

LINN ENERGY

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

Max Friess Supply Line (2RP-1877)

Corrective Action Plan



API No. 3001528822

Unit Letter P&O, Section 19 and Unit Letter A&B, Section 30, Township 17S, Range 33E

Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241 Phone 575.393.2967

CERTIFIED MAIL RETURN RECEIPT NO. 7007 2560 0000 4569 8371

September 5th, 2013

Mike Bratcher

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

RE: Corrective Action Plan (CAP)
Linn Energy – Max Friess Supply Line AD (2RP-1877)
UL/P&O sec. 19 & UL/A&B sec. 30 T17S R31E
API No. 3001528822

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 4.5 miles east of Loco Hills in UL/P&O sec. 19 and UL/A&B sec. 30 T17S R31E in Eddy County, NM. A break in a 4 inch steel line led to the release of 40 barrels of produced water. A vacuum truck was called to the site and picked up 10 barrels of produced water. An initial C-141 detailing the release was sent to NMOCD and BLM on August 28th, 2013 (Appendix A). The site is in an area of no known groundwater.

RECS began initiating work at the site on May 20th, 2013. Initial samples were taken from the surface of the release area and field tested for chloride and hydrocarbons (Figure 1). The field data suggested elevated levels of chlorides throughout the release and relatively low levels of hydrocarbons.

Based on the surface data, RECS installed six verticals at each surface sample point (Figure 2). BLM approved vertical installation on July 23rd, 2013. As the verticals were installed, samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples from each vertical were taken to a commercial laboratory for analysis (Appendix B). Verticals #1 and #2 were installed to a depth of 15 ft bgs and showed elevated laboratory chloride readings at that depth. However, GRO, DRO and BTEX readings were non-detect, except for in Vertical #1 where the toluene reading was 0.086 mg/kg at 1.5 ft and in Vertical #2 where the DRO reading was 11.3 mg/kg. Vertical #3 was installed to a depth of 13 ft bgs and Vertical #4 was installed to a depth of 4 ft bgs where laboratory chlorides, GRO, DRO and BTEX readings were low in

the bottom most sample of each vertical. Vertical #5 was installed to a depth of 15 ft bgs where the laboratory chloride reading was 384 mg/kg and GRO, DRO and BTEX readings were non-detect. Vertical #6 was installed to a depth of 9 ft bgs where the laboratory chloride reading was 96 mg/kg and the GRO, DRO and BTEX readings were non-detect.

On August 6th, 2013 BLM approved soil bore installation activities at the site that occurred on August 20th, 2013. Two soil bores were installed at the site (Figure 3). SB-1 was installed to a depth of 99 ft bgs and field samples were taken at regular intervals as the bore was advanced. Representative samples from the bore were taken to a commercial laboratory for analysis (Appendix C). Laboratory chloride readings returned results of 5,920 mg/kg at 51 ft bgs, 80 mg/kg at 96 ft bgs and 144 mg/kg at 99 ft bgs. GRO, DRO and BTEX readings at all depths were non-detect.

SB-2 was installed to a depth of 120 ft bgs to determine the depth of groundwater at the site. Red bed clay was encountered at a depth of 99 ft bgs, which indicates the bottom of the aquifer. The bore indicated no groundwater to a depth of 120 ft.

Photo documentation of these activities can be found in Appendix D.

Corrective Action Plan

Since there is no groundwater at the site, the residual chlorides in the vadose zone will not in any way affect groundwater beneath the site. However, to mitigate any chance that the residual chlorides could affect groundwater in the future, RECS recommends that Linn excavate the site to 4 ft bgs. The walls of the excavation will be field tested for chlorides and representative samples taken to a commercial laboratory for analysis once chloride levels in the walls indicate numbers below 1,000 mg/kg. At 4 ft bgs, over the greatest area of the release, a 20-mil reinforced poly liner will be installed and key set into the excavation (Figure 4). The liner will not be installed in the finger areas in the northern part of the release due to the difficulty of key setting a liner in such thin areas. The excavated soil will be transported to a NMOCD approved facility. Once the liner is installed, the excavation will be backfilled with clean, imported soil. The site will then be seeded with a blend of native vegetation. Vegetation acts as an infiltration barrier for the site, since plants capture water through their roots thereby reducing the amount of water traveling through the vadose zone to groundwater.

Once the CAP activities have been completed, Linn will submit a request for 'remediation termination' or similar closure status of the regulatory file.

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 Data

Figure 2 – Vertical Data

Figure 3 – Soil Bore Installation

Appendix A – Initial C-141

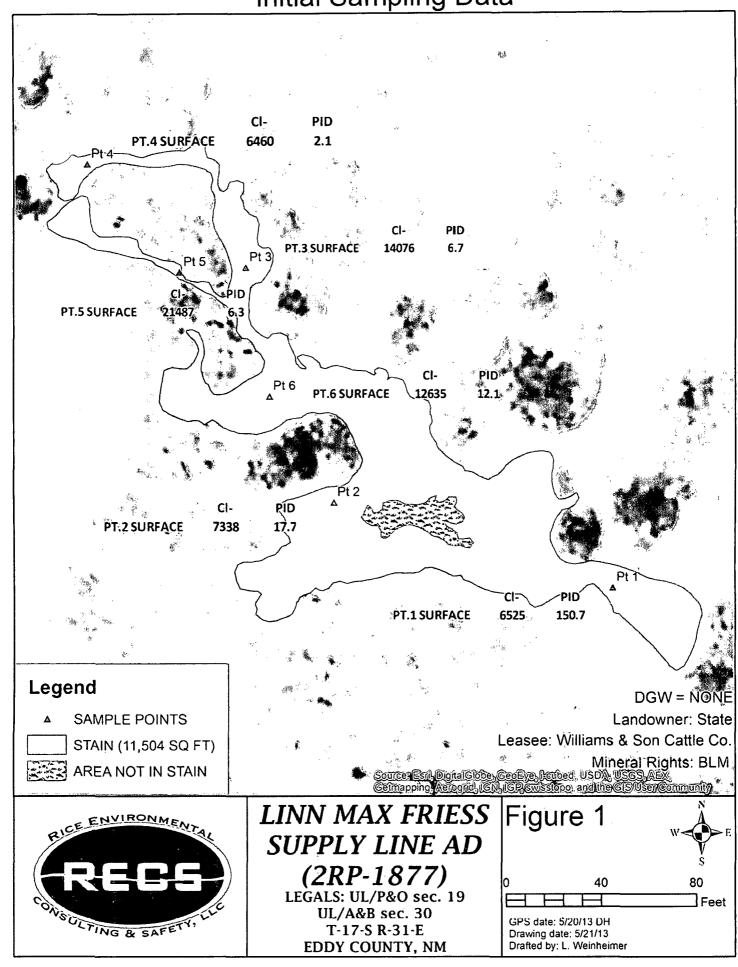
Appendix B – Vertical Sampling Laboratory Analyses

Appendix C – Soil Bore Installation Documentation

Appendix D – Photo Documentation



Initial Sampling Data



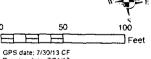
Vertical Data



LINN MAX FRIESS SUPPLY LINE AD (2RP-1877)

LEGALS: UL/P&O sec. 19 UL/A&B sec. 30 T-17-S R-31-E EDDY COUNTY, NM Landowner: State
Leasee: Williams & Son Cattle Co.

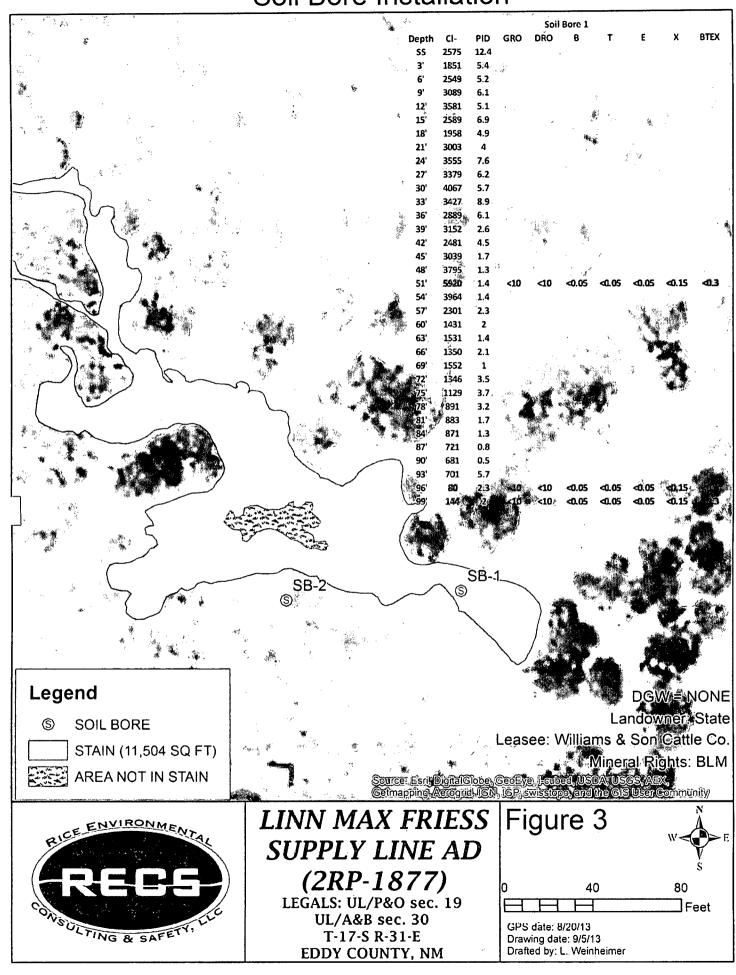




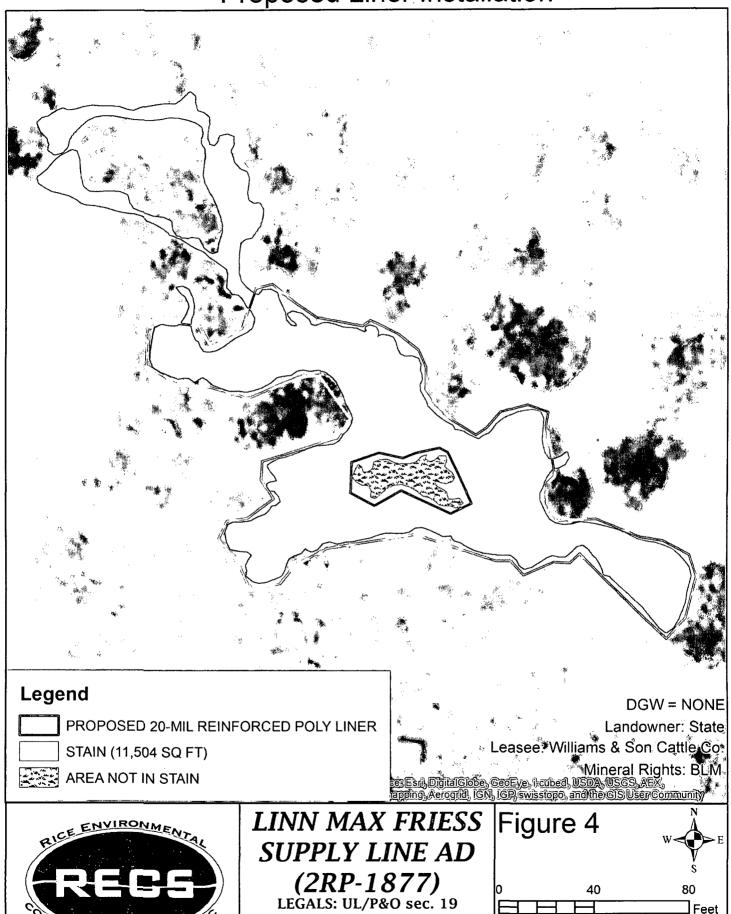
GPS date: 7/30/13 CF Drawing date: 7/31/13 Drafted by: L. Weinneimer



Soil Bore Installation



Froposed Liner Installation



UL/A&B sec. 30

T-17-S R-31-E

EDDY COUNTY, NM

GPS date: 5/20/13 DH

Drafted by: L. Weinheimer

Drawing date: 9/5/13

VSULTING & SAFET

Appendix A
Initial C-141

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

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

State of New Mexico Energy Minerals and Natural Resources

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

RECEIVED

Form C-141 Revised August 8, 2011

SALLIE 20802013 ppropriate District Office in accordance with 19.15.29 NMAC.

NMOCD ARTESIA

/.(Rela	ease Notific	atio	n and Co	rrective A	ction	ì			·	
MMIN	32419	5156	7			OPERATOR							
Name of Co	mpany I	inn Energy	1 2	-69324			rian Wall						
Address 21:	30 W. Ber	nder Blvd., H	lobbs, NI	M 88240		Telephone N	No. (806) 367-0	645					
Facility Nan	ne Max F	riess Supply	Line			Facility Typ	e Supply Line						
Surface Own	ner State			Mineral O	wner	BLM			API No	. 3001528	822		
				LOCA	TIO	N OF REI	FASE						
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/V	Vest Line	County			
P	19	178	31E	30	F	NL	1320	F	EL	Eddy			
	L		·	titude		Longitud	<u> </u>	L,		·			
					TIDE	OF RELI							
Type of Relea	ase Produc	red water		INFAI	UKE		Release 40 bbls		Volume F	Recovered I	() bbls		
Source of Rel			ne	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			lour of Occurrence	c		Hour of Dis			
		3				Unknown			10:30 am				
Was Immedia	ate Notice C		Yes 🔯	No 🗌 Not Ro	quired	If YES, To	Whom?						
By Whom?						Date and H	lour						
Was a Water	course Reac	hed?		_			lume Impacting t	he Wate	ercourse.				
		, 🗆	Yes 🗵] No			•						
If a Watercou	ırsc was Im	pacted, Descr	ibe Fully.	¥		- <u></u>							
l I							;						
		em and Reme Linjection line		n Taken.* 40 bbls of produce	ed wate	r. A vacuum	truck was called t	o the si	te, which p	icked up 10	barrels	of produced	
The release n were field tes and hydrocar tevels at the s	neasured 11 sted for chlo bons. Repr surface that	orides and hyd esentative san declined with	he pasture rocarbons uples from depth. T	cen.* area. On 5/20/13 Based on the field the cach vertical were there was no evide path forward to m	ld data c taken nce of (, verticals were to a commerc GRO, DRO or	e installed at the scial laboratory for BTEX in the san	surface : analysi aples. A	sample poils. The ver	nts and field ticals showe	l tested ed eleva	for chlorides and chloride	
regulations all public health should their c	Il operators or the envi operations h nment. In a	are required to ronment. The save failed to a ddition, NMC	o report an acceptant adequately OCD accep	e is true and comp nd/or file certain re ce of a C-141 repo investigate and re otance of a C-141	elease r ort by the cinedial	notifications and c NMOCD m te contaminati	nd perform correct arked as "Final R on that pose a thr	tive act cport" c cat to gi	ions for rel loes not rel round wate	eases which leve the ope r, surface w	may en erator of ater, hu	ndanger f liability ıman health	
		0					OIL CON	SERV	<u>'ATION</u>	DIVISIO	<u>NC</u>		
Signature:	<i>][D</i> 5	04					ı			1,			
Printed Name	e: Brian W	all				• • • • • • • • • • • • • • • • • • • •	Environmental S		t: ned By/	11/4 B	Bream	edete_	
Title: Constr	uction Fore	unan II				Approval Da	AUG 29 20	13 🏋	Expiration	Date:			
			liaa				:						
E-mail Addre	iss: Brian '	wan (bwan@	nnenerg	y.com)		Conditions of Remediati	l Approval: on per OCD R	ule &		Attached	ı 🗆		
Date:		2.0.		(806) 367-0645	G		UBMIT REME		ON				
* Attach Addi	tional She	ets If Necess	ary			PROPOSA	NO LATER T	HAN:	2	LRP-	18	17	





August 06, 2013

JACOB KAMPLAIN
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC
419 W. CAIN
HOBBS, NM 88240

RE: MAX FRIESS SUPPLY LINE AD

Enclosed are the results of analyses for samples received by the laboratory on 07/31/13 8:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab accredited certif.html.

Cardinal Laboratories is accreditated 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.

Celeg & Keene

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



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: PT. 3 @ 2' (H301802-01)

BTEX 8260B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Błank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	0.065	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	97.0	% 61.3-14	2						
Surrogate: Toluene-d8	99.8	% 71.3-12	9 .						
Surrogate: 4-Bromofluorobenzene	103 9	% 65.7-14	1						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2560	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: MS			. =		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/02/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	<10.0	10.0	08/02/2013	ND	186	92.8	200	2.16	
Surrogate: 1-Chlorooctane	88.8	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	112 9	% 63.6-15	4						

*=Accredited Analyte Cardinal Laboratories

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Celeg & Keene

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 3 @ 4' 6" (H301802-02)

BTEX 8260B	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	< 0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	96.4	% 61.3-14	2						
Surrogate: Toluene-d8	102	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	105	105 % 65.7-141							
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3560	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg,	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/05/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	<10.0	10.0	08/05/2013	ND	186	92.8	200	2.16	
Surrogate: 1-Chlorooctane	99.7	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	122	% 63.6-15	4						

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Type.
Sampling Condition:

Cool & Intact

Project Number:

IONE CIVEN

Sample Received By:

Jodi Henson

Project Number: Project Location: NONE GIVEN NOT GIVEN

Sample ID: PT. 3 @ 12' 6" (H301802-03)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS				<u></u>	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	< 0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	98.7	% 61.3-14	2						
Surrogate: Toluene-d8	102	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	104	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/02/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	<10.0	10.0	08/02/2013	ND	186	92.8	200	2.16	
Surrogate: 1-Chlorooctane	75.1	% 65.2-14	0					•	
Surrogate: 1-Chlorooctadecane	97.7	% 63.6-15	4						

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 3 @ 13' (H301802-04)

BTEX 8260B	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	0.130	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	98.6	% 61.3-14	2						
Surrogate: Toluene-d8	101	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	102	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/02/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	<10.0	10.0	08/02/2013	ND	186	92.8	200	2.16	
Surrogate: 1-Chlorooctane	76.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	100	% 63.6-15	4						

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 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.

Celay to Keene



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

BTEX 8260B

Sampling Type:

Soil

Project Name:

08/06/2013

Sampling Condition:

Cool & Intact

MAX FRIESS SUPPLY LINE AD

Project Number: Project Location: NONE GIVEN NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: PT. 2 @ 2' 6" (H301802-05)

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	97.7 5	% 61.3-14	2						
Surrogate: Toluene-d8	102 %	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	102 9	65.7-14	I						
Chloride, SM4500CI-B	mg/	kg	Analyze	ed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value OC	RPD	Qualifier

Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride .	1100	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/05/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	11.3	10.0	08/05/2013	ND	186	92.8	200	2.16	

Surrogate: 1-Chlorooctane

101%

65.2-140

Surrogate: 1-Chlorooctadecane

124%

63.6-154

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Celeg & Kune

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Analyzed By: MS

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

RTFX 8260B

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

ma/ka

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 2 @ 10' 6" (H301802-06)

B1EX 8260B	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	< 0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	97.6	% 61.3-14	22						
Surrogate: Toluene-d8	103	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	103	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/02/2013	ND	178	89.1	200	1.03	
DRO >C10-C28	<10.0	10.0	08/02/2013	ND	186	92.8	200	2.16	
Surrogate: 1-Chlorooctane	76.9	% 65.2-14	10						
Surrogate: 1-Chlorooctadecane	115	% 63.6-15	14						

Cardinal Laboratories

*=Accredited Analyte

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Celeg & Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 2 @ 15' (H301802-07)

BTEX 8260B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	95.3	% 61.3-14	2						
Surrogate: Toluene-d8	102 9	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	102 9	% 65.7-14	1						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1090	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS	***				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/03/2013	ND	180	90.0	200	0.0806	
DRO >C10-C28	<10.0	10.0	08/03/2013	ND	198	98.9	200	1.23	
Surrogate: 1-Chlorooctane	102 9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	132 5	% 63.6-15	4						

Cardinal Laboratories

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Celeg & Keene

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 1 @ 1' 6" (H301802-08)

BTEX 8260B	mg,	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	0.086	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	97.7	% 61.3-14	2						
Surrogate: Toluene-d8	102	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	102	% 65.7-14	1						
Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: AP					·
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2360	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/03/2013	ND	180	90.0	200	0.0806	
DRO >C10-C28	<10.0	10.0	08/03/2013	ND	198	98.9	200	1.23	
Surrogate: 1-Chlorooctane	99.2	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	125	% 63.6-15	4						

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 1 @ 9' 6" (H301802-09)

BTEX 8260B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	98.6	% 61.3-14	2		•			· · · <u>- · · · · · · · · · · · · · · · ·</u>	
Surrogate: Toluene-d8	101 9	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	104 9	% 65.7-14	1						
Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5840	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/03/2013	ND	180	90.0	200	0.0806	
DRO >C10-C28	<10.0	10.0	08/03/2013	ND	198	98.9	200	1.23	
Surrogate: 1-Chlorooctane	97.5	% 65.2-14	10					•	
Surrogate: 1-Chlorooctadecane	130 :	% 63.6-15	4						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/31/2013

Sampling Date:

07/30/2013

Reported:

08/06/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 1 @ 15' (H301802-10)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2013	ND	0.431	108	0.400	4.55	
Toluene*	<0.050	0.050	08/05/2013	ND	0.418	104	0.400	6.70	
Ethylbenzene*	<0.050	0.050	08/05/2013	ND	0.416	104	0.400	6.28	
Total Xylenes*	<0.150	0.150	08/05/2013	ND	1.20	100	1.20	6.03	
Surrogate: Dibromofluoromethane	98.9	% 61.3-14	2						
Surrogate: Toluenc-d8	102 5	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	106 9	% 65.7-14	1						
Chloride, SM4500CI-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	08/01/2013	ND	432	108	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/03/2013	ND	180	90.0	200	0.0806	
DRO >C10-C28	<10.0	10.0	08/03/2013	ND	198	98.9	200	1.23	
Surrogate: 1-Chlorooctane	87.7	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	120	% 63.6-15	4						

Cardinal Laboratories

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Celeg & Keene



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. Keine



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name	: LINN Energy	<u> </u>				_	1		BII	I ETO	greeni				.	ANAI	LYSIS	RE	QUE	ST			$\overline{}$
Project Manage	r:	-					P.O.								_								
Address:				•			Con	pany	/ :														•
City:	State:	Zip	:	•			Attn	: ,	•														
Phone #:	Fax #:						Add	ress:							٠.								
Project #:	Project Owner	r:					City	:					ļ	ž									. [
Project Name:							Stat	e:		Zip:				•							1		
Project Location	: Max Friess Supply 1	in	~	AD)		Pho	ne #:	•									,					
Sampler Name:							Fax																·
FOR LAB USE ONLY		١,			MATR	X	F	RESE	ERV.	SAMPLI	NG			·									i
Lab I.D. H301802	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER WASTEWATER	SOIL	SLUDGE .	OTHER:	ACID/BASE: ICE / COOL	OTHER:	DATE	TIME	5	TPH	BTEX	1								
1	P+,3@2'	6	1		4					7-30-13	11:30	V	v	4									,
2	Pt. 30 4'6"	G	(4			_			11.25	v	~	V.									
3	Pt. 3@ 12'6"	6	1		4	1			Ш		11:35	"	"			<u> </u>							
4	Pt.3@ 13°	6	1		"	\bot		\bot	\sqcup		11:40	1	V	~						<u> </u>			
<u>ڄ</u>	pt.2@ 2'6"	G	Ľ	$\vdash \vdash$	1	_		-	\sqcup		3:46	1	V	<i>u</i>							·		
ا ا	Pt.2@ 16'6"	6	<u> </u>	<u> </u>	V	-	-		\vdash		3:45	"	i							<u> </u>			
	Pt. 20 15'	G	1	$\vdash\vdash$	1	+-	\square	+-	+			" V	v	V			-						
2	Pt.1@ 1'6" Pt.1@ 9'6"	0	-		2	+	-	+	\vdash		4:00	"	-	~	ļ		-		 				<u> </u>
10	Pt.1@ 9'6" Pt.1@ 15'	G	1		V	上					3:55	V	1	V				· · ·				-	

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vices hereunder by Cardinal, regat	rdless of whether such claim is based upon any of the a	bove stated reasons or otherwise.					
AND 11 2 Receive	ved By:	Phone Result	∷ □ Yes	□ No	Add'l Phone #:		
	\d. \l	Fax Result:	☐ Yes	□ No	Add'i Fax #:		
inges . In /	ICHI WOUNDA	REMARKS:					
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•		PAY: A Elan	25				•
.=	Cool Intact (Priting	SY C 7 10		•			
•		N I					
	□ No □ No □ P	1					
1	may 30 Recei	Received By: ### DOW JUNSON ate: Received By: ### Received By: ### Sample Condition CHECKE	Fax Result: Received By: T Kan T Kan T Kan Cool Intact (Initials) T Yes T Yes	Received By: Phone Result: Yes	Received By: Phone Result: Yes No Fax Result: Yes No REMARKS: T Karaplaid L Weinheimer L Weinheimer L Flores L Flores	Received By: Phone Result: Yes No Add'I Phone #: Fax Result: Yes No Add'I Fax #: REMARKS: T Kamplaid L Weinkeiner L Weinkeiner L Flores L Fl	Phone Result: Yes No Add'I Phone #: Fax Result: Yes No Add'I Fax #: Remarks: T Kamplaid L Weinkeiner L Weinkeiner L Flores L Flo

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



July 31, 2013

JACOB KAMPLAIN
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC
419 W. CAIN
HOBBS, NM 88240

RE: MAX FRIESS SUPPLY LINE AD

Enclosed are the results of analyses for samples received by the laboratory on 07/26/13 10:11.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated 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.

Whe South

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,

Mike Snyder

Organic Supervisor



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Ameliand But DW

Received:

07/26/2013

Sampling Date:

07/25/2013

Reported:

Sampling Type:

Soil

DTCV 0031D

07/31/2013

Cool & Intact

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Project Number: Project Location: NONE GIVEN NOT GIVEN

Sample Received By:

Celey D. Keene

Sample ID: PT. 4 VERTICAL @ 6" (H301760-01)

BTEX 8021B	mg/	kg	Analyze	d By: DW	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.74	
Toluene*	<0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.64	
Ethylbenzene*	< 0.050	0.050	07/29/2013	ND	1.91	95.6	2.00	2.12	
Total Xylenes*	<0.150	0.150	07/29/2013	ND	5.75	95.8	6.00	1.35	
Total BTEX	<0.300	0.300	07/29/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	103 %	% 89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2280	16.0	07/29/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					-
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/26/2013	ND	188	93.9	200	7.00	
DRO >C10-C28	<10.0	10.0	07/26/2013	ND	195	97.4	200	9.12	
Surrogate: 1-Chlorooctane	84.0	% 65.2-14	0				····		
Surrogate: 1-Chlorooctadecane	108 9	63.6-15	4						

*=Accredited Analyte Cardinal Laboratories

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mule Sough



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/26/2013

Sampling Date:

07/25/2013

Reported:

07/31/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Celey D. Keene

Project Location:

NOT GIVEN

Sample ID: PT. 4 VERTICAL @ 3' 6" (H301760-02)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.74	
Toluene*	< 0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.64	
Ethylbenzene*	<0.050	0.050	07/29/2013	ND	1.91	95.6	2.00	2.12	
Total Xylenes*	< 0.150	0.150	07/29/2013	ND	5.75	95.8	6.00	1.35	
Total BTEX	<0.300	0.300.	07/29/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	102 %	6 89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	07/29/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/26/2013	ND	188	93.9	200	7.00	
DRO >C10-C28	<10.0	10.0	07/26/2013	ND	195	97.4	200	9.12	
Surrogate: 1-Chlorooctane	84.3 9	65.2-14	0				, 11-1		
Surrogate: 1-Chlorooctadecane	104 %	63.6-15	4						

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and clent'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 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.

Mule Sough

Mike Snyder, Organic Supervisor



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/26/2013

Sampling Date:

07/25/2013

Reported:

07/31/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Celey D. Keene

Project Location:

NOT GIVEN

Sample ID: PT. 4 VERTICAL @ 4' (H301760-03)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.74	
Toluene*	< 0.050	0.050	07/29/2013	ND	1.80	89.9	2.00	2.64	
Ethylbenzene*	<0.050	0.050	07/29/2013	ND	1.91	95.6	2.00	2.12	
Total Xylenes*	<0.150	0.150	07/29/2013	ND	5.75	95.8	6.00	1.35	
Total BTEX	<0.300	0.300	07/29/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	102 9	6 89.4-12	6					•	
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	07/29/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS			•		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/26/2013	ND	188	93.9	200	7.00	
DRO >C10-C28	<10.0	10.0	07/26/2013	ND	195	97.4	200	9.12	
Surrogate: 1-Chlorooctane	75.0	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	92.3	% 63.6-15	4						

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*=Accredited Analyte

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wite South



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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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 8B240 (575) 393-2326 FAX (575) 393-2476

Company Name	Linn Energy	·								B	ILL TO		21				ANA	LYSIS	S RE	QUE	ST			
Project Manage	r:		•			·		P.(0. #.			·						T :			ļ			
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City:	girkî î de	State: Z	ip:				· 	At	tn:									1 .					1.	
Phone #:	F	ax #:				·	•	Ad	dre	ss:	· ·			1		1	.				1			
Project #:	Р	roject Owner:						Cil	y:					·		İ	'							
Project Name:								Sta	ate:		Zip:					1	1	1.						
Project Location Sampler Name:	:: Max Friess Supp Chris Flores	oly Line AD	<u>, .</u>		<u></u> .	 -	,	Į	one x #:	#:			- :											
FOR LAB USE ONLY			T	T		MATE	IX		PRE	SER	/ SAMPL	ING	و ا		1.	1				1		İ		
Lab I.D. H30 M6	Sample I.D.		(G)KAB OR (C)UMP.	GROUNDWATER	WASTEWATER	SOIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	DATE	TIME	Jan Jan	100	A.	X 3 1 7								
	Pl.4 Vertical 6	6"		7						_	7-25.2013	1:15 20	X	×	X					T .				
2	Pl. 4 Vertical @	3'6"		7							7-25-201	1 2:40 pm		X	X									
3	Pt. 4 vertical @	14'	2	1							7-25-2013	2:50 pm	· 🗶	X	X									
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analyses. All chains includir service. In no event shall Co offiliates or successors arich	d Damages, Cardinal's liability and client's ig those for negligence and any other cause ordinal be liable for incidental or consequent ig out of or related to the performance of se	whatsoever shall be dear tel damages, including wit rvices hereunder by Card	ned wa hout lin inal, ray	aived w nitation wardics	iless m busine s of who	ade in wa sa internation	iting an Iptions,	d recei loss o	ived by fuse, c	Cardina i loss of	within 30 days at profits incurred by	er completion of client, its subsidi easons or otherw	the applica arles, ise,					·		·!		<u> </u>		•
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August 01, 2013

JACOB KAMPLAIN
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC
419 W. CAIN

HOBBS, NM 88240

RE: MAX FRIESS SUPPLY LINE AD

Enclosed are the results of analyses for samples received by the laboratory on 07/29/13 8:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab accredited certif.html.

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

Method EPA 552.2

Haloacetic Acids (HAA-5)

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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,

Mike Snyder

Organic Supervisor



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/29/2013

Sampling Date:

07/26/2013

Reported:

Sampling Type:

Soil

08/01/2013

Sampling Condition:

Cool & Intact

Project Name: Project Number:

NONE GIVEN

MAX FRIESS SUPPLY LINE AD

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: POINT 5 @ 7' (H301773-01)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2013	ND	2.12	106	2.00	7.03	
Toluene*	<0.050	0.050	07/30/2013	ND	2.09	104	2.00	6.40	
Ethylbenzene*	<0.050	0.050	07/30/2013	ND	2.19	110	2.00	6.36	
Total Xylenes*	< 0.150	0.150	07/30/2013	ND	6.65	111	6.00	6.03	
Total BTEX	<0.300	0.300	07/30/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 9	% 89.4-12	б						
Chloride, SM4500CI-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4080	16.0	07/30/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/30/2013	ND	177	88.5	200	2.97	
DRO >C10-C28	<10.0	10.0	07/30/2013	ND	180	90.0	200	3.74	
Surrogate: 1-Chlorooctane	94.1	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	121 9	% 63.6-15	4						

*=Accredited Analyte Cardinal Laboratories

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Mike Snyder, Organic Supervisor



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/29/2013

Sampling Date:

07/26/2013

Reported:

08/01/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: POINT 5 @ 14' 6" (H301773-02)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2013	ND	2.12	106	2.00	7.03	
Toluene*	< 0.050	0.050	07/30/2013	ND	2.09	104	2.00	6.40	
Ethylbenzene*	<0.050	0.050	07/30/2013	ND	2.19	110	2.00	6.36	
Total Xylenes*	<0.150	0.150	07/30/2013	ND	6.65	111	6.00	6.03	
Total BTEX	<0.300	0.300	07/30/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	104 %	6 89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/30/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/30/2013	ND	186	93.0	200	3.32	
DRO >C10-C28	<10.0	10.0	07/30/2013	ND	197	98.5	200	4.59	
Surrogate: 1-Chlorooctane	92.8 9	% 65.2-14	0	- · · · · · · · · · · · · · · · · · · ·					
Surrogate: 1-Chlorooctadecane	118 %	63.6-15	4						

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mule Sough

Mike Snyder, Organic Supervisor



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Analyzed By: DW

Received:

07/29/2013

Sampling Date:

07/26/2013

Reported:

BTEX 8021B

08/01/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

mg/kg

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: POINT 5 @ 15' (H301773-03)

BILA GOZID	nig/	Ng .	Allalyze	u by. Dvv					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/31/2013	ND	2.16	108	2.00	18.1	
Toluene*	<0.050	0.050	07/31/2013	ND	2.20	110	2.00	14.6	
Ethylbenzene*	< 0.050	0.050	07/31/2013	ND	2.34	117	2.00	13.0	
Total Xylenes*	< 0.150	0.150	07/31/2013	ND	7.07	118	6.00	12.5	
Total BTEX	<0.300	0.300	07/31/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	104 %	6 89.4-120	5						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	07/30/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS				<u>.</u>	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/30/2013	ND	186	93.0	200	3.32	
DRO >C10-C28	<10.0	10.0	07/30/2013	ND	197	98.5	200	4.59	
Surrogate: 1-Chlorooctane	88.69	65.2-140)						
Surrogate: 1-Chlorooctadecane	115%	63.6-154	<i>‡</i>						

Cardinal Laboratories

*=Accredited Analyte

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Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

** Samples not received at proper temperature of 6°C or below.

*** Insufficient time to reach temperature.

- Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Clardinal within killing (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 subcidiaries, affiliates or successions 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.

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Linn Energy				BILL TO ANALYSIS REQUEST																				
Project Manage	er:							P.O	. #:										1					
Address:						· .		Cor	npa	ny:				;	ļ				-		1			
City:	State:	Z	ip:					Attr	n:				in the V			1		'	1					٠.
Phone #:	Fax #:			·				Ado	ires	s:		· .	_		1	ĺ]	1	1	1		•	1 . 1	
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Project Location	n: Max Friess Supply 1	-ine	A	<u>D</u>		·		Pho	ne	#:	- :		_				}	1	1			j	.	
Sampler Name:	Chris Flores							Fax					_		1		1	ł			l			
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Lab I.D.	Sample I.D.	و	# CONTAINERS	GROUNDWATER	WASTEWATER				щ	ᅰ			Moride	エ	X	¥		ľ	ĺ					
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2	Point 5 @ 14'6"		2 1		<u> </u>	1.					7-26-201	3:15		*	メ					,	<u> </u>			
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	nd Damages. Cardinal's ösblitty and client's exclusive remoc ing those for negligence and any other cause whatsoever sh													le .										
affiliates or successors ertcl	aromat be liable for incidental or consequental damages, inc ing out of or related to the performance of services hereund																							
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August 23, 2013

JACOB KAMPLAIN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: MAX FRIESS SUPPLY LINE AD

Enclosed are the results of analyses for samples received by the laboratory on 07/30/13 8:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab-accred-certif.html.

Cardinal Laboratories is accreditated 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.

Celey & Keene

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



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Amelianed Div. D140

Received:

07/30/2013

Sampling Date:

07/29/2013

Reported:

DTEV 0031P

Sampling Type:

Soil

Project Name:

08/23/2013

Sampling Condition:

Cool & Intact

Project Number:

MAX FRIESS SUPPLY LINE AD NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: PT. 6 @ 3' (H301785-01)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2013	ND	2.04	102	2.00	2.20	
Toluene*	<0.050	0.050	08/01/2013	ND	2.05	102	2.00	1.43	
Ethylbenzene*	<0.050	0.050	08/01/2013	ND	2.15	108	2.00	0.897	
Total Xylenes*	<0.150	0.150	08/01/2013	ND	6.63	110	6.00	1.41	
Total BTEX	<0.300	0.300	08/01/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	102 %	% 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1150	16.0	07/31/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/31/2013	ND	185	92.3	200	2.16	
DRO >C10-C28	<10.0	10.0	07/31/2013	ND	199	99.3	200	3.94	
Surrogate: 1-Chlorooctane	75.5	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	94.2	% 63.6-15	4						

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 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.

Celeg D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/30/2013

Sampling Date:

07/29/2013

Reported:

08/23/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: PT. 6 @ 5' (H301785-02)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2013	ND	2.04	102	2.00	2.20	
Toluene*	< 0.050	0.050	08/01/2013	ND	2.05	102	2.00	1.43	
Ethylbenzene*	<0.050	0.050	08/01/2013	ND	2.15	108	2.00	0.897	
Total Xylenes*	<0.150	0.150	08/01/2013	ND	6.63	110	6.00	1.41	
Total BTEX	<0.300	0.300	08/01/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIE	105 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP				···-	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	07/31/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS		·			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/31/2013	ND	185	92.3	200	2.16	
DRO >C10-C28	<10.0	10.0	07/31/2013	ND	199	99.3	200	3.94	
Surrogate: 1-Chlorooctane	68.2 9	6 65.2-14	0						
Surrogate: 1-Chlorooctadecane	89.7 9	63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Kune



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

(575) 397-1471 Fax To:

Received:

07/30/2013

Sampling Date:

07/29/2013

Reported:

Sampling Type:

Soil

Project Name:

08/23/2013

Sampling Condition:

Cool & Intact

Project Number:

MAX FRIESS SUPPLY LINE AD NONE GIVEN

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: PT. 6 @ 8' 6" (H301785-03)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2013	ND	2.04	102	2.00	2.20	
Toluene*	<0.050	0.050	08/01/2013	ND	2.05	102	2.00	1.43	
Ethylbenzene*	< 0.050	0.050	08/01/2013	ND	2.15	108	2.00	0.897	
Total Xylenes*	<0.150	0.150	08/01/2013	ND	6.63	110	6.00	1.41	
Total BTEX	<0.300	0.300	08/01/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	103 %	6 89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP	n				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	07/31/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/31/2013	ND	185	92.3	200	2.16	
DRO >C10-C28	<10.0	10.0	07/31/2013	ND	199	99.3	200	3.94	
Surrogate: 1-Chlorooctane	68.4	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	84.69	% 63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

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Celeg D. Keene



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

07/30/2013

Sampling Date:

07/29/2013

Reported:

08/23/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location: NOT GIVEN

Sample ID: PT. 6 @ 9' (H301785-04)

BTEX 8021B	mg/	kg	Analyze	d By: DW		1.0			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2013	ND	2.04	102	2.00	2.20	
Toluene*	<0.050	0.050	08/01/2013	ND	2.05	102	2.00	1.43	
Ethylbenzene*	<0.050	0.050	08/01/2013	ND	2.15	108	2.00	0.897	
Total Xylenes*	< 0.150	0.150	08/01/2013	ND	6.63	110	6.00	1.41	
Total BTEX	<0.300	0.300	08/01/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	102 9	6 89.4-12	6						12.01
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					-
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	07/31/2013	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/31/2013	ND	185	92.3	200	2.16	
DRO >C10-C28	<10.0	10.0	07/31/2013	ND	199	99.3	200	3.94	
Surrogate: 1-Chlorooctane	65.8	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	84.7	% 63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's flability and chent's exclusive remedy for any claim arising, whether based in contract or tort, shall be firmted 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 labelle for incidental or consequential damages, including, without kirotation, business interruptions, loss of use, or loss of profits incurred by client, its substidiaries, 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. Keine



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. Keine



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

	(575) 393-2326 FAX (6	575) 393-2476				_		<u>; </u>														17	<u>: </u>	··		`,.•
Company Name	Linn Energy	;								E	}/Ł	E TO							ANA	LYSI	S RE	QUE	ST	1.4		
Project Manage	r. //							P.C). #:										1				T			
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FOR LAB USE ONLY			T		MA	TRIX	<u> </u>		PRE	SER	V.	SAMPL	NG .				l .	j.							1:	1
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1	Pl. 6 @ 83	(1		i	1				1		7-2922)	9:2	5	۲	X	X					1	1.			
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3	P1.68 8'6"		3 1		/						<u> </u>	-29-20	11.4	5	×	بعر	74				Ī.					
4	P1.6 @ 9'		- 1							\perp	2	-29-7017			X	γ.	X									
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Relinguished B	ph	198:10 (16	HA	<u>L</u>	2	X	l	N	مل	0		REMA		pla:	'n					•	:				

| Time: | Date: | Received By: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time: | Time:

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



Logger: Edward Cesareo Driller: Harrison & Cooper, Inc. SB-1 SB-2 **Drilling Method:** Air rotary Linn Max Friess Supply Well ID: Start Date: 8/20/2013 Line SB-1 End Date: 8/20/2013 Location: UL/A sec. 30 T21S R31E Comments: All samples were from cuttings. Lat: 32°48'45.797"N DRAFTED BY: L. Weinheimer County: Eddy TD = 99 ftLong: 103°54'15.152"W GW = None State: NM Depth Chloride LAB Description **Well Construction** PID Lithology (feet) field tests SS 2575 12.4 **BROWN SAND** 3 ft 5.4 1851 6 ft 2549 5.2 9 ft 3089 6.1 12 ft 3581 5.1 **RED SAND** 15 ft 2589 6.9 18 ft 1958 4.9 21 ft 3003 4.0

RED SAND/ TAN CLAY

7.6

24 ft

3555

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
27 ft 30 ft	3379 4067		5.7			
33 ft	3427		8.9			
36 ft	2889		6.1	RED SAND		
39 ft	3152		2.6			
42 ft	2481		4.5			
45 ft	3039		1.7			
48 ft	3795		1.3			
						bentonite
51 ft	4469	CI- 5920	1.4	RED SAND / PEA STONE		
B.	TEX <0.3	GRO <10 DRO		THE STATE OF CITE		
54 ft	3964	<10	1.4			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
57 ft	2301		2.3			
60 ft	1431		2.0			
63 ft	1531		1.4			
66 ft	1350		2.1			
69 ft	1552		1.0	RED SAND / PEA STONE		
72 ft	1346		3.5	·		
75 ft	1129		3.7			
78 ft	891		3.2			
81 ft	883		1.7			
84 ft	871		1.3			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
87 ft	721		0.8			
90 ft	681		0.5			
30 11	001		0.5			
93 ft	701		5.7	RED SAND / PEA STONE		
		CI-				
96 ft	172	80	2.3			
_D .	TEX <0.3	GRO <10				
	TEX <0.3	DRO				
		<10				
99 ft	177	CI- 144	2.0			
	TEX <0.3	GRO <10				
		DRO <10				

					r	····-	VIRONA	
Logger:	Ed	lward Ces	areo				S ENAIMONNIEW	
Driller:	Harris	on & Coo	per, Inc.	\$B-2		CONS	Cring & GAPET	
Drilling Metho	d:	Air rotar	у	9	Lii	nn Max Friess	Supply \	Well ID:
Start Date:		8/20/201	3			Line		SB-2
End Date:		8/20/201						
Comments:	Red be	d clay e	ncounte	ered at 99 ft bgs.	Lo	cation: UL/A s	sec. 30 T2	1S R31E
•	TD = 12		TED BY:	L. Weinheimer $GW = None$		t: 32°48'45.76 ng: 103°54'16		County: Eddy State: NM
1 - 1	loride d tests	LAB	PID	Description		Lithology	<u> </u>	Construction
SS 10 ft 20 ft 40 ft 50 ft 60 ft				BORE NOT SAMPLED AS IT WAS INSTALLED; BORE WAS TO DETERMINE DEPTH TO GROUNDWATER ONLY				bentonite
70 ft 80 ft					-			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
90 ft						
100 ft						
100 11						
110 ft				RED BED CLAY		
120 ft						1 1/



August 28, 2013

JACOB KAMPLAIN
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC
419 W. CAIN
HOBBS, NM 88240

RE: MAX FRIESS SUPPLY LINE AD

Enclosed are the results of analyses for samples received by the laboratory on 08/22/13 8:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab accred certif.html.

Cardinal Laboratories is accreditated 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.

Celes D. Keine

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



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

08/22/2013

Sampling Date:

08/20/2013

Reported:

08/28/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: SB 1 @ 51' (H302009-01)

BTEX 80218	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2013	ND	2.20	110	2.00	6.60	
Toluene*	<0.050	0.050	08/26/2013	ND	2.14	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	08/26/2013	ND	2.18	109	2.00	6.27	
Total Xylenes*	< 0.150	0.150	08/26/2013	ND	6.47	108	6.00	6.45	
Total BTEX	<0.300	0.300	08/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	104 9	6 89.4-12	6				· · · · · · · · · · · · · · · · · · ·		
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5920	16.0	08/26/2013	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: AR/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/26/2013	ND	191	95.7	200	3.91	
DRO >C10-C28	<10.0	10.0	08/26/2013	ND	186	93.0	200	5.56	
Surrogate: 1-Chlorooctane	93.9	% 65.2-14	0		<u> </u>				
Surrogate: 1-Chlorooctadecane	99.3	% 63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

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Celeg & Keene



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

08/22/2013

Sampling Date:

08/20/2013

Reported:

08/28/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SB 1 @ 96' (H302009-02)

BTEX 8021B	mg/	kg	Analyze	d By: DW		···			
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2013	ND	2.20	110	2.00	6.60	
Toluene*	<0.050	0.050	08/26/2013	ND	2.14	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	08/26/2013	ND	2.18	109	2.00	6.27	
Total Xylenes*	<0.150	0.150	08/26/2013	ND	6.47	108	6.00	6.45	
Total BTEX	<0.300	0.300	08/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 9	% 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	08/26/2013	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: AR/					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/26/2013	ND	191	95.7	200	3.91	
DRO >C10-C28	<10.0 10.0		08/26/2013	ND	186	93.0	200	5.56	
Surrogate: 1-Chlorooctane	98.9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	103 9	63.6-15	4						

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*=Accredited Analyte

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Celeg D. Kune



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

08/22/2013

Sampling Date:

08/20/2013

Reported:

08/28/2013

Sampling Type:

Soil

Project Name:

MAX FRIESS SUPPLY LINE AD

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SB 1 @ 99' (H302009-03)

BTEX 8021B	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2013	ND	2.20	110	2.00	6.60	
Toluene*	<0.050	0.050	08/27/2013	ND	2.14	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	08/27/2013	ND	2.18	109	2.00	6.27	
Total Xylenes*	< 0.150	0.150	08/27/2013	ND	6.47	108	6.00	6.45	
Total BTEX	<0.300	0.300	08/27/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIE	105 9	% 89.4-12	6						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	08/26/2013	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: AR/			· · · · · · · · · · · · · · · · · · ·		
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/26/2013	ND	191	95.7	200	3.91	
	<10.0 10.0		00/06/0040	ND.	186	93.0	200	5.56	
DRO >C10-C28	<10.0	10.0	08/26/2013	ND	100	93.0	200	3.30	
DRO >C10-C28 Surrogate: 1-Chlorooctane	<10.0 95.0			ND	100	93.0			

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Celeg D. Keine



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 SM4500CI-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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Celeg D. Keine



Company Name Project Manager: Jac

Address:

ANALYSIS REQUEST

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

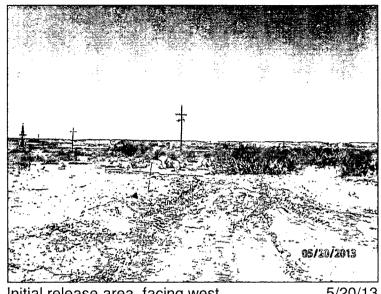
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P.O. #:

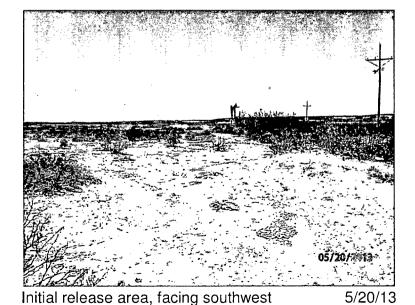
Appendix D Photo Documentation

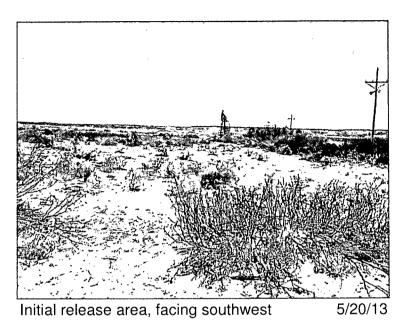
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Linn Max Friess Supply Line Unit Letter P&O sec. 19 and A&B sec. 30, T17S, R31E



Initial release area, facing west 5/20/13

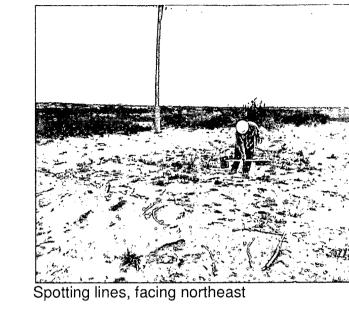




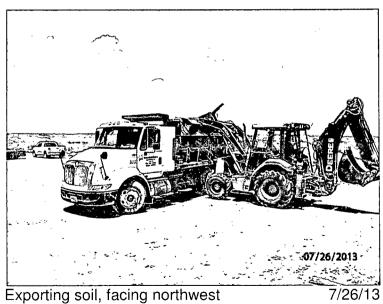
5/20/13

Initial release area, facing east



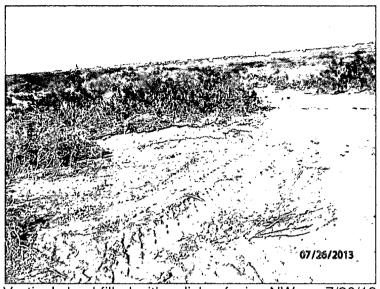




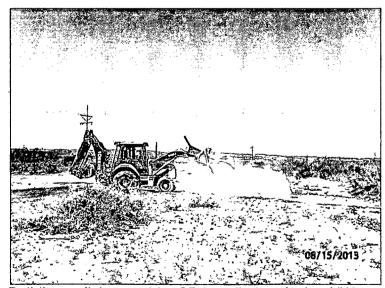


7/25/13

Exporting soil, facing northwest



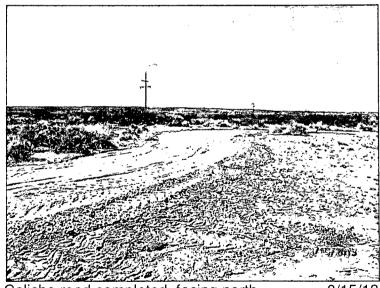
Verticals backfilled with caliche, facing NW 7/26/13



Building caliche road for SB installation, facing NW 8/15/13

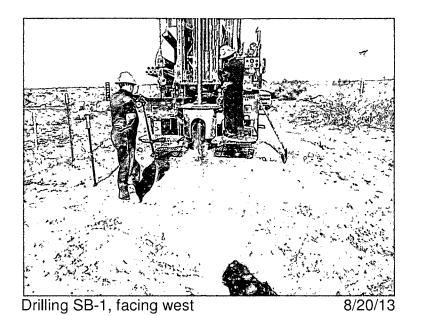


Obtaining composite sample of spoil pile, facing east 7/29/13

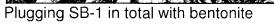


Caliche road completed, facing north

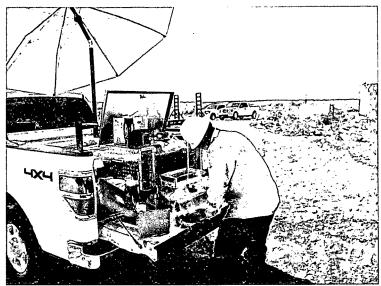
8/15/13





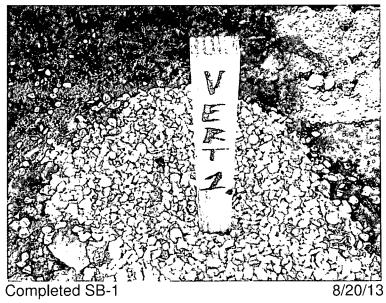


8/20/13

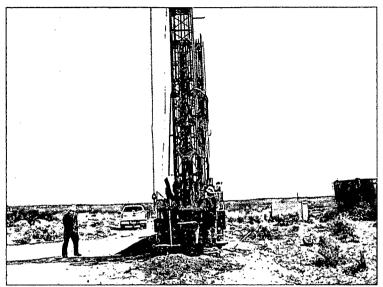


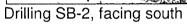
Field testing soil sample, facing south

8/20/13



8/20/13









Completed SB-2

8/20/13

