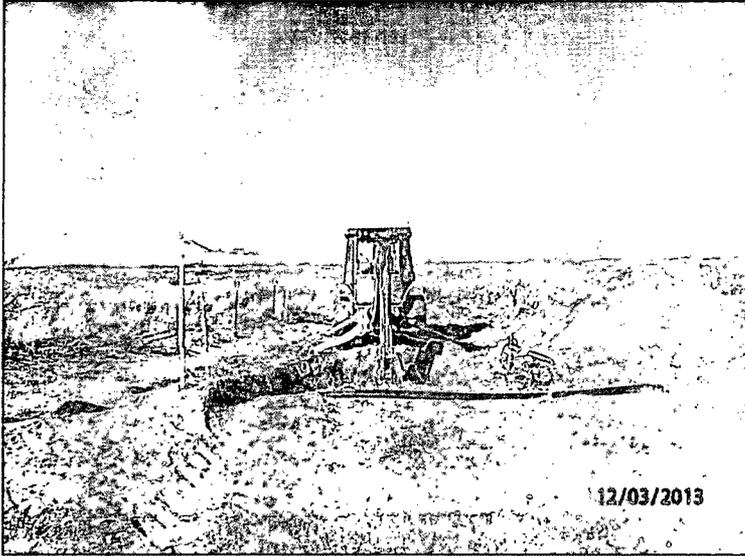
Line spot using hydrovac, facing north 10/1/13



Installing vertical at Pt. 1, facing southeast 10/4/13

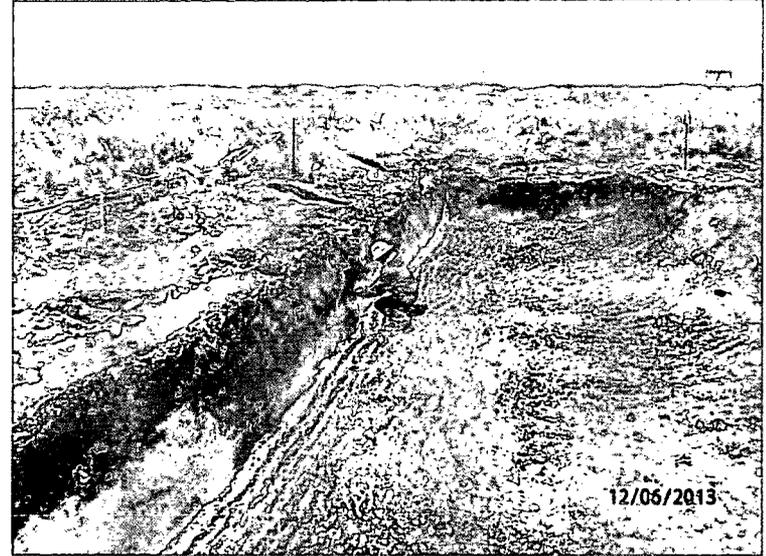


Importing caliche, facing southeast 12/2/13



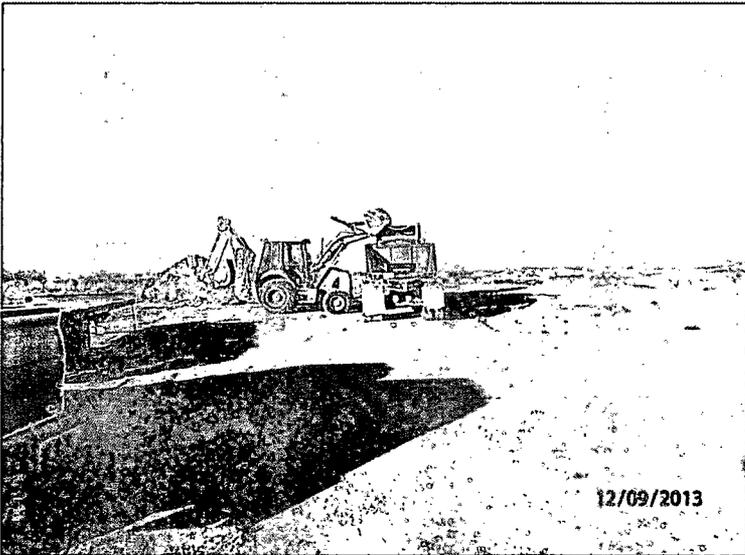
Excavating site, facing north

12/3/13



Taking wall samples, facing north

12/6/13



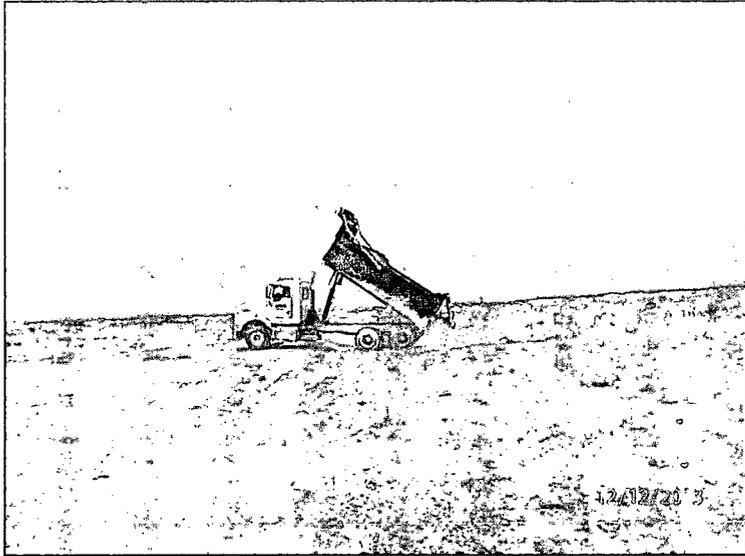
Exporting soil, facing west

12/9/13



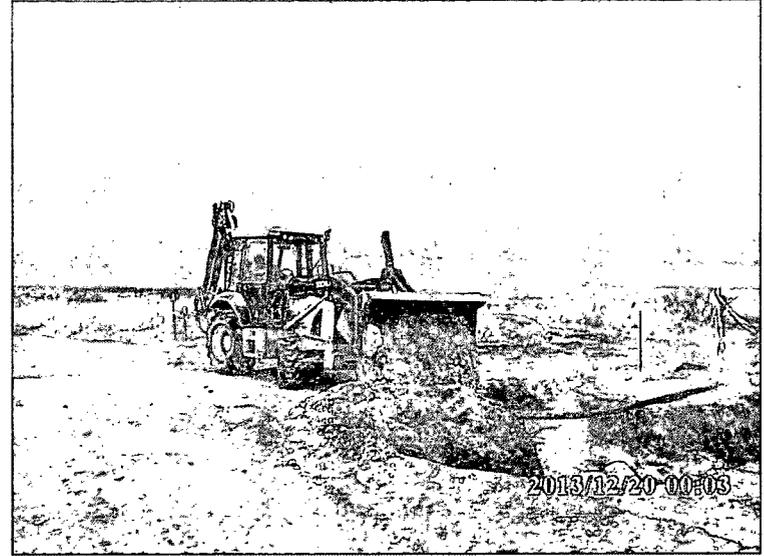
Excavation completed, facing southeast

12/10/13

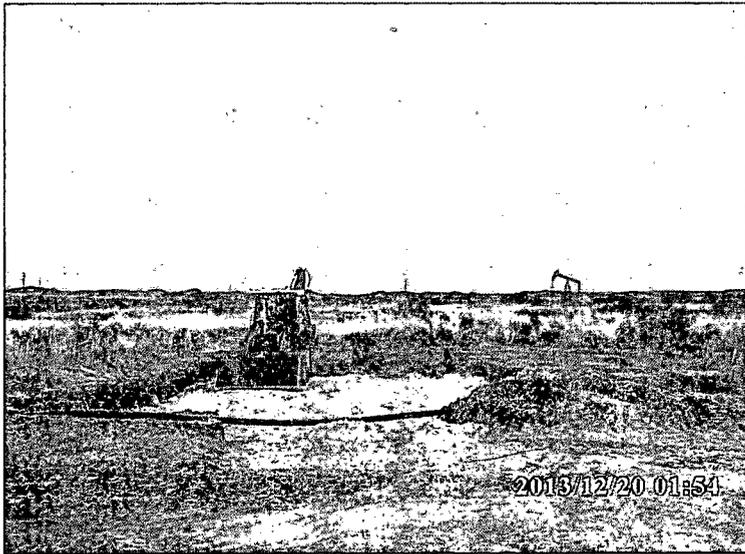


Importing top soil, facing west

12/12/13

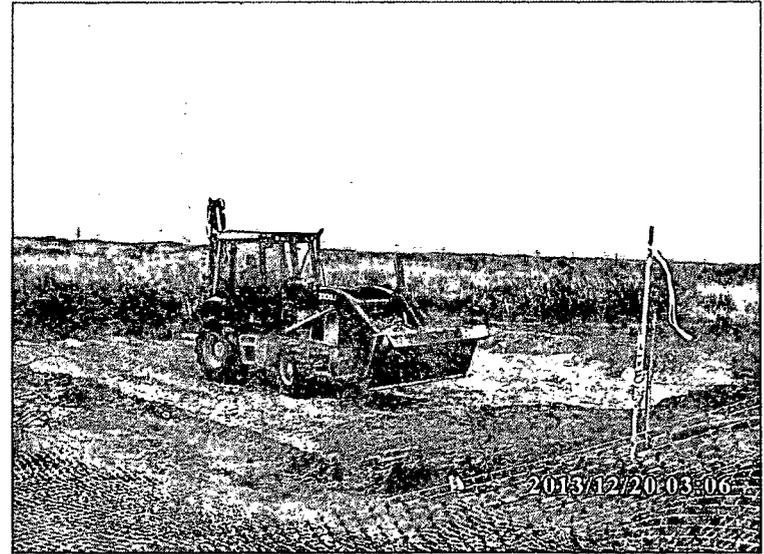


Backfilling site with caliche, facing southwest 12/20/13

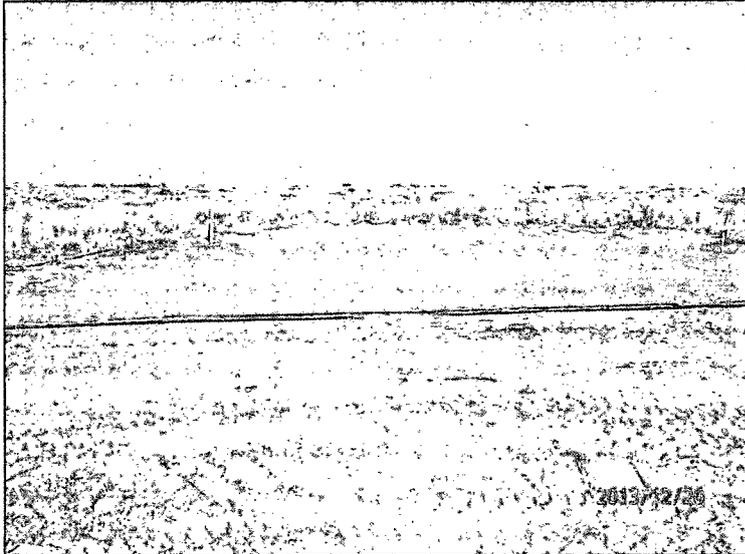


Backfilling site with caliche, facing north

12/20/13

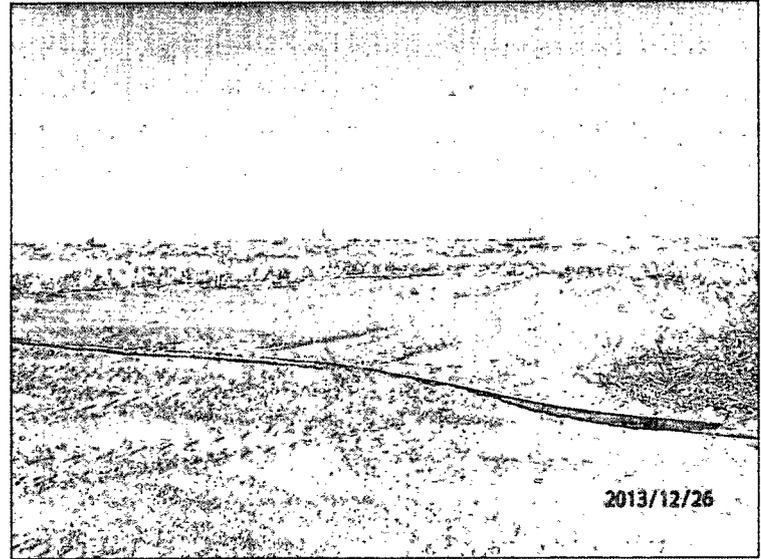


Backfilling site with top soil, facing northeast 12/20/13



Backfill completed, facing north

12/26/13



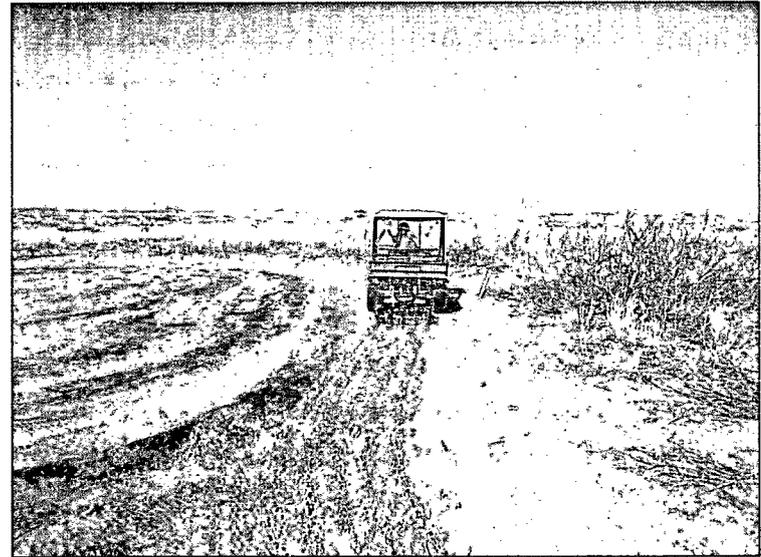
Backfill completed, facing northwest

12/26/13



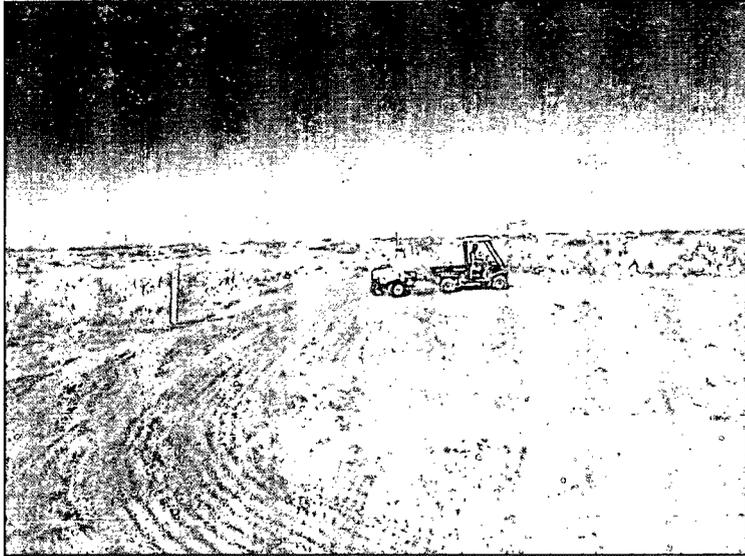
Adding soil amendments to site, facing south

12/31/13



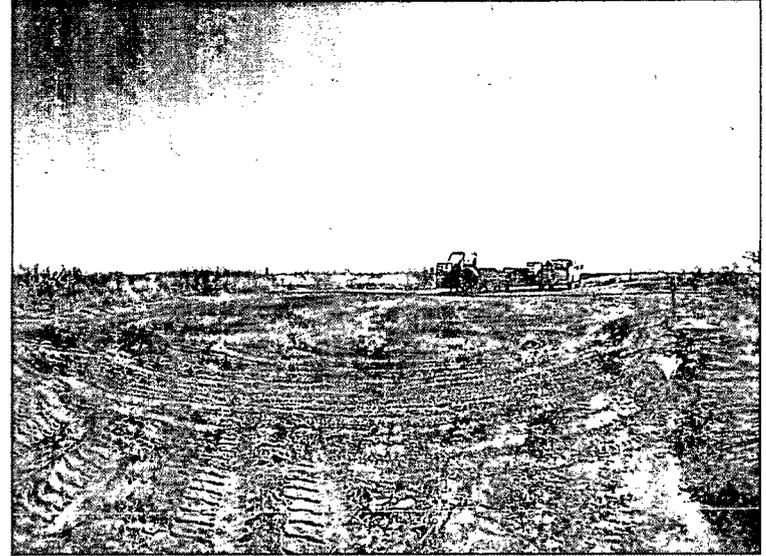
Tilling site, facing east

12/31/13



Seeding site, facing south

12/31/13



Site completed, facing north

12/31/13

# Appendix E

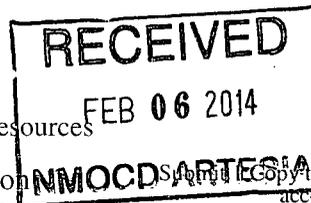
Final C-141

**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

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



Form C-141  
Revised August 8, 2011

Submit 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, Hobbs NM 88240	Telephone No. (575) 738-1739
Facility Name West B #45	Facility Type Oil Producer
Surface Owner Federal	Mineral Owner
API No. 3001526099	

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	9	17S	31E	660	South	1980	West	Eddy

Latitude 32.84369 Longitude -103.87608

#### NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 5 gal	Volume Recovered 0
Source of Release Poly Pipeline	Date and Hour of Occurrence 8-18-2013 10:30 am	Date and Hour of Discovery 8-18-2013 10:30 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Burton, BLM	
By Whom? Brian Wall	Date and Hour 8-19-2013 2:00 pm	
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 small pin hole in flowline developed resulting in spraying water mist. I shut in well head to stop the spraying. Possible line fatigue.

Describe Area Affected and Cleanup Action Taken.\* A total of 2,115 square feet of lease road and pasture land was affected. RECS personnel were on site beginning on August 23<sup>rd</sup>, 2013 to assess the release. Three points within the release were sampled at the surface and at depth. Representative samples were taken to a commercial laboratory for analysis. Point 1 and Point 3 returned laboratory chloride values below regulatory standards at 4 ft bgs. Point 2 returned a laboratory chloride value below regulatory standards at 7 ft bgs. Gasoline Range Organics (GRO) readings and Diesel Range Organics (DRO) readings were either non-detect or below regulatory standards at all points at all depths. A Corrective Action Plan (CAP) was sent to NMOCD and BLM on October 29<sup>th</sup>, 2013 and was approved by BLM on October 29<sup>th</sup>, 2013 and by NMOCD on November 15<sup>th</sup>, 2013. CAP activities began at the site on December 2<sup>nd</sup>, 2013. The release area was excavated to 4 ft bgs and 228 yards of contaminated soil was taken to a NMOCD approved facility for disposal. Once the excavation was completed, wall samples and a 5 point composite bottom sample were taken to a commercial laboratory for analysis. All samples returned laboratory chloride readings below regulatory standards and GRO, DRO and BTEX values were non-detect. A request to backfill the site was sent to NMOCD and BLM on December 16<sup>th</sup>, 2013. NMOCD and BLM approved the site to be backfilled on December 17<sup>th</sup>, 2013. A total of 312 yards of caliche and top soil were imported to the site to serve as backfill. A sample of each was taken to a commercial laboratory for analysis and returned values of non-detect. In the pasture area, 2 ft of caliche was placed at the base of the excavation. Two ft of top soil was used to complete the backfilling of the site and to contour the site to the surrounding location. In the lease road, the excavation was backfilled in entirety with caliche. On December 31<sup>st</sup>, 2013, soil amendments were added to the pasture area and the area was seeded with LPC mix.

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>	<b>OIL CONSERVATION DIVISION</b>	
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: 2/5/14	Phone: (806) 367-0645	

\* Attach Additional Sheets If Necessary