1R - 2627

APPROVALS

YEAR(S):

2014

Lowe, Leonard, EMNRD

From:	Lowe, Leonard, EMNRD
Sent:	Wednesday, January 22, 2014 2:56 PM
To:	'Hack Conder (hconder@riceswd.com)'
Cc:	Leking, Geoffrey R, EMNRD; 'Katie Jones <kjones@riceswd.com> (kjones@riceswd.com)'; 'lflores@rice-ecs.com'; 'Sarah Edwards (sedwards@rice-ecs.com)'; 'Scott Curtis (scurtis@riceswd.com)'
Subject:	Termination Request (1R-2627) Termination - Apache Corporation NMGSAU 1631

Termination Request
for the Apache Corporation NMGSAU 1631 (1R-2627)
Unit Letter J, Section 32, T19S, R37E, NMPM, Lea County, New Mexico

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received Rice Operating Company's report and request to terminate the above-referenced site, dated December 27, 2013 (Received January 2, 2014). The termination request is acceptable to the OCD.

The above-referenced report, submitted in accordance with 19.15.29 NMAC (Rule 29; formally, Rule 116), indicates that Rice Operating Company has met the requirements of 19.15.29 NMAC; therefore, the OCD approves the report and hereby notifies you that the remediation plan (1R-2627) is terminated in accordance with 19.15.29 NMAC.

Please be advised that OCD approval of this report does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3492.

llowe

Leonard Lowe
Environmental Engineer
[Environmental Bureau]
Oil **C**onservation **D**ivision/**E**nergy **M**inerals and **N**atural **R**esources **D**epartment
1220 South St. Frances
Santa Fe, New Mexico 87004
Office: 505-476-3492
E-mail: leonard.lowe@state.nm.us

Apache

EXPLORING WHAT'S POSSIBLE

APACHE CORPORATION

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

NMGSAU 1631

1R-2627

Termination Request

API 30-025-35608

Release Date: September 28th, 2010

Unit Letter J, Section 32, Township 19S, Range 37E

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0003 0320 3361

December 27th, 2013

Mr. Leonard Lowe
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: **Termination Request**
Apache Corporation NMGSAU 1631 (1R-2627)
UL/J sec. 32 T19S R37E

Mr. Lowe:

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 1 mile southwest of Monument at UL/J, Sec. 32, T19S, R37E in Lea County, NM (Figure 1 and 2). A leak was discovered at the site on September 28th, 2010. An unknown amount of produced water was released from the injection line collar. According to monitor well sampling data at the site, groundwater is located at approximately 14 ft below ground surface (bgs).

Excavation of the site began on September 28th, 2010. The site was excavated to 38 ft x 96 ft x 18 ft deep to remove the saturated soils to a NMOCD approved disposal facility. The depth of saturated soils reached 14 ft 8 inches bgs at which point the capillary fringe of the aquifer was encountered. On October 7th, 2010, three soil bores were drilled at the site to determine the extent of impact. RECS personnel field tested the soil for chloride and tested for hydrocarbons using a photo-ionization detector (PID). Representative samples were submitted to a commercial laboratory for chloride and TPH analyses. The site was backfilled to 4.5 ft bgs, where a 20-mil, reinforced liner was installed with 6 inches of blow sand placed below and above the liner for padding.

On October 12th, 2010, the initial C-141 was submitted to NMOCD-District 1 and was approved. Subsequently, the remaining excavation at the site was backfilled with clean, imported soil, and the site was contoured to the surrounding landscape. On October 16th, 2010, amendments were incorporated into the soil surface, and the site was seeded.

On October 25th, 2010, MW-1 was installed 45 ft southeast of the line break. On December 21st, 2010, MW-2 was installed 56 ft NNW of the line break, and on April

13th, 2011, MW-3 was installed 199 ft SE of the line break (Figure 3). The monitor wells have been sampled quarterly since their installation (Appendix A).

On October 11th, 2011, a Corrective Action Plan (CAP) was submitted to NMOCD. The CAP was approved by NMOCD on October 17th, 2011. RECS recommended that a three month groundwater source removal and test pumping program be conducted to determine if groundwater remediation could be achieved quickly. The pumping program would also assist in the evaluation of groundwater restoration methods. Water retrieved from the existing 4-inch monitoring well (MW-1) would be used for production operations. Based on the program results, a remedy for the site would be determined.

On August 14th, 2012, a Corrective Action Plan for Groundwater was submitted to NMOCD. The CAP was approved by NMOCD on August 15th, 2012. RECS detailed the groundwater and chloride extraction totals of the test pumping program. RECS recommended that, as a groundwater remedy, the test pumping program remain in use until groundwater reaches near-background levels of chloride.

Since the groundwater source removal and pumping program began on April 10th, 2012, a total of 5,725 barrels of groundwater has been removed from the site (Appendix B). Given the monthly laboratory chloride readings in MW-1, the volume of groundwater removal indicates that 447.9 kg of chlorides have been removed.

RECS estimated the chloride mass needed to be removed from the groundwater to compensate for the chlorides introduced by the site. Our estimate conservatively reflected the net impact to groundwater at the site resulting from the release. It does not take into account other sources or regional groundwater conditions that may exist up-gradient of the site.

- **Estimated chloride mass in the groundwater**

  The estimated impact area for the site is 3,200 square feet. The aquifer thickness is 13 ft and the porosity is estimated at 0.25. The volume of impacted groundwater beneath the site is determined by multiplying the impact area by the aquifer thickness by the porosity. Therefore, the volume of impacted groundwater beneath the site is 10,400 cubic feet. The result is then converted to liters giving a value of 294,495 liters. The chloride concentration contributed from the source is the average between the concentrations in MW-1 and the concentration in MW-2, which is determined to be 1,335 mg/L. The total chloride mass in the groundwater is then determined by multiplying the volume of impacted groundwater beneath the site by the chloride concentration contributed from the site. This is then converted to kilograms. Thus, the total chloride mass beneath the site is 393 kg.

Estimate of Chloride Mass in Groundwater

Parameter	Unit	Value	Description
Impact area	ft^2	3,200	Estimated Area of Impact
Aquifer Thickness	ft	13	Bottom of the aquifer at 40 ft bgs
Porosity	%	0.25	Professional Estimate for Water Saturated Pore Volume
Volume of Impacted Groundwater Below Site	ft^3	10,400	Impact Area x Aquifer Thickness x Porosity
Volume of Impacted Groundwater Below Site	L	294,495	Conversion from ft^3 to Liters
Chloride Concentration from Source	mg/L	1,335	Difference between Mean Concentrations in Monitor Wells (MW-1 = 1619 mg/L and MW-2 = 284 mg/L)
TOTAL CHLORIDE MASS	**kg**	**393**	Volume of Impacted Groundwater Below Site x Chloride Concentration Added to Soil from Source

Given that the groundwater recovery system has already removed 447.9 kg of chlorides, the estimated 393 kg of chlorides contributed by the site has already been removed.

The chloride concentrations in MW-1 have dropped precipitously since the groundwater source removal began. On November 3rd, 2010, the chloride level in MW-1 was 6,400 mg/L. That level has dropped to 356 mg/L in the well. That is a 94% drop in chloride concentration in the well. Given the background chloride concentration of 272 mg/L coming onto the site, this is only an 84 mg/L difference.

The site has returned to normal vegetative capacity that matches background vegetation (Appendix C).

Apache has already removed the chloride mass contributed to groundwater from the release. In addition, the chloride concentrations in MW-1 have nearly reached background concentrations. Given the low levels of chlorides remaining in MW-1, continued groundwater recovery will not prove efficacious. Therefore, Apache respectfully request 'remediation termination' and closure of the regulatory file. The final C-141 is located in Appendix D.

Once the Termination Request has been approved, the three monitor wells at the site will be plugged and abandoned with a 1-3% bentonite/concrete slurry with a 3 ft concrete cap. The fence surrounding the site and the groundwater source removal system will be removed. A written report will be submitted to NMOCD documenting the plug and abandonment of the monitor wells and the removal of extraneous apparatus.

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

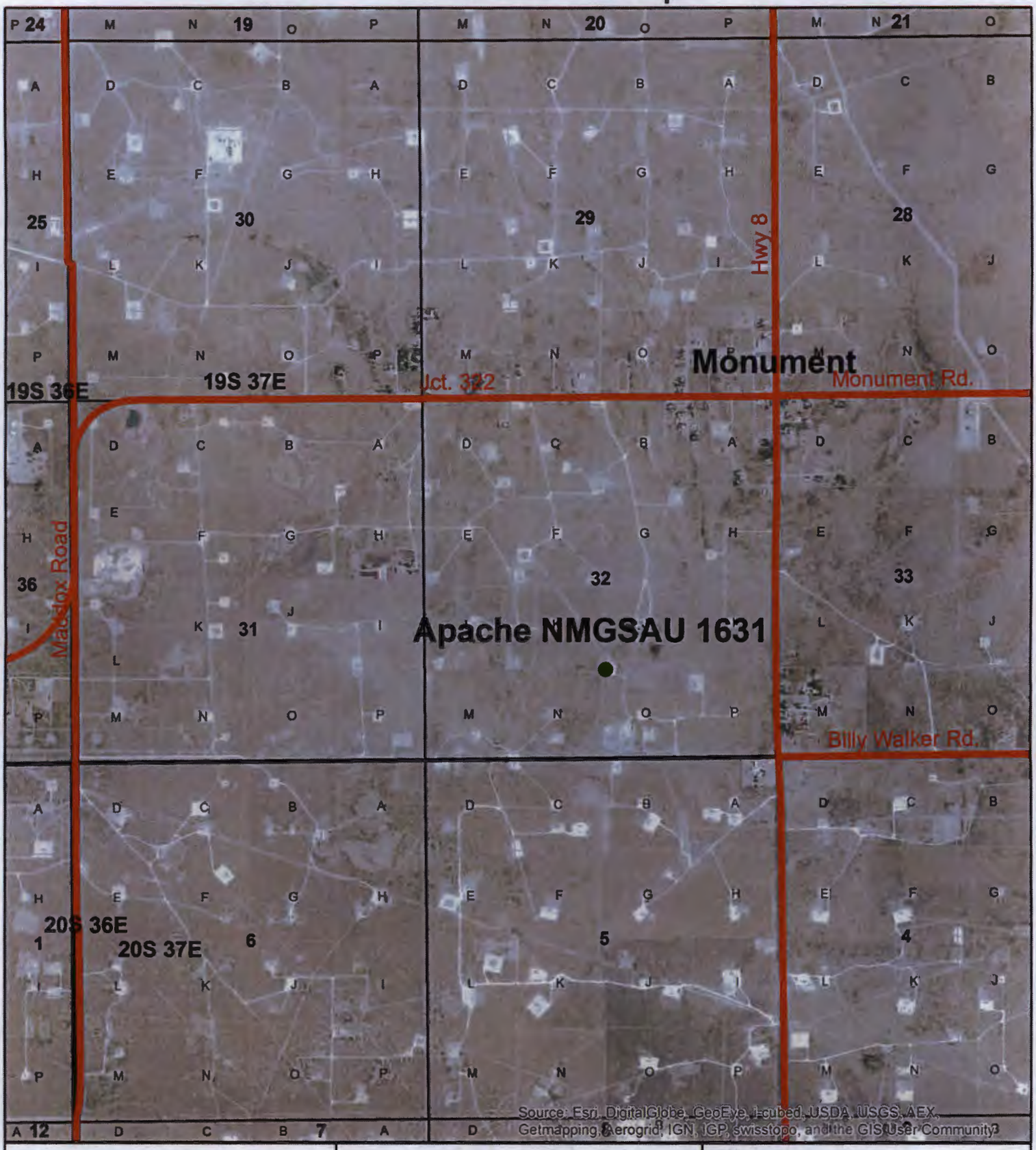
Attachments:

Figure 1 – Site Location Map
Figure 2 – Geographical Location Map
Figure 3 – Monitor Well Sampling Data
Appendix A – Monitor Well Sampling Lab
Appendix B – Record of Groundwater Withdrawal
Appendix C – Site Photo
Appendix D – Final C-141

Figures

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

Site Location Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

APACHE NMGSAU 1631

LEGALS:UL/J sec. 32
T19S R37E

Case #: 1R-2627

Figure 1

N
W E
S

0 0.25 0.5 Miles

Drawing date: 7/19/13
Drafted by: L. Weinheimer

Geographical Location Map

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

APACHE NMGSAU 1631

LEGALS:UL/J sec. 32
T19S R37E

Case #: 1R-2627

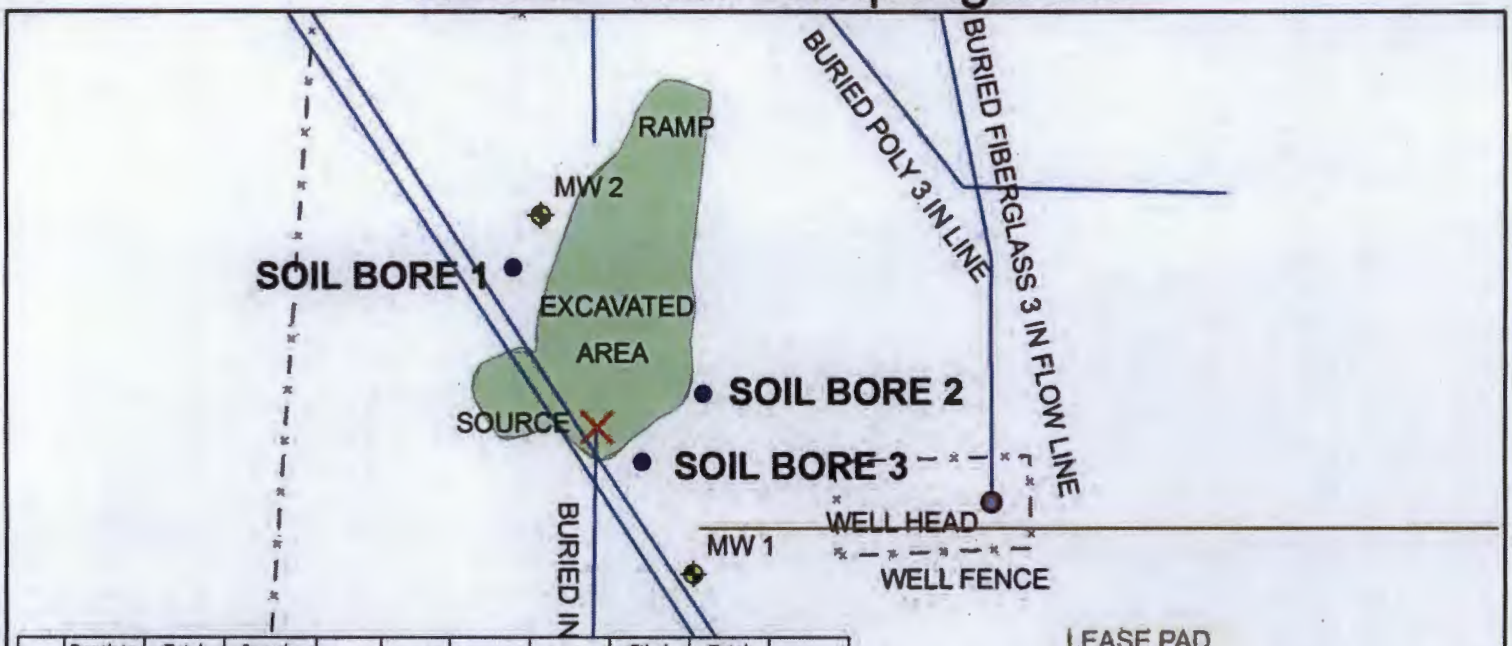
Figure 2

N W E S

0 0.075 0.15 Miles

Drawing date: 12/10/13
Drafted by: L. Weinheimer

Monitor Well Sampling Data



MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	13.84	50.35	11/3/2010	6400	12700	0.015	0.001	0.004	0.01	1120
	13.83	50.35	1/6/2011	3250	6600	0.007	<0.001	0.002	0.006	697
	13.86	50.36	5/19/2011	2420	4770	<0.001	<0.001	<0.001	<0.003	531
	13.81	50.35	9/1/2011	860	2060	<0.001	<0.001	<0.001	<0.003	232
	13.99	50.35	11/18/2011	1480	3150	<0.001	<0.001	<0.001	<0.003	344
	13.87	50.35	3/6/2012	1280	2730	<0.001	<0.001	<0.001	<0.003	363
	XXX	50.35	6/20/2012	540	1420	<0.001	<0.001	<0.001	<0.003	116
	XXX	50.35	9/25/2012	970	2190	<0.001	<0.001	<0.001	<0.003	190
	XXX	50.35	12/13/2012	1040	1970	<0.001	<0.001	<0.001	<0.003	223
	XXX	50.35	3/27/2013	480	1040	<0.001	<0.001	<0.001	<0.003	84
	XXX	50.35	6/26/2013	352	1010	<0.001	<0.001	<0.001	<0.003	81
	XXX	50.35	9/27/2013	356	1000	<0.001	<0.001	<0.001	<0.003	76.2

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
2	13.47	61.15	1/6/2011	320	878	<0.001	<0.001	<0.001	<0.003	81.1
	13.52	61.15	5/19/2011	296	907	<0.001	<0.001	<0.001	<0.003	67.1
	13.68	61.15	9/1/2011	284	785	<0.001	<0.001	<0.001	<0.003	75.7
	13.69	61.15	11/18/2011	308	860	<0.001	<0.001	<0.001	<0.003	64.1
	13.58	61.15	3/6/2012	280	907	<0.001	<0.001	<0.001	<0.003	68.8
	13.78	61.15	6/20/2012	280	920	<0.001	<0.001	<0.001	<0.003	64
	13.81	61.15	9/25/2012	268	853	<0.001	<0.001	<0.001	<0.003	63.8
	13.64	61.15	12/13/2012	280	847	<0.001	<0.001	<0.001	<0.003	57.7
	13.72	61.15	3/27/2013	264	854	<0.001	<0.001	<0.001	<0.003	67.8
	13.88	61.15	6/26/2013	268	868	<0.001	<0.001	<0.001	<0.003	69.7
	13.71	61.15	9/26/2013	272	878	<0.001	<0.001	<0.001	<0.003	56.8

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
3	18.69	30.05	5/19/2011	300	903	<0.001	<0.001	<0.001	<0.003	69.6
	18.7	30.05	9/1/2011	308	845	<0.001	<0.001	<0.001	<0.003	84.8
	17.93	30.05	11/18/2011	380	954	<0.001	<0.001	<0.001	<0.003	78.6
	18.06	30.05	3/6/2012	324	989	<0.001	<0.001	<0.001	<0.003	77.3
	18.43	30.05	6/20/2012	296	922	<0.001	<0.001	<0.001	<0.003	70
	18.58	30.05	9/25/2012	288	938	<0.001	<0.001	<0.001	<0.003	70.5
	18.26	30.05	12/13/2012	288	818	<0.001	<0.001	<0.001	<0.003	77
	18.26	30.05	3/27/2013	292	881	<0.001	<0.001	<0.001	<0.003	77.3
	18.57	30.05	6/26/2013	280	915	<0.001	<0.001	<0.001	<0.003	75.4
	18.3	30.05	9/26/2013	288	862	<0.001	<0.001	<0.001	<0.003	68.1

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

APACHE NMGSAU 1631

Legals: UL/J sec. 32 T19S R37E

Case #: 1R-2627

Figure 3

N W E S

0 35 70 Feet

Projection: NAD 83/STATE PLANE
Drawing date: 10/28/13
Drafted by: L. Weinheimer

Appendix A

Monitor Well 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

October 04, 2013

BRUCE BAKER

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: APACHE NMGSAU 1631-ACCIDENTAL DISCHARGE

Enclosed are the results of analyses for samples received by the laboratory on 09/30/13 15:13.

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:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Water
Project Name:	APACHE NMGSAU 1631-ACCIDENTAL DI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC32 J-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H302369-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/03/2013	ND	0.055	110	0.0500	2.70	
Toluene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.69	
Ethylbenzene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.53	
Total Xylenes*	<0.003	0.003	10/03/2013	ND	0.160	107	0.150	3.99	
Total BTEX	<0.006	0.006	10/03/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**356**	4.00	10/01/2013	ND	104	104	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**76.2**	10.0	10/01/2013	ND	17.2	86.1	20.0	6.95	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1000**	5.00	10/02/2013	ND	223	92.9	240	3.27	

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:	09/30/2013	Sampling Date:	09/26/2013
Reported:	10/04/2013	Sampling Type:	Water
Project Name:	APACHE NMGSAU 1631-ACCIDENTAL DI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC32 J-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H302369-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/03/2013	ND	0.055	110	0.0500	2.70	
Toluene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.69	
Ethylbenzene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.53	
Total Xylenes*	<0.003	0.003	10/03/2013	ND	0.160	107	0.150	3.99	
Total BTEX	<0.006	0.006	10/03/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *111 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**272**	4.00	10/01/2013	ND	104	104	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**56.8**	10.0	10/01/2013	ND	17.2	86.1	20.0	6.95	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**878**	5.00	10/02/2013	ND	223	92.9	240	3.27	

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:	09/30/2013	Sampling Date:	09/26/2013
Reported:	10/04/2013	Sampling Type:	Water
Project Name:	APACHE NMGSAU 1631-ACCIDENTAL DI	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC32 J-LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H302369-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/03/2013	ND	0.055	110	0.0500	2.70	
Toluene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.69	
Ethylbenzene*	<0.001	0.001	10/03/2013	ND	0.052	104	0.0500	3.53	
Total Xylenes*	<0.003	0.003	10/03/2013	ND	0.160	107	0.150	3.99	
Total BTEX	<0.006	0.006	10/03/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**288**	4.00	10/01/2013	ND	104	104	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**68.1**	10.0	10/01/2013	ND	17.2	86.1	20.0	6.95	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**862**	5.00	10/02/2013	ND	223	92.9	240	3.27	

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: Apache	BILL TO Company: Apache / PO#
Project Manager: Hack Conder, Rice Env Consulting Safety	Address: (Street, City, Zip)
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: / Fax#:
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #: / Project Name: Apache NMGSAU 1631-Accidental Discharge	
Project Location: T19S-R37E-Sec32 J ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY H302368)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2013)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	3	X				2				1		9-27	12:55		X																X	X	X	
2	Monitor Well #2	G	3	X				2				1		9-26	17:50		X																X	X	X	
3	Monitor Well #3	G	3	X				2				1		9-26	15:55		X																X	X	X	

Relinquished by: Rozanne Johnson Date: 9/30/2013 Time: 15:12

Received by: Date: Time:

Relinquished by: Date: Time:

Received By: (Laboratory Staff) Jodi Henson 9/30/2013 15:13

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

Sample Condition: Cool: Yes / Intact: Yes

CHECKED BY: (Initials)

Phone Results: Yes / No

Fax Results: Yes / No Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com, kjones@riceswd.com, lweinheimer@rice-ecs.com, rozanne@valornet.com

#54

Appendix B

Record of Groundwater Withdrawal

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

Record of Groundwater Withdrawal
Site Name: Apache NMGSAU 1631

Date	Fluid Hauled (bbls)		Cl- Lab results (mg/L)	Comments
4/10/2012	129			
4/16/2012			570	
4/17/2012	120			
4/25/2012	120			
Total for April	369	bbls	Total kg of	33.43979774
	15498	gallons	chloride removed	
5/9/2012	115			
5/18/2012	130			
5/21/2012			500	
5/25/2012	110			
5/31/2012	130			
Total for May	485	bbls	Total kg of	38.55441902
	20370	gallons	chloride removed	
Total for Project	854	bbls		
	35868	gallons		
6/1/2012	114			
6/8/2012	115			
6/15/2012	130			
6/20/2012			540	
6/22/2012	110			
6/29/2012	114			
Total for June	583	bbls	Total kg of	50.05238019
	24486	gallons	chloride removed	
Total for Project	1437	bbls		
	60354	gallons		
7/13/2012	114			
7/19/2012			452	
7/23/2012	130			
Total for July	244	bbls	Total kg of	17.53439078
	10248	gallons	chloride removed	
Total for Project	1681	bbls		
	70602	gallons		

Record of Groundwater Withdrawal
Site Name: Apache NMGSAU 1631

8/1/2012	130			
8/8/2012	114			
8/16/2012			550	
8/17/2012	130			
8/31/2012	130			
Total for August	504	bbls	Total kg of	44.07127815
	21168	gallons	chloride removed	
Total for Project	2185	bbls		
	91770	gallons		
9/7/2012	90			
9/20/2012	130			
9/25/2012			970	
Total for September	220	bbls	Total kg of	33.92788874
	9240	gallons	chloride removed	
Total for Project	2405	bbls		
	101010	gallons		
10/1/2012	130			
10/8/2012	60			
10/19/2012	130			
10/26/2012	70			
Total for October	390	bbls	Total kg of	60.14489367
	16380	gallons	chloride removed	
Total for Project	2795	bbls		
	117390	gallons		
5/13/2013			364	
5/17/2013	130			
5/24/2013	130			
5/31/2013	130			
Total for May	390	bbls	Total kg of	22.56983639
	16380	gallons	chloride removed	
Total for Project	3185	bbls		
	133770	gallons		

Record of Groundwater Withdrawal
Site Name: Apache NMGSAU 1631

6/7/2013	130			
6/10/2013			376	
6/14/2013	130			
6/21/2013	130			
6/26/2012			352	
6/28/2013	130			
Total for June	520	bbls	Total kg of	31.0851959
	21840	gallons	chloride removed	
Total for Project	3705	bbls		
	155610	gallons		
7/4/2013	130			
7/12/2013	130			
7/17/2013			368	
7/19/2013	130			
7/26/2013	130			
Total for July	520	bbls	Total kg of	30.42380876
	21840	gallons	chloride removed	
Total for Project	4225	bbls		
	177450	gallons		
8/2/2013	130			
8/9/2013	130			
8/16/2013	130			
8/23/2013	130			
8/29/2013	130			
Total for August	650	bbls	Total kg of	38.02976095
	27300	gallons	chloride removed	
Total for Project	4875	bbls		
	204750	gallons		
9/6/2013	130			
9/9/2013			344	
9/13/2013	100			
9/23/2013	110			
9/27/2013			356	
Total for September	340	bbls	Total kg of	19.24382218
	14280	gallons	chloride removed	
Total for Project	5215	bbls		
	219030	gallons		

Record of Groundwater Withdrawal
Site Name: Apache NMGSAU 1631

10/3/2013	130			
10/11/2013	110			
10/18/2013	80			
10/25/2013	30			
11/15/2013	80			
11/21/2013	80			
Total for October	510	bbls	Total kg of	28.86573327
and November	21420	gallons	chloride removed	
Total for Project	**5725**	**bbls**	Total kg of	
	240450	**gallons**	chloride removed	**447.9432057**

Appendix C

Site photo

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

Apache NMGSAU 1631 (1R-2627)

UL/J sec. 32 T19S R37E

Site photo, facing the center of the site 7/24/13

Site photo, facing the center of the site 12/17/13

Appendix D

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 Apache Corporation	Contact Bruce Baker
Address P.O. Box 1849, Eunice, NM 88231	Telephone No. (432) 631-6982
Facility Name NMGSAU #1631 (329) nearest well	Facility Type

Surface Owner Ed Johnston	Mineral Owner NMOCD	API No. 30-025-35608

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	32	19S	37E	1330'	FSL	2520'	FEL	Lea

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release >5	Volume Recovered 0
Source of Release collar on injection line	Date and Hour of Occurrence 9/28/2010 11:26	Date and Hour of Discovery 9/28/2010 11:26
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson	
By Whom? Natalie Gladden	Date and Hour 9/28/2010 1pm	
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.* Saturated area was found at the surface, once the line was excavated, it was determined that the leak had just surfaced. Unknown amount released.

Describe Area Affected and Cleanup Action Taken.* A leak was discovered at the site on September 28th, 2010 encompassing 3,200 sq ft of pasture land. An unknown amount of produced water was released from the injection line collar. Groundwater is located at approximately 14 ft below ground surface (bgs). Excavation of the site began on September 28th, 2010. The site was excavated to 38 ft x 96 ft x 18 ft deep to remove the saturated soils to a NMOCD approved disposal facility. The depth of saturated soils reached 14 ft 8 inches bgs at which point the capillary fringe of the aquifer was encountered. On October 7th, 2010, three soil bores were drilled at the site to determine the extent of impact. RECS personnel field tested the soil for chloride and tested for hydrocarbons using a photo-ionization detector (PID). Representative samples were submitted to a commercial laboratory for chloride and TPH analyses. The site was backfilled to 4.5 ft bgs, where a 20-mil, reinforced liner was installed with 6 inches of blow sand placed below and above the liner for padding. On October 12th, 2010, the initial C-141 was submitted to NMOCD-District I and was approved. Subsequently, the remaining excavation at the site was backfilled with clean, imported soil, and the site was contoured to the surrounding landscape. On October 16th, 2010, amendments were incorporated into the soil surface, and the site was seeded. Three monitor wells were installed at the site. The monitor wells have been sampled quarterly since their installation. On October 11th, 2011, a Corrective Action Plan was submitted to NMOCD. The CAP was approved by NMOCD on October 17th, 2011. RECS recommended that a three month groundwater source removal and test pumping program. On August 14th, 2012, a Corrective Action Plan for Groundwater was submitted to NMOCD. The CAP was approved by NMOCD on August 15th, 2012. As part of the Termination Request, RECS detailed the groundwater and chloride extraction totals of the test pumping program. Since the groundwater source removal and pumping program began on April 10th, 2012, a total of 5,725 barrels of groundwater has been removed from the site. Given the most recent laboratory chloride reading of 356 mg/L in MW-1, the volume of groundwater removal indicates that 447.9 kg of chlorides have been removed. RECS estimated the chloride mass of 393 kg needed to be removed from the groundwater to compensate for the chlorides introduced by the site. This mass has already been removed.

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: Bruce Baker	OIL CONSERVATION DIVISION	
Printed Name: Bruce Baker	Approved by Environmental Specialist:	
Title: Environmental Technician	Approval Date:	Expiration Date:
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval:	Attached ☐
Date: 12-27-13 Phone: (432) 631-6982		

* Attach Additional Sheets If Necessary