



LINN ENERGY

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

H.E. West B #51
(2RP-2441)

Termination Request

API No. 30-015-27110

Release Date: July 23rd, 2014

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

February 24, 2015

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 H.E. West B #51 (2RP-2441)
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 23rd, 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 24th, 2014, and an initial C-141 was sent to NMOCD for their approval (Appendix A).

RECS personnel were on site beginning on July 28th, 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.

Based on the laboratory sampling data, a Corrective Action Plan (CAP) was submitted to NMOCD and BLM on August 14th, 2014. NMOCD and BLM approved the CAP that same day. The CAP stated that the release would be excavated in three parts. The area around Point 1 would be excavated to 3 ft bgs, the area around Point 2 would be excavated to 2 ft bgs and the area around Point 3 would be excavated to 5 ft bgs (Figure 2). Once the excavations were completed, grab samples from the outer walls and bottoms of each excavation would be taken

and sent to a commercial laboratory to confirm that chloride, GRO, DRO and BTEX readings were all below regulatory standards.

The excavated soil would be taken to the adjacent H.E. West B #51 lease pad and direct buried (Figure 3). Caliche would be scraped from the pad and piled off to the side. A repository would be excavated to a volume which would encompass the excavated soil from the release, including an additional 4 ft cap of clean top soil (Figure 4). The repository would be lined in entirety with a 20-mil reinforced poly liner. The excavated soil from the release would 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 would be placed over the capped repository, and the scraped caliche would be backfilled over the top soil.

The top soil removed from the lease pad to create the repository would 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 would be taken to a commercial laboratory to confirm that chloride, GRO and DRO readings were all below regulatory standards. After the site was backfilled, the disturbed areas would be seeded with a blend of native vegetation.

Corrective actions began at the site on September 4th, 2014. A total of 36 cubic yards of clean caliche was imported to the site to construct two roads to facilitate remediation activities. The first road was to the release site, and the second road was to the direct bury site. Once the remediation activities were completed, the two roads were removed and used to patch the lease pad.

The release area was excavated in three portions as stated in the approved CAP. The area around Point 1 was excavated to 3 ft bgs, the area around Point 2 was excavated to 2 ft bgs and the area around Point 3 was excavated to 5 ft bgs (Figure 5). The excavations remained approximately 5 ft from the active fiberglass line for safety considerations. Once the excavations were completed, grab samples from the outer walls and composite bottom samples of each excavation were taken and field tested for chlorides and organic vapors. The samples were then sent to a commercial laboratory to confirm that chloride, GRO, DRO and BTEX readings were all below regulatory standards (Appendix C). All wall and bottom composite samples for the three excavations returned laboratory chloride readings below regulatory standards. GRO, DRO and BTEX readings returned results of non-detect, except for the DRO reading for the excavation at 3 ft bgs, which returned a DRO reading of 15 mg/kg.

The excavated soil was taken to the adjacent H.E. West B #51 lease pad for direct burial. The caliche was scraped from the lease pad and piled off to the side. A repository measuring 38 ft x 38 ft x 8 ft deep was excavated and lined in entirety with a 20-mil reinforced poly liner. The excavated soil from the release was placed in the lined repository, and the top of the repository was capped with a 20-mil reinforced poly liner. The top soil removed from the lease pad to create the repository was 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 was taken to a commercial laboratory and returned a chloride reading of 48 mg/kg.

Approximately four feet of the repository top soil was placed over the capped repository, and the scraped caliche was backfilled over the top soil. Another 72 cubic yards of clean caliche was imported to the site to complete the backfill over the repository and to level the area to the surrounding area.

On October 31st, 2014, soil amendments were added to the disturbed area from the release and the disturbed area adjacent to the lease pad. The areas were then seeded with a 50/50 mix of BLM #2 and BLM #4.

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

Given that Linn has remediated the site as stated in the NMOCD and BLM approved CAP, Linn respectfully requests 'remediation termination' and site closure. A 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,



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
- Figure 5 – Excavation Data
- Appendix A – Initial C-141
- Appendix B – Initial Sampling Labs
- Appendix C – Corrective Action Labs
- Appendix D – Photo Documentation
- Appendix E – Final C-141

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

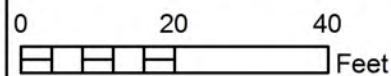
Source: Esri, DigitalGlobe, GeoEye,
CNES/Airbus DS, USDA, USGS,
swisstopo, and the GIS User Community



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

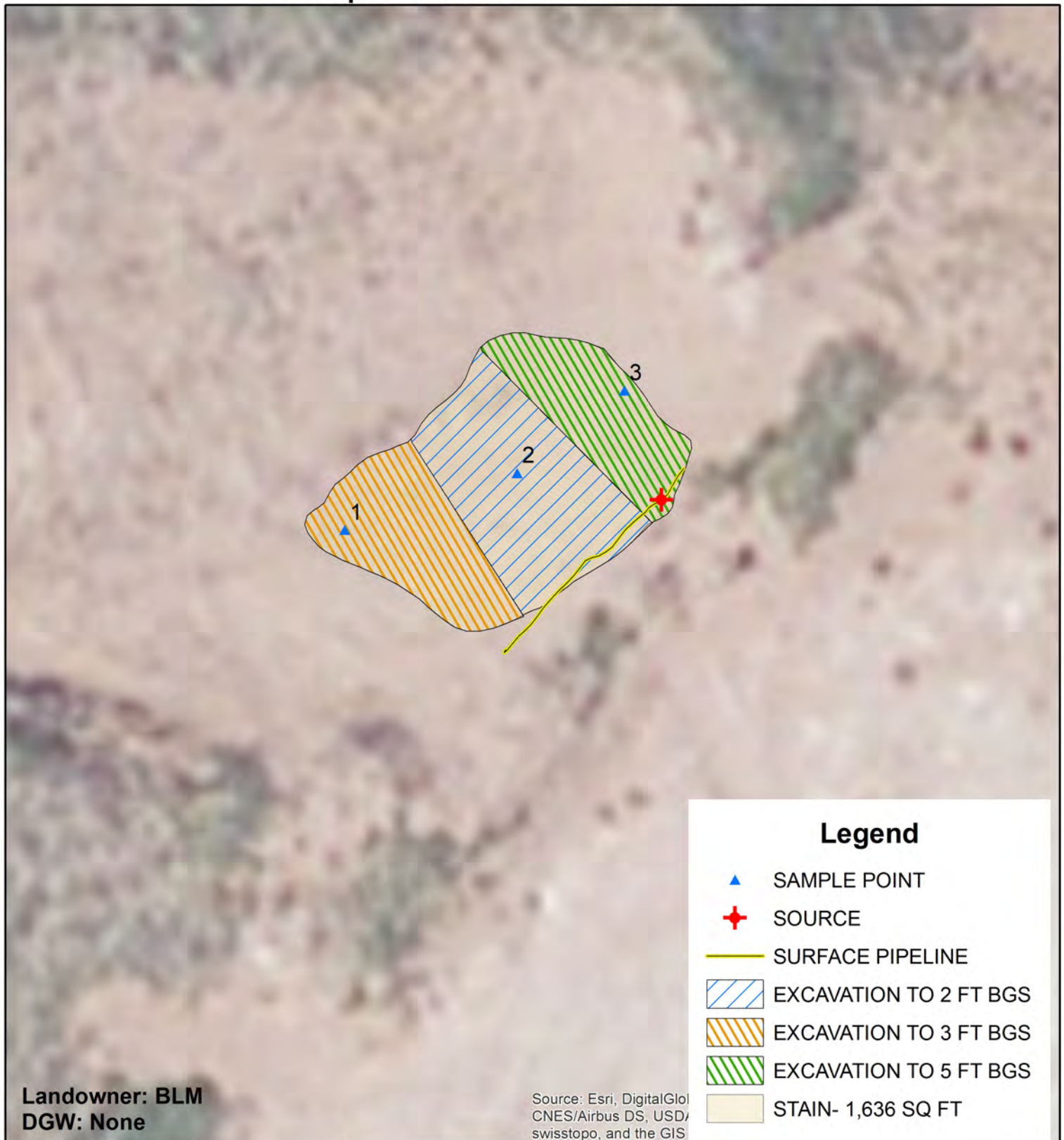
UL C & D SECTION 10
T-17-S R-31-E
EDDY COUNTY, NM

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

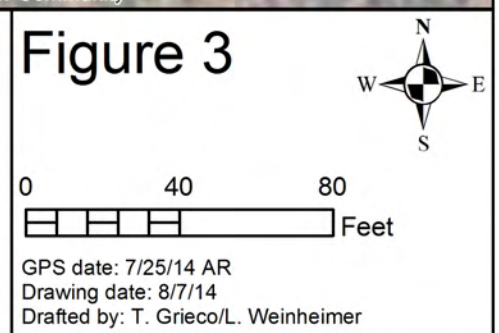
GPS date: 7/25/14 AR
Drawing date: 8/7/14
Drafted by: T. Grieco/L. Weinheimer

Location to Site for Direct Bury



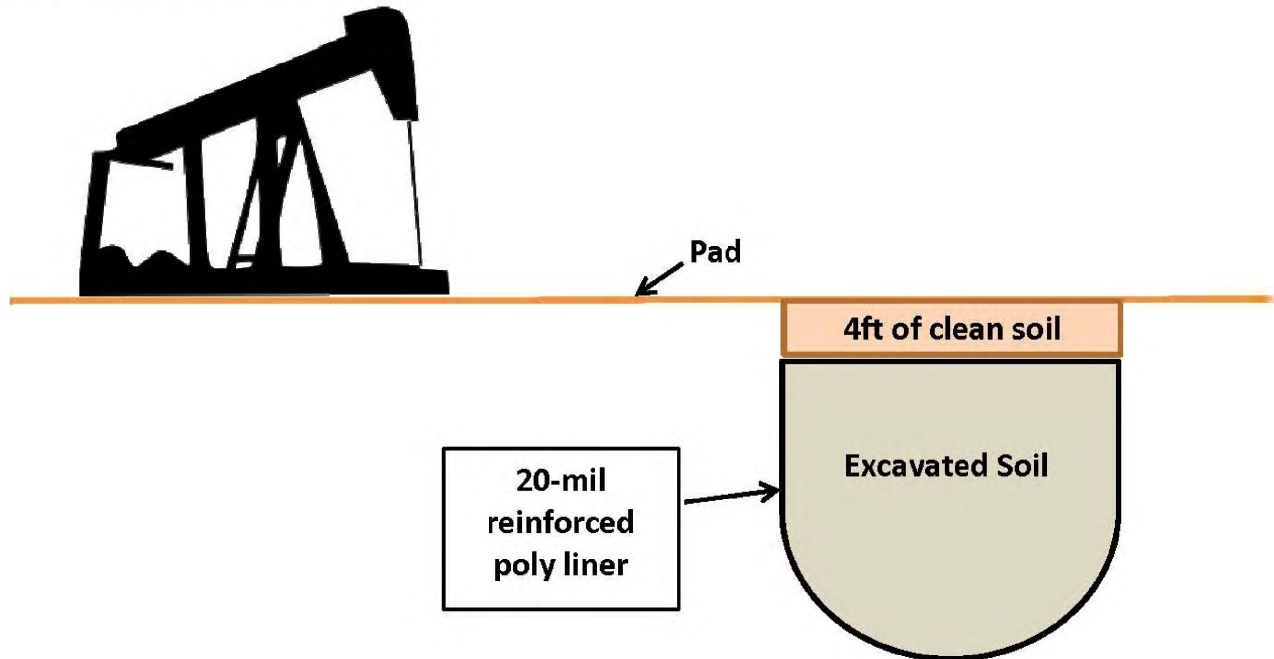
***LINN H.E.
WEST B #51***

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



Direct Bury Under Lease Pad

Linn H.E. West B #51

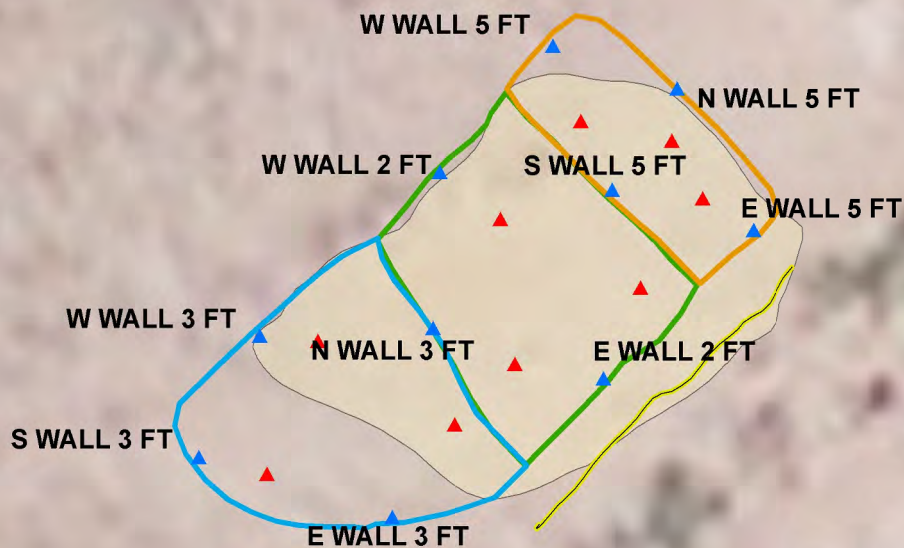


Excavation Data

2 ft Excavation									
Wall Samples	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
East Wall	32	3.6	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
West Wall	<16	3.2	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
Bottom Sample									
3 point composite	176	2.7	<10	78	<0.05	<0.05	<0.05	<0.15	<0.3

3 ft Excavation									
Wall Samples	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
North Wall	96		<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
South Wall	<16		<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
East Wall	160	3.7	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
West Wall	<16	4.1	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
Bottom Sample									
3 point composite	160	2.1	<10	15	<0.05	<0.05	<0.05	<0.15	<0.3

Backfill topsoil	Cl-
5 point composite	48



5 ft Excavation									
Wall Samples	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
North Wall	48	2.4	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
South Wall	320	3.5	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
East Wall	<16	1.9	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
West Wall	192	3.2	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
Bottom Sample									
3 point composite	64		<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3

Cl- FIELD DATA
Cl- LAB DATA

Legend

- ▲ BOTTOM COMPOSITE SAMPLES
- ▲ FINAL WALL SAMPLES
- SURFACE PIPELINE
- EXCAVATION @ 3 FT
- EXCAVATION @ 5 FT
- EXCAVATION @ 2 FT
- STAIN- 1,636 SQ FT

Landowner: BLM
DGW: None

Source: Esri, D
USDA, USGS,
User Communi



LINN H.E.
WEST B #51
NMOCD Case # 2RP-2441
UL C & D SECTION 10
T-17-S R-31-E
EDDY COUNTY, NM

Figure 5



0 10 20
Feet
GPS date: 9/30/14 KS
Drawing date: 10/2/14
Drafted by: L. Weinheimer

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.	

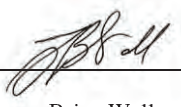

If a Watercourse was Impacted, Describe Fully.*:

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: 	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Brian Wall	Approved by District Supervisor: 		
Title: Construction Foreman II	Approval Date: 8/14/14	Expiration Date: N/A	
E-mail Address: bwall@linenergy.com	Conditions of Approval: Remediation per OCD		Attached <input type="checkbox"/>
Date: 07/24/2014	Phone: 806-367-0645		

* Attach Additional Sheets If Necessary

Rules and Guidelines.
Submit Remediation
Proposal no later than:
9/14/2014

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.

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)

BTEx 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 BTEx	<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

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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

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 6 of 6

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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	
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† 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.

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
Benzene*	6.44	2.00	08/01/2014	ND	1.89	94.7	2.00	6.63	
Toluene*	25.8	2.00	08/01/2014	ND	1.89	94.5	2.00	5.95	
Ethylbenzene*	44.0	2.00	08/01/2014	ND	1.83	91.7	2.00	6.35	
Total Xylenes*	75.2	6.00	08/01/2014	ND	5.63	93.8	6.00	6.25	
Total BTX	151	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
Chloride	1880	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	
GRO C6-C10	2840	500	07/30/2014	ND	177	88.6	200	4.94		
DRO >C10-C28	20000	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

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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)

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) 99.3 % 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	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

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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)

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) 98.3 % 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

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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

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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)

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*	0.104	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 BTX	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

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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)

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) 98.1 % 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	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

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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)

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) 97.5 % 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	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

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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

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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
Benzene*	0.837	0.500	08/01/2014	ND	1.89	94.7	2.00	6.63	
Toluene*	5.93	0.500	08/01/2014	ND	1.89	94.5	2.00	5.95	
Ethylbenzene*	20.0	0.500	08/01/2014	ND	1.83	91.7	2.00	6.35	
Total Xylenes*	44.3	1.50	08/01/2014	ND	5.63	93.8	6.00	6.25	
Total BTX	71.0	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
Chloride	3360	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
GRO C6-C10	837	200	08/02/2014	ND	179	89.3	200	10.2	
DRO >C10-C28	8600	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

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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

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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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: RECS				BILL TO				ANALYSIS REQUEST													
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: LIAN WEST B #51				State: Zip:																	
Project Location:				Phone #:																	
Sampler Name: ARE REDECOP				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							
440232													7-25-14	4:00	✓	✓	✓				
1	P+1 1 SS	G	1											4:05	✓	✓	✓				
2	P+1 1"	G	1											4:10	✓	✓	✓				
3	P+1 3"	G	1											4:11	✓	✓	✓				
4	P+1 4"	G	1											4:13	✓	✓	✓				
5	P+2 SS	G	1											4:15	✓	✓	✓				
6	P+2 6"	G	1											4:17	✓	✓	✓				
7	P+2 2"	G	1											4:19	✓	✓	✓				
8	P+2 3"	G	1											4:20	✓	✓	✓				
9	P+3 SS	G	1											4:22	✓	✓	✓				
10	P+3 4"	G	1											4:22	✓	✓	✓				

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Relinquished By:	Date: 7-25-14	Received By:	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: 2:45		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: 7/29/14	Received By:	REMARKS:	
	Time: 2:45		email: hconder@riceswd.com; lflores@rice-ecs.com;	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:	lweinheimer@rice-ecs.com; knorman@rice-ecs.com;	
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)	jkamplain@rice-ecs.com; sedwards@rice-ecs.com;	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	UP	cursanic@rice-ecs.com	
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Environmental Tech: @rice-ecs.com	

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

Appendix C

Corrective Action Labs

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

October 02, 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 09/30/14 16:17.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



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: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: EAST WALL 2' (H402986-01)

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	10/01/2014	ND	1.50	75.1	2.00	0.577	
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03	
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90	
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60	
Total BTX	<0.300	0.300	10/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 98.0 % 47.2-157

Surrogate: 1-Chlorooctadecane 109 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

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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: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: WEST WALL 2' (H402986-02)

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	10/01/2014	ND	1.50	75.1	2.00	0.577	
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03	
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90	
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60	
Total BTEx	<0.300	0.300	10/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 61-154

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	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 97.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 109 % 52.1-176

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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:	09/30/2014	Sampling Date:	09/30/2014
Reported:	10/02/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B #51	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: 3 PT COMP 2' (H402986-03)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTX	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	10/01/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58		
DRO >C10-C28	78.0	10.0	10/01/2014	ND	206	103	200	2.67		

Surrogate: 1-Chlorooctane 98.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 113 % 52.1-176

Cardinal Laboratories

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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: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: NORTH WALL 3' (H402986-04)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 95.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 105 % 52.1-176

Cardinal Laboratories

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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: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: SOUTH WALL 3' (H402986-05)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 61-154

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	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 92.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 102 % 52.1-176

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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: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: EAST WALL 3' (H402986-06)

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	10/01/2014	ND	1.50	75.1	2.00	0.577	
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03	
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90	
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60	
Total BTEx	<0.300	0.300	10/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 96.5 % 47.2-157

Surrogate: 1-Chlorooctadecane 108 % 52.1-176

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Analytical Results For:

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

Received: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: WEST WALL 3' (H402986-07)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 61-154

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	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 93.1 % 47.2-157

Surrogate: 1-Chlorooctadecane 103 % 52.1-176

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

Received: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: 3 PT COMPOSITE 3' (H402986-08)

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	10/01/2014	ND	1.50	75.1	2.00	0.577	
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03	
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90	
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60	
Total BTEx	<0.300	0.300	10/01/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	15.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 96.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 104 % 52.1-176

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

Received:	09/30/2014	Sampling Date:	09/30/2014
Reported:	10/02/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B #51	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: NORTH WALL 5' (H402986-09)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	10/01/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 94.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 103 % 52.1-176

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

Received: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: SOUTH WALL 5' (H402986-10)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEX	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	10/01/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 98.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 106 % 52.1-176

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Analytical Results For:

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

Received: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: EAST WALL 5' (H402986-11)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 61-154

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	10/01/2014	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 87.5 % 47.2-157

Surrogate: 1-Chlorooctadecane 97.8 % 52.1-176

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Analytical Results For:

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

Received: 09/30/2014
Reported: 10/02/2014
Project Name: H. E. WEST B #51
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 09/30/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: WEST WALL 5' (H402986-12)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 89.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 96.3 % 52.1-176

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Analytical Results For:

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

Received:	09/30/2014	Sampling Date:	09/30/2014
Reported:	10/02/2014	Sampling Type:	Soil
Project Name:	H. E. WEST B #51	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: 3 POINT COMP 5' (H402986-13)

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	10/01/2014	ND	1.50	75.1	2.00	0.577		
Toluene*	<0.050	0.050	10/01/2014	ND	1.45	72.6	2.00	2.03		
Ethylbenzene*	<0.050	0.050	10/01/2014	ND	1.36	68.2	2.00	1.90		
Total Xylenes*	<0.150	0.150	10/01/2014	ND	4.05	67.5	6.00	1.60		
Total BTEx	<0.300	0.300	10/01/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 61-154

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	10/01/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2014	ND	192	96.2	200	3.58	
DRO >C10-C28	<10.0	10.0	10/01/2014	ND	206	103	200	2.67	

Surrogate: 1-Chlorooctane 91.6 % 47.2-157

Surrogate: 1-Chlorooctadecane 99.9 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

10/2

Company Name: RECS		BILL TO		ANALYSIS REQUEST																			
Project Manager: Laura Flores, Jacob Kampman		P.O. #:																					
Address:		Company:																					
City: State: Zip:		Attn:																					
Phone #: Fax #:		Address:																					
Project #: Project Owner:		City:																					
Project Name:		State: Zip:																					
Project Location: M.E. West B #51		Phone #:																					
Sampler Name: Kyle Schmidt		Fax #:																					
FOR LAB USE ONLY																							
Lab I.D.	Sample I.D.	GRAB OR (COMP. # CONTAINERS)	MATRIX											PRESERV.	SAMPLING								
			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE/COOL	OTHER:	DATE	TIME	C ⁻	TPH	BTEX							
#402986-																							
01	East Wall 2'	G 1			X				X			9-30-14	1:10	X	X	X							
02	West wall 2'	G 1			X				X			}	1:15	X	X	X							
03	3 point composite 2'	C 1			X				X		1:20		X	X	X								
04	North wall 3'	G 1			X				X		1:25		X	X	X								
05	South wall 3'	G 1			X				X		1:30		X	X	X								
06	East wall 3'	G 1			X				X		1:35		X	X	X								
07	West wall 3'	G 1			X				X		1:40		X	X	X								
08	3 point composite 3'	C 1			X				X		1:45		X	X	X								
09	North wall 5'	G 1			X				X		1:50		X	X	X								
10	South wall 5'	G 1			X				X		1:55		X	X	X								

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Kyle Schmidt	Date: 9-30-14 Time: 4:17p	Received By: C. Keene	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 4.4°C			REMARKS: All Plz RUSH!!	
Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No			CHECKED BY: (Initials) upk	

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

10/2

Company Name: RECS				BILL TO				ANALYSIS REQUEST															
Project Manager: Laura Flores, Jacob Kampflum				P.O. #:																			
Address:				Company:																			
City: State: Zip:				Attn:																			
Phone #: Fax #:				Address:																			
Project #: Project Owner:				City:																			
Project Name:				State: Zip:																			
Project Location: H.E. West BH51				Phone #:																			
Sampler Name: Kyle Schnaidt				Fax #:																			
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING															
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME									
H402986																							
-11	East wall 5'	G	1			X				X			9-30-14	2:00	X	X	X						
-12	West Wall 5'	G	1			X				X			S	2:05	X	X	X						
-13	3 point composite 5'	C	1			X				X				2:10	X	X	X						

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Relinquished By: Kyle Schnaidt		Date: 9-30-14	Received By: C. Lyne		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:		Time: 4:17	Received By:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Date:		Time:		REMARKS: All Plz		
Delivered By: (Circle One)		Sample Condition		CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other:		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		CSK		
		Yes <input type="checkbox"/> No <input type="checkbox"/>				

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

#54



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

October 28, 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 10/27/14 16:15.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	10/27/2014	Sampling Date:	10/27/2014
Reported:	10/28/2014	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: 5 PT. COMP BACKFILL TOPSOIL (H403300-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/28/2014	ND	400	100	400	0.00	

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



KVSH

Page 4 of 4

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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

Appendix D

Photo Documentation

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

Linn H.E. West B #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



Importing caliche, facing southwest

9/4/14



Constructing caliche road to facilitate excavation activities, facing southwest

9/4/14



Caliche road completed, facing south

9/4/14



Excavating to 2 ft, facing southeast

9/10/14



Excavating to 5 ft, facing southwest 9/16/14



Excavating to 3 ft, facing southwest 9/17/14



Excavating to 8 ft for direct bury, facing northwest 9/22/14



Continuing to excavate to 8 ft for direct bury, facing northeast 9/23/14



Excavation of release completed, facing northwest
9/24/14



Importing soil from direct bury for backfill, facing east
9/24/14



Completed 8 ft excavation, facing southwest 9/24/14



Installing 20-mil liner in 8 ft excavation, facing southeast
10/23/14



Direct burying contaminated soil from release, facing west
10/23/14



Direct bury of soil completed, facing northeast 10/27/14



Backfilling direct bury with the removed caliche, facing southwest
10/27/14



Importing caliche, facing northwest
10/28/14



Backfilling direct bury with the imported caliche,
facing northeast 10/28/14



Direct bury completed, facing northeast 10/28/14



Backfilling release area, facing southwest 10/29/14



Release area backfilled, facing northeast 10/29/14



Release area backfilled, facing northwest 10/29/14



Spreading soil amendments over release area, facing west 10/31/14



Disking in soil amendments over release area, facing northeast 10/31/14



Spreading soil amendments over direct bury area, facing west 10/31/14



Disking soil amendments over direct bury area, facing west 10/31/14



Seeding release area, facing northwest 10/31/14



Seeding removed caliche road, facing east 10/31/14



Seeding direct bury area, facing southeast 10/31/14



Disking in seed over direct bury area, facing southwest
10/31/14



Disking in seed over release area and removed caliche road, facing southeast
10/31/14



Direct bury area completed, facing west
10/31/14



Site completed, facing southwest
10/31/14



Release area completed, facing southeast 10/31/14



Removed caliche road completed, facing southeast
10/31/14

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 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	
Address 2130 W. Bender, Hobbs, NM 88240	Telephone No.	
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

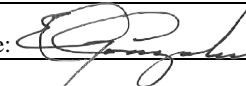
Type of Release Produced Water	Volume of Release 10 bbls	Volume Recovered 0
Source of Release Fiberglass pipeline	Date and Hour of Occurrence 07/23/2014	Date and Hour of Discovery 07/23/2014 3:00 pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 release affected 1,636 square feet of pasture land. RECS personnel were on site beginning on July 28th, 2014 to assess the release. Three points within the release were field sampled at the surface and with depth. Representative samples from the points were taken to a commercial laboratory for analysis. Based on the laboratory sampling data, a CAP was submitted to NMOCD and BLM on August 14th, 2014. NMOCD and BLM approved the CAP that same day. Corrective actions began at the site on September 4th, 2014. The release area was excavated in three portions as stated in the approved CAP. The area around Point 1 was excavated to 3 ft bgs, the area around Point 2 was excavated to 2 ft bgs and the area around Point 3 was excavated to 5 ft bgs. Once the excavations were completed, grab samples from the outer walls and composite bottom samples of each excavation were taken to a commercial laboratory for analyses. The excavated soil was taken to the adjacent H.E. West B #51 lease pad for direct burial. The caliche was scraped from the lease pad and piled off to the side. A repository measuring 38 ft x 38 ft x 8 ft deep was excavated and lined in entirety with a 20-mil reinforced poly liner. The excavated soil from the release was placed in the lined repository, and the top of the repository was capped with a 20-mil reinforced poly liner. The top soil removed from the lease pad to create the repository was 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 was taken to a commercial laboratory and returned a chloride reading of 48 mg/kg. Approximately four feet of the repository top soil was placed over the capped repository, and the scraped caliche was backfilled over the top soil. 72 cubic yards of clean caliche was imported to the site to complete the backfill over the repository and to level the area to the surrounding area. On October 31st, 2014, soil amendments were added to the disturbed area from the release and the disturbed area adjacent to the lease pad. The areas were then seeded with a 50/50 mix of BLM #2 and BLM #4.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: E.L. Gonzales	Approved by Environmental Specialist:	
Title: Production Supervisor	Approval Date:	Expiration Date:
E-mail Address: elgonzales@linnenrgy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 02/25/2015 Phone: 505-504-8002		

* Attach Additional Sheets If Necessary