RXSOIL

January 14, 2020

NMOCD District 2
811 S. First St.
Artesia, NM 88210

Re: Remediation Plan
Apache Corporation
Geronimo 28 State SWD #002 – 2RP-5705

RXSoil, Inc. is pleased to submit the remediation plan for the on-site remediation of impacted soil for the above release in Eddy County, New Mexico.

Sincerely,

Jace Caraway
Chief Operating Officer
RXSoil, Inc.
(940) 210-2051

Zach Robbins
Technical and Engineering Analyst
RXSoil, Inc.
(210) 400-7645

Table of Contents

Figures

Appendix

I. Introduction

On behalf of Apache Corporation ("Apache"), RXSoil, Inc. ("RXSoil") has prepared this work plan that describes remediation of the release of produced water at the Geronimo 29 State SWD #002.

The release was discovered on 10/11/2019 in Unit Letter I, Section 28, Township 17S, Range 28E (see *Figure 1* for Vicinity Map) at approximate coordinates 32.80259, -104.17446. It was reported that 129 barrels of produced water were released, and 30 barrels of produced water were recovered during the initial response.

II. Site Assessment/Characterization

1. **Site Map** – See *Figure 2*
2. **Depth to ground water** – USGS 324855104093101 is the nearest water well with data in the past 25 years (listed in *Appendix A*) and has a reported depth to water of 78' below ground surface or 3,500' above NVGD29 with a land surface altitude of 3,578', recorded in January of 1999. The site of the release has a land surface altitude of 3,682' which would be a groundwater depth of 182'. Nearby well USGS 324724104082301 also has a listed depth to groundwater from 1994 of 257.9'. This work plan is proposing to adhere to closure criteria for depth to groundwater of >100'.
3. **Wellhead protection area** – There are no known active water sources within a half mile of the release (see *Figure 3*).
4. **Distance to nearest significant watercourse** – There is no significant watercourse within a half-mile of any horizontal boundary of the release (see *Figure 4*).
5. **Soil/waste characteristics** – An initial delineation was completed on November 14, 2019 by Apache. Sample points are shown in *Figure 2* with results summarized in *Appendix B*. Lab data is displayed in *Appendix* C. All samples tested well below regulatory limits for TPH, BTEX and Benzene. Horizontal excavation will consist of sampling sidewalls (composites representing <200 square feet) to verify each wall is below thresholds listed in NMAC 19.15.29.13.D.1 (600 mg/kg chloride). Vertical delineation will continue throughout the spill area to clean material per Table I. Excavation will be guided by field data.

III. Remediation Plan

The delineation points can be seen in *Figure 2* with results in *Appendix B*. As stated in **Section II**, further delineation will be conducted throughout excavation.

RXSoil's core process of on-site remediation will be used to address the contamination. RXSoil will supervise all excavation with approval from area utilities owners via NM 811.

RXSoil will construct an above-ground treatment cell adjacent to the contaminated area (final location will be determined prior to project commencement). Berms will be placed around the perimeter of the cell area. A 20-mil reinforced poly liner will be placed on the surface and up the sides of the berms

to contain treatment. A proprietary drainage and collection system will be installed prior to filling the cells with the estimated 2,800 cubic yards of contaminated soils. All excavation will be done with proper approvals and supervision from appropriate owners.

Once all contaminated material is in the treatment cell, chemical and biological treatment will begin. To confirm successful treatment, a grid of confirmation samples will be gathered at depth 36"-48" with one sample representing no more than 100 cubic yards. All samples will be field screened using Quantab Chloride Test Strips. If a sample tests above threshold, treatment will continue in that area until the soil tests clean, per strictest Table I guidelines for impacted soils. At least 50% of total samples will be transferred on ice to a third-party lab for confirmation testing using NMOCD approved testing methods. The 50% chosen will contain an approximately even distribution of the lowest, middle and highest contaminated samples based on field testing data. As all delineation samples tested below all thresholds for TPH and BTEX, RXSoil is requesting monitoring chlorides only for the remediation.

Sidewall and bottom samples will be taken using a stainless-steel hand shovel while remediation samples will be taken using a stainless-steel bucket auger. All tools are to be decontaminated before each sample, as specified in *Field Equipment Cleaning and Decontamination* (EPA, 2015). This includes wiping the equipment clean, water-rinsing the equipment, washing the equipment in detergent and water, and rinsing the equipment in water.

Samples will temporarily be transferred to a new plastic bag in the field. Once in a location safer for handling glass, the samples will be transferred to glass jars, supplied by an approved laboratory. The threads on all jars will be wiped clean to allow an air-tight seal. Samples will be transferred on ice to a third-party laboratory to ensure tests are completed within 28 days (as recommended for EPA methods 4500).

Remediation efforts will commence following the approval of this remediation plan and is estimated to take approximately 30 days.

IV. Restoration, Reclamation and Re-Vegetation

Following remediation, RXSoil will drill in seed at the discretion of the appropriate surface owners (SLO). RXSoil will continue to monitor this area to ensure growth.

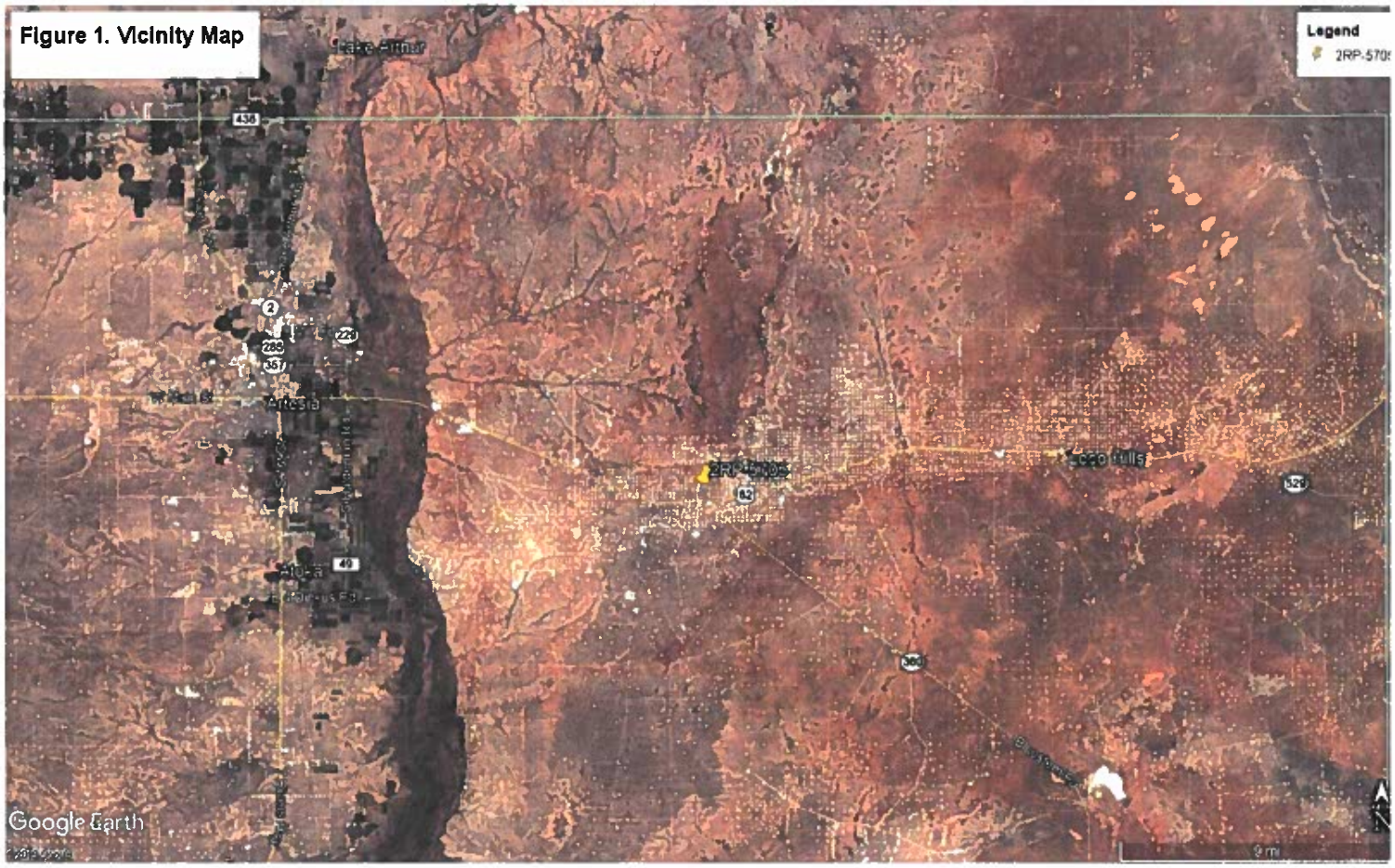
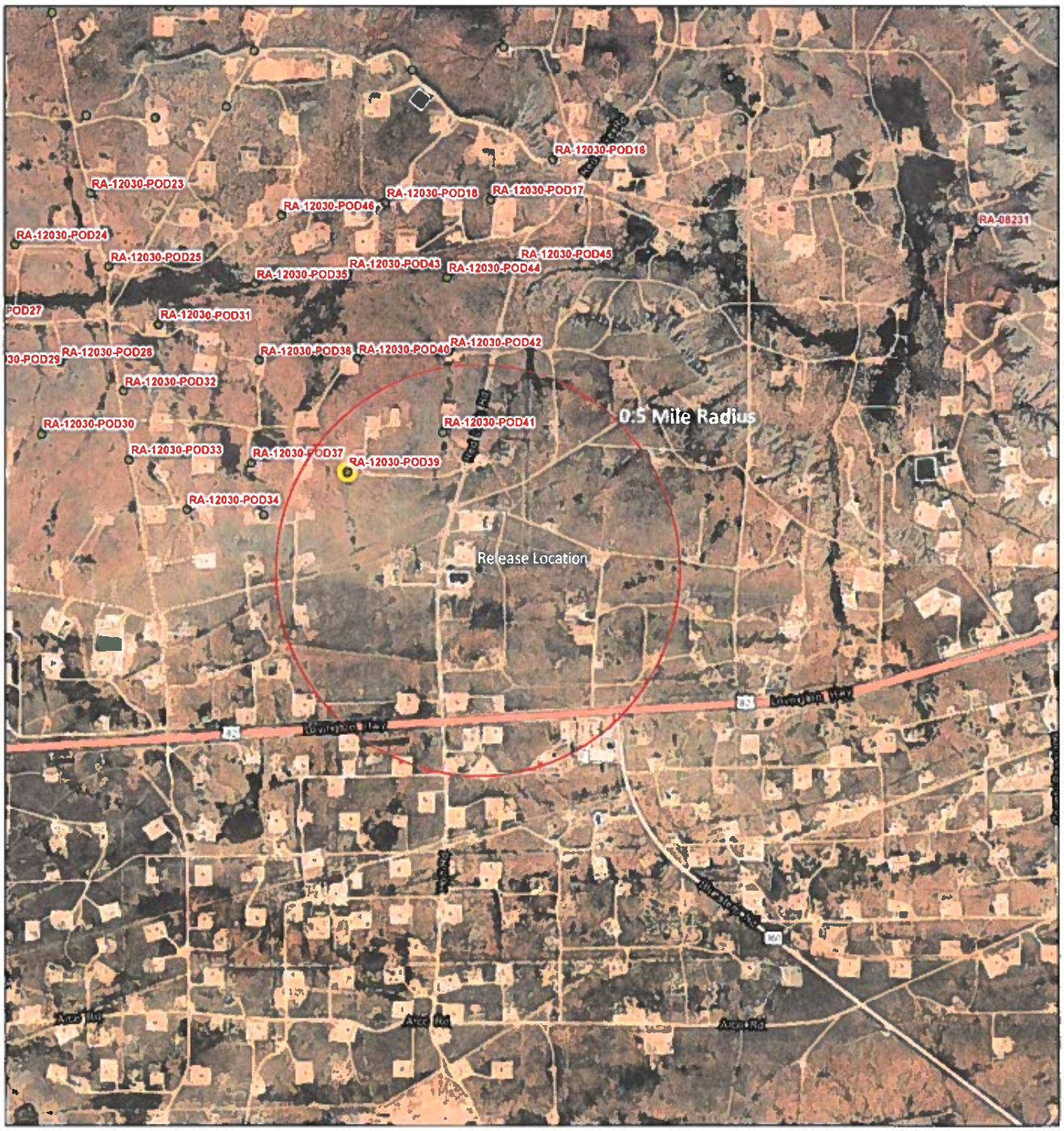


Figure 1. Vicinity Map
Legend
Lake Arthur
Artesia
Loco Hills
Google Earth


Figure 2. Site Overview
Legend
Sample Points
Spill Outline
2RP-5705
Google Earth
N

Figure 3 - Point of Diversion Map



1/10/2020, 1:52:27 PM

OSE District Boundary

GIS WATERS PODs

Pending

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

Printed from Public Web Map
Unofficial Map from OSE POD Locations Web Application

Figure 4. Hydrology Map

APPENDIX A

NEAREST WATER WELL DATA

USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater ▼ Geographic Area: United States ▼ GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 324855104093101

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

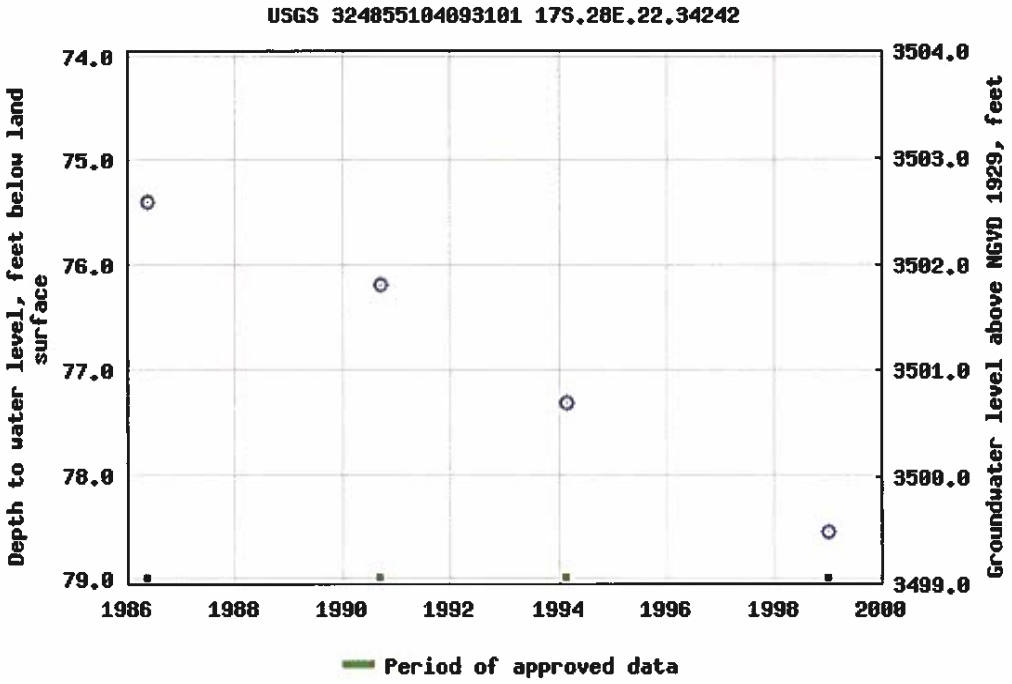
USGS 324855104093101 17S.28E.22.34242

Available data for this site Groundwater: Field measurements ▼ GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°48'55", Longitude 104°09'31" NAD27
Land-surface elevation 3,578 feet above NGVD29
The depth of the well is 95.00 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-01-10 15:31:05 EST
0.92 0.5 nadww02

APPENDIX B

DELINEATION SUMMARY TABLE

Appendix B Delineation Data														
Sample Point	Depth (ft)	Sample Date	Chloride		BTEX (8021B)					TPH (8015M)			
			Field Test	Lab Test	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	C6-C35
1	S	11/14/2019	-	**12,000**	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	94.2	19.4	113.6
	1		**11,609**	-	-	-	-	-	-	-	-	-	-
	2		**7,975**	-	-	-	-	-	-	-	-	-	-
	3		**8,105**	-	-	-	-	-	-	-	-	-	-
	4		-	10,100	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
2	S	11/14/2019	-	**13,200**	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
	1		-	-	-	-	-	-	-	-	-	-	-
	2		**14,894**	-	-	-	-	-	-	-	-	-	-
	3		-	-	-	-	-	-	-	-	-	-	-
	4		-	14,400	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
3	S	11/14/2019	-	**16,800**	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
	1		-	-	-	-	-	-	-	-	-	-	-
	2		**9,498**	-	-	-	-	-	-	-	-	-	-
	3		-	-	-	-	-	-	-	-	-	-	-
	4		-	5,840	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
4	S	11/14/2019	-	**17,200**	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
	1		-	-	-	-	-	-	-	-	-	-	-
	2		**2,886**	-	-	-	-	-	-	-	-	-	-
	3		-	-	-	-	-	-	-	-	-	-	-
	4		-	224	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
5	S	11/14/2019	-	96	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
	1		-	-	-	-	-	-	-	-	-	-	-
	2		190	-	-	-	-	-	-	-	-	-	-
	3		-	-	-	-	-	-	-	-	-	-	-
	4		-	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<30
NMOCD Thresholds			**20,000 (600 for top 4')**		**10**				**50**				**2,500**

BOLD results indicate results above threshold

- indicates tests were not ran

All units in mg/kg unless otherwise noted

APPENDIX C

LABORATORY REPORTS

CARDINAL Laboratories

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

November 19, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: GERONIMO STATE #2 SWD

Enclosed are the results of analyses for samples received by the laboratory on 11/14/19 15:26.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. 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 CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	11/14/2019	Sampling Date:	11/14/2019
Reported:	11/19/2019	Sampling Type:	Soil
Project Name:	GERONIMO STATE #2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 @ SURFACE (H903877-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/16/2019	ND	1.71	85.6	2.00	6.30	
Toluene*	<0.050	0.050	11/16/2019	ND	1.71	85.3	2.00	6.39	
Ethylbenzene*	<0.050	0.050	11/16/2019	ND	1.72	86.2	2.00	6.22	
Total Xylenes*	<0.150	0.150	11/16/2019	ND	5.19	86.5	6.00	6.39	
Total BTEX	<0.300	0.300	11/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID 99.7 % 73.3-129

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**12000**	16.0	11/19/2019	ND	416	104	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	11/16/2019	ND	214	107	200	1.12	
DRO >C10-C28*	**94.2**	10.0	11/16/2019	ND	217	109	200	0.635	
EXT DRO >C28-C36	**19.4**	10.0	11/16/2019	ND					

Surrogate: 1-Chlorooctane 116 % 41-142

Surrogate: 1-Chlorooctadecane 130 % 37.6-147

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 CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	11/14/2019	Sampling Date:	11/14/2019
Reported:	11/19/2019	Sampling Type:	Soil
Project Name:	GERONIMO STATE #2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 @ SURFACE (H903877-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/16/2019	ND	1.71	85.6	2.00	6.30	
Toluene*	<0.050	0.050	11/16/2019	ND	1.71	85.3	2.00	6.39	
Ethylbenzene*	<0.050	0.050	11/16/2019	ND	1.72	86.2	2.00	6.22	
Total Xylenes*	<0.150	0.150	11/16/2019	ND	5.19	86.5	6.00	6.39	
Total BTEX	<0.300	0.300	11/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**13200**	16.0	11/19/2019	ND	416	104	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	11/16/2019	ND	214	107	200	1.12	
DRO >C10-C28*	<10.0	10.0	11/16/2019	ND	217	109	200	0.635	
EXT DRO >C28-C36	<10.0	10.0	11/16/2019	ND					

Surrogate: 1-Chlorooctane *119 %* *41-142*

Surrogate: 1-Chlorooctadecane *127 %* *37.6-147*

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 CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	11/14/2019	Sampling Date:	11/14/2019
Reported:	11/19/2019	Sampling Type:	Soil
Project Name:	GERONIMO STATE #2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 @ SURFACE (H903877-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/16/2019	ND	1.71	85.6	2.00	6.30	
Toluene*	<0.050	0.050	11/16/2019	ND	1.71	85.3	2.00	6.39	
Ethylbenzene*	<0.050	0.050	11/16/2019	ND	1.72	86.2	2.00	6.22	
Total Xylenes*	<0.150	0.150	11/16/2019	ND	5.19	86.5	6.00	6.39	
Total BTEX	<0.300	0.300	11/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID 99.1 % 73.3-129

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16800**	16.0	11/19/2019	ND	416	104	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	11/16/2019	ND	214	107	200	1.12	
DRO >C10-C28*	<10.0	10.0	11/16/2019	ND	217	109	200	0.635	
EXT DRO >C28-C36	<10.0	10.0	11/16/2019	ND					

Surrogate: 1-Chlorooctane 118 % 41-142

Surrogate: 1-Chlorooctadecane 126 % 37.6-147

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 CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	11/14/2019	Sampling Date:	11/14/2019
Reported:	11/19/2019	Sampling Type:	Soil
Project Name:	GERONIMO STATE #2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 @ SURFACE (H903877-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/16/2019	ND	1.71	85.6	2.00	6.30	
Toluene*	<0.050	0.050	11/16/2019	ND	1.71	85.3	2.00	6.39	
Ethylbenzene*	<0.050	0.050	11/16/2019	ND	1.72	86.2	2.00	6.22	
Total Xylenes*	<0.150	0.150	11/16/2019	ND	5.19	86.5	6.00	6.39	
Total BTEX	<0.300	0.300	11/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**17200**	16.0	11/19/2019	ND	416	104	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	11/16/2019	ND	214	107	200	1.12	
DRO >C10-C28*	<10.0	10.0	11/16/2019	ND	217	109	200	0.635	
EXT DRO >C28-C36	<10.0	10.0	11/16/2019	ND					

Surrogate: 1-Chlorooctane *116 %* *41-142*

Surrogate: 1-Chlorooctadecane *123 %* *37.6-147*

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 CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	11/14/2019	Sampling Date:	11/14/2019
Reported:	11/19/2019	Sampling Type:	Soil
Project Name:	GERONIMO STATE #2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 @ SURFACE (H903877-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/16/2019	ND	1.71	85.6	2.00	6.30	
Toluene*	<0.050	0.050	11/16/2019	ND	1.71	85.3	2.00	6.39	
Ethylbenzene*	<0.050	0.050	11/16/2019	ND	1.72	86.2	2.00	6.22	
Total Xylenes*	<0.150	0.150	11/16/2019	ND	5.19	86.5	6.00	6.39	
Total BTEX	<0.300	0.300	11/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	11/19/2019	ND	416	104	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	11/16/2019	ND	214	107	200	1.12	
DRO >C10-C28*	<10.0	10.0	11/16/2019	ND	217	109	200	0.635	
EXT DRO >C28-C36	<10.0	10.0	11/16/2019	ND					

Surrogate: 1-Chlorooctane *110 %* *41-142*

Surrogate: 1-Chlorooctadecane *116 %* *37.6-147*

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

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Apache Corporation
Project Manager:	Bruce Baker
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	Geronimo State #2 SWD
Project Location:	Geronimo State #2 SWD
Sampler Name:	Jeff Brown

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	PRESERV.: ACID/BASE	ICE / COOL	OTHER	SAMPLING DATE	SAMPLING TIME	CL	BTEX	EXT. TPH
H903877	1 SP1 @ Surface												11/14/19	11:18	✓	✓	✓
	2 SP2 @ Surface													2:05			
	3 SP3 @ Surface													12:07			
	4 SP4 @ Surface													12:09			
	5 SP5 @ Surface													1:53			
													11/14/19				

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: 11/14/19	Received By:	Verbal Result: ☐ Yes ☐ No Add'l Phone #:
Jeff Brown	Time: 3:26		All Results are emailed. Please provide Email address:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		
Delivered By: (Circle One)	Observed Temp. °C 2.3	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	Corrected Temp. °C 2.7		Turnaround Time: Standard ☑ Rush ☐
			Thermometer ID #97 Correction Factor +0.4 °C
			Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No; Intact ☐ Yes ☐ No; Observed Temp. °C; Corrected Temp. °C

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

END OF REPORT

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	182 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☑ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☑ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☑ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☑ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☑ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☑ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☑ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☑ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☑ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☑ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☑ Data table of soil contaminant concentration data
- ☑ Depth to water determination
- ☑ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☑ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☑ Topographic/Aerial maps
- ☑ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Bruce Baker Title: Environmental Tech. Sr.

Signature: Bruce Baker Date: 1-14-20

email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- [x] Detailed description of proposed remediation technique
- [x] Scaled sitemap with GPS coordinates showing delineation points
- [x] Estimated volume of material to be remediated
- [x] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [x] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Bruce Baker Title: Environmental Tech SR.

Signature: Bruce Baker Date: 1-14-20

email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____