LINN Energy

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

Max Friess Supply Line

2RP-1877

CAP Report and Termination Request

API No. 3001528822

Release Date: May 16th, 2013

Unit Letter P, Section 19, Township 17S, Range 31E

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

November 14th, 2013

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

RE: **CAP Report and Termination Request**
Linn Energy – Max Friess Supply Line (2RP-1877)
UL/P sec. 19 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 approximately 4.5 miles east of Loco Hills, New Mexico at UL/P sec. 19 T17S R31E. This site is in an area of no known groundwater.

On May 16th, 2013, Linn discovered that a 4 inch steel injection line corroded and released 40 barrels of produced water into the pasture. A total of 11,504 sq ft of pasture land was affected. A vacuum truck was called to the site, which picked up 10 barrels of produced water. NMOCD and BLM were informed of the release by C-141 on August 28th, 2013, and NMOCD approved the C-141 on August 29th, 2013 (Appendix A).

RECS personnel were on site beginning on May 20th, 2013 to take initial samples from the release. The samples were field tested for chlorides and hydrocarbons and 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. 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. 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. 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. 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.

On September 5th, 2013, a Corrective Action Plan (CAP) for the site was sent to NMOCD and BLM. NMOCD and BLM approved the CAP on September 9th, 2013. The CAP stated that 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 recommended that Linn excavate the site to 4 ft bgs. The walls of the excavation would 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 would be installed and key set into the excavation (Figure 1). The liner would 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 would be transported to a NMOCD approved facility. Once the liner was installed, the excavation would be backfilled with clean, imported soil. The site would 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.

Corrective Action Plan Report

On September 12th, 2013, RECS personnel were on site to begin the excavation for liner installation. The site was excavated to a depth of 4 ft bgs and samples were taken along the walls and field tested for chlorides and hydrocarbons. The walls of the excavation were extended until field tests concluded that the walls had field chloride values less than 1,000 mg/kg. The excavation was completed on October 9th, 2013 and final wall samples were taken on October 10th, 2013 (Figure 2). The wall samples were field tested for chlorides and hydrocarbons and representative samples were taken to a commercial laboratory for analysis (Appendix B). A 2 foot trench was installed along the edge of the base of the excavation to prepare to key set the liner. A 20-mil reinforced poly liner was installed and key set into the excavation. The excavation was then backfill to 2 ft bgs

with imported soil. A sample of the imported soil was taken to a commercial laboratory for analysis and returned a chloride result of non-detect (Appendix C). The caliche road that had been installed to conduct soil bore installations was scraped and placed into the excavation at 2 ft bgs. The remainder of the excavation was then backfilled to ground surface with the imported soil and contoured to the surrounding location. On November 5th, 2013, the site was tilled with soil amendments and then seeded with LPC mix.

Photo documentation of all site activities can be found in Appendix D.

Given that all CAP activities have been completed as approved by BLM and NMOCD, Linn request 'remediation termination' and site closure for this 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,

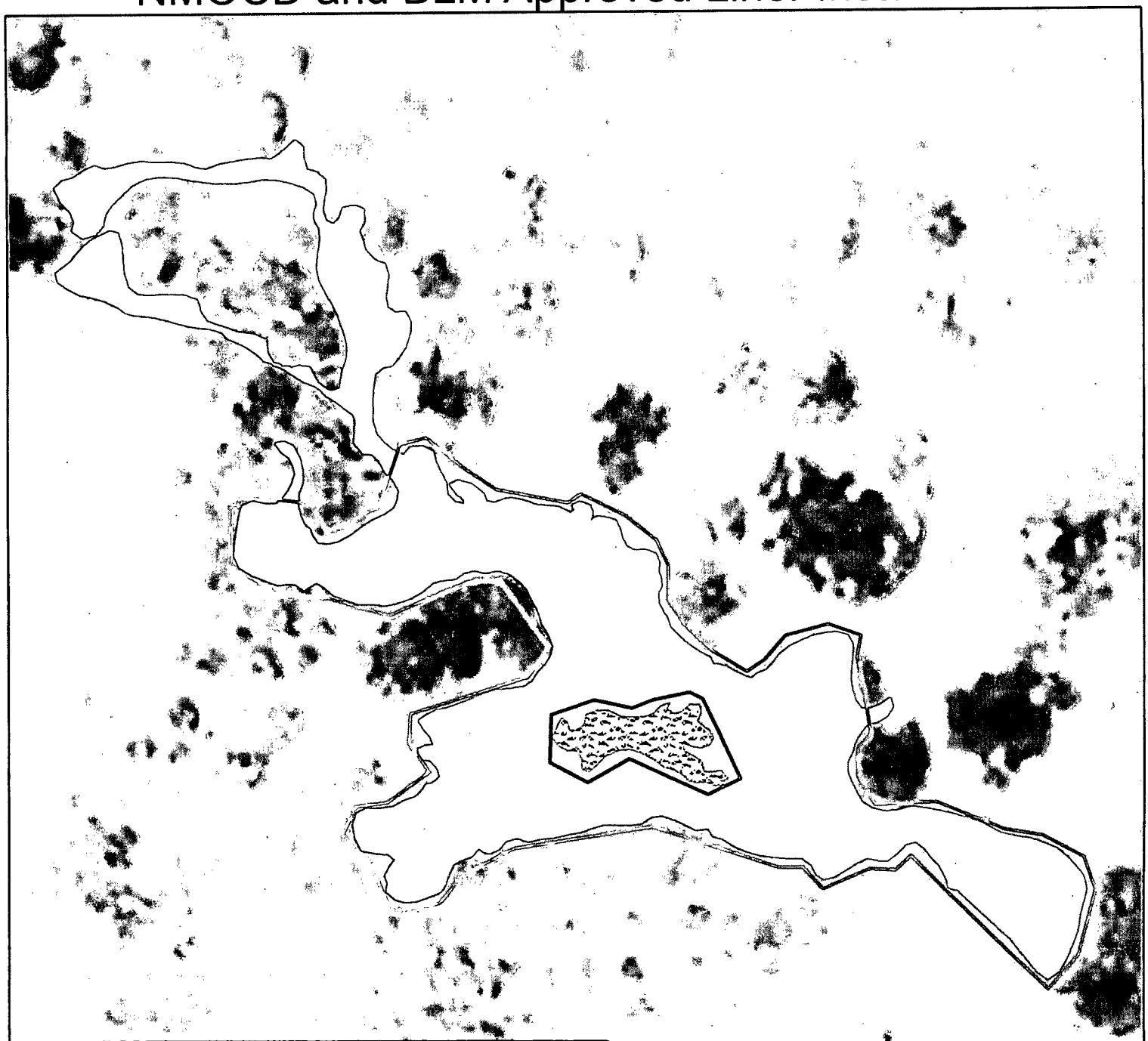
Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

cc. BLM, Mike Burton

Attachments:

- Figure 1 – NMOCD and BLM Approved Liner Installation
- Figure 2 – Excavation Laboratory Analyses
- Appendix A – Initial C-141
- Appendix B – Final Wall Sampling Laboratory Analyses
- Appendix C – Imported Soil Laboratory Analysis
- Appendix D – Photo Documentation
- Appendix E – Final C-141

NMOCD and BLM Approved Liner Installation



Legend

- APPROVED 20-MIL REINFORCED POLY LINER
- STAIN (11,504 SQ FT)
- AREA NOT IN STAIN

DGW = NONE
Landowner: State
Leasee: Williams & Son Cattle Co.
Mineral Rights: BLM

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

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

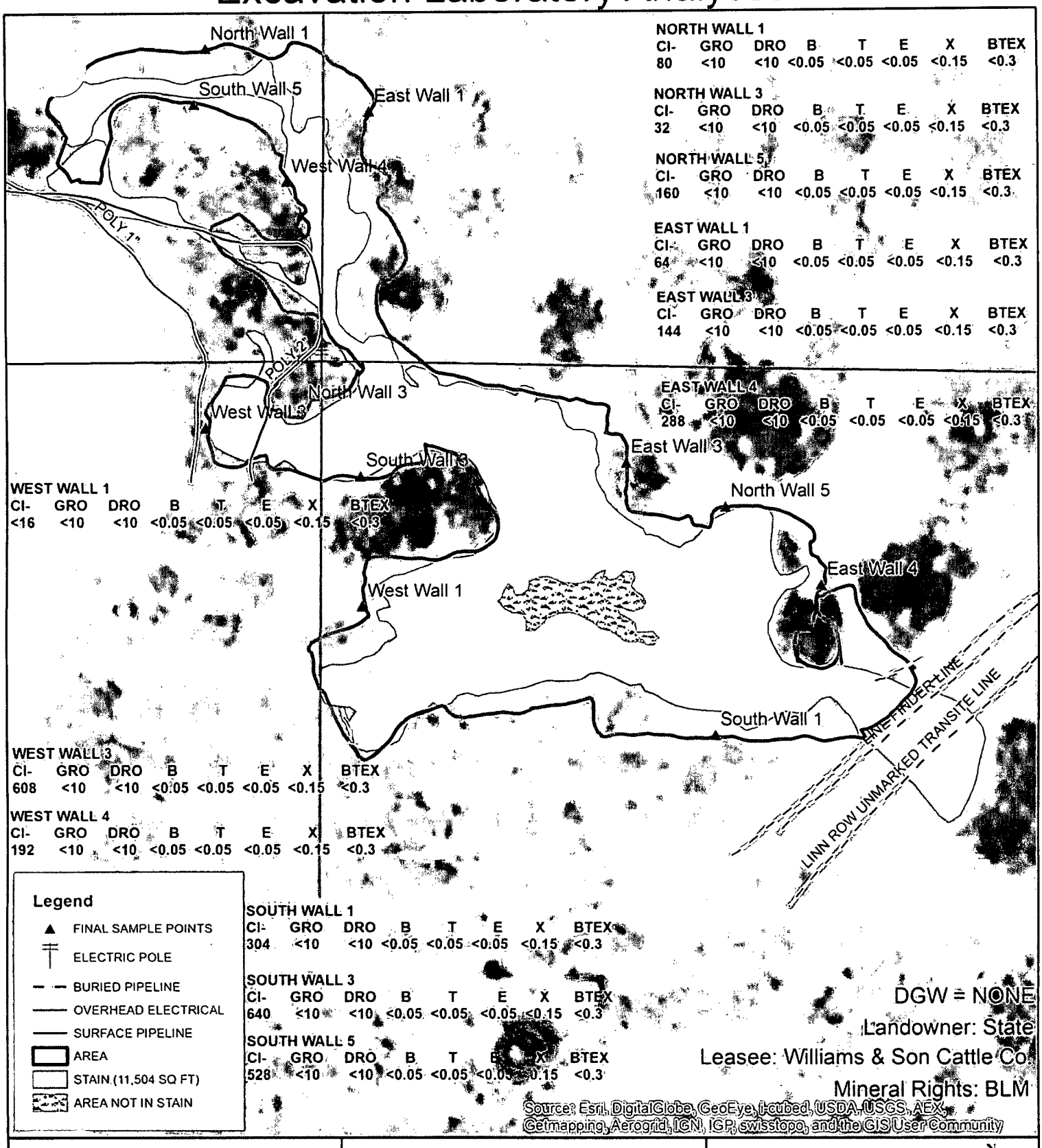
Figure 1

N W E S

0 40 80 Feet

GPS date: 5/20/13 DH
Drawing date: 9/5/13
Drafted by: L. Weinheimer

Excavation Laboratory Analyses



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

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

Figure 2

N W E S

0 40 80 Feet

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

Appendix A

Initial C-141

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

District I
1625 N. French Dr., Hobbs, NM 88240
District II
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
AUG 28 2013
NMOCD ARTESIA

Form C-141
Revised August 8, 2011

Submit 2 Copies to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nJMW1324151567

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Linn Energy 269324	Contact Brian Wall
Address 2130 W. Bender Blvd., Hobbs, NM 88240	Telephone No. (806) 367-0645
Facility Name Max Friess Supply Line	Facility Type Supply Line

Surface Owner State	Mineral Owner BLM	API No. 3001528822

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	19	17S	31E	30	FNL	1320	FEL	Eddy

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 40 bbls	Volume Recovered 10 bbls
Source of Release 4" steel injection line	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 5/16/13 10:30 am
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Corrosion in the 4" steel injection line released 40 bbls of produced water. A vacuum truck was called to the site, which picked up 10 barrels of produced water.

Describe Area Affected and Cleanup Action Taken.*
The release measured 11,504 sq ft in the pasture area. On 5/20/13, RECS personnel were on site to take surface samples from the release. The samples were field tested for chlorides and hydrocarbons. Based on the field data, verticals were installed at the surface sample points and field tested for chlorides and hydrocarbons. Representative samples from each vertical were taken to a commercial laboratory for analysis. The verticals showed elevated chloride levels at the surface that declined with depth. There was no evidence of GRO, DRO or BTEX in the samples. A Corrective Action Plan will be submitted to NMOCD detailing the work completed and a path forward to mitigate the chloride contamination in the vadose zone.

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:

Printed Name: Brian Wall

Title: Construction Foreman II

E-mail Address: Brian Wall (Bwall@linnenergy.com)

Date: Phone: (806) 367-0645

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By

Approval Date: AUG 29 2013 Expiration Date:

Conditions of Approval:
Remediation per OCD Rule & Guidelines. SUBMIT REMEDIATION PROPOSAL NO LATER THAN: September 29, 2013

Attached ☐

2RP-1877

* Attach Additional Sheets If Necessary

Appendix B

Final Wall Sampling Laboratory Analyses

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

CARDINAL Laboratories

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

October 14, 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 10/11/13 16:40.

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.

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

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: NORTH WALL 1 (H302476-01)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *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	**80.0**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	198	99.1	200	6.11	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	11.0	

Surrogate: 1-Chlorooctane *104 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *105 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: NORTH WALL 3 (H302476-02)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *98.7 %* *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	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	198	99.1	200	6.11	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	11.0	

Surrogate: 1-Chlorooctane *95.1 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *101 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: NORTH WALL 5 (H302476-03)

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	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID 99.4 % 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	**160**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	198	99.1	200	6.11	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	11.0	

Surrogate: 1-Chlorooctane 89.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 96.0 % 63.6-154

Cardinal Laboratories *=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: SOUTH WALL 1 (H302476-04)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *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	**304**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	198	99.1	200	6.11	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	11.0	

Surrogate: 1-Chlorooctane *85.3 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *90.0 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: SOUTH WALL 3 (H302476-05)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *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	**640**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *97.6 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *105 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: SOUTH WALL 5 (H302476-06)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.7 %* *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	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *103 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *110 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: EAST WALL 1 (H302476-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *98.2 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *88.5 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *95.5 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: EAST WALL 3 (H302476-08)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.3 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *96.3 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *102 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: EAST WALL 4 (H302476-09)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *96.4 %* *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	**288**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *102 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *108 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: WEST WALL 1 (H302476-10)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.7 %* *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	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *101 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *108 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: WEST WALL 3 (H302476-11)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.3 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**608**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *102 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *109 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2013	Sampling Date:	10/09/2013
Reported:	10/14/2013	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: WEST WALL 4 (H302476-12)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/14/2013	ND	1.85	92.5	2.00	4.76	
Toluene*	<0.050	0.050	10/14/2013	ND	1.91	95.5	2.00	4.72	
Ethylbenzene*	<0.050	0.050	10/14/2013	ND	1.95	97.3	2.00	4.21	
Total Xylenes*	<0.150	0.150	10/14/2013	ND	5.81	96.8	6.00	4.48	
Total BTEX	<0.300	0.300	10/14/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *102 %* *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	**192**	16.0	10/14/2013	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/12/2013	ND	201	101	200	2.67	
DRO >C10-C28	<10.0	10.0	10/12/2013	ND	191	95.7	200	3.23	

Surrogate: 1-Chlorooctane *94.6 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *112 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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

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

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

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**	
Project Manager:	Rick Rickman	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	Max Friess Supply Line AD	Phone #:	
Sampler Name:	Chris Flores	Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Chloride	TPH	BTEX
H302476																	
1	North Wall 1	G	1			✓							10-9-13	10:10 AM	X	X	X
2	North Wall 3	G	1			✓								10:20 AM	X	X	X
3	North Wall 5	G	1			✓								10:30 AM	X	X	X
4	South Wall 1	G	1			✓								11:00 AM	X	X	X
5	South Wall 3	G	1			✓								11:10 AM	X	X	X
6	South Wall 5	G	1			✓								11:20 AM	X	X	X
7	East Wall 1	G	1			✓								1:30 pm	X	X	X
8	East Wall 3	G	1			✓								1:40 pm	X	X	X
9	East Wall 4	G	1			✓								1:45 pm	X	X	X
10	West Wall 1	G	1			✓								2:00 pm	X	X	X

Relinquished By: Chris Flores	Date: 10-11-13 Time: 4:40	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: Skamplain lweinheimer cflores RUSH!!

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No
CHECKED BY: (Initials)

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

#54

CARDINAL Laboratories

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	
Project Manager: Rick Rickman		P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: Max Friess Supply Line AD		Phone #:	
Sampler Name: Chris Flores		Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chloride	TPH	BTEX
H302476																	
11	West Wall 3	G	1			✓							10-9-13	2:10pm	X	X	X
12	West Wall 4	G	1			✓							10-9-13	2:15pm	X	X	X

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

Relinquished By: Chris Flores	Date: 10-11-13 Time: 9:40	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
			REMARKS: JKamplain lweinheimer cflores
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	

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

#11

Appendix C

Imported Soil Laboratory Analysis

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

CARDINAL Laboratories

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

October 22, 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 10/22/13 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_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.

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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/22/2013	Sampling Date:	10/15/2013
Reported:	10/22/2013	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: IMPORTED SOIL (H302543-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/22/2013	ND	400	100	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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**
Project Manager: Max Friess Supply Line Rd	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location:	Phone #:
Sampler Name: Chris Flores	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chloride
H302543															
1	Impacted Soil	G	1			✓							10-15-2013	8:45 Hrs	X

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

Relinquished By:	Date: 10-22-2013	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 8:25		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

† Ca[illegible] cannot accept verbal changes. Please fax written changes to (575) 393-2326

#21

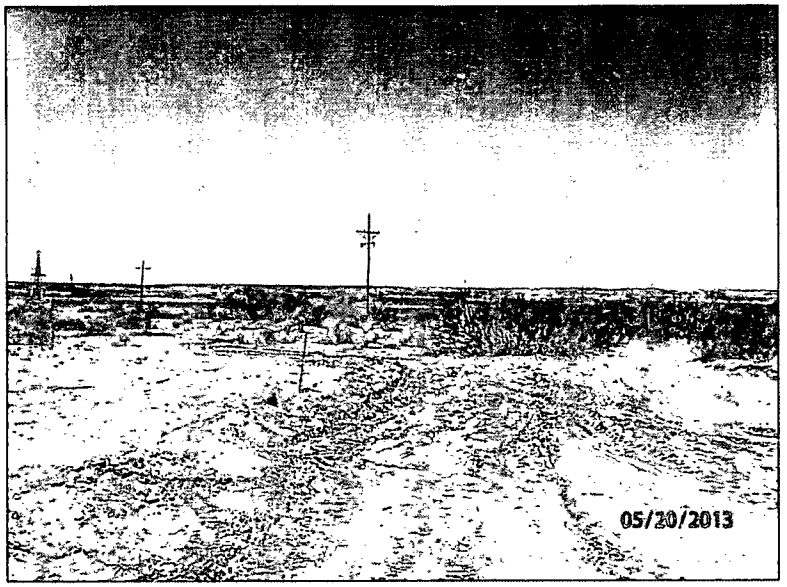
Appendix D

Photo Documentation

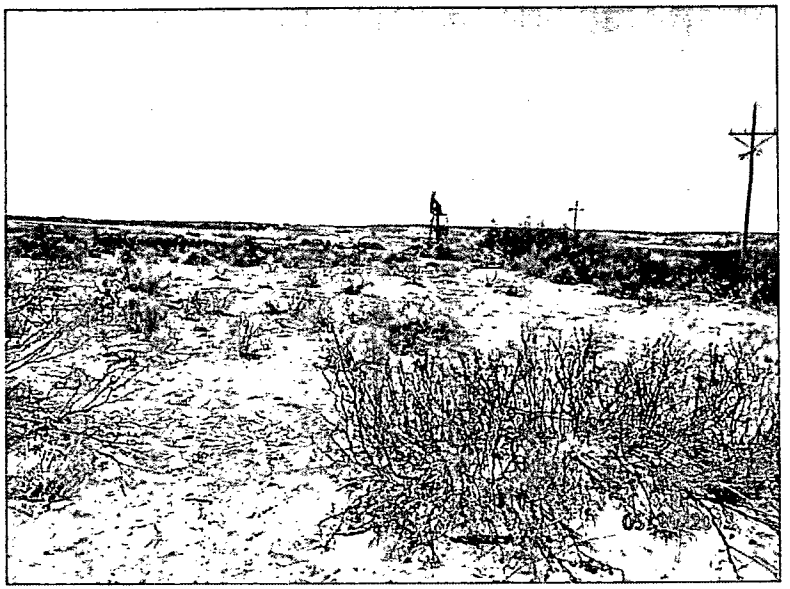
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Linn Max Friess Supply Line

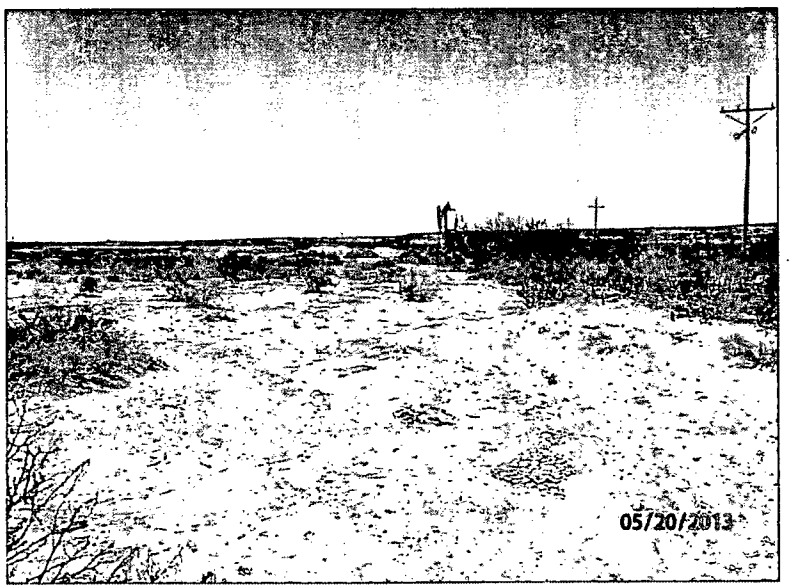
Unit Letter P&O sec. 19 and A&B sec. 30, T17S, R31E



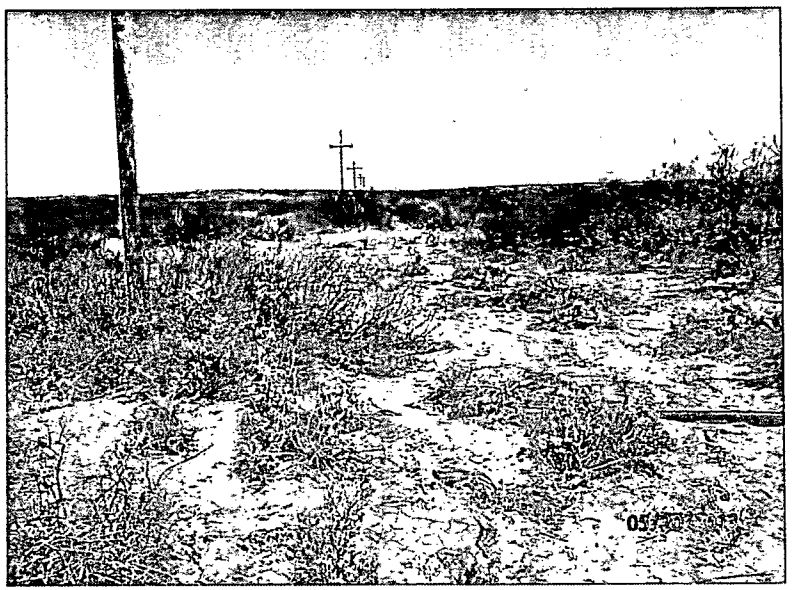
Initial release area, facing west 5/20/13



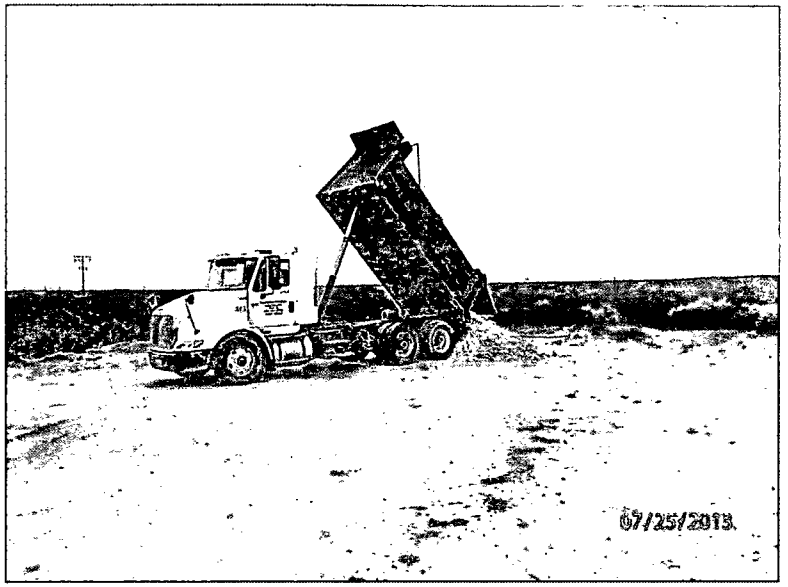
Initial release area, facing southwest 5/20/13



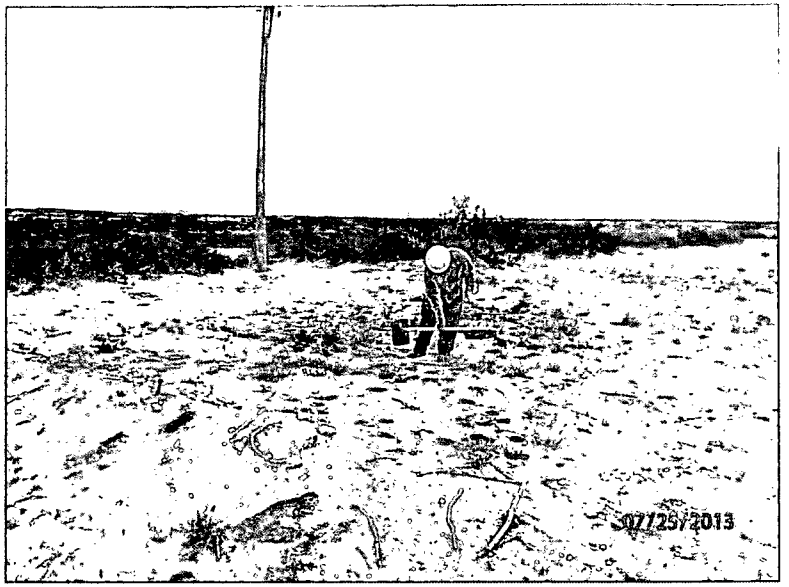
Initial release area, facing southwest 5/20/13



Initial release area, facing east 5/20/13

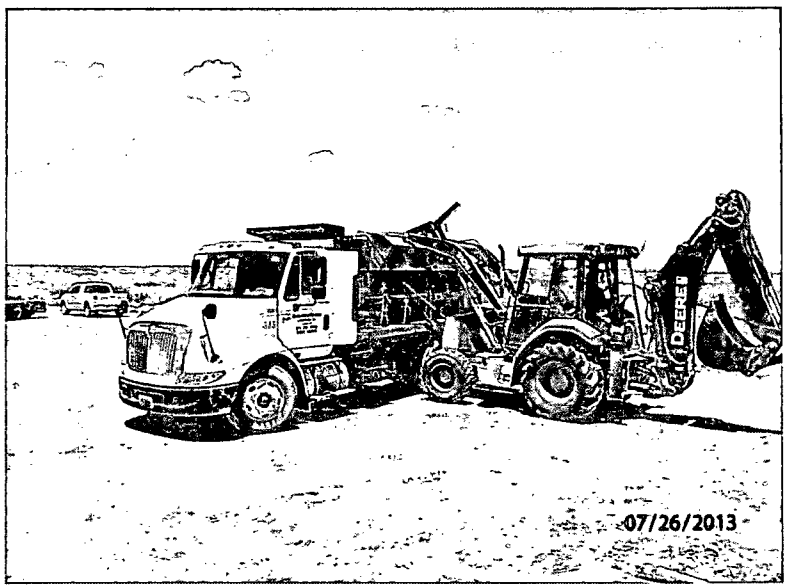


Importing soil, facing northeast 7/25/13

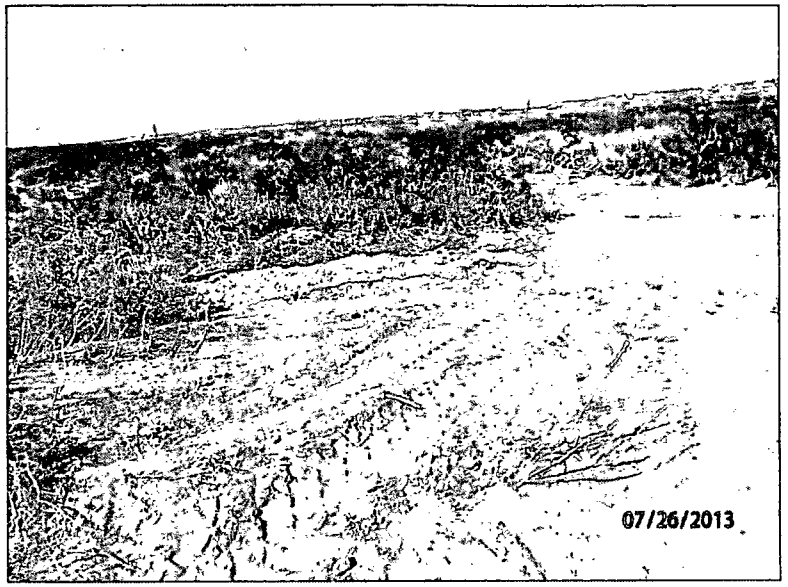


Spotting lines, facing northeast 7/25/13

Installing verticals, facing east 7/26/13

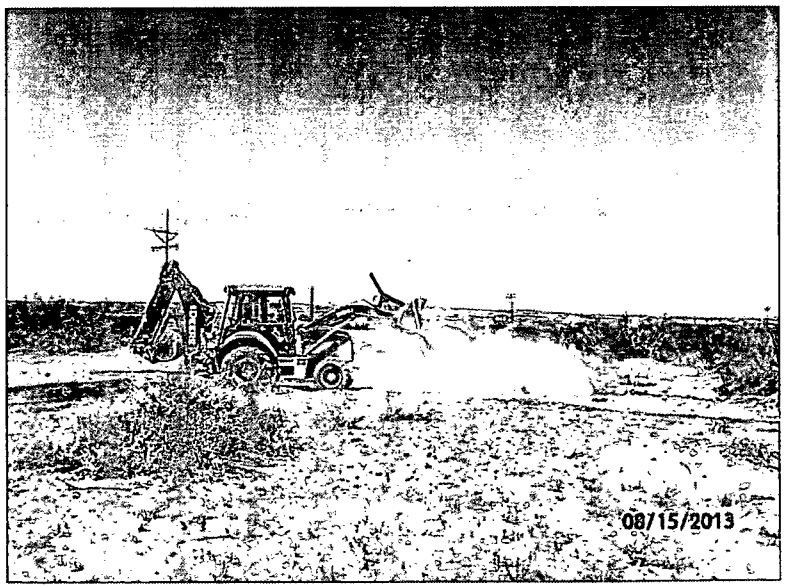


Exporting soil, facing northwest 7/26/13

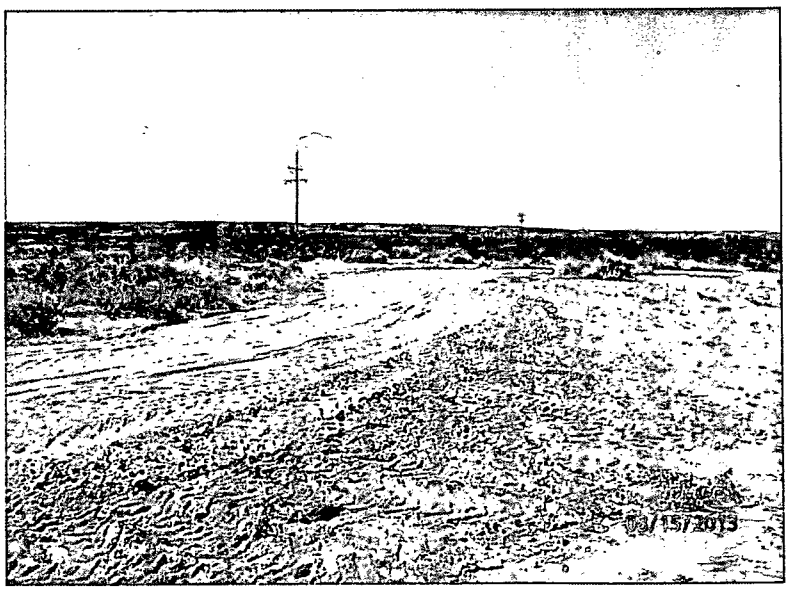


Verticals backfilled with caliche, facing NW 7/26/13

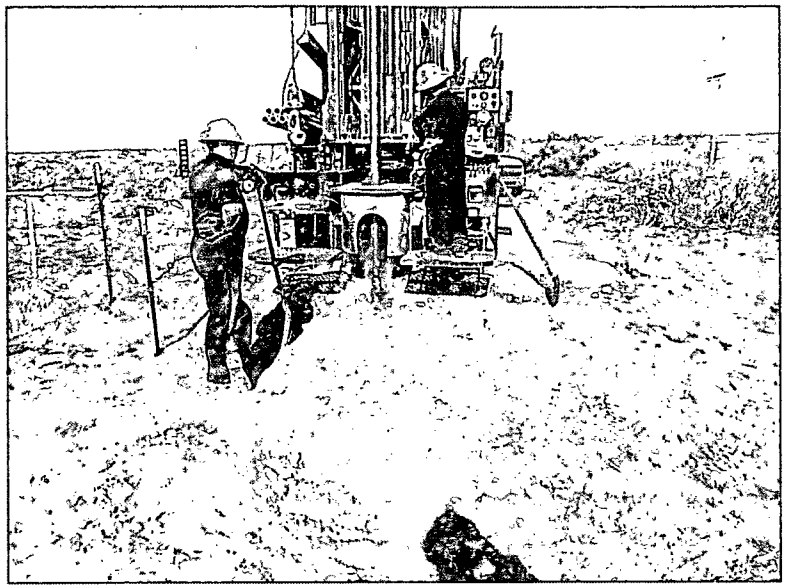
Obtaining composite sample of spoil pile, facing east 7/29/13



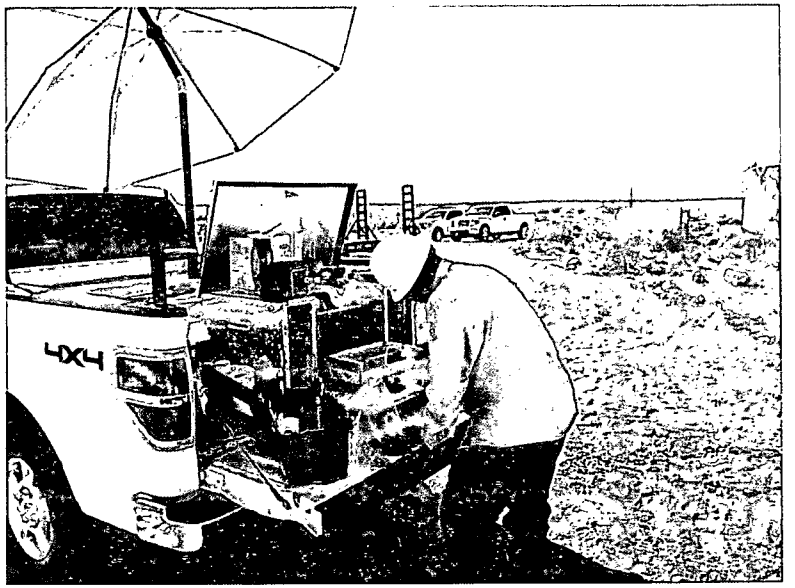
Building caliche road for SB installation, facing NW 8/15/13



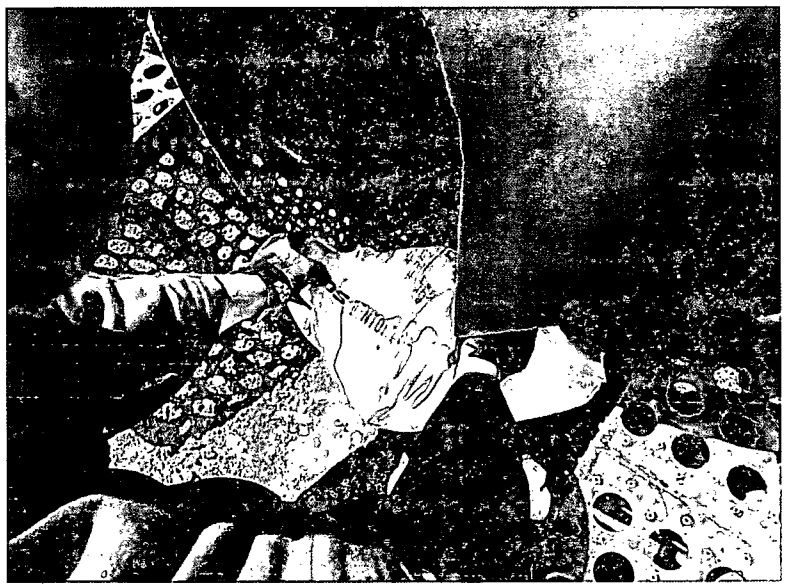
Caliche road completed, facing north 8/15/13



Drilling SB-1, facing west 8/20/13

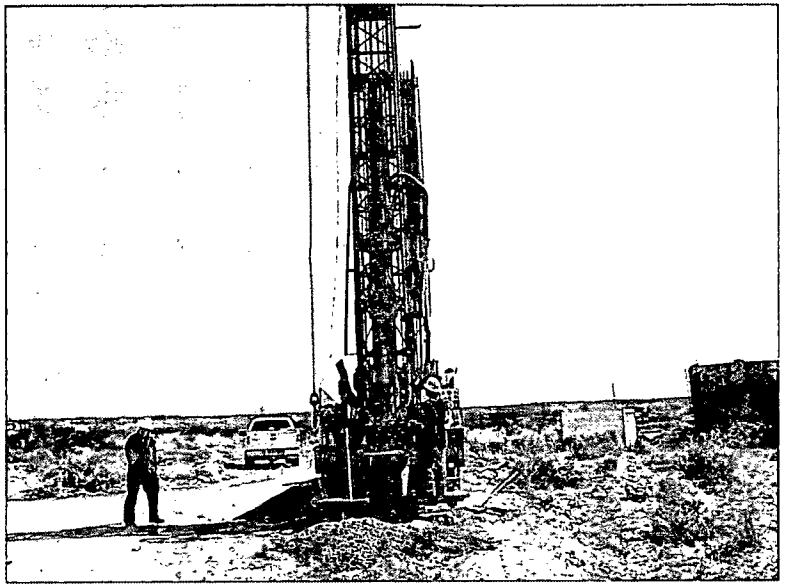


Field testing soil sample, facing south 8/20/13

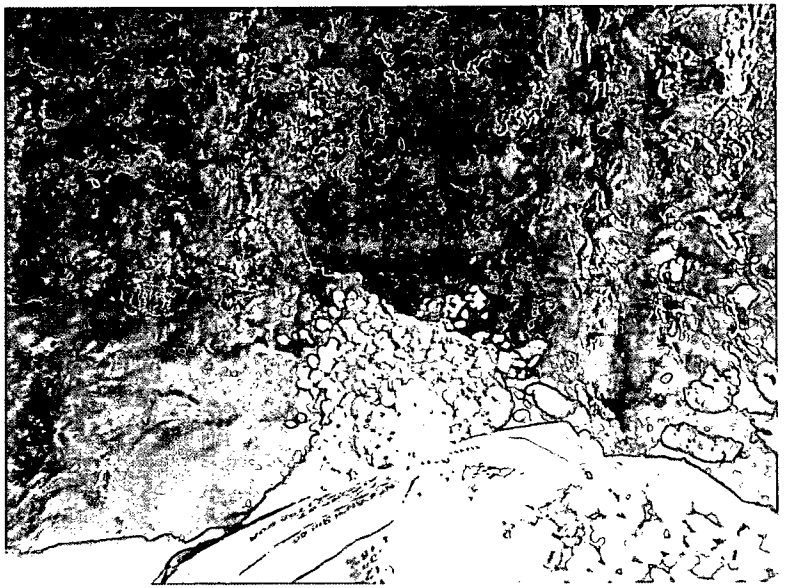


Plugging SB-1 in total with bentonite 8/20/13

Completed SB-1 8/20/13

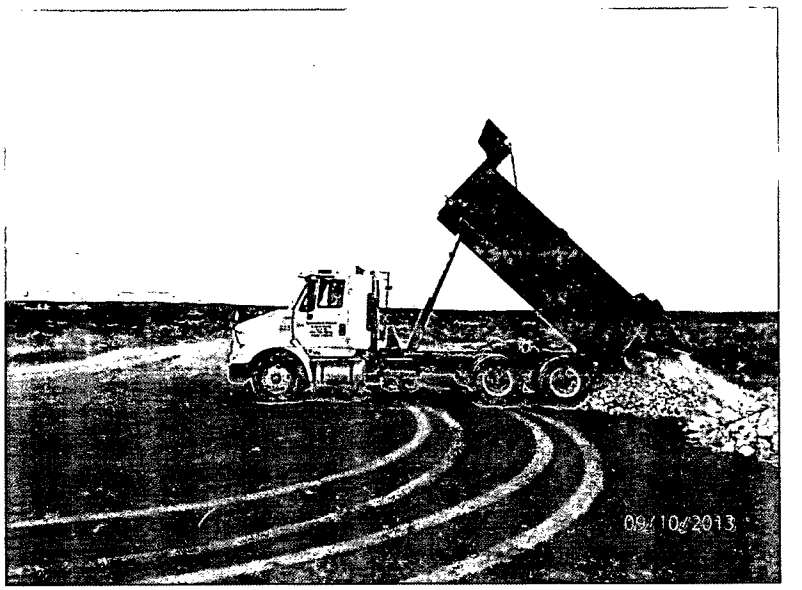


Drilling SB-2, facing south 8/20/13

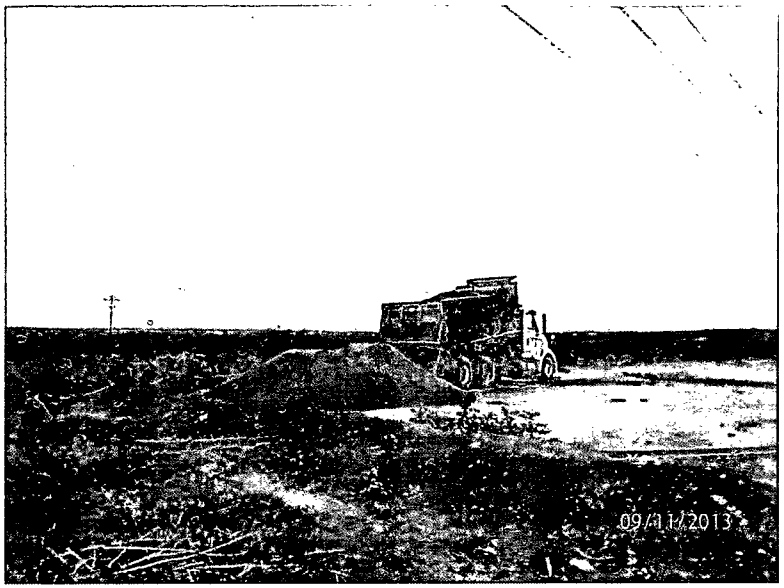


Plugging SB-2 in total with bentonite 8/20/13

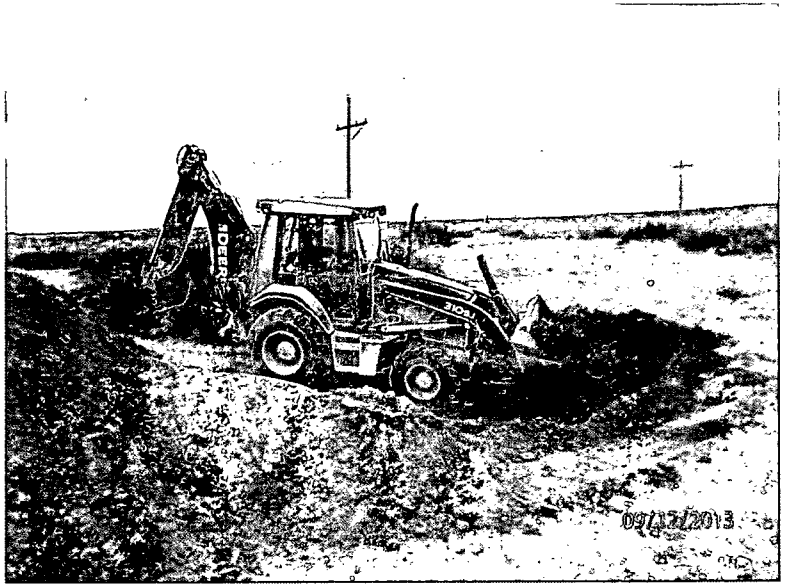
Completed SB-2 8/20/13



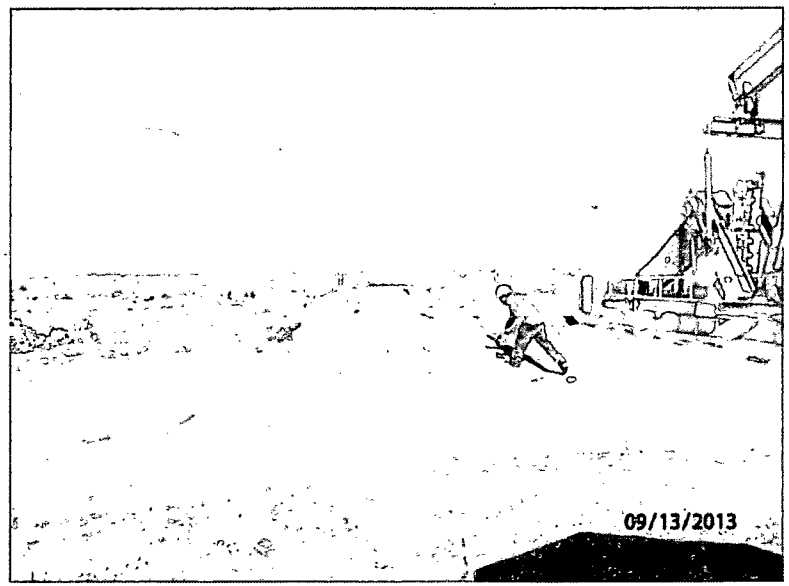
Importing caliche, facing south 9/10/13



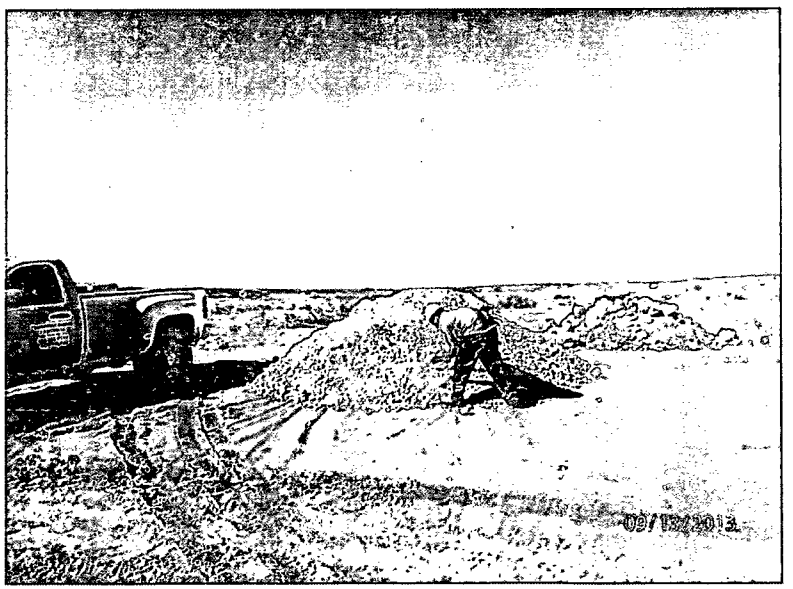
Importing soil, facing southeast 9/11/13



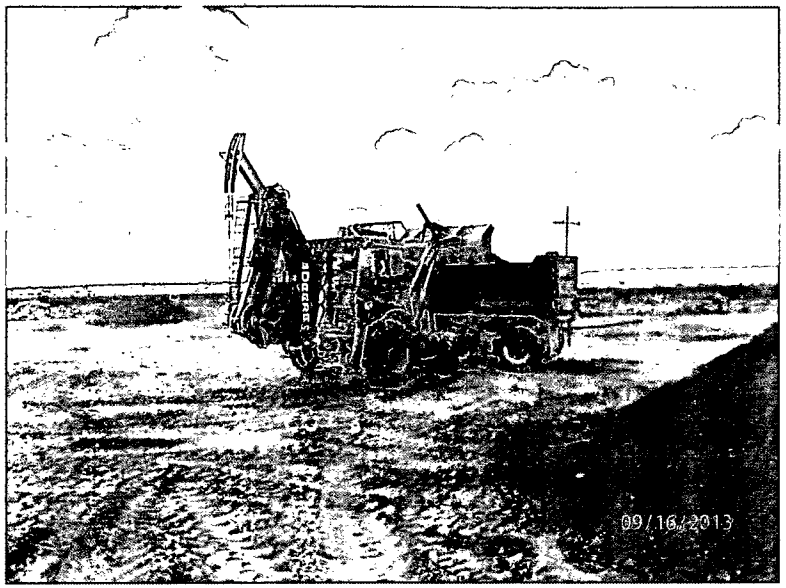
Excavating for liner installation, facing east 9/12/13



Sampling imported soil, facing northwest 9/13/13

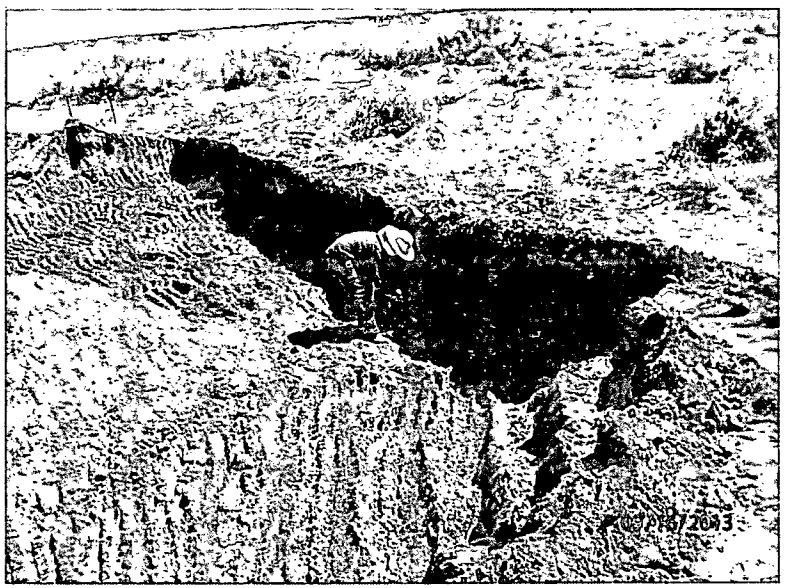


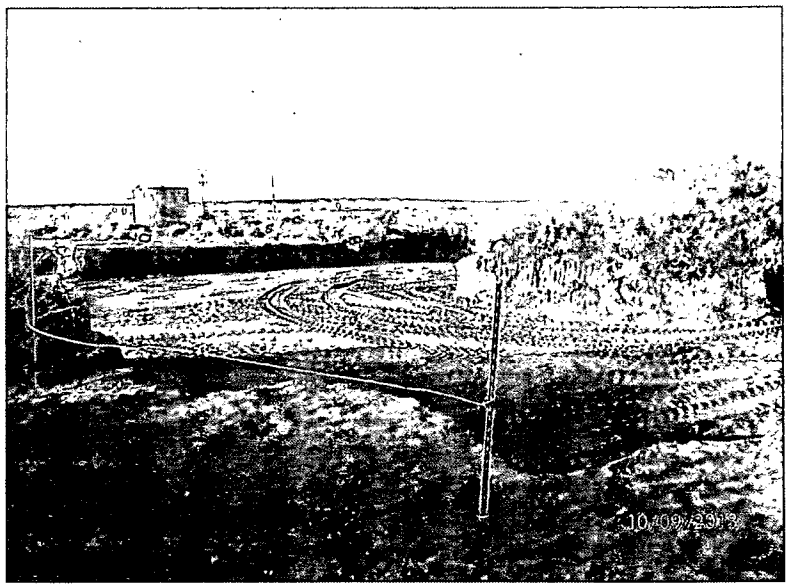
Sampling imported caliche, facing southwest 9/13/13

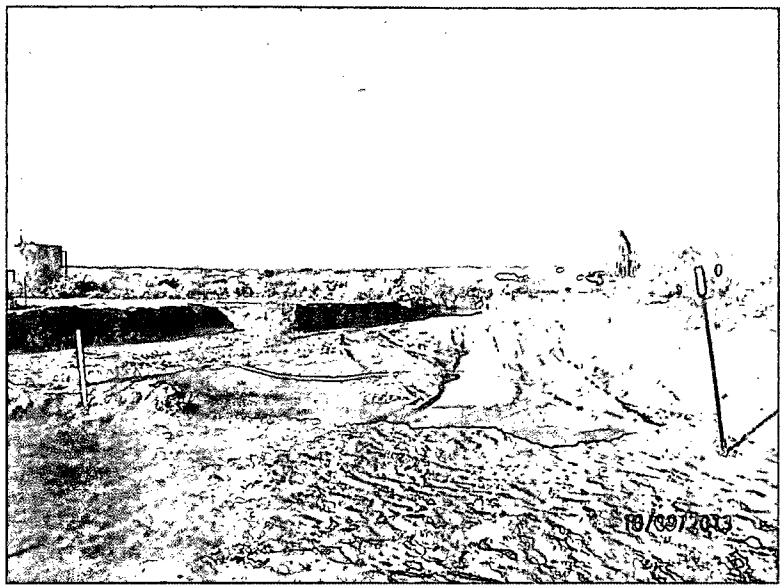


Exporting soil, facing southwest 9/16/13

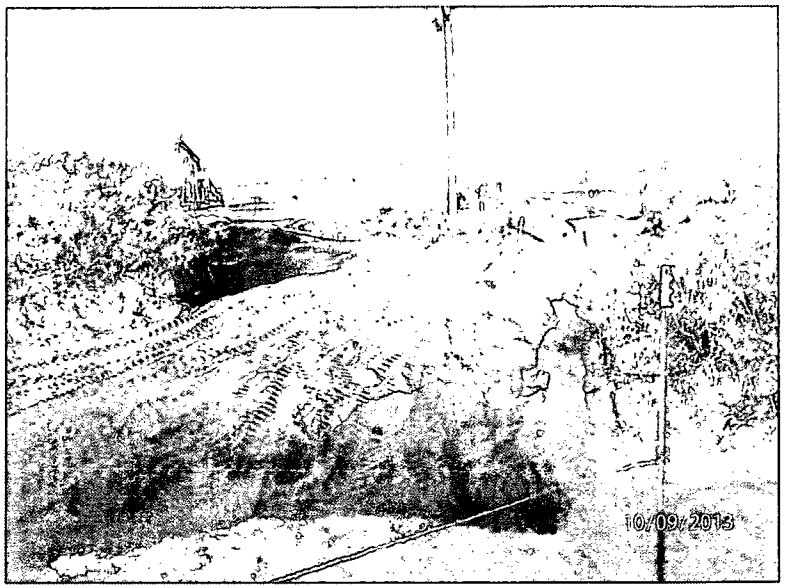

Checking depth of excavation, facing southeast
9/16/13


Collecting wall sample, facing southeast 9/16/13

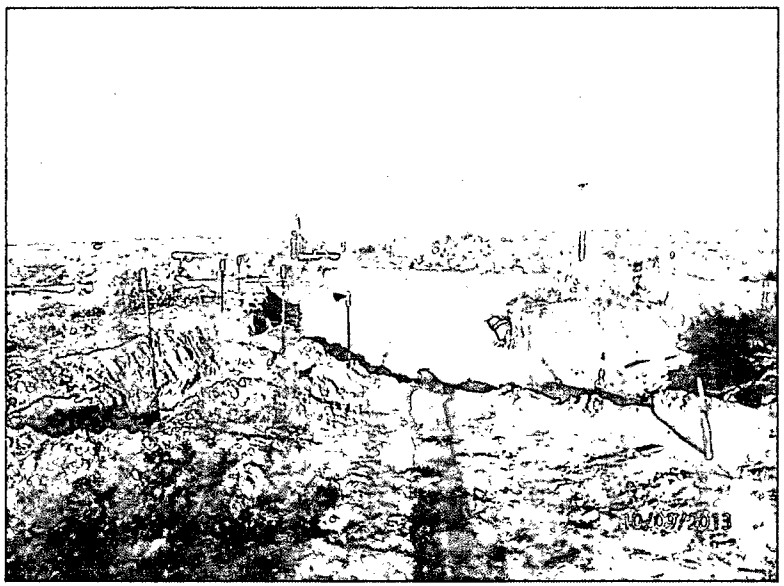

Excavation completed, facing southwest 10/9/13



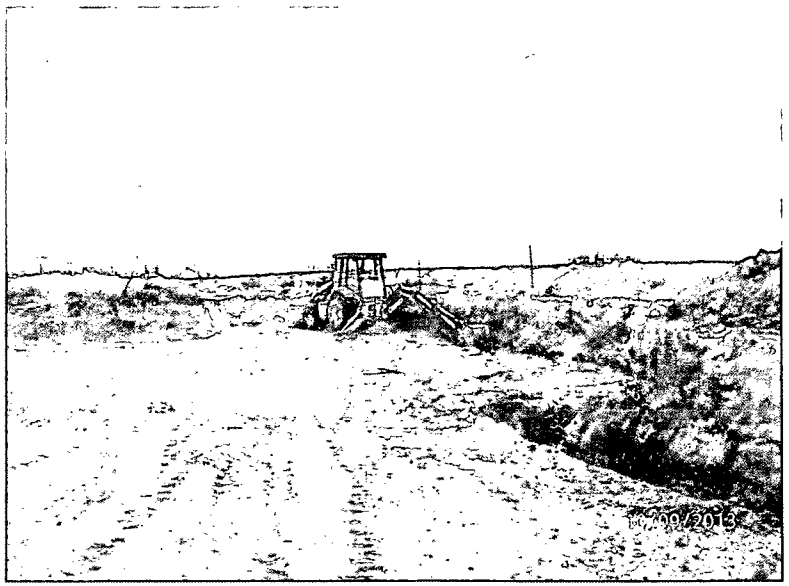
Excavation completed, facing southwest 10/9/13



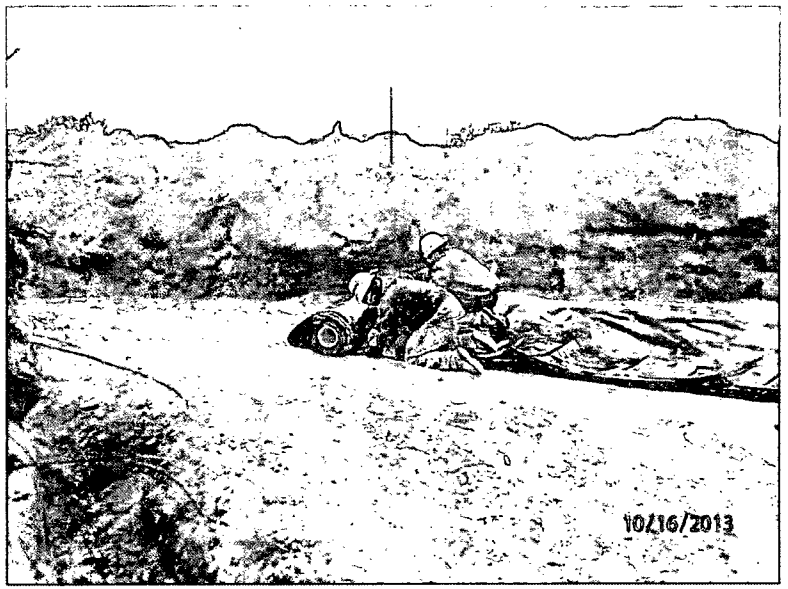
Excavation completed, facing west 10/9/13



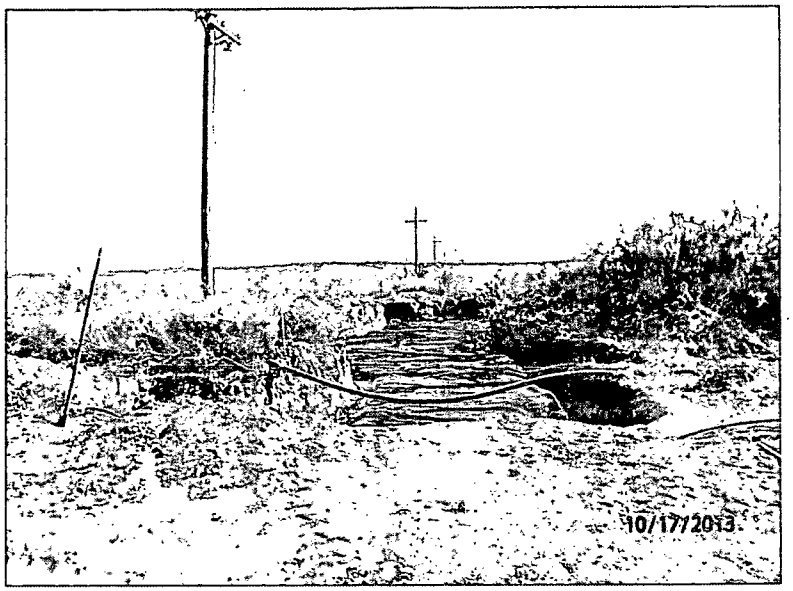
Excavation completed, facing west 10/9/13



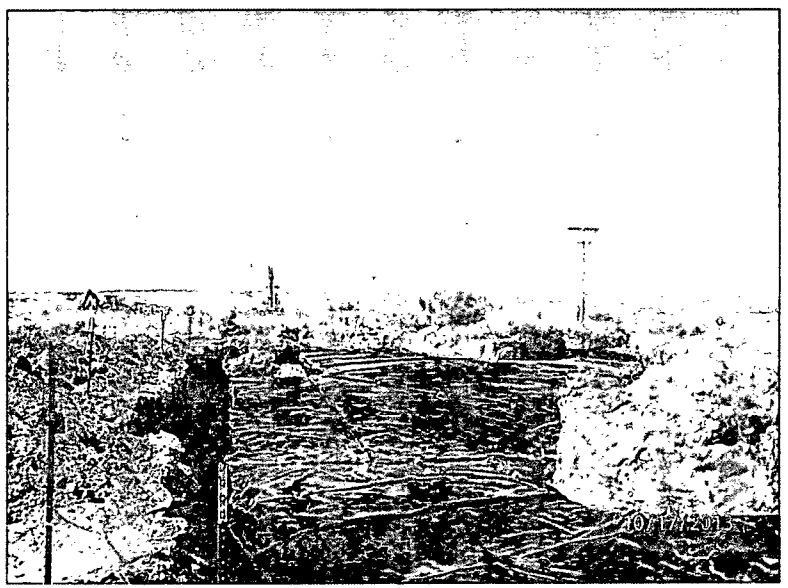
Installing trench to key set liner, facing southeast
10/9/13



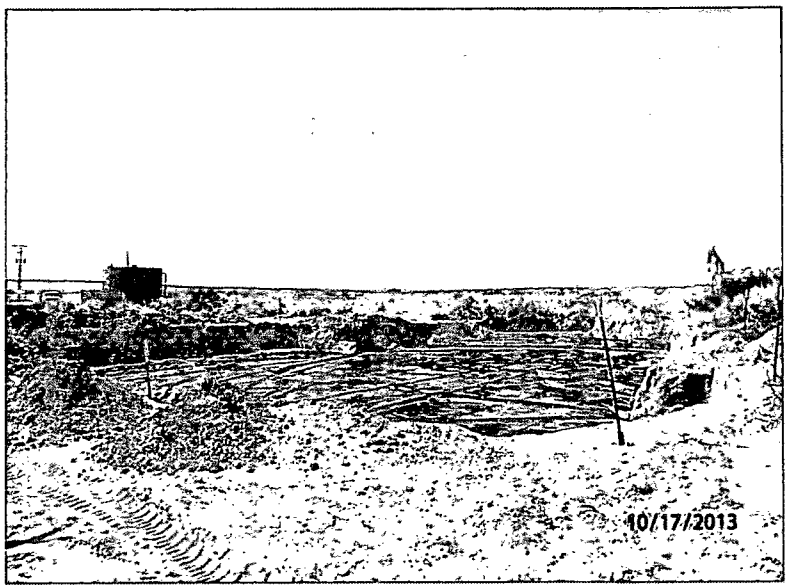
Installing 20-mil reinforced poly liner, facing southeast 10/16/13



Liner installation completed, facing east 10/17/13

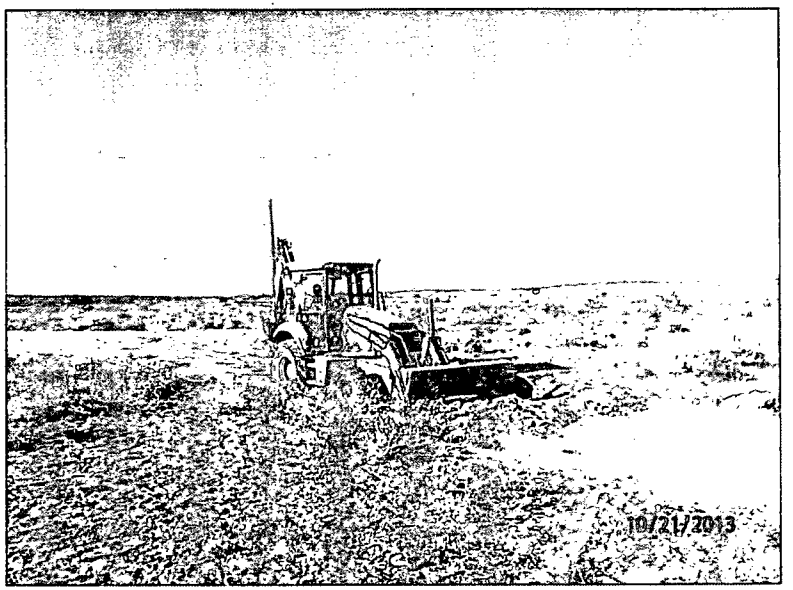


Liner installation completed, facing northwest 10/17/13

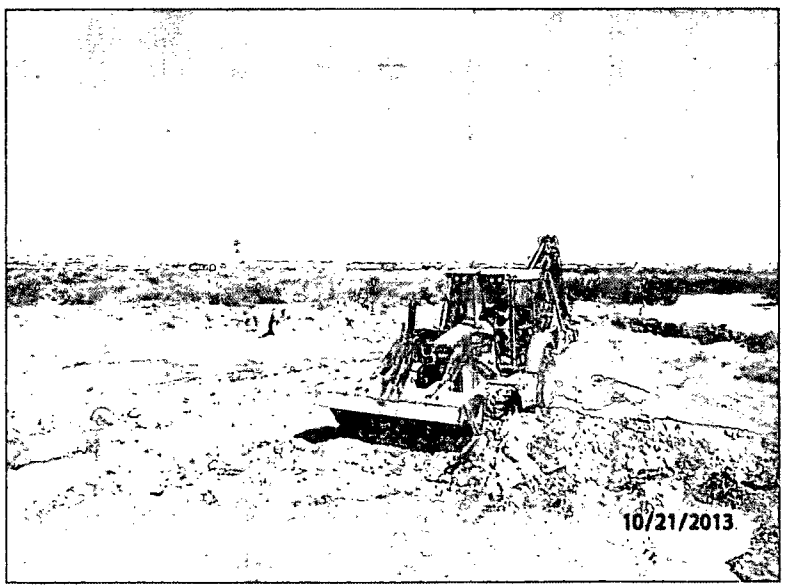


Liner installation completed, facing southwest 10/17/13

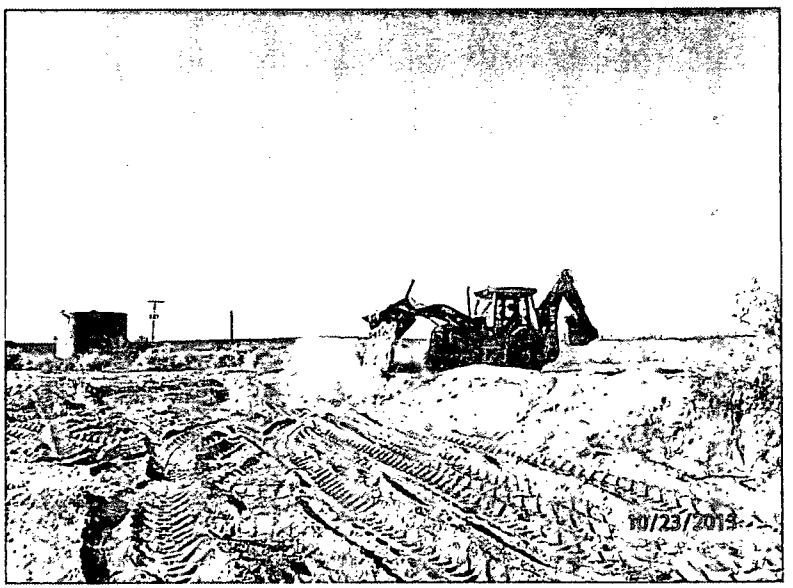
Backfilling over liner, facing east 10/17/13



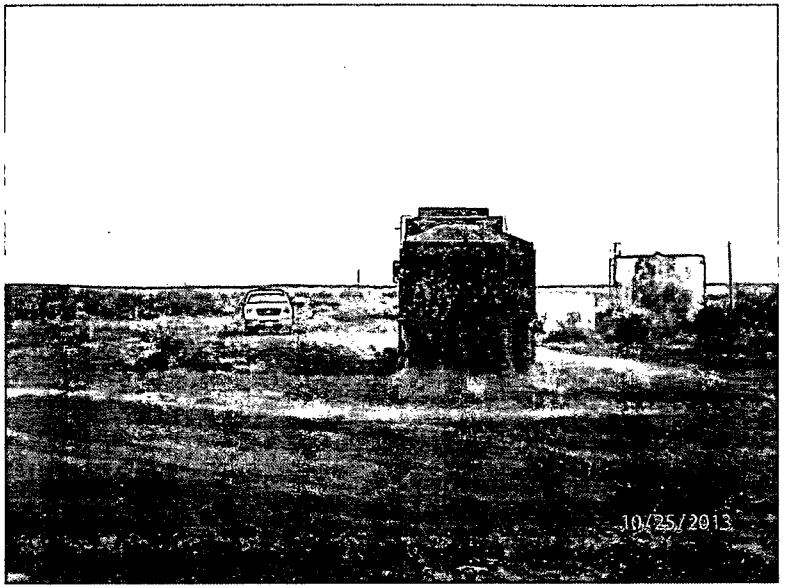
Scraping up caliche road, facing southwest 10/21/13



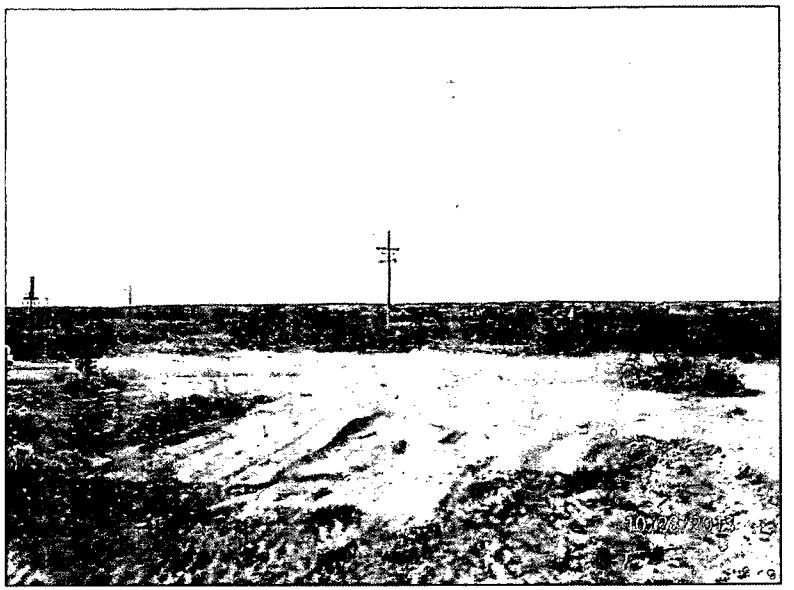
Backfilling the site with the scraped caliche, facing northwest 10/21/13



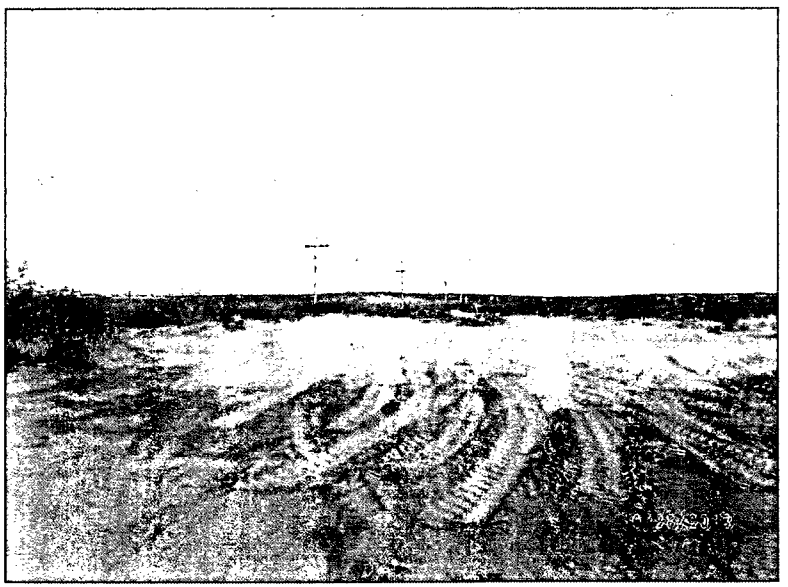
Backfilling site, facing southwest 10/23/13



Importing soil, facing south 10/25/13



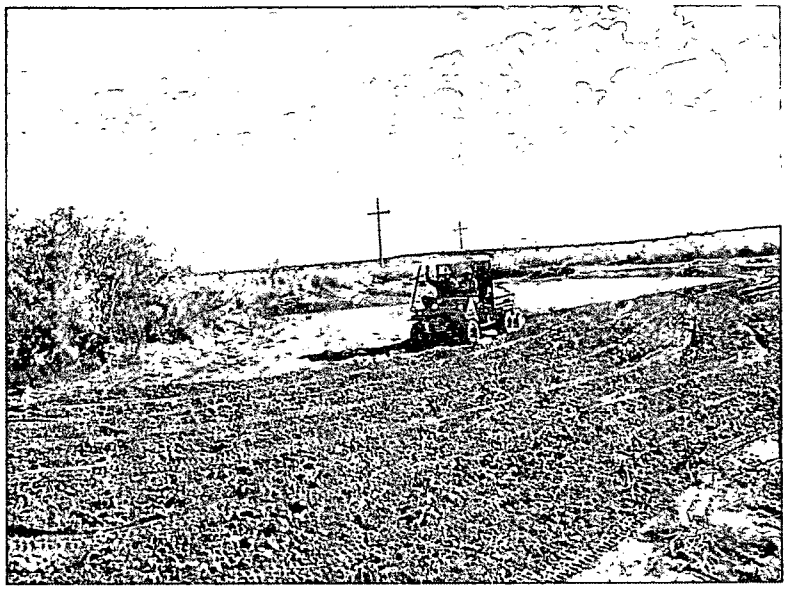
Backfill completed, facing north 10/28/13



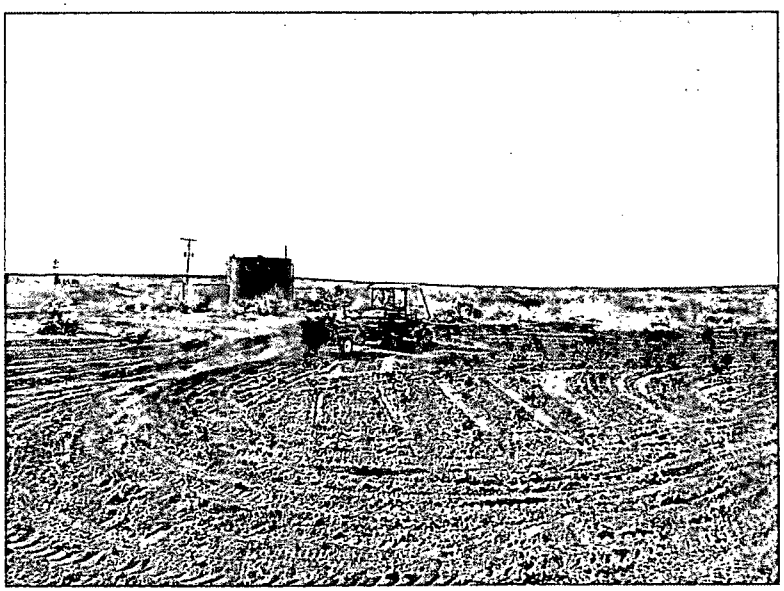
Backfill completed, facing east 10/28/13

Backfill completed, facing north 10/28/13

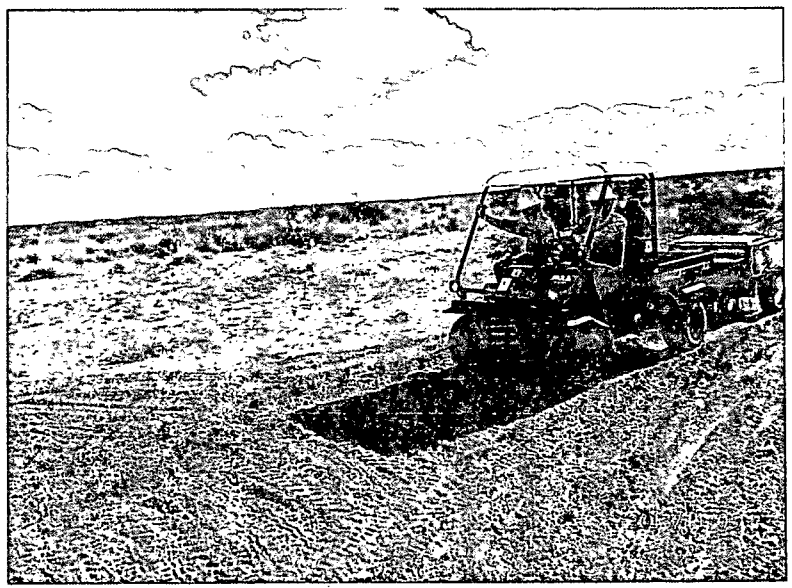
Scrape of caliche road completed, facing south
10/28/13



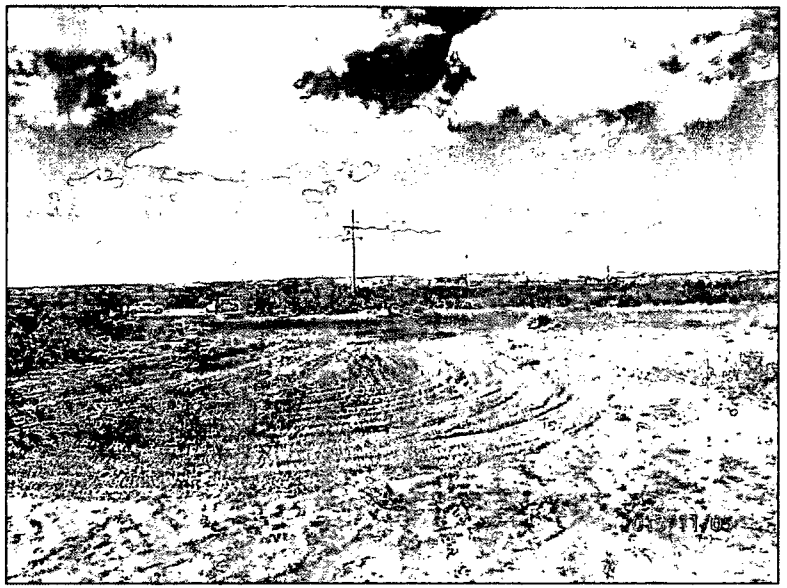
Tilling soil prior to seeding, facing northeast 11/5/13



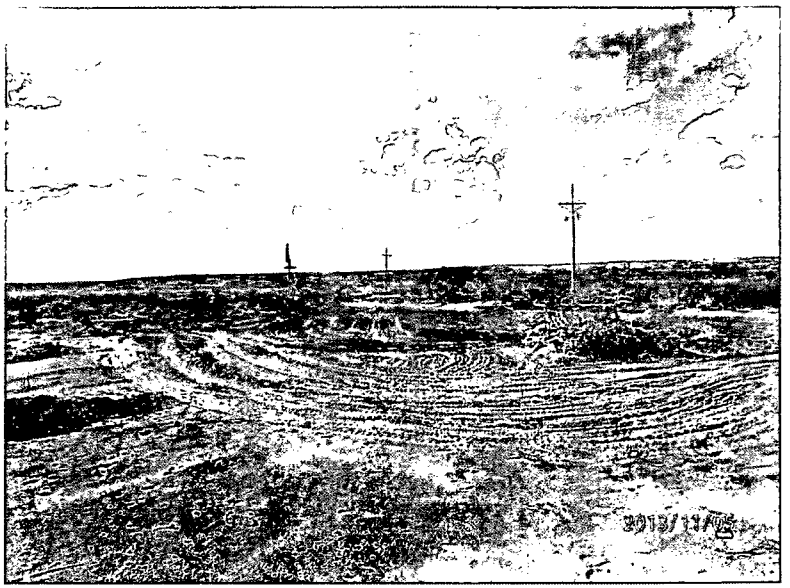
Spreading soil amendments, facing south 11/5/13



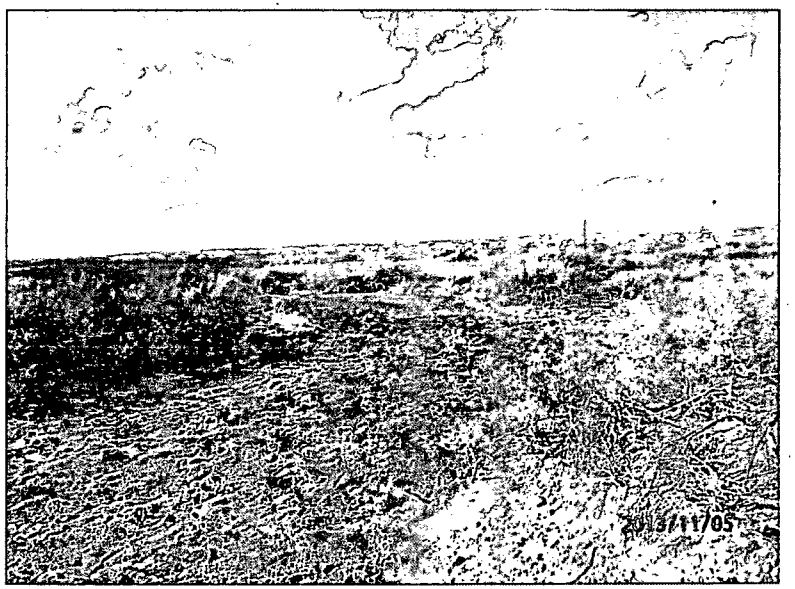
Seeding sith with LPC mix, facing southeast 11/5/13



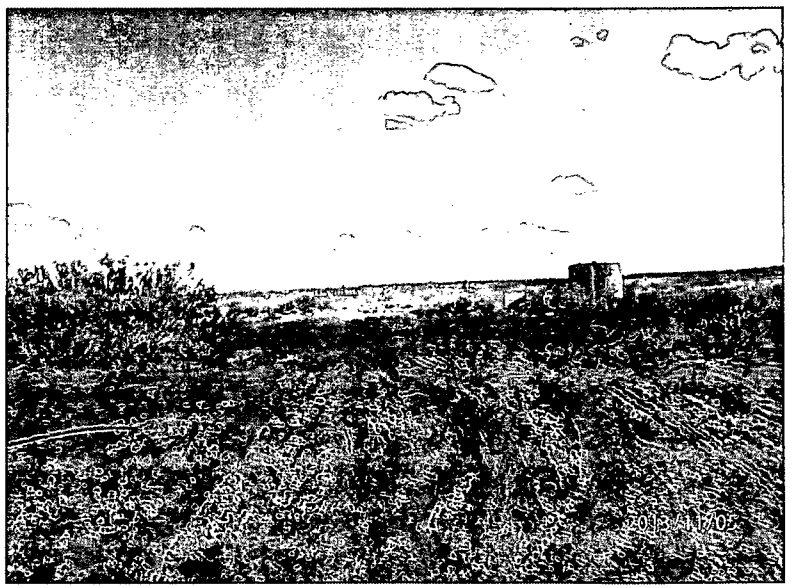
Site completed, facing northwest 11/5/13



Site completed, facing west 11/5/13



Site completed, facing northwest 11/5/13



Site completed, facing southeast 11/5/13

Appendix E

Final C-141

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

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Linn Energy	Contact Brain Wall
Address 2130 W. Bender Blvd. Hobbs, NM 88240	Telephone No. (806) 367-0645
Facility Name Max Friess Supply Line	Facility Type Supply Line

Surface Owner State	Mineral Owner BLM	API No. 3001528822

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	19	17S	31E	30	FNL	1320	FEL	Eddy

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 40 bbls	Volume Recovered 10 bbls
Source of Release	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 5/16/13 10:30 am
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
NOV 18 2013
NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Corrosion in the 4 inch steel injection line released 40 bbls of produced water. A vacuum truck was called to the site, which picked up 10 bbls of produced water.

Describe Area Affected and Cleanup Action Taken.* The release measured 11,504 sq ft in the pasture area. RECS personnel were on site beginning on May 20th, 2013 to take initial samples from the release. The samples were field tested for chlorides and hydrocarbons and 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. 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. 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. 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. 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. On September 5th, 2013, a Corrective Action Plan (CAP) for the site was sent to NMOCD and BLM. NMOCD and BLM approved the CAP on September 9th, 2013. On September 12th, 2013, RECS personnel were on site to begin the excavation for liner installation. The site was excavated to a depth of 4 ft bgs and samples were taken along the walls and field tested for chlorides and hydrocarbons. The walls of the excavation were extended until field tests concluded that the walls had field chloride values less than 1,000 mg/kg. The excavation was completed on October 9th, 2013 and final wall samples were taken on October 10th, 2013. The wall samples were field tested for chlorides and hydrocarbons and representative samples were taken to a commercial laboratory for analysis. A 2 foot trench was installed along the edge of the base of the excavation to prepare to key set the liner. A 20-mil reinforced poly liner was installed and key set into the excavation. The excavation was then backfill to 2 ft bgs with imported soil. A sample of the imported soil was taken to a commercial laboratory for analysis and returned a chloride result of non-detect. The caliche road that had been installed to conduct soil bore installations was scraped us and placed into the excavation at 2 ft bgs. The remainder of the excavation was then backfilled to ground surface with the imported soil and contoured to the surrounding location. On November 5th, 2013, the site was tilled with soil amendments and then seeded with LPC mix.

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

Signature: Fred B Wall	OIL CONSERVATION DIVISION
Printed Name: Brian Wall	Approved by Environmental Specialist:
Title: Construction Foreman II	Approval Date: / Expiration Date:
E-mail Address: Bwall@linnenergy.com	Conditions of Approval: / Attached ☐
Date: 11-15-13 Phone: (806) 367-0645	