



## **LINN ENERGY**

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

# H.E. West B #51

---

## Corrective Action Plan

API No. 30-015-27110

Release Date: July 23<sup>rd</sup>, 2014

Unit Letter G, Section 10, Township 17S, Range 31E

**August 12<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: Corrective Action Plan  
Linn H.E. West B #51  
UL/G sec. 10 T17S R31E  
API No. 30-015-27110**

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 5.7 miles west of Maljamar, New Mexico. The initial C-141 states that the release is located at UL/G, but GPS mapping shows that the release is located in UL/C&D sec. 10 T17S R31E. This site is located in an area of no known groundwater.

On July 23<sup>rd</sup>, 2014, Linn discovered a release from a fiberglass line that had failed. The line was isolated and repaired. A total of 10 barrels of produced water leaked over 1,636 square feet of pasture land. None of this fluid was recovered. NMOCD and BLM were notified of the release on July 24<sup>th</sup>, 2014, and an initial C-141 was sent to NMOCD for their approval (Appendix A).

RECS personnel were on site beginning on July 28<sup>th</sup>, 2014 to assess the release. Three points within the release were field sampled at the surface and with depth (Figure 1). Representative samples from the points were taken to a commercial laboratory for analysis (Appendix B). Based on the laboratory analysis, Point 1 returned chloride, Gasoline Range Organics (GRO), Diesel Range Organics (DRO) and BTEX readings below regulatory standards at 3 ft bgs. Point 2 returned laboratory chloride, GRO, DRO and BTEX readings below regulatory standards at 2 ft bgs, and Point 3 returned laboratory chloride, GRO, DRO and BTEX readings below regulatory standards at 5 ft bgs.

Photo documentation of the release will be found in Appendix C.

**Corrective Action Plan**

Based on the laboratory sampling data, the release will be excavated in three parts. The area around Point 1 will be excavated to 3 ft bgs, the area around Point 2 will be excavated to 2 ft bgs

and the area around Point 3 will be excavated to 5 ft bgs (Figure 2). Once the excavations are completed, grab samples from the outer walls and bottoms of each excavation will be taken and sent to a commercial laboratory to confirm that chloride, GRO, DRO and BTEX readings are all below regulatory standards.

The excavated soil will be taken to the adjacent H.E. West B #51 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 (Figure 4). 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. After the site is backfilled, the disturbed area will be seeded with a blend of native vegetation.

Once these activities have 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,



Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

Attachments:

- Figure 1 – Initial Sampling Map
- Figure 2 – Proposed Corrective Actions
- Figure 3 – Location to Site for Direct Bury
- Figure 4 – Direct Bury Under Lease Pad
- Appendix A – Initial C-141
- Appendix B – Initial Sampling Labs
- Appendix C – Photo Documentation

# Figures

# Initial Sampling Map

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
Surface	1880	915	2840	20000	6.44	25.8	44	75.2	151
0.5'	3411	335							
1'	2320	44.9	<10	88.1	<0.05	<0.05	<0.05	<0.15	<0.3
2'	3038	115.7							
3'	368	17.4	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
4'	80	52.1	<10	40.6	<0.05	<0.05	<0.05	<0.15	<0.3

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
Surface	1340	41	<50	2340	<0.05	0.104	0.135	0.29	0.529
0.5'	2080	69	<10	58.1	<0.05	<0.05	<0.05	<0.15	<0.3
1'	2309	17.8							
2'	64	11.3	<10	54	<0.05	<0.05	<0.05	<0.15	<0.3
3'	64	42.5	<10	48.8	<0.05	<0.05	<0.05	<0.15	<0.3



	CI-	PID	GRO	DRO	B	T	E	X	BTEX
Surface	3360	396	837	8600	0.837	5.93	20	44.3	71
0.5'	3018	240.5							
1'	2960	97.3							
2'	3273	126.9							
3'	3462	19.4							
4'	5760	68.5	<10	30.8	<0.05	<0.05	<0.05	<0.15	<0.3
5'	240	20.4	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
6'	224	54.8	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3

CI- FIELD DATA

CI- LAB DATA

## Legend

- ▲ SAMPLE POINT
- + SOURCE
- SURFACE PIPELINE
- STAIN- 1,636 SQ FT

Landowner: BLM  
DGW: None

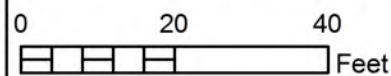
Source: Esri, DigitalGlobe, GeoEye,  
CNES/Airbus DS, USDA, USGS,  
swisstopo, and the GIS User Community



**LINN H.E.  
WEST B #51**

UL C & D SECTION 10  
T-17-S R-31-E  
EDDY COUNTY, NM

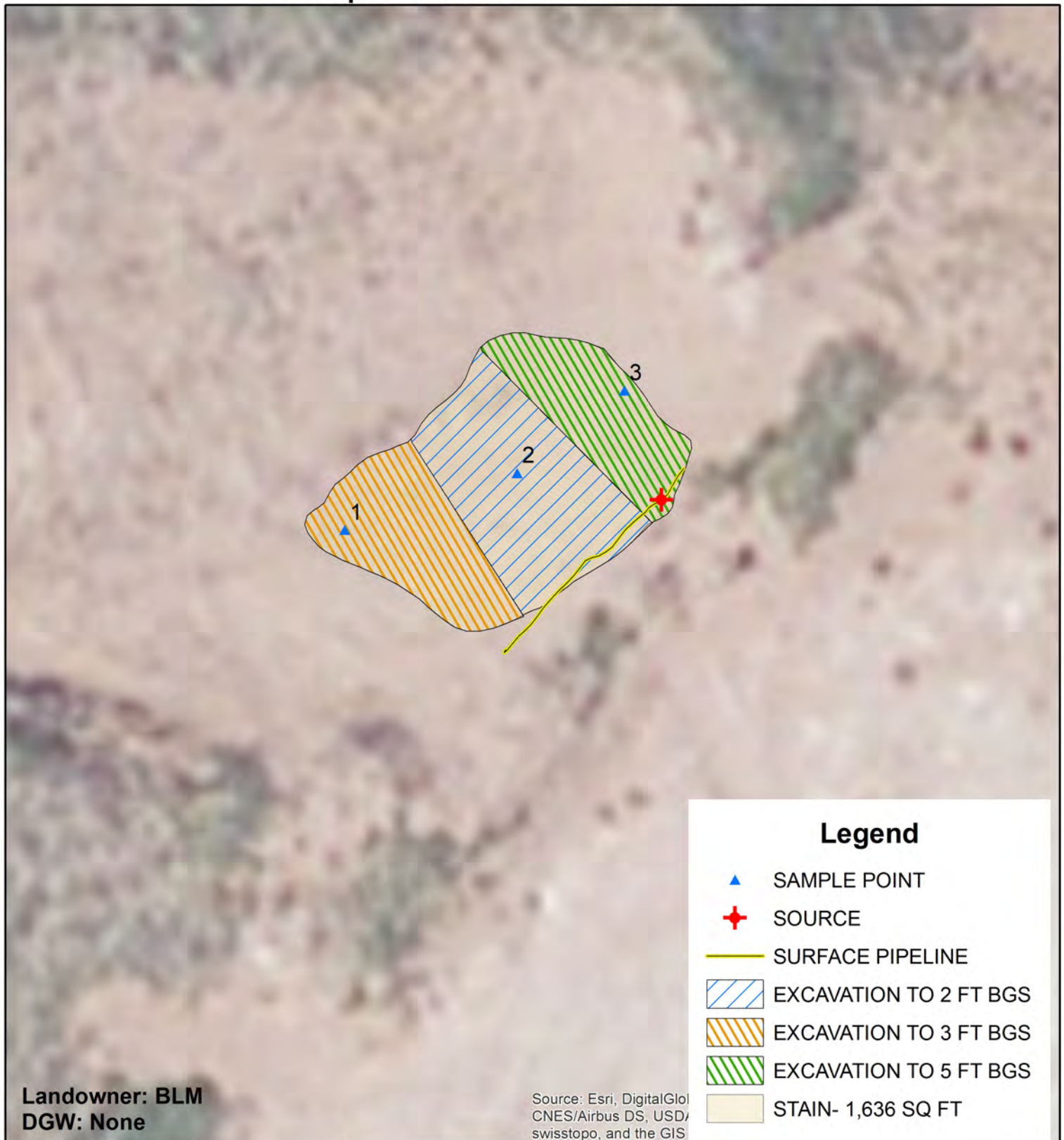
Figure 1



GPS date: 7/25/14 AR  
Drawing date: 8/7/14  
Drafted by: T. Grieco/L. Weinheimer



# Proposed Corrective Actions



***LINN H.E.  
WEST B #51***

UL C & D SECTION 10  
T-17-S R-31-E  
EDDY COUNTY, NM

**Figure 2**



0 10 20  
Feet

GPS date: 7/25/14 AR  
Drawing date: 8/7/14  
Drafted by: T. Grieco/L. Weinheimer



# Location to Site for Direct Bury



## ***LINN H.E. WEST B #51***

**UL C & D SECTION 10  
T-17-S R-31-E  
EDDY COUNTY, NM**

## **Figure 3**



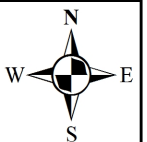
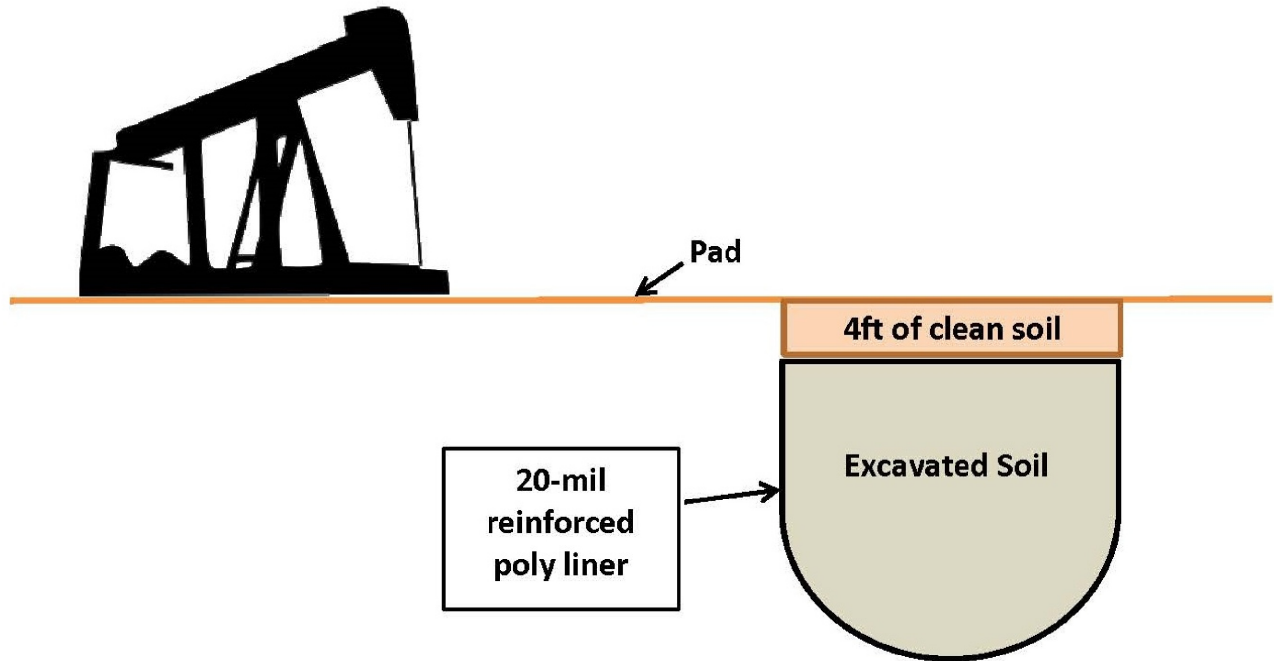
0 40 80  
 Feet

GPS date: 7/25/14 AR  
Drawing date: 8/7/14  
Drafted by: T. Grieco/L. Weinheimer



# Direct Bury Under Lease Pad

Linn H.E. West B #51





# Appendix A

Initial C-141

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141  
Revised October 10, 2003

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

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Linn Operating	Contact: Brian Wall	
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739	
Facility Name: H.E. West B #51	Facility Type: Oil Producer	
Surface Owner: Federal	Mineral Owner:	API No.: 30-015-27110

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	10	17S	31E	1337	North	1363	West	Eddy

Latitude: 32.8526523684112 Longitude: -103.861754389473

### NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 10 bbls	Volume Recovered: 0
Source of Release: Fiberglass pipeline	Date and Hour of Occurrence: 07/23/2014	Date and Hour of Discovery: 07/23/2014 3:00pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jeff Robertson- BLM / Mike Bratcher NMOCD	
By Whom? Brian Wall	Date and Hour 07/24/2014 0750	
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.\*: Fiberglass line was exposed due to erosion caused by wind and rain. The line then failed due to the lack of structural support in the area exposed. The line was isolated and the leak stopped. No recovered fluid due to absorption in the sandy location.

Describe Area Affected and Cleanup Action Taken.\* : The affected area is 30ft X 30ft.

Directions to Site: From intersection NM 360 and Eddy County 250 north on 250 for 1.2 mi, turn right to dirt road and follow for 1 mi to Y, stay left and follow road for .5 mi turn right and follow road for 2 mi, turn right follow road for .1 mi. left for .1 mi. location is on left side.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Brian Wall	Approved by District Supervisor:		
Title: Construction Foreman II	Approval Date:	Expiration Date:	
E-mail Address: bwall@linenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 07/24/2014	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 04, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: H. E. WEST B #51

Enclosed are the results of analyses for samples received by the laboratory on 07/28/14 16:00.

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

Received:	07/28/2014	Sampling Date:	07/28/2014
Reported:	08/04/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B #51	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: POINT 3 @ 4' (H402307-01)**

BTX 8021B		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	07/31/2014	ND	1.75	87.3	2.00	2.83	
Toluene*	<0.050	0.050	07/31/2014	ND	1.78	89.1	2.00	5.77	
Ethylbenzene*	<0.050	0.050	07/31/2014	ND	1.77	88.6	2.00	4.92	
Total Xylenes*	<0.150	0.150	07/31/2014	ND	5.38	89.6	6.00	5.16	
Total BTX	<0.300	0.300	07/31/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 87.6 % 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	5760	16.0	08/01/2014	ND	400	100	400	7.69	

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	07/30/2014	ND	189	94.6	200	10.2	
DRO >C10-C28	30.8	10.0	07/30/2014	ND	211	106	200	16.6	

Surrogate: 1-Chlorooctane 76.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 87.3 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/28/2014  
Reported: 08/04/2014  
Project Name: H. E. WEST B #51  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/28/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: POINT 3 @ 5' (H402307-02)**

BTX 8021B		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	07/31/2014	ND	1.75	87.3	2.00	2.83	
Toluene*	<0.050	0.050	07/31/2014	ND	1.78	89.1	2.00	5.77	
Ethylbenzene*	<0.050	0.050	07/31/2014	ND	1.77	88.6	2.00	4.92	
Total Xylenes*	<0.150	0.150	07/31/2014	ND	5.38	89.6	6.00	5.16	
Total BTX	<0.300	0.300	07/31/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 86.5 % 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	240	16.0	08/01/2014	ND	400	100	400	7.69	

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	07/29/2014	ND	189	94.6	200	10.2	
DRO >C10-C28	<10.0	10.0	07/29/2014	ND	211	106	200	16.6	

Surrogate: 1-Chlorooctane 71.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 80.0 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/28/2014  
Reported: 08/04/2014  
Project Name: H. E. WEST B #51  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/28/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: POINT 3 @ 6' (H402307-03)**

BTX 8021B			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	07/31/2014	ND	1.75	87.3	2.00	2.83			
Toluene*	<0.050	0.050	07/31/2014	ND	1.78	89.1	2.00	5.77			
Ethylbenzene*	<0.050	0.050	07/31/2014	ND	1.77	88.6	2.00	4.92			
Total Xylenes*	<0.150	0.150	07/31/2014	ND	5.38	89.6	6.00	5.16			
Total BTX	<0.300	0.300	07/31/2014	ND							

Surrogate: 4-Bromofluorobenzene (PID) 86.6 % 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	224	16.0	08/01/2014	ND	400	100	400	7.69			

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	07/30/2014	ND	189	94.6	200	10.2			
DRO >C10-C28	<10.0	10.0	07/30/2014	ND	211	106	200	16.6			

Surrogate: 1-Chlorooctane 67.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 75.2 % 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-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
A-01	Surrogate recovery marginally low. Target analytes within 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

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





### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 6 of 6

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: <i>Kyle Schaefer</i> Relinquished By: _____ Delivered By: (Circle One) Sampler - UPS - Bus - Other: _____		Date: <i>2-28-14</i> Time: <i>4:00</i> Received By: <i>Jodi Benson</i> Received By: _____ Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		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 #: _____ REMARKS: 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; i	
---	--	--	--	--	--

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

#54

August 06, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: WEST B #51

Enclosed are the results of analyses for samples received by the laboratory on 07/29/14 14:45.

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

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 1 SS (H402322-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>6.44</b>	2.00	08/01/2014	ND	1.89	94.7	2.00	6.63	
<b>Toluene*</b>	<b>25.8</b>	2.00	08/01/2014	ND	1.89	94.5	2.00	5.95	
<b>Ethylbenzene*</b>	<b>44.0</b>	2.00	08/01/2014	ND	1.83	91.7	2.00	6.35	
<b>Total Xylenes*</b>	<b>75.2</b>	6.00	08/01/2014	ND	5.63	93.8	6.00	6.25	
<b>Total BTX</b>	<b>151</b>	12.0	08/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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>1880</b>	16.0	08/01/2014	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	
<b>GRO C6-C10</b>	<b>2840</b>	500	07/30/2014	ND	177	88.6	200	4.94		
<b>DRO &gt;C10-C28</b>	<b>20000</b>	500	07/30/2014	ND	186	93.2	200	4.87		

Surrogate: 1-Chlorooctane 155 % 65.2-140

Surrogate: 1-Chlorooctadecane 606 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 1 1' (H402322-02)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2014	ND	1.89	94.7	2.00	6.63	
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95	
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35	
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25	
Total BTX	<0.300	0.300	08/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 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	2320	16.0	08/01/2014	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	07/30/2014	ND	177	88.6	200	4.94	
DRO >C10-C28	88.1	10.0	07/30/2014	ND	186	93.2	200	4.87	

Surrogate: 1-Chlorooctane 84.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.5 % 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



**Analytical Results For:**

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

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 1 3' (H402322-03)**

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	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTEX	<0.300	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	08/01/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	<10.0	10.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 79.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 84.5 % 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

**Analytical Results For:**

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

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 1 4' (H402322-04)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTX	<0.300	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 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	80.0	16.0	08/01/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	40.6	10.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 81.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 88.6 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

### Sample ID: PT. 2 SS (H402322-05)

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	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	0.104	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	0.135	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	0.290	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTEx	0.529	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	1340	16.0	08/01/2014	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	<50.0	50.0	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	2340	50.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 76.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 130 % 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  
 LAURA FLORES  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

 Received: 07/29/2014  
 Reported: 08/06/2014  
 Project Name: WEST B #51  
 Project Number: NONE GIVEN  
 Project Location: LINN

 Sampling Date: 07/25/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Kathy Perez

**Sample ID: PT. 2 6" (H402322-06)**

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	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTEx	<0.300	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.1 % 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	2080	16.0	08/01/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	58.1	10.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 81.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.4 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 2 2' (H402322-07)**

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	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTEx	<0.300	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 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	64.0	16.0	08/01/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	54.0	10.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 82.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.5 % 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

**Analytical Results For:**

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

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 2 3' (H402322-08)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2014	ND	1.89	94.7	2.00	6.63	
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95	
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35	
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25	
Total BTX	<0.300	0.300	08/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 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	64.0	16.0	08/01/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	48.8	10.0	07/31/2014	ND	167	83.6	200	6.45	

Surrogate: 1-Chlorooctane 82.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.3 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 3 SS (H402322-09)**

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.837</b>	0.500	08/01/2014	ND	1.89	94.7	2.00	6.63	
<b>Toluene*</b>	<b>5.93</b>	0.500	08/01/2014	ND	1.89	94.5	2.00	5.95	
<b>Ethylbenzene*</b>	<b>20.0</b>	0.500	08/01/2014	ND	1.83	91.7	2.00	6.35	
<b>Total Xylenes*</b>	<b>44.3</b>	1.50	08/01/2014	ND	5.63	93.8	6.00	6.25	
<b>Total BTX</b>	<b>71.0</b>	3.00	08/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 158 % 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>3360</b>	16.0	08/01/2014	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
<b>GRO C6-C10</b>	<b>837</b>	200	08/02/2014	ND	179	89.3	200	10.2	
<b>DRO &gt;C10-C28</b>	<b>8600</b>	200	08/02/2014	ND	181	90.3	200	10.8	

Surrogate: 1-Chlorooctane 218 % 65.2-140

Surrogate: 1-Chlorooctadecane 268 % 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  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received: 07/29/2014  
Reported: 08/06/2014  
Project Name: WEST B #51  
Project Number: NONE GIVEN  
Project Location: LINN

Sampling Date: 07/25/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: PT. 3 4' (H402322-10)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/01/2014	ND	1.89	94.7	2.00	6.63		
Toluene*	<0.050	0.050	08/01/2014	ND	1.89	94.5	2.00	5.95		
Ethylbenzene*	<0.050	0.050	08/01/2014	ND	1.83	91.7	2.00	6.35		
Total Xylenes*	<0.150	0.150	08/01/2014	ND	5.63	93.8	6.00	6.25		
Total BTX	<0.300	0.300	08/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	3760	16.0	08/01/2014	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	08/02/2014	ND	179	89.3	200	10.2	
DRO >C10-C28	73.6	10.0	08/02/2014	ND	181	90.3	200	10.8	

Surrogate: 1-Chlorooctane 95.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 105 % 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.
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

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

**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: <u>RECS</u>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>													
Project Manager: Laura Flores				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: <u>LIAN WEST B #51</u>				State: Zip:																	
Project Location:				Phone #:																	
Sampler Name: <u>ARE REDECOP</u>				Fax #:																	
FOR LAB USE ONLY																					
Lab I.D.	Sample I.D.	(GRAB OR C/COMP.)	# CONTAINERS	MATRIX					PRESERV.		SAMPLING										
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME							
<u>440232</u>																					
1	P+1 1 SS	G	1										7-25-14	4:00	✓	✓	✓				
2	P+1 1"	G	1										11	4:05	✓	✓	✓				
3	P+1 3"	G	1										11	4:10	✓	✓	✓				
4	P+1 4"	G	1										11	4:11	✓	✓	✓				
5	P+2 SS	G	1										11	4:13	✓	✓	✓				
6	P+2 6"	G	1										11	4:15	✓	✓	✓				
7	P+2 2"	G	1										11	4:17	✓	✓	✓				
8	P+2 3"	G	1										11	4:19	✓	✓	✓				
9	P+3 SS	G	1										11	4:20	✓	✓	✓				
10	P+3 4"	G	1										11	4:22	✓	✓	✓				

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: <u>7-25-14</u>	Received By:	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
<u>al</u>	Time: <u>2:45</u>	<u>Dan Peters</u>	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: <u>7/29/14</u>	Received By:	REMARKS:	
<u>[Signature]</u>	Time: <u>2:45</u>	<u>[Signature]</u>	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 <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>	(Initials) <u>UP</u>	jkamplain@rice-ecs.com; sedwards@rice-ecs.com;	
	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		cursanic@rice-ecs.com	
			Environmental Tech: @rice-ecs.com	

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

# Appendix C

Photo Documentation

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



# **Linn H.E. West B #51**

Unit Letter C&D, Section 10, T17S, R31E



Source of release, facing southeast

7/28/14



Initial release area, facing southeast

7/28/14



Initial release area, facing southwest

7/28/14



Initial release area, facing northwest

7/28/14