



LINN ENERGY

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

J.L. Keel A #10
(2RP-2142)

Termination Request

API No. 30-015-05098

Release Date: December 27th, 2013

Unit Letter I, Section 7, Township 17S, Range 31E

March XX, 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 Energy – J.L. Keel A #10 (2RP-2142)

UL/I sec. 7 T17S R31E

API No. 30-015-05098

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 4.9 miles northeast of Loco Hills, New Mexico. Although the initial C-141 states that the release occurred in UL/I, the release area also included in UL/O & P sec. 7 T17S R31E. This site is in an area of no groundwater.

On December 27th, 2013, a release of produced water occurred from a fiberglass pipeline. A total of 200 barrels of produced water was released over 26,301 square feet of pasture land. None of the fluid was recovered. NMOCD and BLM were notified of the release on December 27th, 2013, and an initial C-141 was submitted to NMOCD and BLM for their approval. The initial C-141 was approved by NMOCD on January 8th, 2014 (Appendix A).

RECS personnel were on site beginning on December 31st, 2013 to assess the release. Seven points from within the release area were sampled at the surface and with depth. All samples were field tested for chlorides and organic vapors, and representative samples were taken to a commercial laboratory for analyses. Three soil bores were installed within the release on February 19th, 2014. The soil bores were installed over Verticals 1-3. As the bores were advanced, samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for analyses. SB-1 returned laboratory chloride readings of 64 mg/kg at 18 ft bgs and 112 mg/kg at 21 ft bgs. SB-2 returned laboratory chloride readings of 48 mg/kg at 24 and 27 ft bgs. SB-3 returned laboratory chloride readings of 176 mg/kg at 33 and 36 ft bgs. GRO, DRO and BTEX results were non-detect.

SB-4 was installed outside the release area to confirm that groundwater was not present at the site. The bore was installed to a depth of 105 ft bgs. At 103 ft bgs, red bed clay was encountered, which indicated the bottom of the aquifer. The bore was left open for over 48 hours. On February 25th, 2014, the bore was gauged to determine depth to groundwater, and no groundwater was discovered in the bore to a depth of 105 ft bgs.

On April 4th, 2014, a Corrective Action Plan (CAP) was submitted to NMOCD and BLM. The CAP stated that the area around Verticals 1-3 would be excavated to a depth of 4 ft bgs. Once the excavation was completed, the walls of the excavation would be sampled to confirm that laboratory chloride, GRO, DRO and BTEX readings were below regulatory standards. A 20-mil reinforced poly liner would be installed and key set into the base of the excavation. The remainder of the release site would be scraped down to 2 ft bgs. A bottom composite of the 2 ft scrape would be taken to a commercial laboratory to confirm that chloride, GRO, DRO and BTEX readings were below regulatory standards.

All excavated soils would be evaluated for use as backfill and any soils that did not meet regulatory standards would be disposed of at a NMOCD approved facility. Clean soil would be imported to the site to replace any soils taken for disposal. A sample of the blended backfill would be taken to a commercial laboratory for analysis to confirm that the constituents were below regulatory standards. The area would be backfilled and seeded with a blend of native vegetation.

BLM approved the CAP on April 8th, 2014, with the stipulation that all areas would have to be excavated to 4 ft bgs to achieve the BLM closure level of 1,000 ppm chlorides.

Corrective actions began at the site on May 28th, 2014. The release was excavated in four sections, each to a depth of 4 ft bgs (Figure 1 and Figure 2). Wall samples were taken from each of the four sections and field tested for chlorides and organic vapors. The samples were then sent to a commercial laboratory for analyses (Appendix C). Results of this analyses confirmed constituents below regulatory standards. A 20-mil, reinforced poly liner was seated and key set into the base of the Southeast, Northeast, and West excavations. A total of 2,580 yards of contaminated soil was taken to a NMOCD approved facility for disposal.

A request to backfill the site was sent to NMOCD and BLM on July 31st, 2014. Both parties approved the site to be backfilled on August 1st, 2014. A total of 2,592 yards of top soil were imported to the site to blend with the remaining soil to use as backfill. An 8 point composite sample of the blended soil was taken to a commercial laboratory for analysis and returned a chloride value of 368 mg/kg. GRO, DRO and BTEX readings returned values of non-detect. The site was backfilled with the blended soil. On October 30th, 2014, soil amendments were added to the disturbed areas and the site was seeded with LPC mix.

Photo documentation of all these activities can be found in Appendix C.

Given that Linn has completed all activities as stated in the approved CAP, Linn respectfully requests 'remediation termination' and site closure. A final C-141 can be found in Appendix D.

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

Sincerely,

A handwritten signature in dark ink, appearing to read 'J.C.W.' followed by a long, horizontal, looping flourish.

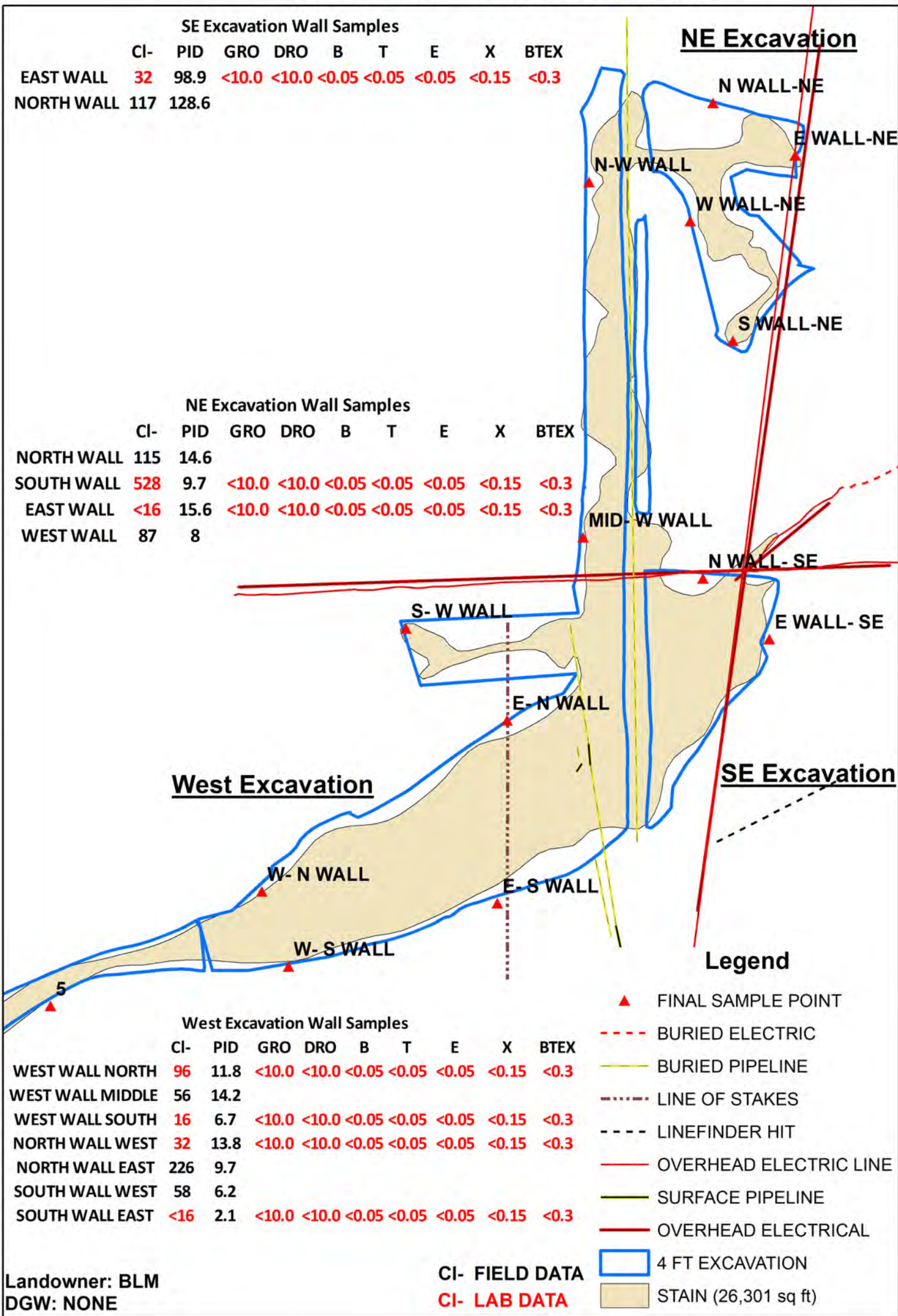
Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1–North Area Excavation Data
- Figure 2 – Excavation Data
- Appendix A – Initial C-141
- Appendix B – Corrective Action Labs
- Appendix C – Photo Documentation
- Appendix D – Final C-141

Figures

North Area Excavation Data



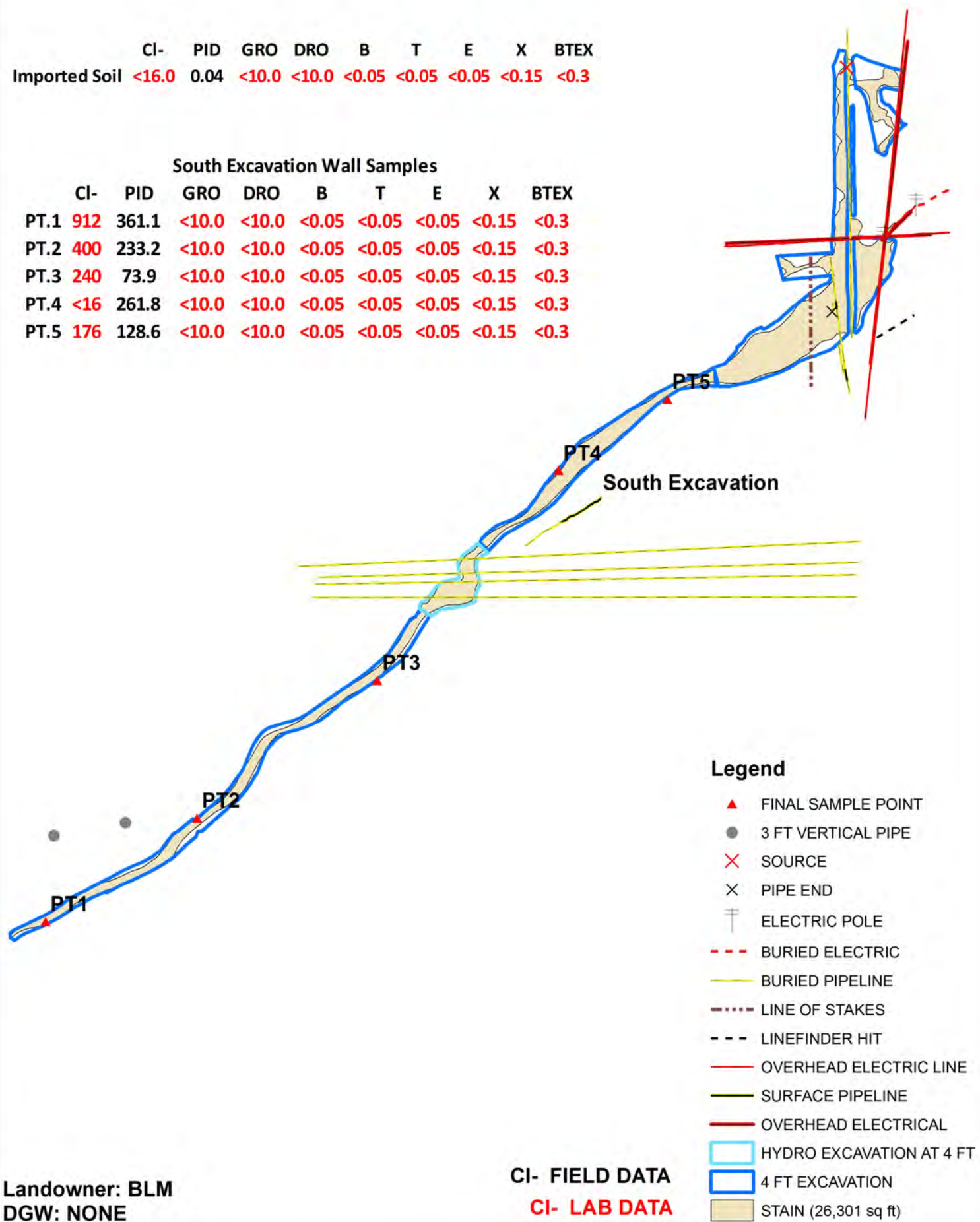
Excavation Data

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
8 Pt Composite Blended Backfill North	528	31.5	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
8 Pt Composite Blended Backfill South	368	14.8	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
Imported Soil	<16.0	0.04	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3

South Excavation Wall Samples

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
PT.1	912	361.1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.2	400	233.2	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.3	240	73.9	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.4	<16	261.8	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.5	176	128.6	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3



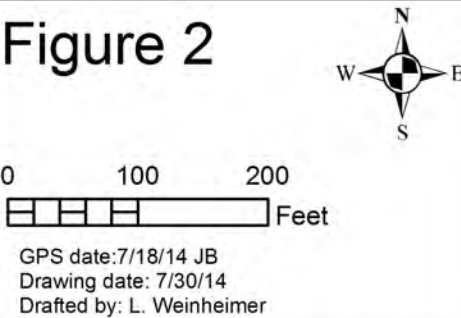
Landowner: BLM
DGW: NONE

CI- FIELD DATA
CI- LAB DATA



LINN J.L.
KEEL A #10
LEGALS: UL/I, O, P sec. 7
T-17-S R-31-E
EDDY COUNTY, NM

Figure 2



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

RECEIVED

DEC 30 2013

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

NJM 1400848180

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Linn Operating 269324	Contact: Brian Wall
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739
Facility Name: J L Keel A #10	Facility Type: Injection

Surface Owner: Federal	Mineral Owner:	API No.: 30-015-05098
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LOCATION OF RELEASE

Unit Letter I	Section 07	Township 17S	Range 31E	Feet from the 1980	North/South Line South	Feet from the 660	East/West Line East	County Eddy
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Latitude: 32.84728 Longitude: -103.90176

NATURE OF RELEASE



Type of Release: Produced Water	Volume of Release: 200 bbls	Volume Recovered: 0
Source of Release: Fiberglass pipeline	Date and Hour of Occurrence: 12/27/2013 2:00pm	Date and Hour of Discovery: 12/27/2013 2:00pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Burton- BLM Mike Bratcher-NM OCD	
By Whom? Joe Hernandez	Date and Hour 12/27/2013 3:00pm	
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.*: Mario Hernandez, called me told me that line #3 at Keel West injection was going down on low discharge pressure. We went to chasing lines out to find leak, found leak 500 feet south of Keel A. #10 well, Shut line in. Waiting on one call to clear to repair and clean up spill.

Describe Area Affected and Cleanup Action Taken.*: Legals for spill are. 32.5045N 103.5410 W. Spill runs 300 feet south, 15 to 50 feet wide, then goes south west 1650 feet, 20 feet wide, legals at end of spill are. 32.5035 N 103.5421 W. @ fiber glass line blow in two pieces.

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: Brian Wall	Approved by District Supervisor Signed By 	
Title: Construction Foreman II	JAN 08 2014 Approval Date:	Expiration Date:
E-mail Address: bwall@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/30/2013 Phone: 806-367-0645	Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION PROPOSAL NO LATER THAN:	

* Attach Additional Sheets If Necessary

February 8, 2014

2RR-2142

Appendix B

Corrective Action Labs

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



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

July 24, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/16/14 16:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

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: 07/16/2014
Reported: 07/24/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/16/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: IMPORTED SOIL (H402166-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72	
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44	
Total BTEX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	07/21/2014	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2014	ND	186	92.8	200	2.31	
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32	

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

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Fax To: (575) 397-1471

Received:	07/16/2014	Sampling Date:	07/16/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: BLENDED BACKFILL 8 PT COMP N END (H402167-01)

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72	
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44	
Total BTX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	528	16.0	07/21/2014	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2014	ND	186	92.8	200	2.31	
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32	

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 116 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



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

Page 4 of 4

[illegible]

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

54

July 24, 2014

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Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: BLENDED BACKFILL 8 PT COMP S END (H402168-01)

BTX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72		
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44		
Total BTX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	368	16.0	07/21/2014	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/18/2014	ND	186	92.8	200	2.31		
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32		

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 119 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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***	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

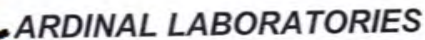
Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Relinquished By: 		Date: 7-16-14	Received By: Jodi Benson	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Time: 4:30				Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:		Date:	Received By:	REMARKS:	
Time:				email: hconder@riceswd.com; lflores@rice-ecs.com;	
Delivered By: (Circle One)		Sample Condition	CHECKED BY: (Initials)	lweinheimer@rice-ecs.com; knorman@rice-ecs.com;	
Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>				jkamplain@rice-ecs.com; sedwards@rice-ecs.com;	
Sampler - UPS - Bus - Other:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		cursanic@rice-ecs.com	
				Environmental Tech: J. Balcom @rice-ecs.com	

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

#54

July 23, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/22/14 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:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 1 (H402228-01)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	912	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 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: 07/22/2014
Reported: 07/23/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/22/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SOUTH 4' EXC PT. 2 (H402228-02)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEx	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	400	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 117 % 65.2-140

Surrogate: 1-Chlorooctadecane 128 % 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: 07/22/2014
Reported: 07/23/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/22/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SOUTH 4' EXC PT. 3 (H402228-03)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEx	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 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	240	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 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: 07/22/2014
Reported: 07/23/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/22/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SOUTH 4' EXC PT. 4 (H402228-04)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEx	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 115 % 65.2-140

Surrogate: 1-Chlorooctadecane 125 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 07/22/2014
Reported: 07/23/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/22/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SOUTH 4' EXC PT. 5 (H402228-05)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEx	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 116 % 65.2-140

Surrogate: 1-Chlorooctadecane 126 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

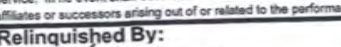

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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Relinquished By:  Date: 7-22-14 Time: 4:00		Received By: Jodi Henson Date: _____ Time: _____		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:	
Relinquished By: _____ Date: _____ Time: _____		Received By: _____ Date: _____ Time: _____		email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com Environmental Tech: Jhalcom @rice-ecs.com	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		CHECKED BY: (Initials) 	

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

#54



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

July 23, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/22/14 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

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:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC N WALL WEST (H402229-01)

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	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	32.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 118 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 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: 07/22/2014
Reported: 07/23/2014
Project Name: J. L. KEEL A #10
Project Number: NONE GIVEN
Project Location: LINN ENERGY

Sampling Date: 07/22/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: WEST 4' EXC S WALL EAST (H402229-02)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEx	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 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:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC WEST WALL NORTH (H402229-03)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEx	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	96.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 106 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 63.6-154

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Analytical Results For:

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

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC WEST WALL SOUTH (H402229-04)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 98.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH EAST 4' EXC EAST WALL (H402229-05)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	32.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 107 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: NORTH EAST 4' EXC EAST WALL (H402229-06)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEx	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	192	96.1	200	8.16	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	208	104	200	6.40	

Surrogate: 1-Chlorooctane 127 % 65.2-140

Surrogate: 1-Chlorooctadecane 144 % 63.6-154

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

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: NORTH EAST 4' EXC SOUTH WALL (H402229-07)

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	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEx	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	528	16.0	07/23/2014	ND	400	100	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	07/23/2014	ND	192	96.1	200	8.16	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	208	104	200	6.40	

Surrogate: 1-Chlorooctane 135 % 65.2-140

Surrogate: 1-Chlorooctadecane 142 % 63.6-154

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Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager






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

rust!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 10 of 10

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Relinquished By: 		Date: 7-22-14	Received By: 	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Time: 4:00				Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:		Date:	Received By:	REMARKS:	
Time:				email: hconder@riceswd.com; lflores@rice-ecs.com;	
Delivered By: (Circle One)				lweinheimer@rice-ecs.com; knorman@rice-ecs.com;	
Sampler - UPS - Bus - Other:		Sample Condition		jkamplain@rice-ecs.com; sedwards@rice-ecs.com;	
		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		cursanic@rice-ecs.com	
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		Environmental Tech: J. Balcom	
		CHECKED BY: 		@rice-ecs.com	

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

#54

Appendix C

Photo Documentation

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

Linn J.L. Keel A #10
Unit Letter I, Section 7, T17S, R31E



Source of release, facing north

12/31/13



Initial release, facing southeast

12/31/13



Initial release area, facing northeast

12/31/13



Initial release area, facing east

12/31/13



Hand auguring for depth, facing northwest 1/2/14



Line spot with hydrovac, facing north 1/28/14



Installing vertical, facing north 1/30/14



Installing SB-1, facing east 2/19/14



Plugging SB-1 in total with bentonite 2/19/14



SB-1 completed, facing southeast 2/19/14



Drilling SB-2, facing northeast 2/19/14



Plugging SB-2 in total with bentonite 2/19/14



SB-2 completed, facing northeast

2/19/14



Drilling SB-3, facing southeast

2/19/14



Plugging SB-3 in total with bentonite

2/19/14



SB-3 completed, facing south

2/19/14



Drilling SB-4, facing east

2/19/14



Checking SB-4 for groundwater, facing northwest

2/25/14



Plugging SB-4, facing northwest

2/25/14



Completed SB-4, facing northwest

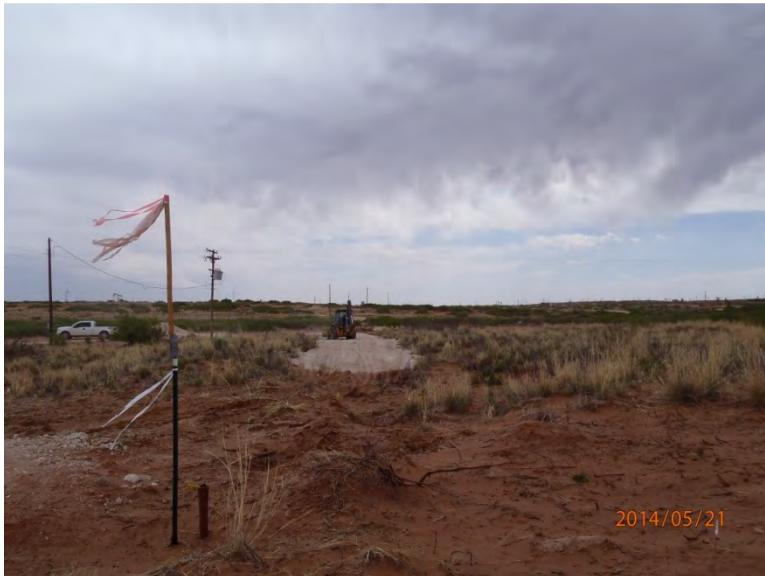
2/25/14



Importing caliche, facing southeast 5/21/14



Construction caliche road to site to facility excavation activities, facing south 5/21/14



Road completed, facing south 5/21/14



Beginning the excavation, facing southeast 5/28/14



Continuing to excavate to 4 ft, facing east 5/29/14



Exporting soil, facing south 6/2/14



Continuing to excavate to 4 ft, facing southeast 6/4/14



Hydro-excavating around buried lines, facing southwest 6/17/14



4 ft excavation completed, facing southeast 7/13/14



4 ft excavation completed, facing south 7/13/14



Digging trench to keyset liner, facing northwest 7/14/14



Trench for keyset completed, facing southwest 7/14/14



Trench for keyset completed, facing northeast 7/15/14



Importing soil, facing east

7/16/14



Installing 20-mil reinforced liner, facing south 7/28/14



Installing 20-mil reinforced liner, facing south 7/29/14



Liner installation completed, facing northeast 7/29/14



Liner installation completed, facing north 7/29/14



Liner installation completed, facing northwest 7/29/14



Key-setting liner, facing southeast 7/29/14



Backfilling site, facing north

8/5/14



Backfilling site, facing southwest

8/8/14



Installing 20-mil reinforced liner, facing west

8/13/14



Liner installation completed, facing east

8/13/14



Liner installation completed, facing west 8/13/14



Key-setting liner, facing northwest 8/13/14



Backfilling site, facing west 8/13/14



Backfilling site, facing south 8/14/14



Site backfilled, facing southwest

8/19/14



Site backfilled, facing southwest

8/19/14



Site backfilled, facing west

8/19/14



Backfilling site, facing east

8/21/14



Site backfilled, facing south

8/22/14



Scraping up caliche road, facing north

10/26/14



Spreading soil amendments, facing north

10/30/14



Disking in amendments, facing north

10/30/14



Seeding site, facing northeast

10/30/14



Seeding site, facing south

10/30/14



Raking in seed, facing south

10/30/14



Site completed, facing west

10/30/14



Site completed, facing north

10/30/14



Site completed, facing north

10/30/14

Appendix D

Final C-141

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