HOBBS OCD

OCT 10 2013

RECEIVED

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 Apache Corporation	Contact Larry Bruce Baker
Address PO Box 1849, Eunice NM 88231	Telephone No. (432) 631-6982
Facility Name Lockhart B13 A SWD (nearest well #1)	Facility Type SWD

Surface Owner William O Stephens	Mineral Owner BLM/State	API No. 30-025-06555

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	13	21S	37E	660	FSL	660	FWL	Lea

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 18 bbls	Volume Recovered 15 bbls
Source of Release Ceramic Plunger	Date and Hour of Occurrence 12/22/12 10:30 am	Date and Hour of Discovery Same
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Geoffrey Leking/James Amos	
By Whom? Natalie Gladden	Date and Hour 12/27/12 6:15 am	
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.* The ceramic plunger broke on the triplex pump due to freezing temperatures. All fluid was released inside the containment area. Fluid was recovered by vacuum truck. Initial samples have been taken to determine a remediation plan. The facility does not have a liner.

Describe Area Affected and Cleanup Action Taken.* RECS personnel were on site beginning on January 3rd, 2013. Initial samples were taken from the surface of the release and field tested for chlorides and hydrocarbons. The samples were then taken to a commercial laboratory for confirmatory analysis. Laboratory analysis showed elevated levels of chlorides and low levels of hydrocarbons. Based on this data, the site was hand excavated to a depth of 6 inches to 2.5 ft. A total of 72 yards was exported to a NMOCD approved facility. On June 5th, 2013, the initial sampling points were augured for depth through the excavated area. The samples were field tested for chlorides and hydrocarbons and representative samples were taken to a commercial laboratory for analysis. All samples points, except for Pt. 4, showed chloride readings below 1,000 mg/kg at the base of each augur. To determine the vertical extent of the contamination, a vertical was installed on August 15th, 2013. Samples were taken to a depth of 13 ft bgs and field tested for chlorides and hydrocarbons. At 13 ft bgs, the chloride levels did not decrease to below 1,000 mg/kg. On August 23rd, 2013, a soil bore (SB-1) was installed near the vertical to determine the depth of contamination. The bore was installed to a depth of 54 ft bgs and samples were taken every 3 ft to field test for chlorides and hydrocarbons. Representative samples from the bore were taken to a commercial laboratory for analysis, which showed the chloride levels dropping below 250 mg/kg at 48 ft bgs. SB-2 was installed northwest of the battery to determine the depth to groundwater at the site. SB-2 was advanced to a depth of 60 ft bgs and red bed clay was encountered at the depth of 56 ft bgs. Red bed clay indicates the bottom of the aquifer, so the bore was left open for over 48 hours to allow groundwater to accumulate. On August 31st, 2013, the bore was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water had accumulated to a total depth of 59.4 ft. Apache and RECS met with NMOCD-District 1 on September 6th, 2013. NMOCD verbally stated that at Pt. 4 a 1 foot clay layer had to be installed and then the entire battery area needed to be backfilled with clean caliche. Beginning on October 3rd, 2013, clay was imported to the site and the area around Pt. 4 was backfilled with 1 ft of clay to provide an infiltration barrier. The clay liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. Clean caliche was imported to the site and was used to backfill the battery back to its former depth.

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: Larry Bruce Baker Jr.	OIL CONSERVATION DIVISION	
Printed Name: Larry Bruce Baker	Approved by Environmental Specialist: Environmental Specialist	
Title: Environmental Tech	Approval Date: 10/10/13	Expiration Date: -
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval: -	Attached ☐ IRP-06-14-3076
Date: 10-8-13 Phone: (432) 631-6982		

* Attach Additional Sheets If Necessary

NSAD1417751726.

Apache

EXPLORING WHAT'S POSSIBLE

APACHE CORPORATION

P.O.Box 1849
Eunice, NM 88231
Phone 575.394.3159

Lockhart B13 A SWD

Termination Request

API 30-025-06555

Release Date: December 22nd, 2012

Unit Letter K, Section 13, Township 21S, Range 37E

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

October 8th, 2013

Geoffrey Leking
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District 1
1625 N. French Dr.
Hobbs, NM 88240-9273

RE: **Termination Request**
Apache Corporation
Lockhart B13 A SWD: UL/K sec. 13 T21S R37E
API No. 30-025-06555

Mr. Leking:

Apache Corporation (Apache) 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 3 miles northeast of Eunice, New Mexico at UL/K sec. 13 T21S R37E. NM OSE and BLM records indicate that groundwater will likely be encountered at a depth of approximately 53 +/- feet. However, soil bore installation at the site showed that there is no groundwater beneath the site.

On December 22nd, 2012, the ceramic plunger on the triplex pump broke due to freezing temperatures. The pump released a total of 18 barrels of produced water all of which was released inside the containment area. 15 barrels of produced water were recovered by vacuum truck. NMOCD and BLM were notified of the release on December 27th, 2012 and a C-141 was sent to both agencies on the same day (Appendix A).

RECS personnel were on site beginning on January 3rd, 2013. Initial samples were taken from the surface of the release and field tested for chlorides and hydrocarbons (Figure 1). The samples were then taken to a commercial laboratory for confirmatory analysis (Appendix B). Laboratory analysis showed elevated levels of chlorides and low levels of hydrocarbons. Based on this data, the site was hand excavated to a depth of 6 inches to 2.5 ft (Figure 2). A total of 72 yards was exported to a NMOCD approved facility.

On June 5th, 2013, the initial sampling points were augured for depth through the excavated area (Figure 2). The samples were field tested for chlorides and hydrocarbons and representative samples were taken to a commercial laboratory for analysis (Appendix C). All samples points, except for Pt. 4, showed chloride readings below 1,000 mg/kg at the base of each augur. To determine the vertical extent of the contamination, a vertical was installed on August 15th, 2013 (Figure 3). Samples were taken to a depth of 13 ft bgs

and field tested for chlorides and hydrocarbons. At 13 ft bgs, the chloride levels did not decrease to below 1,000 mg/kg.

On August 23rd, 2013, a soil bore (SB-1) was installed near the vertical to determine the depth of contamination (Figure 3). The bore was installed to a depth of 54 ft bgs and samples were taken every 3 ft to field test for chlorides and hydrocarbons. Representative samples from the bore were taken to a commercial laboratory for analysis, which showed the chloride levels dropping below 250 mg/kg at 48 ft bgs. SB-2 was installed northwest of the battery to determine the depth to groundwater at the site. SB-2 was advanced to a depth of 60 ft bgs and red bed clay was encountered at the depth of 56 ft bgs. Red bed clay indicates the bottom of the aquifer, so the bore was left open for over 48 hours to allow groundwater to accumulate. On August 31st, 2013, the bore was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water had accumulated to a total depth of 59.4 ft (Appendix D).

Apache and RECS met with NMOCD-District 1 on September 6th, 2013. NMOCD verbally stated that at Pt. 4 a 1 foot clay layer had to be installed and then the entire battery area needed to be backfilled with clean caliche.

Beginning on October 3rd, 2013, clay was imported to the site and the area around Pt. 4 was backfilled with 1 ft of clay to provide an infiltration barrier. The clay liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. Clean caliche was imported to the site and was used to backfill the battery back to its former depth.

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

Six inches to 2.5 ft of impacted soil was removed from the site. As approved by NMOCD, the area around Pt. 4 was backfilled with clean, imported clay to provide an infiltration barrier and the site was backfilled with clean, imported caliche to its former depth. Therefore, Apache submits the final C-141 and respectfully requests closure of the regulatory file for the site (Appendix F).

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

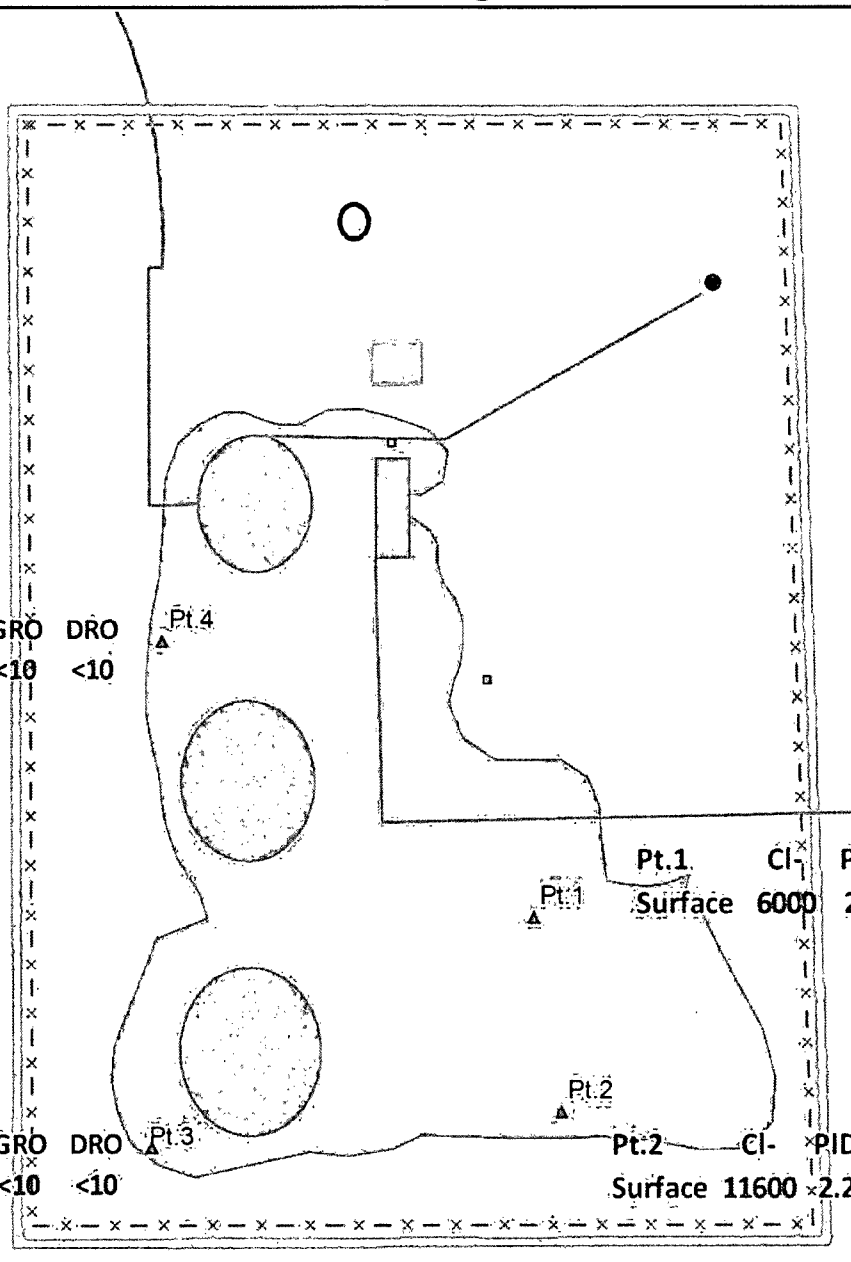
Attachments:

Figure 1 – Initial Sampling Data
Figure 2 – Augur Sampling Data
Figure 3 – Vertical and Soil Bore Sampling Data
Appendix A – Initial C-141
Appendix B – Initial Sampling Lab
Appendix C – Augur Sampling Lab
Appendix D – Soil Bore Installation Documentation
Appendix E – Photo Documentation
Appendix F – Final C-141

Figures

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

Initial Sampling Data



Pt.4	Cl-	PID	GRO	DRO
Surface	14500	7	<10	<10

Pt.1	Cl-	PID	GRO	DRO
Surface	6000	2.9	<10	16.7

Pt.3	Cl-	PID	GRO	DRO
Surface	1300	2.2	<10	<10

Pt.2	Cl-	PID	GRO	DRO
Surface	11600	2.2	<10	<10

Legend

- SAMPLE POINT
- WELLHEAD
- CONTROL BOX
- SURFACE POLY
- SURFACE STEEL
- CHEMICAL TANK
- TANK
- BERM
- Cl- Field Data
- Cl- Lab Data
- FENCE
- PUMP
- SUMP
- STAIN (1,878 SQ FT)

DGW = None

Landowner = William O. Stephens

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

APACHE LOCKHART B-13 A SWD

UL K SECTION 13
T-21-S R-37-E
LEA COUNTY, NM

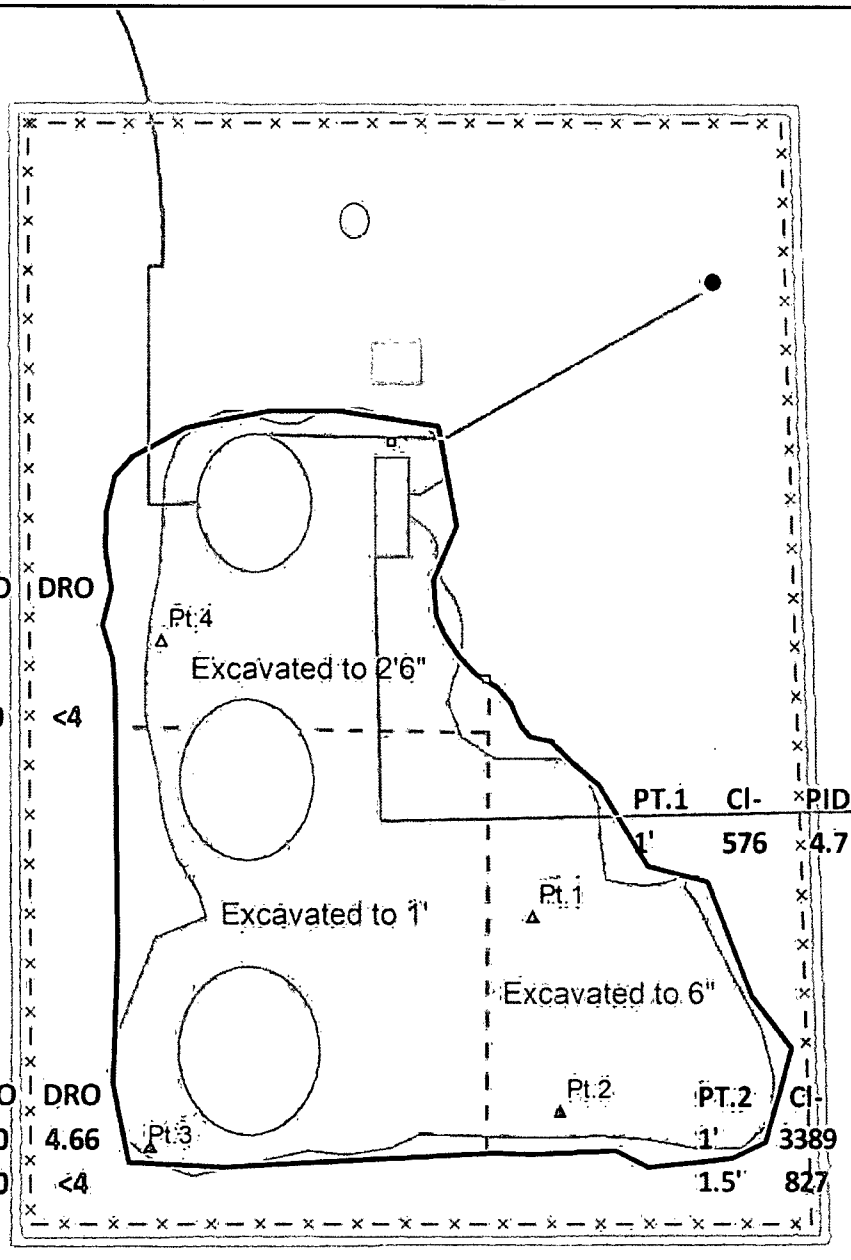
Figure 1

N W E S

0 10 20 Feet

GPS date: 1/3/13 KN
Drawing date: 1/4/13
Drafted by: Tony Grieco, A.C. Ruth

Augur Sampling Data



PT.4	Cl-	PID	GRO	DRO
2.5'	3749	5.4		
3'	5352	4.5		
3.5'	3160	2.8	<50	<4

PT.1	Cl-	PID	GRO	DRO
1'	576	4.7	<50	<20

PT.3	Cl-	PID	GRO	DRO
1.5'	125	20.1	<50	4.66
2'	50	3.3	<50	<4

PT.2	Cl-	PID	GRO	DRO
1'	3389	5.3		
1.5'	827	6.8	<50	6.74

Legend

- SAMPLE POINT
- WELLHEAD
- CONTROL BOX
- SURFACE POLY
- SURFACE STEEL
- SCRAPE
- CHEMICAL TANK
- TANK
- BERM
- FENCE
- PUMP
- SUMP
- STAIN (1,878 SQ FT)

DGW = None

Landowner = William O. Stephens

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

APACHE LOCKHART B-13 A SWD

UL K SECTION 13
T-21-S R-37-E
LEA COUNTY, NM

Figure 2

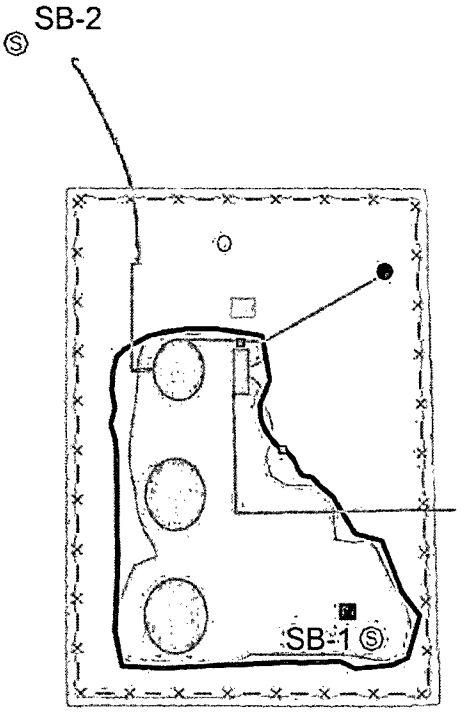
N W E S

0 10 20 Feet

GPS date: 6/5/13 EC
Drawing date: 6/6/13
Drafted by: L. Weinheimer

Vertical and Soil Bore Sampling Data

Depth	Vertical Cl-	PID
6"	2613	1
1'	1360	1.8
1.5'	1268	0.2
2'	581	0
2.5'	528	0
3'	651	0
3.5'	515	0
4'	738	0
4.5'	762	0
5'	795	0
5.5'	1016	0
6'	741	0.2
7'	1121	0
8'	918	0
9'	677	0.1
10'	1419	2.6
11'	1505	18.6
12'	1261	20.3
13'	1691	25.6



SB-1

Depth	Cl-	PID	GRO	DRO
SS	6160	7.1	<10	256
3'	831	12.3		
6'	301	6.1		
9'	433	5.8		
12'	699	5		
15'	375	5.6		
18'	1200	6.4	<10	<10
21'	1073	6.1		
24'	810	6.1		
27'	545	7.2		
30'	888	5.6		
33'	980	4.5		
36'	704	5.3		
39'	420	9.2		
42'	476	9.1		
45'	421	15.9		
48'	240	12.1	<10	<10
51'	128	17.5	<10	<10
54'	240	7.1	<10	<10

Legend

- SOIL BORE
- VERTICAL
- WELLHEAD
- CONTROL BOX
- SURFACE POLY
- SURFACE STEEL
- SCRAPE
- CHEMICAL TANK
- TANK
- BERM
- FENCE
- PUMP
- SUMP
- STAIN (1,878 SQ FT)

DGW = None

Landowner = William O. Stephens

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

APACHE LOCKHART B-13 A SWD

UL K SECTION 13
T-21-S R-37-E
LEA COUNTY, NM

Figure 3

N W E S

0 30 60 Feet

GPS date: 8/23/13 TG
Drawing date: 8/30/13
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

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 Apache Corporation	Contact Natalie Gladden
Address PO Box 1849, Eunice NM 88231	Telephone No. 575-390-4186
Facility Name Lockhart B13 A SWD (nearest well #1)	Facility Type SWD

Surface Owner BLM	Mineral Owner BLM/State	API No. 30-025-06555

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	13	21S	37E	660	FSL	660	FWL	Lea

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 18	Volume Recovered 15
Source of Release Ceramic plunger	Date and Hour of Occurrence 12/22/2012 1030am	Date and Hour of Discovery Same
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Geoffrey Leking/James Amos	
By Whom? Natalie Gladden	Date and Hour 12/27/12 615am	
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.*
The ceramic plunger broke on the triplex pump due to freezing weather. All fluid was released inside the containment area. Fluid was recovered by usage of vacuum truck. Initial samples have been taken to determine the remediation plan.

Describe Area Affected and Cleanup Action Taken.*
This facility does not have a liner. A remediation plan will be submitted to the NMOCD/BLM and all guidelines will be followed to closure.

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: Natalie Gladden

Printed Name: Natalie Gladden

Title: Sr. Environmental Tech

E-mail Address: natalie.gladden@apachecorp.com

Date: 12/27/2012 Phone: 575-390-4186

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: Expiration Date:

Conditions of Approval: Attached ☐

* Attach Additional Sheets If Necessary

Appendix B

Initial Sampling Lab

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

January 07, 2013

NATALIE GLADDEN

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: LOCKHART B-13 A SWD

Enclosed are the results of analyses for samples received by the laboratory on 01/03/13 11:21.

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:

APACHE - EUNICE
NATALIE GLADDEN
P. O. BOX 1849
EUNICE NM, 88231
Fax To: 394-2425

Received:	01/03/2013	Sampling Date:	01/03/2013
Reported:	01/07/2013	Sampling Type:	Soil
Project Name:	LOCKHART B-13 A SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: PT. 1 @ SURFACE (H300014-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6000**	16.0	01/04/2013	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2013	ND	167	83.3	200	4.82	
DRO >C10-C28	**16.7**	10.0	01/03/2013	ND	176	87.9	200	6.65	

Surrogate: 1-Chlorooctane	*88.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*106 %*	*63.6-154*

Sample ID: PT. 2 @ SURFACE (H300014-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**11600**	16.0	01/04/2013	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2013	ND	167	83.3	200	4.82	
DRO >C10-C28	<10.0	10.0	01/03/2013	ND	176	87.9	200	6.65	

Surrogate: 1-Chlorooctane	*88.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*101 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

APACHE - EUNICE
NATALIE GLADDEN
P. O. BOX 1849
EUNICE NM, 88231
Fax To: 394-2425

Received:	01/03/2013	Sampling Date:	01/03/2013
Reported:	01/07/2013	Sampling Type:	Soil
Project Name:	LOCKHART B-13 A SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: PT. 3 @ SURFACE (H300014-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	16.0	01/04/2013	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2013	ND	167	83.3	200	4.82	
DRO >C10-C28	<10.0	10.0	01/03/2013	ND	176	87.9	200	6.65	

Surrogate: 1-Chlorooctane	*82.1 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*93.4 %*	*63.6-154*

Sample ID: PT. 4 @ SURFACE (H300014-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**14500**	16.0	01/04/2013	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2013	ND	167	83.3	200	4.82	
DRO >C10-C28	<10.0	10.0	01/03/2013	ND	176	87.9	200	6.65	

Surrogate: 1-Chlorooctane	*88.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*105 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Apache		BILL TO	
Project Manager: Natalie Gladden		P.O. #:	
Address:		Company:	
City: Hobbs	State: NM Zip: 88240	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: Ludlow B 13 A Stat		Phone #:	
Sampler Name: Kyle Norman		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	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS				
H30004																								
1	[illegible]	G	1			X					X		1-3-13	1pm	X	X								
2	[illegible]	G	1			X					X		1-3-13	1:40	X	X								
3	[illegible]	G	1			X					X		1-3-13	12:55	X	X								
4	[illegible]	G	1			X					X		1-3-13	12:30	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:	Date: 1-3-13	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 11:21		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results Natalie.Gladden@usa.apachecorp.com Knorman@rice-ecs.com Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com
	Time:		
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 505-393-2476.

#26

Appendix C

Augur Sampling Lab

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

TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Steven Fleming
Apache Corp.-Midland
303 Veterans Airpark Lane
Suite #3000
Midland, TX, 79705

Report Date: June 27, 2013

Work Order: 13061323

Project Location: Apache Lockhart B 13, NM
Project Name: Apache Lockhart B 13
Project Number: Apache Lockhart B 13

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
332169	Sample Point #1 @ 1'	soil	2013-06-05	13:50	2013-06-11
332170	Sample Point #2 @ 1' 6"	soil	2013-06-05	13:30	2013-06-11
332171	Sample Point #3 @ 1' 6"	soil	2013-06-05	14:10	2013-06-11
332172	Sample Point #3 @ 2'	soil	2013-06-05	15:45	2013-06-11
332173	Sample Point #4 @ 3' 6"	soil	2013-06-05	11:50	2013-06-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Report Contents

Case Narrative

Samples for project Apache Lockhart B 13 were received by TraceAnalysis, Inc. on 2013-06-11 and assigned to work order 13061323. Samples for work order 13061323 were received intact at a temperature of 2.7 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	86958	2013-06-27 at 13:00	102657	2013-06-27 at 14:00
TPH DRO - NEW	S 8015 D	86667	2013-06-13 at 14:00	102301	2013-06-14 at 10:57
TPH GRO	S 8015 D	86660	2013-06-13 at 15:43	102287	2013-06-13 at 15:43

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13061323 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 332169 - Sample Point #1 @ 1'

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102657	Date Analyzed:	2013-06-27	Analyzed By:	GS
Prep Batch:	86958	Sample Preparation:	2013-06-27	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**576**	mg/Kg	1	5.00

Sample: 332169 - Sample Point #1 @ 1'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102301	Date Analyzed:	2013-06-14	Analyzed By:	CM
Prep Batch:	86667	Sample Preparation:	2013-06-13	Prepared By:	CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	70 - 130

Sample: 332169 - Sample Point #1 @ 1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102287	Date Analyzed:	2013-06-13	Analyzed By:	JS
Prep Batch:	86660	Sample Preparation:	2013-06-13	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO [1]	Qs	1	<20.0	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.21	mg/Kg	5	2.00	60	69.6 - 124

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	5	2.00	100	77.7 - 120

Sample: 332170 - Sample Point #2 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102657	Date Analyzed:	2013-06-27	Analyzed By:	GS
Prep Batch:	86958	Sample Preparation:	2013-06-27	Prepared By:	GS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**827**	mg/Kg	1	5.00

Sample: 332170 - Sample Point #2 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102301	Date Analyzed:	2013-06-14	Analyzed By:	CM
Prep Batch:	86667	Sample Preparation:	2013-06-13	Prepared By:	CM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	70 - 130

Sample: 332170 - Sample Point #2 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102287	Date Analyzed:	2013-06-13	Analyzed By:	JS
Prep Batch:	86660	Sample Preparation:	2013-06-13	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**6.74**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.32	mg/Kg	1	2.00	116	77.7 - 120

Sample: 332171 - Sample Point #3 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102657	Date Analyzed:	2013-06-27	Analyzed By:	GS
Prep Batch:	86958	Sample Preparation:	2013-06-27	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**125**	mg/Kg	1	5.00

Sample: 332171 - Sample Point #3 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102301	Date Analyzed:	2013-06-14	Analyzed By:	CM
Prep Batch:	86667	Sample Preparation:	2013-06-13	Prepared By:	CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			105	mg/Kg	1	100	105	70 - 130

Sample: 332171 - Sample Point #3 @ 1' 6"

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102287	Date Analyzed:	2013-06-13	Analyzed By:	JS
Prep Batch:	86660	Sample Preparation:	2013-06-13	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	**4.66**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.23	mg/Kg	1	2.00	112	77.7 - 120

Sample: 332172 - Sample Point #3 @ 2'

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102657	Date Analyzed:	2013-06-27	Analyzed By:	GS
Prep Batch:	86958	Sample Preparation:	2013-06-27	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**50.0**	mg/Kg	1	5.00

Sample: 332172 - Sample Point #3 @ 2'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102301	Date Analyzed:	2013-06-14	Analyzed By:	CM
Prep Batch:	86667	Sample Preparation:	2013-06-13	Prepared By:	CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Sample: 332172 - Sample Point #3 @ 2'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102287	Date Analyzed:	2013-06-13	Analyzed By:	JS
Prep Batch:	86660	Sample Preparation:	2013-06-13	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	77.7 - 120

Sample: 332173 - Sample Point #4 @ 3' 6"

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	102657	Date Analyzed:	2013-06-27	Analyzed By:	GS
Prep Batch:	86958	Sample Preparation:	2013-06-27	Prepared By:	GS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3160**	mg/Kg	1	5.00

Sample: 332173 - Sample Point #4 @ 3' 6"

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	102301	Date Analyzed:	2013-06-14	Analyzed By:	CM
Prep Batch:	86667	Sample Preparation:	2013-06-13	Prepared By:	CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	70 - 130

Sample: 332173 - Sample Point #4 @ 3' 6"

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	102287	Date Analyzed:	2013-06-13	Analyzed By:	JS
Prep Batch:	86660	Sample Preparation:	2013-06-13	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	77.7 - 120

Method Blanks

Method Blank (1) QC Batch: 102287

QC Batch: 102287 Date Analyzed: 2013-06-13 Analyzed By: JS
Prep Batch: 86660 QC Preparation: 2013-06-13 Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.230	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	69.6 - 124
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	77.7 - 120

Method Blank (1) QC Batch: 102301

QC Batch: 102301 Date Analyzed: 2013-06-14 Analyzed By: CM
Prep Batch: 86667 QC Preparation: 2013-06-13 Prepared By: CM

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<5.22	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			115	mg/Kg	1	100	115	70 - 130

Method Blank (1) QC Batch: 102657

QC Batch: 102657 Date Analyzed: 2013-06-27 Analyzed By: GS
Prep Batch: 86958 QC Preparation: 2013-06-27 Prepared By: GS

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.05	mg/Kg	5

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 102287
Prep Batch: 86660

Date Analyzed: 2013-06-13
QC Preparation: 2013-06-13

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.6	mg/Kg	1	20.0	<0.230	83	66.9 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.9	mg/Kg	1	20.0	<0.230	84	66.9 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.04	2.07	mg/Kg	1	2.00	102	104	69.6 - 124
4-Bromofluorobenzene (4-BFB)	2.30	2.32	mg/Kg	1	2.00	115	116	77.7 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 102301
Prep Batch: 86667

Date Analyzed: 2013-06-14
QC Preparation: 2013-06-13

Analyzed By: CM
Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	236	mg/Kg	1	250	<5.22	94	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	234	mg/Kg	1	250	<5.22	94	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	102	100	mg/Kg	1	100	102	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 102657 | Date Analyzed: 2013-06-27 | Analyzed By: GS
Prep Batch: 86958 | QC Preparation: 2013-06-27 | Prepared By: GS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			101	mg/Kg	1	100	<3.05	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.05	102	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 331466

QC Batch: 102287 | Date Analyzed: 2013-06-13 | Analyzed By: JS
Prep Batch: 86660 | QC Preparation: 2013-06-13 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1	2240	mg/Kg	20	20.0	1870	1850	38.8 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	Qs	1	2260	mg/Kg	20	20.0	1870	11300	38.8 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			1.91	1.23	mg/Kg	20	2	96	62	69.6 - 124
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	86.7	84.5	mg/Kg	20	2	4335	4225	77.7 - 120

Matrix Spike (MS-1) Spiked Sample: 332169

QC Batch: 102301 | Date Analyzed: 2013-06-14 | Analyzed By: CM
Prep Batch: 86667 | QC Preparation: 2013-06-13 | Prepared By: CM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	217	mg/Kg	1	250	7.92	84	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	212	mg/Kg	1	250	7.92	82	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	108	104	mg/Kg	1	100	108	104	70 - 130

Matrix Spike (MS-1) Spiked Sample: 332524

QC Batch: 102657 | Date Analyzed: 2013-06-27 | Analyzed By: GS
Prep Batch: 86958 | QC Preparation: 2013-06-27 | Prepared By: GS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			536	mg/Kg	1	500	50	97	63.6 - 131

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			652	mg/Kg	1	500	50	120	63.6 - 131	20	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 102287 Date Analyzed: 2013-06-13 Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.00	100	80 - 120	2013-06-13

Standard (CCV-2)

QC Batch: 102287 Date Analyzed: 2013-06-13 Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.960	96	80 - 120	2013-06-13

Standard (CCV-1)

QC Batch: 102301 Date Analyzed: 2013-06-14 Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	240	96	80 - 120	2013-06-14

Standard (CCV-2)

QC Batch: 102301 Date Analyzed: 2013-06-14 Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	242	97	80 - 120	2013-06-14

Standard (ICV-1)

QC Batch: 102657 Date Analyzed: 2013-06-27 Analyzed By: GS

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-06-27

Standard (CCV-1)

QC Batch: 102657 Date Analyzed: 2013-06-27 Analyzed By: GS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-06-27

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 Dilution due to turbidity.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 1306323 Page _____ of _____

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1 (888) 588-3443

BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Company Name: APACHE Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: STEVE FLEMMINGS E-mail:

Invoice to: (If different from above)

Project #: LOCKHART B 13 Project Name:

Project Location (including state): LOCKHART B 13 N.M. Sampler Signature: Edward Cesare

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC	Turn Around Time if different from standard	Hold
	LOCKHART B 13																																				
32169	SAMPLE POINT#1 @ 1'	1			✓									6-5-13	1:50				✓															✓			
170	SAMPLE POINT#2 @ 1'6"	1			✓										1:30				✓															✓			
171	SAMPLE POINT#3 @ 1'6"	1			✓										2:10				✓															✓			
172	SAMPLE POINT#3 @ 2'	1			✓										3:45				✓															✓			
173	SAMPLE POINT#4 @ 3'6"	1			✓										11:50				✓															✓			

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Edward Cesare	RECS	6-10-13			RECS	6/11/13	9:00	INST ____ °C OBS ____ °C COR ____ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
RCJ	BTL	6/11/13	9:00					INST ____ °C OBS ____ °C COR ____ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
				Brittani Patterson		6/12/13	9:15	INST IR3 OBS 2.9 °C COR 2.7 °C

LAB USE ONLY: Intact Y / N; Headspace Y / N / NA; Log-in-Review JM

REMARKS:

- ☐ Dry Weight Basis Required
- ☐ TRRP Report Required
- ☐ Check If Special Reporting Limits Are Needed

Carrier # LS 20 004982

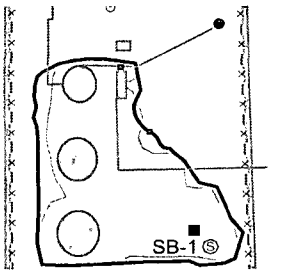
Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

ORIGINAL COPY

Appendix D

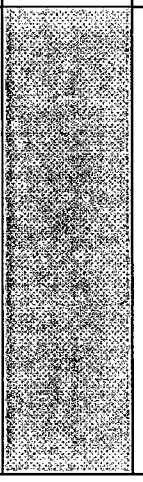
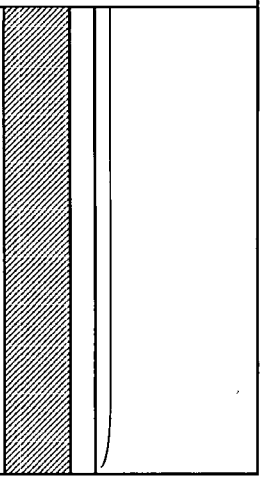
Soil Bore Documentation

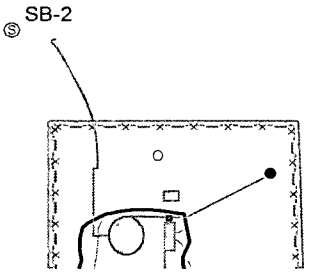
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Logger:	Edward Cesareo		**Apache Lockhart B13 A SWD** **Well ID:** SB-1
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		
Start Date:	8/23/2013		
End Date:	8/23/2013		
Comments: All samples were from cuttings.			**Location:** UL/K sec. 13 T21S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°28'37.123"N **Long:** 103°7'7.786"W **County**: Lea **State**: NM
TD = 54 ft		GW = None	

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				TAN SAND		
SS	6351	Cl- 6160	7.1			
		GRO <10		TAN SAND WITH SOME ROCK		
		DRO <256				
3 ft	831		12.3			
6 ft	301		6.1			
9 ft	433		5.8			
12 ft	699		5			
15 ft	375		5.6			
				RED SAND		
18 ft	1221	Cl- 1200	6.4			
		GRO <10		TAN SAND		
		DRO <10				
21 ft	1073		6.1			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				TAN SAND		bentonite seal
24 ft	810		6.1			
27 ft	545		7.2			
				RED SAND		
30 ft	888		5.6			
33 ft	980		4.5			
36 ft	704		5.3			
39 ft	420		9.2			
42 ft	476		9.1			
45 ft	421		15.9			
48 ft	288	Cl-240	12.1			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
		GRO <10		RED SAND		
		DRO <10				
51 ft	199	Cl- 128	17.5			
		GRO <10				
		DRO <10				
54 ft	263	Cl- 240	7.1			
		GRO <10				
		DRO <10				

Logger:	Edward Cesareo	SB-2 	RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC RECS
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Apache Lockhart B13 A SWD** **Well ID:** SB-2
Start Date:	8/29/2013		
End Date:	8/29/2013		

Comments: All samples were from cuttings. The bore was sampled for lithology only as it was being installed.

DRAFTED BY: L. Weinheimer

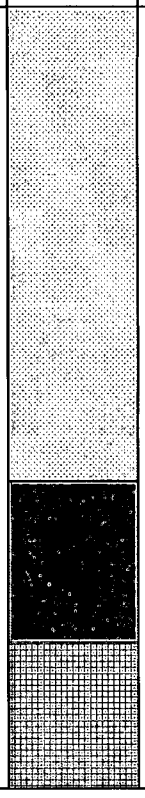
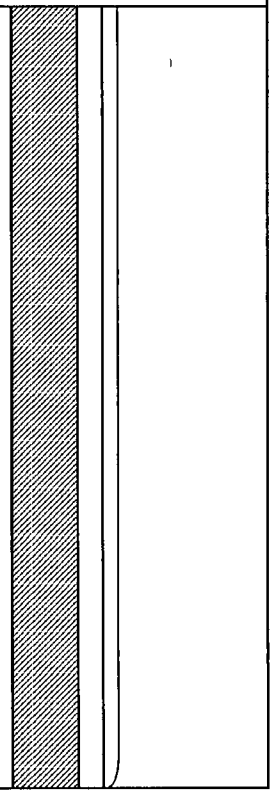
TD = 60 ft GW = None

Location: UL/K sec. 13 T21S R37E

Lat: 32°28'38.179"N **County**: Lea

Long: 103°7'8.527"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				BROWN SAND WITH SOME ROCK		
SS						
				TAN SAND WITH SOME CALICHE		
5 ft						
				BROWN SAND WITH SOME CALICHE		
10 ft						
				GREY SAND WITH SOME CALICHE		
15 ft						
				TAN SAND		
20 ft						
25 ft						
30 ft						
35 ft						bentonite seal

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				TAN / RED SAND		
40 ft						
45 ft						
50 ft						
				CLAY WITH SAND		
55 ft						
				RED BED @ 56'		
60 ft						

CARDINAL Laboratories

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

August 30, 2013

BRUCE BAKER

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: LOCKHART B-13 A SWD

Enclosed are the results of analyses for samples received by the laboratory on 08/23/13 16:10.

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.

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:

APACHE - EUNICE
BRUCE BAKER
P. O. BOX 1849
EUNICE NM, 88231
Fax To: 394-2425

Received:	08/23/2013	Sampling Date:	08/23/2013
Reported:	08/30/2013	Sampling Type:	Soil
Project Name:	LOCKHART B-13 A SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 SURFACE (H302039-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6160**	16.0	08/29/2013	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/29/2013	ND	179	89.5	200	2.67	
DRO >C10-C28	**256**	10.0	08/29/2013	ND	193	96.4	200	3.95	

Surrogate: 1-Chlorooctane	*101 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*115 %*	*63.6-154*

Sample ID: SB #1 18' (H302039-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1200**	16.0	08/29/2013	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/29/2013	ND	179	89.5	200	2.67	
DRO >C10-C28	<10.0	10.0	08/29/2013	ND	193	96.4	200	3.95	

Surrogate: 1-Chlorooctane	*109 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*115 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

APACHE - EUNICE
BRUCE BAKER
P. O. BOX 1849
EUNICE NM, 88231
Fax To: 394-2425

Received:	08/23/2013	Sampling Date:	08/23/2013
Reported:	08/30/2013	Sampling Type:	Soil
Project Name:	LOCKHART B-13 A SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 48' (H302039-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	08/29/2013	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/29/2013	ND	179	89.5	200	2.67	
DRO >C10-C28	<10.0	10.0	08/29/2013	ND	193	96.4	200	3.95	

Surrogate: 1-Chlorooctane	*107 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*113 %*	*63.6-154*

Sample ID: SB #1 51' (H302039-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	08/29/2013	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/29/2013	ND	179	89.5	200	2.67	
DRO >C10-C28	<10.0	10.0	08/29/2013	ND	193	96.4	200	3.95	

Surrogate: 1-Chlorooctane	*104 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*109 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

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:

APACHE - EUNICE
BRUCE BAKER
P. O. BOX 1849
EUNICE NM, 88231
Fax To: 394-2425

Received:	08/23/2013	Sampling Date:	08/23/2013
Reported:	08/30/2013	Sampling Type:	Soil
Project Name:	LOCKHART B-13 A SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 54' (H302039-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	08/29/2013	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/29/2013	ND	179	89.5	200	2.67	
DRO >C10-C28	<10.0	10.0	08/29/2013	ND	193	96.4	200	3.95	

Surrogate: 1-Chlorooctane	*113 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*118 %*	*63.6-154*

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:	APACHE	BILL TO	
Project Manager:	Bruce Baker	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	LOCKHART B-13 A	Phone #:	
Sampler Name:	EDWARD CESARED	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	CHLORIDES	TPH									
H302039	SB#1																								
1	SB#1 Surface	G	1			✓					1		8-23-13	10:45	✓	✓									
2	SB#1 18'	G	1			✓					1			10:50	✓	✓									
3	SB#1 48'	G	1			✓					1			10:55	✓	✓									
4	SB#1 51'	G	1			✓					1			11:00	✓	✓									
5	SB#1 54'	G	1			✓					1			11:05	✓	✓									

Relinquished By:	Date: 8-23-13	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:10		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		hcender@riceswd.com lweinheimer@rice-ecs.com larry.baker@apachecorp.com

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.7°C

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

Arc Environmental
P. O. Box 1772
Lovington, New Mexico 88260
(575) 631-9310
Rozanne Johnson ~ rozanne@valornet.com

September 3, 2013

Mr. Hack Conder
RICE Environmental Consulting and Safety
112 West Taylor
Hobbs, New Mexico 88240

Re: Apache Lockhart B #13A SWD

Mr. Conder,

On Saturday August 31, 2013 soil bore #2 at the Apache Lockhart B #13A SWD, Lea County T21S, R37E, Sec 13 Unit Letter K was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water accumulation within the borehole at the total depth of 59.4 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Hack Conder
Katie Jones
Lara Weinheimer

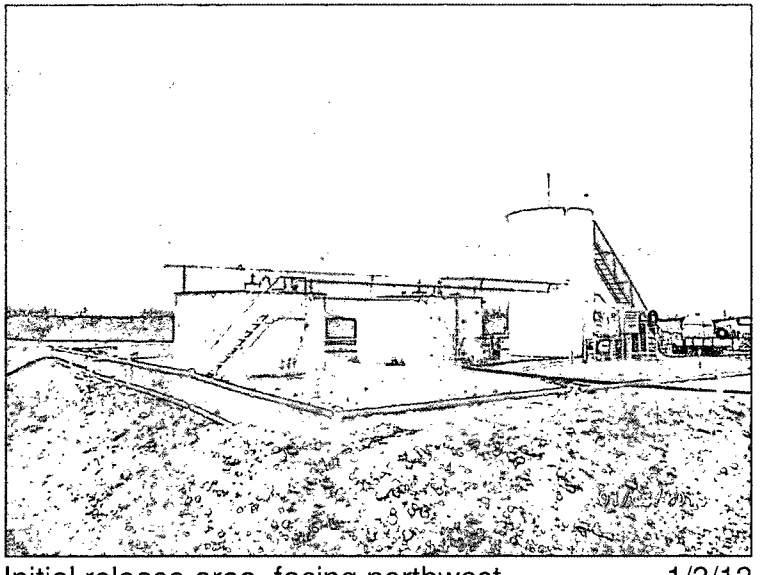
Appendix E

Photo Documentation

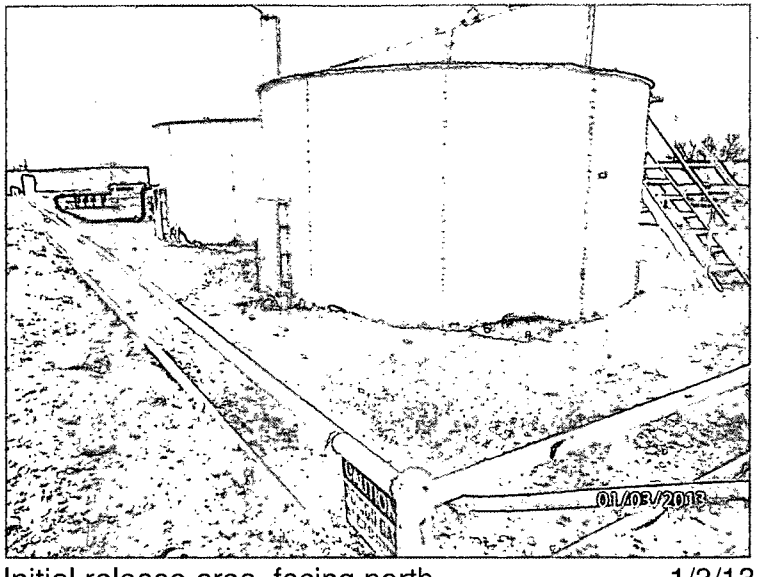
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Apache Lockhart B-13 A-SWD AD

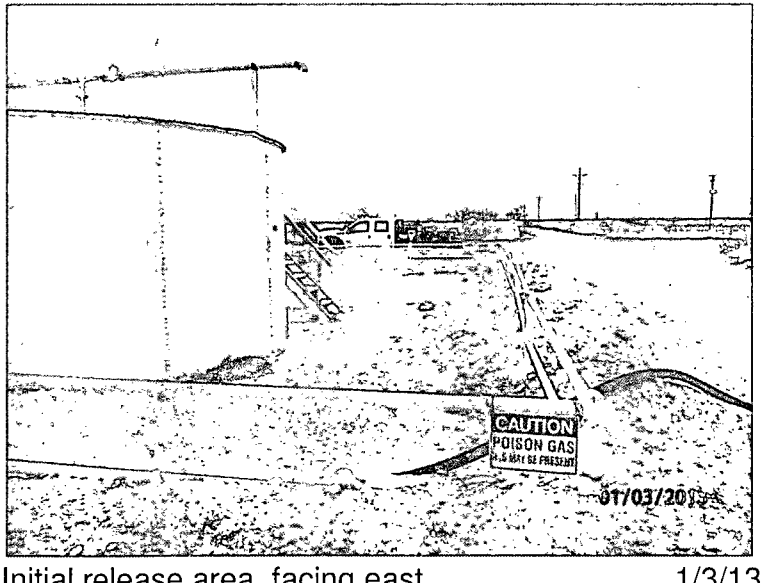
Unit Letter K, Section 13, T21S, R37E



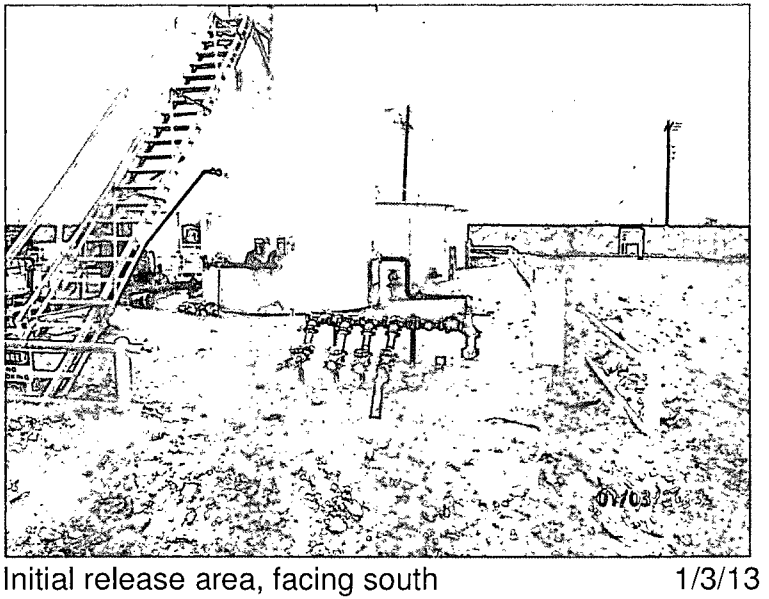
Initial release area, facing northwest 1/3/13



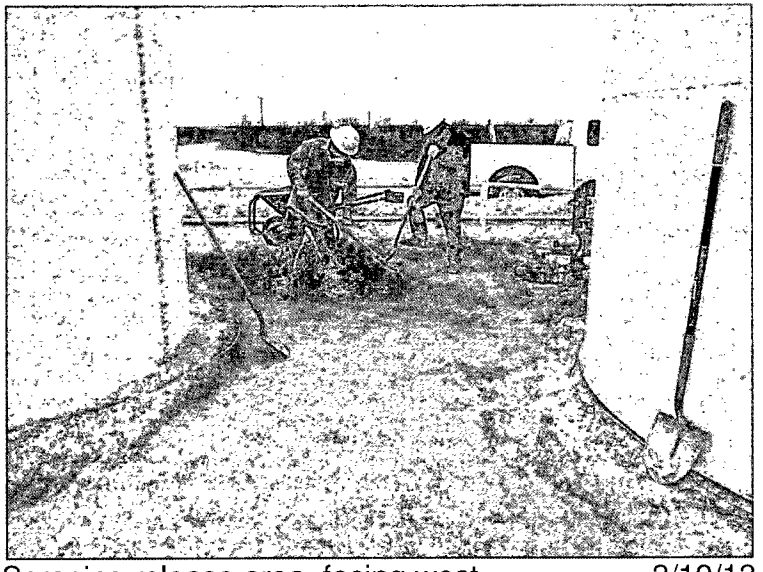
Initial release area, facing north 1/3/13



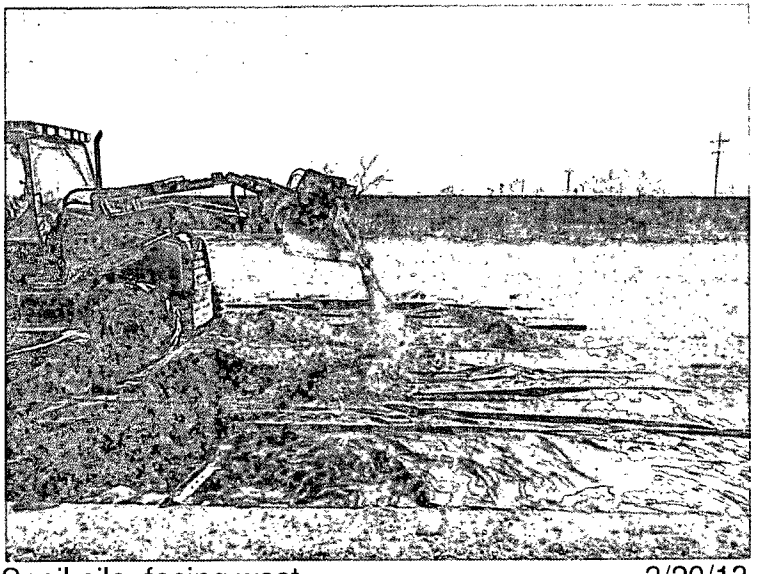
Initial release area, facing east 1/3/13



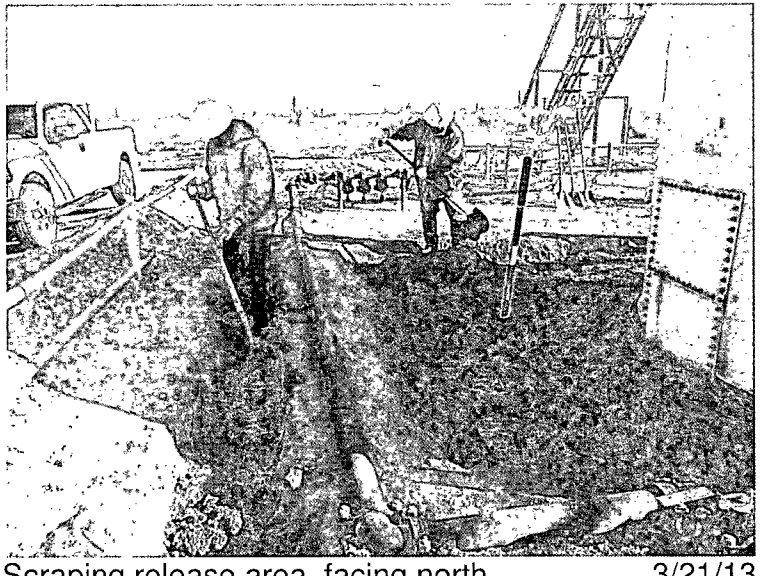
Initial release area, facing south 1/3/13



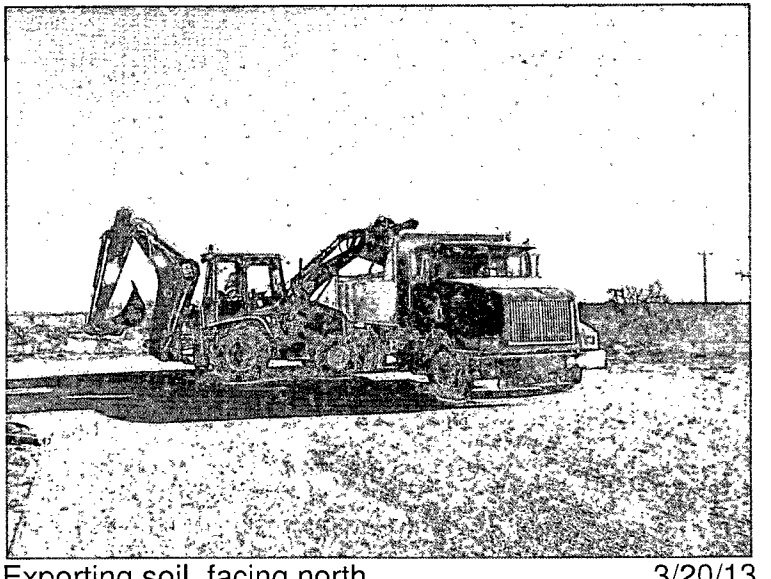
Scraping release area, facing west 3/19/13



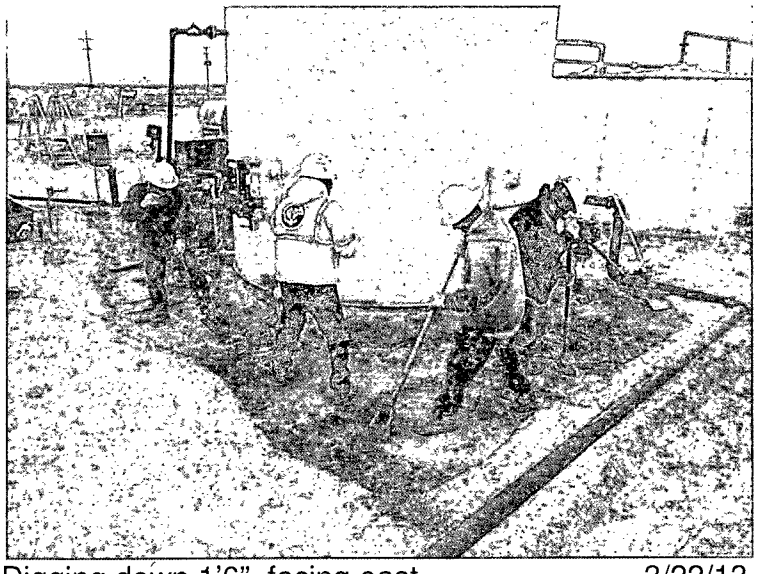
Spoil pile, facing west 3/20/13



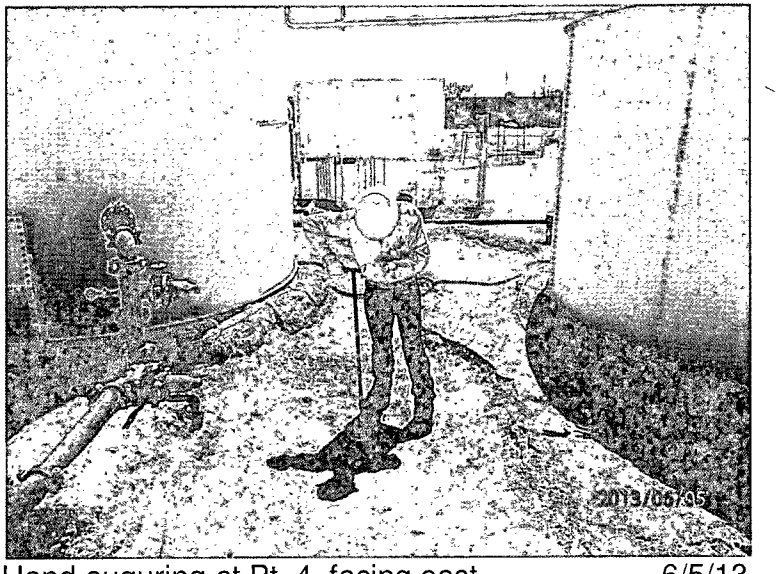
Scraping release area, facing north 3/21/13



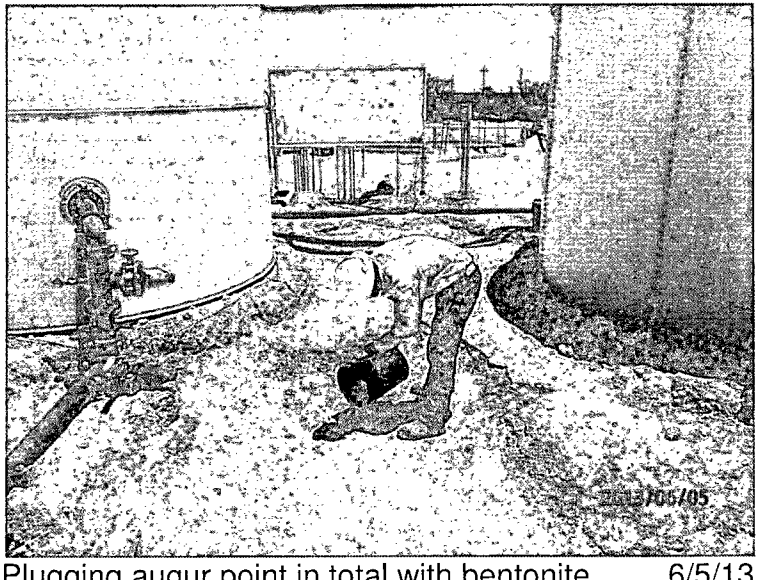
Exporting soil, facing north 3/20/13



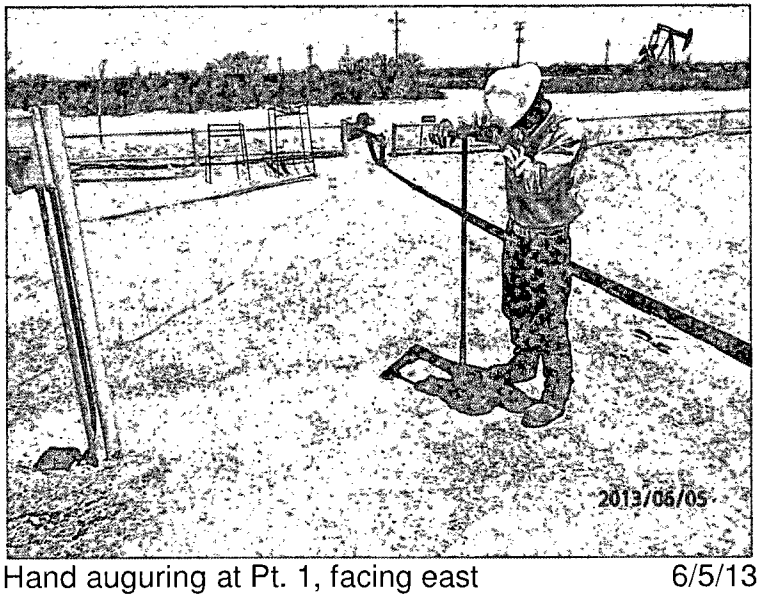
Digging down 1'6", facing east 3/22/13



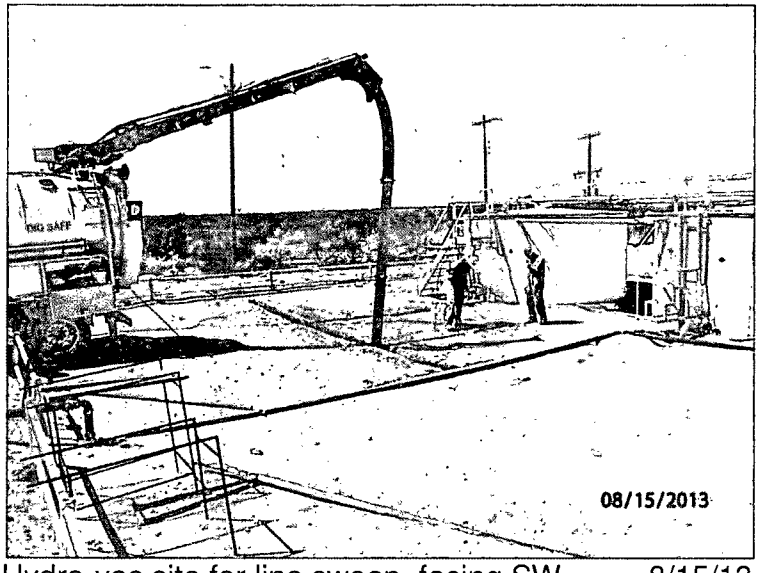
Hand auguring at Pt. 4, facing east 6/5/13



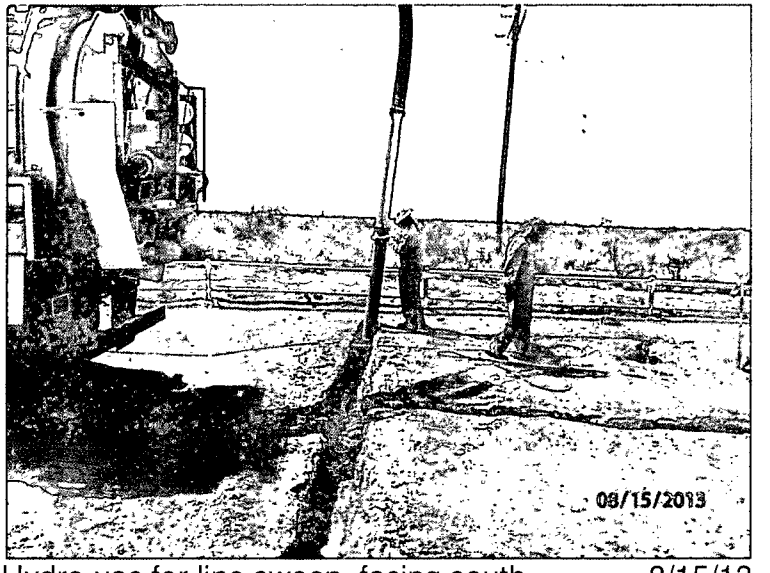
Plugging augur point in total with bentonite 6/5/13



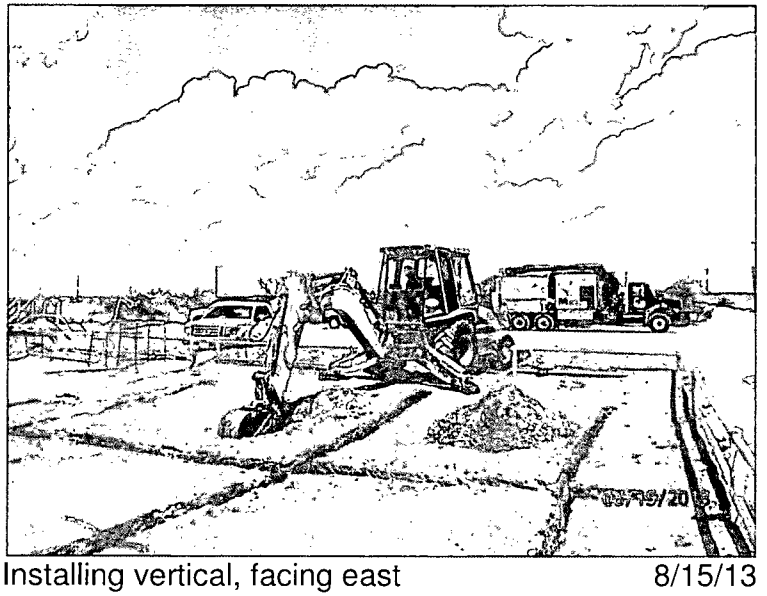
Hand auguring at Pt. 1, facing east 6/5/13

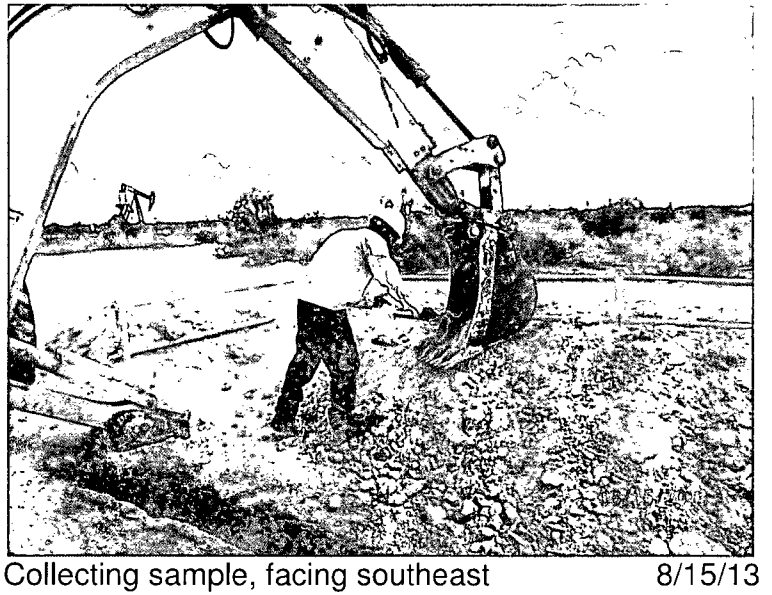


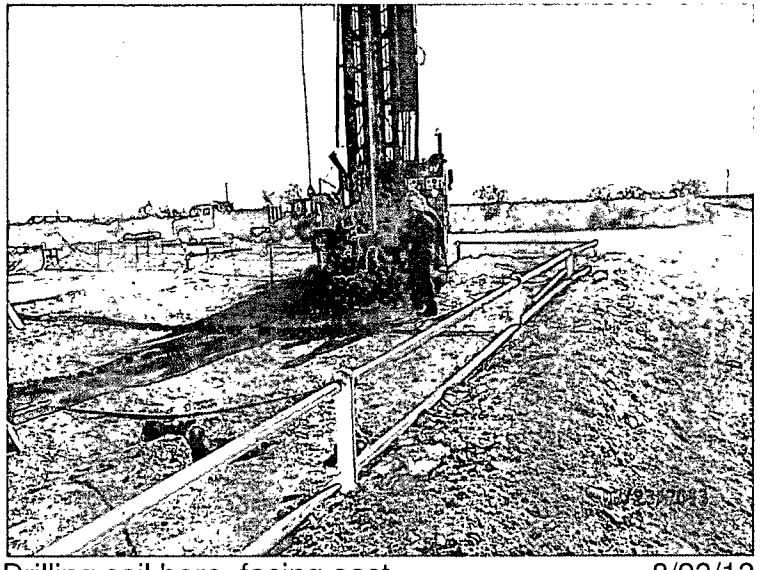
Hydro-vac site for line sweep, facing SW 8/15/13



Hydro-vac for line sweep, facing south 8/15/13


Installing vertical, facing east 8/15/13

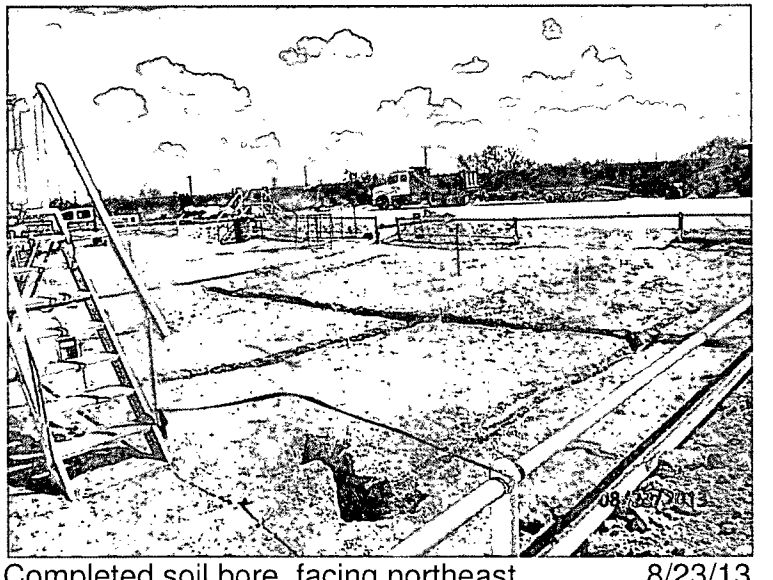

Collecting sample, facing southeast 8/15/13



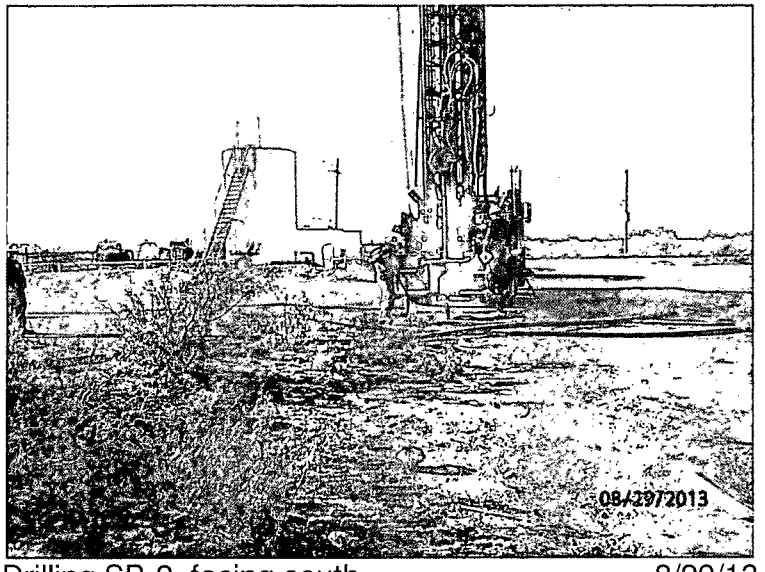
Drilling soil bore, facing east 8/23/13

Field testing samples, facing southeast 8/23/13

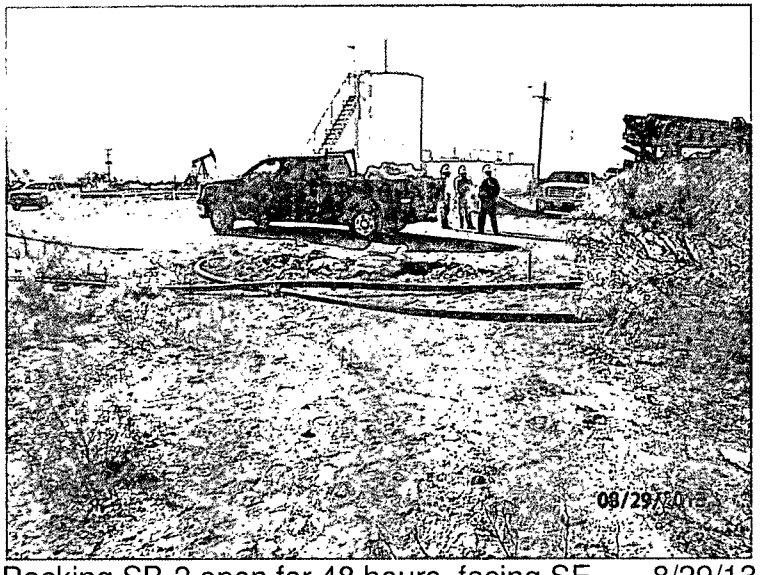
Plugging soil bore in total with bentonite 8/23/13



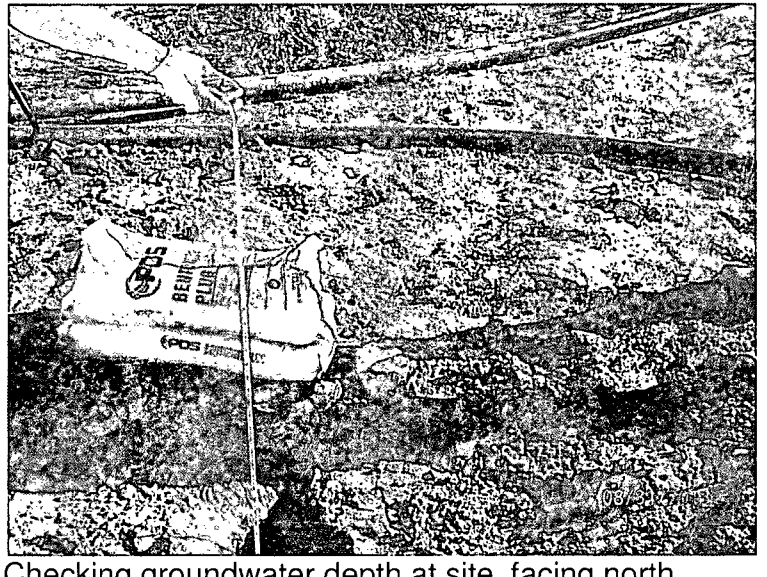
Completed soil bore, facing northeast 8/23/13



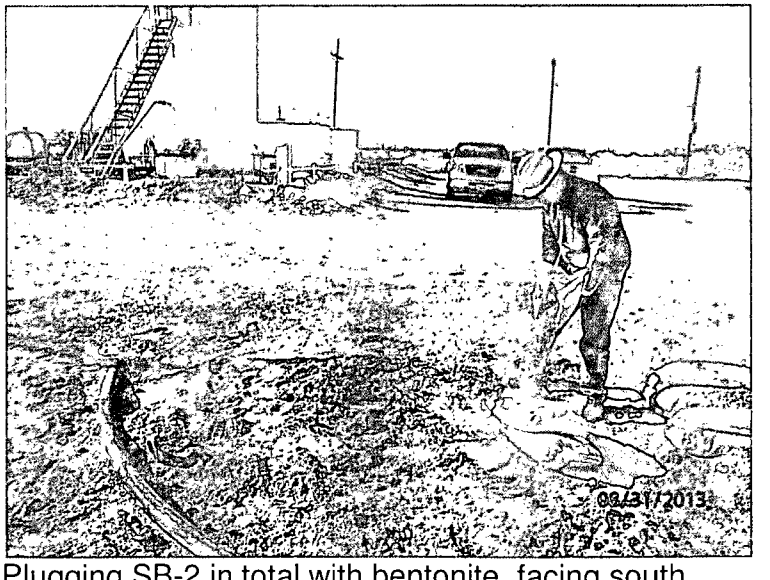
Drilling SB-2, facing south 8/29/13



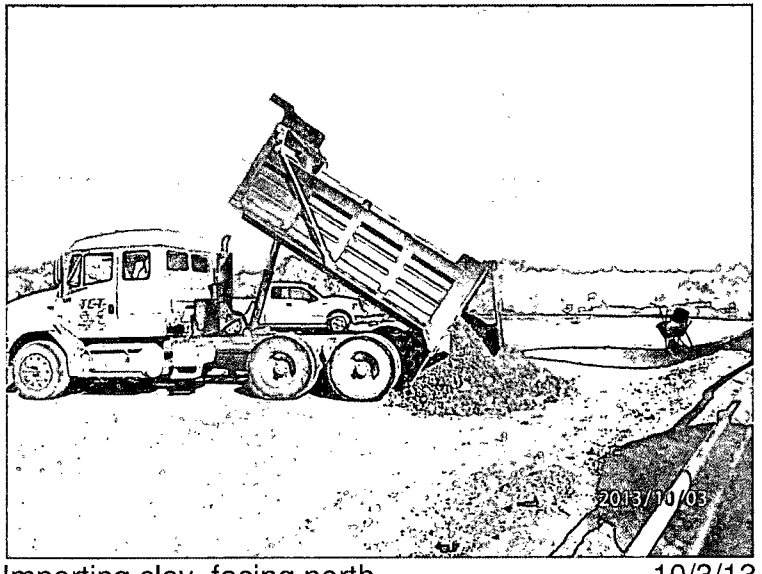
Packing SB-2 open for 48 hours, facing SE 8/29/13



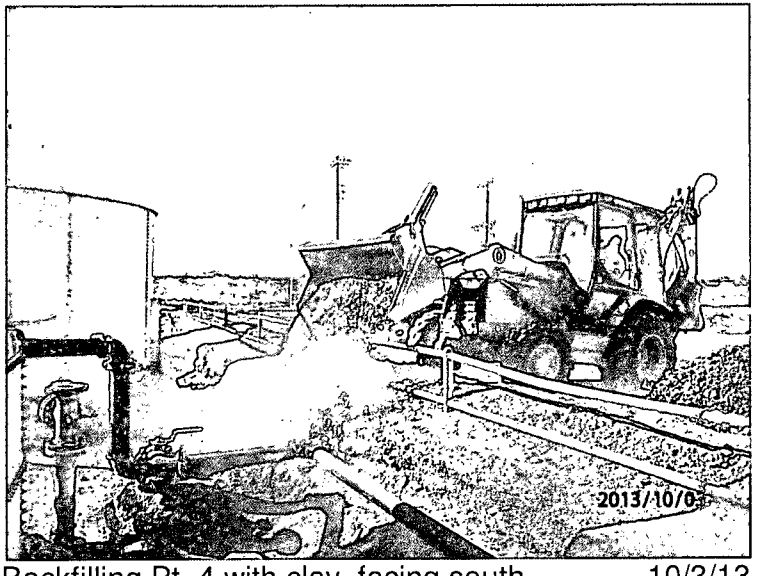
Checking groundwater depth at site, facing north
8/31/13



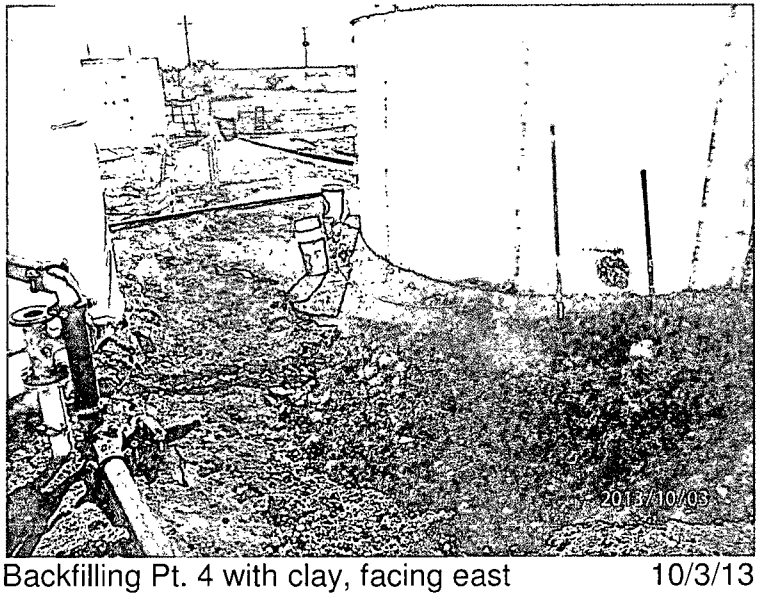
Plugging SB-2 in total with bentonite, facing south
8/31/13



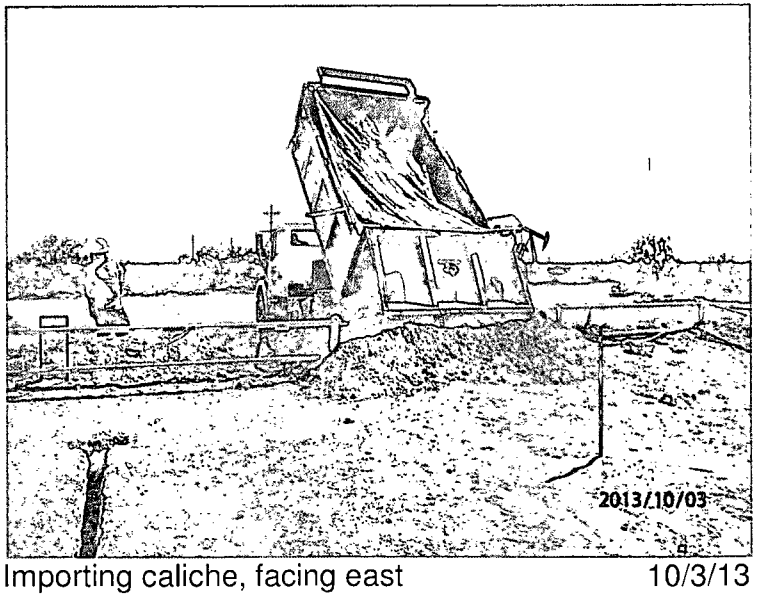
Importing clay, facing north 10/3/13



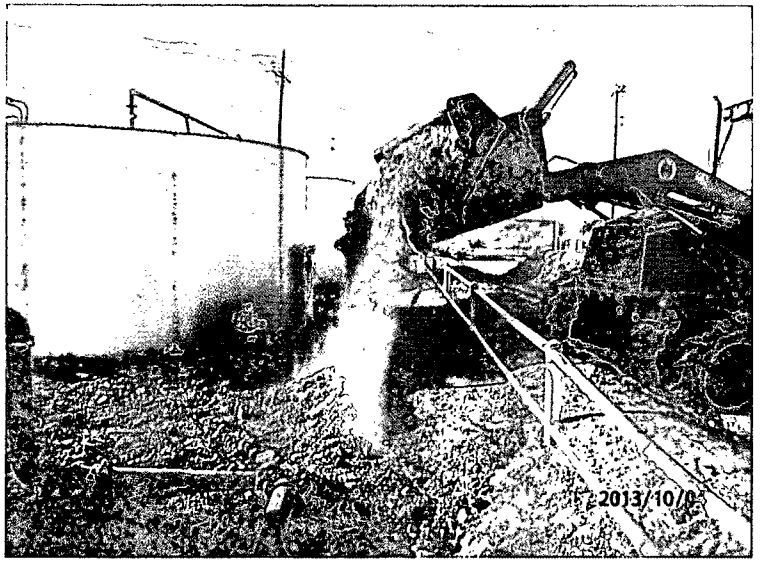
Backfilling Pt. 4 with clay, facing south 10/3/13



Backfilling Pt. 4 with clay, facing east 10/3/13

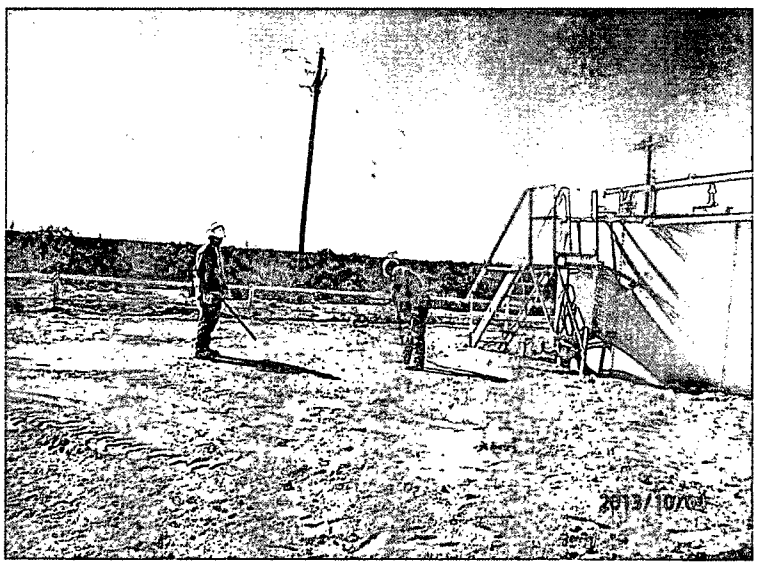


Importing caliche, facing east 10/3/13

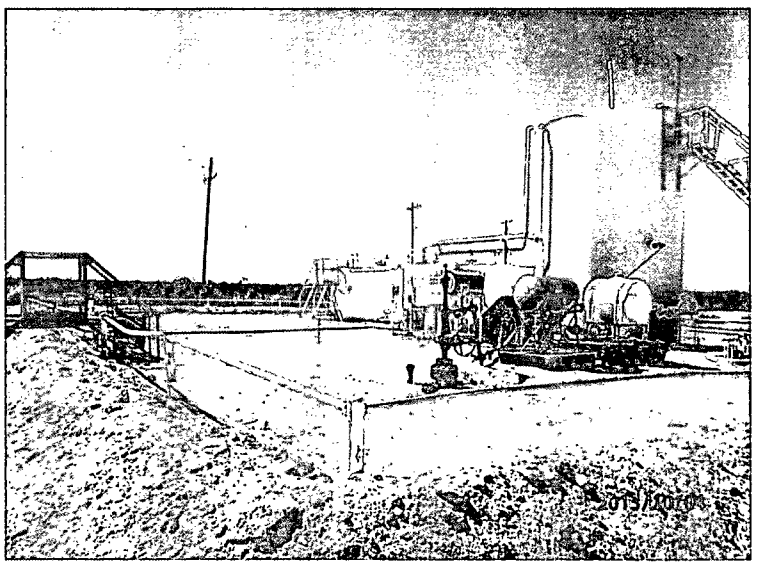


Backfilling site with caliche, facing south 10/4/13

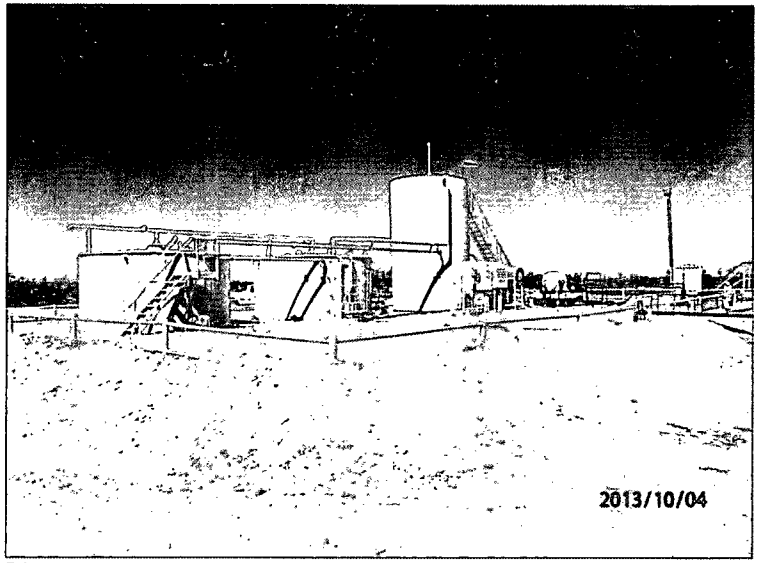
Backfilling site with caliche, facing southeast 10/4/13



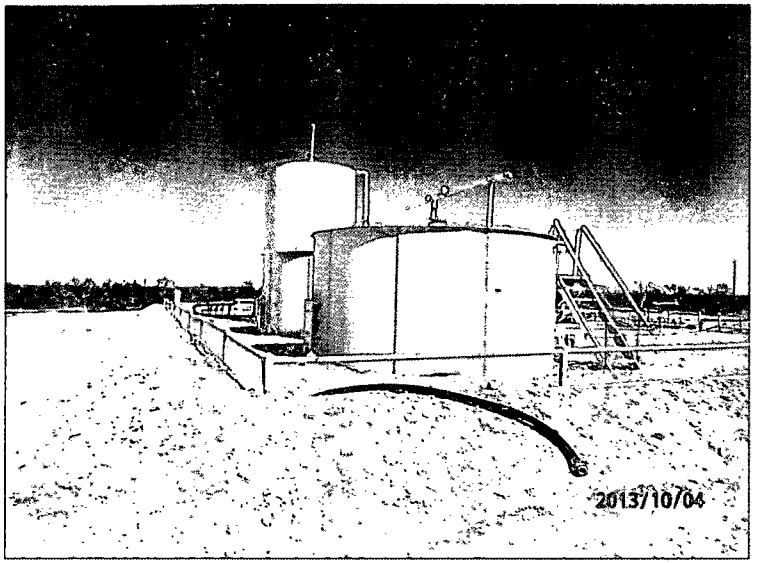
Raking caliche, facing south 10/4/13



Site completed, facing southwest 10/4/13



Site completed, facing northwest 10/4/13



Site completed, facing northeast 10/4/13

Appendix F
Final C-141

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

HOBBS OCD

OCT 10 2013

RECEIVED

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 Apache Corporation	Contact Larry Bruce Baker
Address PO Box 1849, Eunice NM 88231	Telephone No. (432) 631-6982
Facility Name Lockhart B13 A SWD (nearest well #1)	Facility Type SWD

Surface Owner William O Stephens	Mineral Owner BLM/State	API No. 30-025-06555

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	13	21S	37E	660	FSL	660	FWL	Lea

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 18 bbls	Volume Recovered 15 bbls
Source of Release Ceramic Plunger	Date and Hour of Occurrence 12/22/12 10:30 am	Date and Hour of Discovery Same
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Geoffrey Leking/James Amos	
By Whom? Natalie Gladden	Date and Hour 12/27/12 6:15 am	
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.* ☐The ceramic plunger broke on the triplex pump due to freezing temperatures. All fluid was released inside the containment area. Fluid was recovered by vacuum truck. Initial samples have been taken to determine a remediation plan. The facility does not have a liner.

Describe Area Affected and Cleanup Action Taken.* ☐ RECS personnel were on site beginning on January 3rd, 2013. Initial samples were taken from the surface of the release and field tested for chlorides and hydrocarbons. The samples were then taken to a commercial laboratory for confirmatory analysis. Laboratory analysis showed elevated levels of chlorides and low levels of hydrocarbons. Based on this data, the site was hand excavated to a depth of 6 inches to 2.5 ft. A total of 72 yards was exported to a NMOCD approved facility. On June 5th, 2013, the initial sampling points were augured for depth through the excavated area. The samples were field tested for chlorides and hydrocarbons and representative samples were taken to a commercial laboratory for analysis. All samples points, except for Pt. 4, showed chloride readings below 1,000 mg/kg at the base of each augur. To determine the vertical extent of the contamination, a vertical was installed on August 15th, 2013. Samples were taken to a depth of 13 ft bgs and field tested for chlorides and hydrocarbons. At 13 ft bgs, the chloride levels did not decrease to below 1,000 mg/kg. On August 23rd, 2013, a soil bore (SB-1) was installed near the vertical to determine the depth of contamination. The bore was installed to a depth of 54 ft bgs and samples were taken every 3 ft to field test for chlorides and hydrocarbons. Representative samples from the bore were taken to a commercial laboratory for analysis, which showed the chloride levels dropping below 250 mg/kg at 48 ft bgs. SB-2 was installed northwest of the battery to determine the depth to groundwater at the site. SB-2 was advanced to a depth of 60 ft bgs and red bed clay was encountered at the depth of 56 ft bgs. Red bed clay indicates the bottom of the aquifer, so the bore was left open for over 48 hours to allow groundwater to accumulate. On August 31st, 2013, the bore was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water had accumulated to a total depth of 59.4 ft. Apache and RECS met with NMOCD-District 1 on September 6th, 2013. NMOCD verbally stated that at Pt. 4 a 1 foot clay layer had to be installed and then the entire battery area needed to be backfilled with clean caliche. Beginning on October 3rd, 2013, clay was imported to the site and the area around Pt. 4 was backfilled with 1 ft of clay to provide an infiltration barrier. The clay liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. Clean caliche was imported to the site and was used to backfill the battery back to its former depth.

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: Larry Bruce Baker Jr.	OIL CONSERVATION DIVISION
Printed Name: Larry Bruce Baker	Approved by Environmental Specialist: Geoffrey Leking Environmental Specialist
Title: Environmental Tech	Approval Date: 10/10/13 Expiration Date: -
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval: - Attached ☐
Date: 10-8-13 Phone: (432) 631-6982	IRP-06-14-3076

* Attach Additional Sheets If Necessary