DAVID FEATHER
ENVIRONMENTAL SUPERVISOR
DIRECT: (432) 818-1615
E-MAIL: DAVID.FEATHER@APACHECORP.COM

IRP-4516
NKL1632730937

October 1, 2019

Mr. Bradford Billings
State of New Mexico Oil Conservation Division
1220 South St Francis Drive
Santa Fe, NM 87505

RE: 1RP-4516 Warn State AC Battery

Mr. Billings,

In compliance with 19.15.29.15(B) NMAC and the agreement submitted by Apache Corporation on November 8, 2018, Apache Corporation is submitting information related to deferment request for the release occurring October 10, 2016. Apache is respectfully submitting the deferment request for your approval. Unless further information is requested by NMOCD, Apache Corporation considers this release deferred.

If there are any questions, please feel free to contact me by telephone at 432-818-1615 or by e-mail at David.Feather@ApacheCorp.com.

Sincerely,

David Feather
Environmental Supervisor
Apache Corporation - Permian Basin Region

Attachment: Deferment Report Dated September 27, 2019

1RP-4516
DELINEATION AND DEFERRAL REPORT
Warn State AC Battery
Crude Oil and Produced Water Release
Lea County, New Mexico

Latitude: N 32.7706032°
Longitude: W -103.49811995°

LAI Project No. 19-0112-47

September 27, 2019

Prepared for:
Apache Corporation
2350 W. Marland Blvd
Hobbs, New Mexico 88240

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geologist #10490

Rachel E. Owen
Sr. Geoscientist

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation and deferral report on behalf of Apache Corporation (Apache) for submittal to the New Mexico Oil Conservation (OCD) District I for a crude oil and produced water release at the Warn State AC Battery located in Unit N (SE/4, SW/4), Section 6, Township 18 South, Range 35 East in Lea County, New Mexico. The geodetic position is North 32.7706032° and West -103.49811995°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release occurred on October 10, 2016 when a gasket on a heater treater failed. The failure allowed for approximately 50 barrels (bbls) of crude oil and 30 bbls of produced water to be released. Approximately 40 bbls of crude oil and 20 bbls of produced water were recovered. The liquid accumulated on the facility pad and crude oil mist was sprayed in the pasture northeast of the facility. Mr. Bruce Baker with Apache provided verbal and email notification to Kristen Lynch with NMOCD District 1 on October 11, 2016. The initial C-141 was submitted on October 24, 2016, and assigned remediation permit number of 1RP-4516.

Initial sampling was conducted by Arcadis U.S, Inc. (Arcadis) on October 27, 2016. Soil samples were collected from five (5) locations (SP 1, SP 2, SP 3, SP 4, and SP 5) in the spill area at 4 inches below ground surface (bgs). Cardinal Laboratories (Cardinal), in Hobbs, New Mexico, which analyzed the samples, shows that four (4) additional soil samples were collected (SP 6 through SP 9), but are not indicated on the Arcadis map. OCD correspondence suggests that SP 9 is located in the crude oil overspray area northeast of the well pad. Cardinal analyzed the samples for gasoline range organics (GRO), diesel range organics (DRO), benzene, toluene, ethylbenzene and xylenes (BTEX), and chloride by EPA SW-846 Method 8015, Method 8021B and titration method SM4500 CL-B, respectively. GRO and DRO concentrations were reported above the OCD remediation action level of 2,500 milligrams per kilogram (mg/Kg) at SP 1 (13,030 mg/Kg), SP 2 (8,010 mg/Kg), SP 3 (37,500 mg/Kg), SP 4 (8,320 mg/Kg), and SP 5 (34,020 mg/Kg). DRO was reported above remediation action level in the overspray area (SP 9) at the surface (4,310 mg/Kg) and below remediation action level at SP 9, 1 foot bgs (56 mg/Kg). Benzene was reported below the remediation action level of 10 mg/Kg in all samples. BTEX was reported above the remediation action level of 50 mg/Kg at SP 1 (390 mg/Kg), SP 2 (83.2 mg/Kg), SP 3 (1,240 mg/Kg), and SP 5 (116 mg/Kg). Chloride was reported below the remediation action level of 10,000 mg/Kg for all soil samples. Appendix B presents the Arcadis data. Appendix C presents OCD correspondence.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,981 feet above mean sea level (msl);
- The topography slopes gently towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Kimbrough-Lea complex, dry, 0 to 3 percent slopes", consisting of 0 to 3 inches of gravelly loam underlain by 3 to 10 inches of loam and 10 to 00 inches of cemented material (caliche);
- The surface geology consists of alluvial and eolian deposits (Lower Pliocene to middle Miocene) – petrocalcic soils of the southern High Plains;

- Groundwater occurs in the Ogallala formation at 60 feet bgs based on the New Mexico Office of the State Engineer (NMOSE) website;
- According to the New Mexico Office of the State Engineer (OSE) website the nearest groundwater well is located in Unit O, Section 6, Township 18 South, Range 35 East, approximately 0.19 miles or about 1,009.47 feet south of the Site.

1.3 Remediation Levels

The following remediation standards are based on closure criteria for soils impacted by a release as presented in Table 1 of 19.15.29 NMAC:

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 2,500 mg/Kg
- Chloride 10,000 mg/Kg

Further, 19.15.29.13 NMAC (Restoration, Reclamation and Re-Vegetation) requires the operator to restore the impacted surface area that existed prior to the release or their final land use.

2.0 DELINEATION

On August 28, 2019, Scarborough Drilling, Inc. (SDI), under supervision from LAI, used an air rotary drilling rig to vertically delineate the spill inside of the firewall and northeast of the heater treater (SP 5). Soil samples were collected every 5 feet to 30 feet bgs. The soil samples were delivered under chain of custody and preservation to Permian Basin Environmental Laboratory (PBEL) in Midland, Texas, and were analyzed for BTEX, total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35) by EPA SW-846 Methods 8021B and 8015M, respectively.

The laboratory reported benzene and BTEX below the remediation limits of 10 mg/Kg and 50 mg/kg, respectively, in all soil samples. TPH was reported above the remediation action level of 2,500 mg/Kg in sample SP 5, 0 feet bgs (11,400 mg/Kg), and SP 5, 5 feet bgs (3,030mg/Kg). TPH was reported below the remediation action level at SP 5, 10 feet bgs (<27.5 mg/Kg). Table 1 presents the delineation soil sample analytical data summary.

Figure 2 presents the soil sampling location. Appendix D presents the PBEL laboratory data. Appendix E presents photographs.

3.0 DEFERRAL REQUEST

Apache has delineated BTEX, TPH and chloride below the remediation limits of 50 mg/Kg, 2,500 mg/Kg and 10,000 mg/Kg, respectively. Apache proposes to apply a 6% solution of Microblaze® microbial amendment and water to the affected soil and vegetation in the overspray area northeast of the facility to remediate DRO concentrations in the upper foot of soil. The overspray area measures approximately 8,450 square feet. Due to the spill area being in close proximity to production equipment and underground lines, Apache respectfully requests a deferral to complete delineation on the caliche road and remediation of the Warn State AC Battery (1RP-4516) until abandonment.

Tables

Table 1
Delineation Soil Sample Analytical Data Summary
Apache Corporation, Warn State AC Battery
Lea County, New Mexico
32 46' 11.23" North, -103 29' 57.94" West

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				**10**	**50**				**2,500**	**10,000**
SP-S	0	8/28/2019	In-situ	<0.0208	<0.1249	<260	8,730	2,650	**11,400**	–
	5	8/28/2019	In-situ	<0.0217	<0.1303	180	2,480	368	**3,030**	–
	10	8/28/2019	In-situ	<0.00110	<0.00660	<27.5	<27.5	<27.5	<27.5	–
	15	8/28/2019	In-situ	<0.00106	<0.00637	<26.6	<26.6	<26.6	<26.6	–
	20	8/28/2019	In-situ	<0.00110	<0.00660	<27.5	<27.5	<27.5	<27.5	–
	25	8/28/2019	In-situ	<0.00106	<0.00637	<26.6	<26.6	<26.6	<26.6	–
	30	8/28/2019	In-situ	<0.00108	<0.00647	<26.9	<26.9	<26.9	<26.9	–

Notes: Analysis performed by Permian Basin Environmental Laboratory by EPA SW-846 Methods 8021B (BTEX), and 8015M (TPH)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit
Bold and Highlighted exceeds OCD remediation levels

Figures

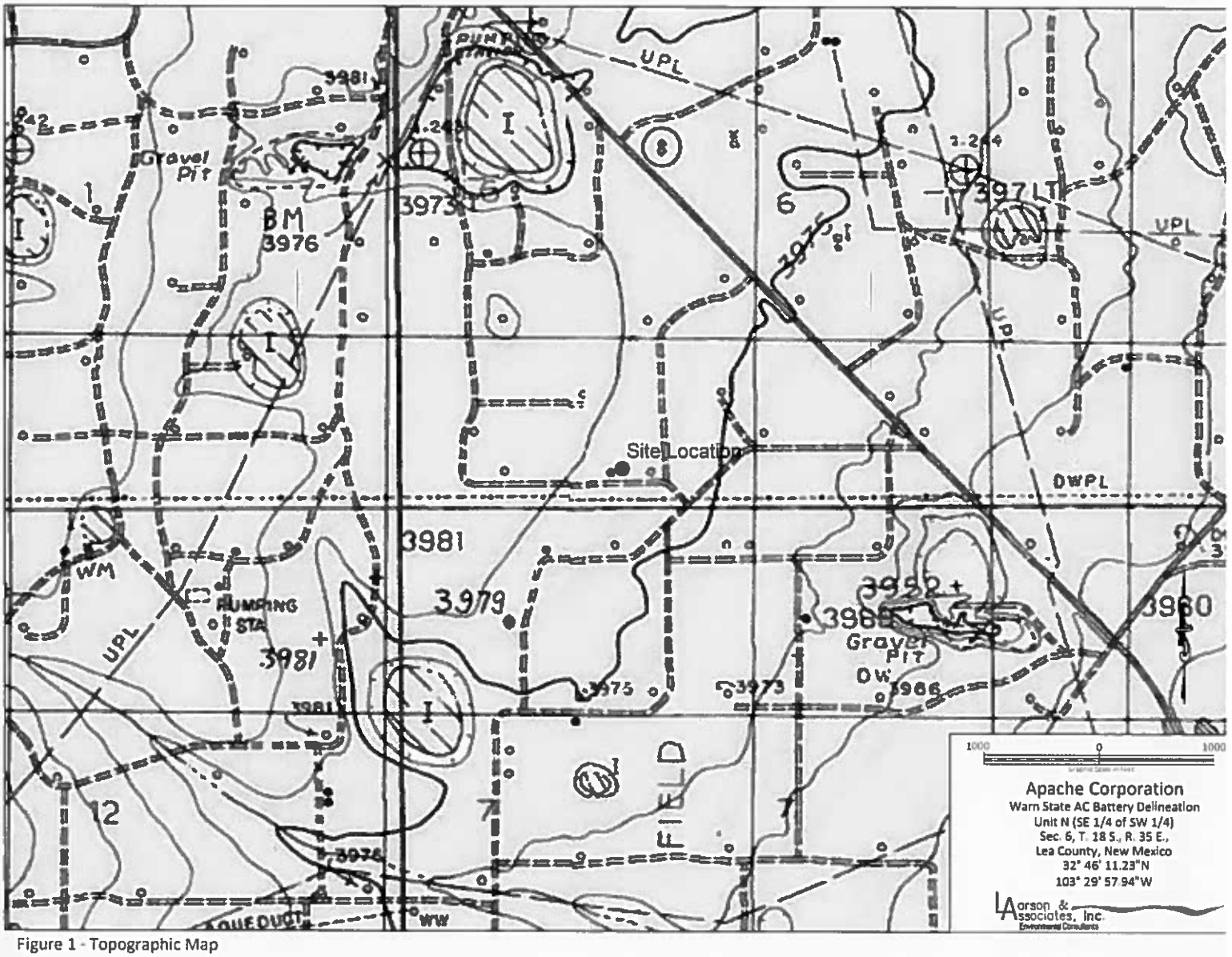

Figure 1 - Topographic Map

Figure 2 - Aerial Map Showing Soil Sample Locations and Proposed Microblazed Area

Appendix A

Initial C-141

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: 2350 W Marland Blvd Hobbs, NM 88240	Telephone No. (432) 631-6982
Facility Name Warn State A/C Battery	Facility Type: Battery

Surface Owner State	Mineral Owner	API No. 30-025-03082

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	6	18S	35E	330	FSL	2233	FWL	Lea

Latitude N32.7706032 Longitude W103.49811995

NATURE OF RELEASE

Type of Release: Produced water and oil	Volume of Release 50 barrels of Oil and 30 barrels of water	Volume Recovered 40 barrels of Oil and 20 barrels of water
Source of Release: Heater Treater	Date and Hour of Occurrence 10/10/2016	Date and Hour of Discovery 10/10/2016
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Kristen Lynch (NMOCD)	
By Whom? Bruce Baker	Date and Hour 10/11/2016 via phone and email at 3:23 p.m.	
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.*
A release occurred due to gasket on heater treater failed. The treater was isolated and a vacuum truck was dispatched to pick-up standing fluid. The gasket was replaced.

Describe Area Affected and Cleanup Action Taken.* All the standing fluid was contained to inside facility and lease pad but a large area of oil sprayed into the pasture northeast of the facility.

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

Printed Name: Bruce Baker

Title: Environmental Technician

E-mail Address: larry.baker@apachecorp.com

Date: 10/24/2016 Phone: (432) 631-6982

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Kristen Lynch

Approval Date: 11/22/2016 Expiration Date: 1/22/2017

Conditions of Approval:
Please see attached directive

Attached ☐
1RP 4516
nKL1632730937
pKL1632731127

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 10/24/2016 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP 4516 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 12/22/2016. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

Appendix B

Arcadis U.S., Inc. Data

ARCADIS | Design & Consultancy for natural and built assets

Imagine the result

Apache Corporation

WARN STATE A/C BATTERY
Remediation Plan Proposal
1RP 4516

Lea County, New Mexico

January 31, 2017

Jennifer Van Curen
Environmental Project Scientist

Warn State A/C Battery

Remediation Plan Proposal

Prepared for
Apache
Corporation
Lea County, New Mexico

Prepared by
ARCADIS U.S., Inc.
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432 687 5400
Fax 432 687 5401

Our Ref.
MT001200.0000.0000

Date
January 31, 2017

WARN STATE A/C BATTERY

Remediation Plan Proposal

Apache Corporation
Lea County, New Mexico

1. INTRODUCTION

The subject site is located on the facility pad at 32°46'14.16"N and 103°29'55.00"W in Section 6, T18S, R35E in Lea County. The site is operated by Apache Corporation.

2. SUMMARY OF SITE INVESTIGATION ACTIVITIES

The New Mexico Oil Conservation Division (NMOCD) was notified of the 50 barrels (bbls.) oil and 30 bbls of water released with 40 bbls oil and 20 bbls water recovered at the site via form C-141, submitted on October 24, 2016 by Bruce Baker with Apache Corporation.

The release was reported to have had a gasket fail on the heater treater. The heater treater was isolated and a vacuum truck was dispatched to pick-up the standing fluid. The gasket was then replaced. All of the standing fluid was contained inside the facility and well pad areas. There was a spray to the northeast of the heater treater encompassing 7,698 square feet area.

Initial release site investigation activities were conducted in October 2016 by completing field and lab sampling to 4 inches below ground surface (bgs) before hitting refuse.

Five samples were taken within the release site. The soil samples were taken to a depth to reach the NMOCD delineation guidelines for chlorides.

Soil sampling results are shown in the Table 1 with sample point locations in Figure 1 below. The laboratory results are attached in Appendix A.

Table1: Soil Sample Results

Date	Sample #	Depth	Lab Data		
			BTEX	TPH	CL's
10/27/2016					
	SP 1	4inches	390	13030	96
	SP 2	4 inches	83.2	8010	448
	SP 3	4 inches	1240	37500	64
	SP 4	4 inches	2.67	8320	2360
	SP 5	4inches	116	34020	768

Figure: 1 Sample Point Locations

3. ENVIRONMENTAL ASSESSMENT

3.1 Hydrology

Groundwater depths in the area average 90 feet bgs (Waters Map). There is no surface water near this release site.

The site ranking for this site is a 10 based on the following:

Depth to ground water	>50' = 10
Wellhead Protection Area	>1000' = 0
Distance to surface water body	>1000' = 0

4. REMEDIATION PLAN

After review of various remedial options, we propose the following Remediation Plan for this release site is as follows:

4.1 Soil Remediation Plan

The chloride impacted soils on the well and facility pad (1,933 square feet) will be removed via a backhoe and transported to a NMOCD approved disposal facility. The active well and facility pad will be resurfaced with compacted caliche. Further remediation analysis will be completed when the well and facility are abandoned.

A light mist of hydrocarbon was blown to the north and covered the vegetation in the pasture covering an area of 7,698 square feet. Apache will spray wash the vegetation in the pasture.

There is an area inside the battery firewall that will be tilled in order to lower the TPH levels. This area will be sampled again next year after TPH has had time to flash off.

5. REMEDIATION WORK SCHEDULE

Soil remediation activities are expected to be completed within 5 working days (Monday through Friday) with work commencing after receiving approval and funding for this Remediation Proposal.

6. FOLLOW-UP SCHEDULE

A Remediation Report with Form C-141 will be completed and mailed within 30 days of remediation work being completed.

ARCADIS

Appendix A

Attachments


Area of light mist
SP 5
SP 1
SP 2
SP 4
SP 3

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW###### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 02348		L	LE				06	18S	35E	640791	3627548*	215	105	110
L 04796		L	LE	4	4	3	06	18S	35E	640667	3626847*	150	95	55
L 05411		L	LE		3	4	06	18S	35E	640970	3626952*	120	60	60
L 05523		L	LE	3	3	2	06	18S	35E	640855	3627660*	147	85	62
L 07119		L	LE	1	1	1	06	18S	35E	640068	3628255*	233	95	138
L 07119 S		L	LE	1	2	1	06	18S	35E	640445	3628259*	233	95	138
L 10337		L	LE	4	1	1	06	18S	35E	640268	3628055*	190	100	90
L 13041 POD1		L	LE			2	2	06	18S	35E	641152	3628026	130	
L 13041 POD2		L	LE			2	2	06	18S	35E	641152	3628026	140	
L 13041 POD3		L	LE			2	2	06	18S	35E	641152	3628026	140	
L 13041 POD4		L	LE			2	2	06	18S	35E	641152	3628026	140	

Average Depth to Water: **90 feet**

Minimum Depth: **60 feet**

Maximum Depth: **105 feet**

Record Count: 11

PLSS Search:

Section(s): 6 **Township:** 18S **Range:** 35E

*UTM location was derived from PLSS - see Help

ARCADIS

Appendix B

Photos

PHOTOGRAPH LOG

Apache Corp 1RP 4516

Warn State A/C Battery

ARCADIS Design & Consultancy for natural and built assets

Photograph: 1

Description:
Facing west viewing mist in pasture

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

Photograph: 2

Description:
Facing west viewing stain from fluid

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

PHOTOGRAPH LOG

Apache Corp 1RP 4516

Warn State A/C Battery

Photograph: 3

Description:
Facing west viewing stain from fluid

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

Photograph: 4

Description:
Facing west viewing stain from fluid

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

PHOTOGRAPH LOG

Apache Corp 1RP 4516

Warn State A/C Battery

Photograph: 5

Description:
Facing west viewing stain inside firewall

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

Photograph: 6

Description:
Facing north viewing mist in pasture

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

PHOTOGRAPH LOG

Apache Corp 1RP 4516

Warn State A/C Battery

Photograph: 7

Description:
Facing north viewing mist in pasture

Location:
Warn State A/C Battery

Photograph taken by:
Jennifer Van Curen

Date: 10/24/2016

ARCADIS

Appendix C

Laboratory Sample Results

CARDINAL Laboratories

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

November 02, 2016

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: WARN BATTERY 1RP 4516

Enclosed are the results of analyses for samples received by the laboratory on 10/27/16 16:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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 orginal 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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARN BATTERY 1RP 4516	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 1 (H602421-01)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<5.00	5.00	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	105	5.00	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	106	5.00	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	179	15.0	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	390	30.0	11/01/2016	ND					

Surrogate 4-Bromofluorobenzene (PID *112 %* *73.6-140*

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	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	3080	50.0	10/29/2016	ND	176	88.0	200	1.06	
DRO >C10-C28	9950	50.0	10/29/2016	ND	186	92.8	200	11.9	

Surrogate: 1-Chlorooctane *198 %* *35-147*

Surrogate: 1-Chlorooctadecane *240 %* *28-171*

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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARN BATTERY 1RP 4516	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 2 (H602421-02)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.575	0.500	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	15.5	0.500	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	22.9	0.500	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	44.2	1.50	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	83.2	3.00	11/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID 134 % *73.6-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1040	50.0	10/29/2016	ND	186	93.1	200	6.85	QR-03
DRO >C10-C28	6970	50.0	10/29/2016	ND	208	104	200	3.30	QR-03, QM-07

Surrogate: 1-Chlorooctane 217 % *35-147*

Surrogate: 1-Chlorooctadecane 172 % *28-171*

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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARN BATTERY 1RP 4516	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 3 (H602421-03)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**74.1**	5.00	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	**459**	5.00	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	**275**	5.00	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	**435**	15.0	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	**1240**	30.0	11/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *118 %* *73.6-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**10700**	100	10/29/2016	ND	186	93.1	200	6.85	
DRO >C10-C28	**26800**	100	10/29/2016	ND	208	104	200	3.30	

Surrogate: 1-Chlorooctane *395 %* *35-147*

Surrogate: 1-Chlorooctadecane *673 %* *28-171*

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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARN BATTERY 1RP 4516	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 4 (H602421-04)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.180	0.050	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	0.537	0.050	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	0.637	0.050	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	1.32	0.150	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	2.67	0.300	11/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID 117 % 73.6-140

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2360	16.0	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	10/29/2016	ND	186	93.1	200	6.85	
DRO >C10-C28	8320	50.0	10/29/2016	ND	208	104	200	3.30	

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 325 % 28-171

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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARN BATTERY 1RP 4516	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 5 (H602421-05)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**2.92**	1.00	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	**34.2**	1.00	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	**26.4**	1.00	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	**52.3**	3.00	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	**116**	6.00	11/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *115 %* *73.6-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**768**	16.0	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**1620**	100	10/29/2016	ND	186	93.1	200	6.85	
DRO >C10-C28	**32400**	100	10/29/2016	ND	208	104	200	3.30	

Surrogate: 1-Chlorooctane *236 %* *35-147*

Surrogate: 1-Chlorooctadecane *1220 %* *28-171*

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

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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 P.O. #:	
Project Manager:	Jennifer VanCuren	Company:	Apache
Address:		Attn:	Bruce
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	Warren Battery	Phone #:	
Project Location:	Eddy County	Fax #:	
Sampler Name:	Jennifer VanCuren		

ANALYSIS REQUEST: Chlorides; TPH; BTEX

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	PRESERV: ACID/BASE	ICE / COOL	OTHER	SAMPLING: DATE	TIME	Chlorides	TPH	BTEX
H602421																	
1	SP 1	X	1			X					X		10/24	0800	X	X	X
2	SP 2	X	1			X					X		10/24	0820	X	X	X
3	SP 3	X	1			X					X		10/24	0830	X	X	X
4	SP 4	X	1			X					X		10/24	0830	X	X	X
5	SP 5	X	1			X					X		10/24	0840	X	X	X

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

Relinquished By:	Date: 10/27/16	Received By:	Jodi Henson
Jennifer VanCuren	Time: 11:10am		
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 5.2°C

Sample Condition: Cool: Yes / No; Intact: Yes / No
CHECKED BY:

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

#75

CARDINAL Laboratories

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

April 03, 2017

JENNIFER VAN CUREN

ARCADIS U.S., INC.

2999 OAK ROAD, SUITE 300

WALNUT CREEK, CA 94597

RE: WARN STATE BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/28/17 12:56.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	04/03/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP6.1 0' (H700809-01)

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**885**	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	**6330**	50.0	03/29/2017	ND	196	98.0	200	1.72	
Surrogate: 1-Chlorooctane	*197 %*	*25.1-158*							
Surrogate: 1-Chlorooctadecane	*134 %*	*26.8-170*							

Sample ID: SP6.1 1' (H700809-02)

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**328**	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	**3270**	50.0	03/29/2017	ND	196	98.0	200	1.72	
Surrogate: 1-Chlorooctane	*127 %*	*25.1-158*							
Surrogate: 1-Chlorooctadecane	*142 %*	*26.8-170*							

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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	04/03/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP6.1 2' (H700809-03)

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	255	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	3970	50.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate: 1-Chlorooctane	*122 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*191 %*	*26.8-170*

Sample ID: SP6.1 3' REFUSAL (H700809-04)

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	85.3	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	973	50.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate: 1-Chlorooctane	*107 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*115 %*	*26.8-170*

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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	04/03/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP2 1' (H700809-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	03/29/2017	ND	448	112	400	3.51	

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	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	<10.0	10.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate 1-Chlorooctane	*85.9 %*	*25.1-158*
Surrogate 1-Chlorooctadecane	*93.8 %*	*26.8-170*

Sample ID: SP4 1' (H700809-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	03/29/2017	ND	448	112	400	3.51	

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	03/29/2017	ND	189	94.5	200	1.59	
DRO >C10-C28	**12.1**	10.0	03/29/2017	ND	197	98.7	200	1.50	

Surrogate 1-Chlorooctane	*96.5 %*	*25.1-158*
Surrogate 1-Chlorooctadecane	*106 %*	*26.8-170*

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

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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
Project Manager:	Jennifer VanCuren
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	Warn State Battery
Project Location:	N 6-18-37
Sampler Name:	Jennifer VanCuren

BILL TO

P.O. #:	
Company:	Apache
Attn:	Bruce
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	TIME	TPH	Chlorides
H700805- 01	SP Le. 1 0'	X	1			X					X		8/28/17	1120	X	
02	1'	X	1			X					X			1121	X	
03	2'	X	1			X					X			1122	X	
04	3' Retard	X	1			X					X			1123	X	
05	SP 2 1'	X	1			X					X			1130	X	X
06	SP 4 1'	X	1			X					X			1131	X	X

Relinquished By:	Date: 8/28/17	Received By:	
Jennifer VanCuren	Time: 12:56		
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

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

Sample Condition	CHECKED BY:
Cool: ☒ Yes ☐ No	(Initials)
Intact: ☒ Yes ☐ No	GK #75

4.9°C

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

CARDINAL Laboratories

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

November 02, 2016

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: WARREN BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 10/27/16 16:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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:	10/27/2016	Sampling Date:	10/26/2016
Reported:	11/02/2016	Sampling Type:	Soil
Project Name:	WARREN BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 1 (H602421-01)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<5.00	5.00	11/01/2016	ND	2.38	119	2.00	0.619	
Toluene*	105	5.00	11/01/2016	ND	2.43	122	2.00	0.0870	
Ethylbenzene*	106	5.00	11/01/2016	ND	2.35	118	2.00	0.173	
Total Xylenes*	179	15.0	11/01/2016	ND	7.09	118	6.00	0.343	
Total BTEX	390	30.0	11/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIL 112 % 73.6-140

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	11/01/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	3080	50.0	10/29/2016	ND	176	88.0	200	1.06	
DRO >C10-C28	9950	50.0	10/29/2016	ND	186	92.8	200	11.9	

Surrogate: 1-Chlorooctane 198 % 35-147

Surrogate: 1-Chlorooctadecane 240 % 28-171

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

March 29, 2017

JENNIFER VAN CUREN

ARCADIS U.S., INC.

2999 OAK ROAD, SUITE 300

WALNUT CREEK, CA 94597

RE: WARN STATE BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/28/17 12:56.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	03/29/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP7 - 0' (H700808-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	**1540**	50.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate: 1-Chlorooctane	*64.3 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*166 %*	*26.8-170*

Sample ID: SP7 - 1' (H700808-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	**2250**	50.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate: 1-Chlorooctane	*81.4 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*47.2 %*	*26.8-170*

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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	03/29/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP7 - 1.5' REFUSAL (H700808-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**88.8**	50.0	03/29/2017	ND	183	91.5	200	1.44	
DRO >C10-C28	**3250**	50.0	03/29/2017	ND	196	98.0	200	1.72	

Surrogate: 1-Chlorooctane	*94.3 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*58.4 %*	*26.8-170*

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	BILL TO
Project Manager: Jennifer Van Curen	P.O. #:
Address:	Company: Apache
City: State: Zip:	Attn: Bruce
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: Warn State Battery	State: Zip:
Project Location: N-16-18-35	Phone #:
Sampler Name: Jennifer Van Curen	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		TCLP
H700808-01	SP7 - 0'	X	1			X					X		3/28/17	1230	X	X
02	SP7 - 1'	X	1			X					X			1857	X	X
03	SP7 - 1.5 Refusal	X	1			X					X			1252	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: 3/28/17	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 1215	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS:
	Time:		
Delivered By: (Circle One)	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other: 4.9°C			

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

CARDINAL Laboratories

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

April 03, 2017

JENNIFER VAN CUREN

ARCADIS U.S., INC.

2999 OAK ROAD, SUITE 300

WALNUT CREEK, CA 94597

RE: WARN STATE BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/28/17 12:56.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	04/03/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP9.1 0' (H700810-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	03/29/2017	ND	448	112	400	3.51	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	03/29/2017	ND	189	94.5	200	1.59	
DRO >C10-C28	4310	50.0	03/29/2017	ND	197	98.7	200	1.50	

Surrogate: 1-Chlorooctane	*87.6 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*140 %*	*26.8-170*

Sample ID: SP9.1 1' (H700810-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/29/2017	ND	448	112	400	3.51	

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	03/29/2017	ND	189	94.5	200	1.59	
DRO >C10-C28	56.0	10.0	03/29/2017	ND	197	98.7	200	1.50	

Surrogate: 1-Chlorooctane	*88.4 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*89.5 %*	*26.8-170*

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:

ARCADIS U.S., INC.
JENNIFER VAN CUREN
2999 OAK ROAD, SUITE 300
WALNUT CREEK CA, 94597
Fax To: NOT GIVEN

Received:	03/28/2017	Sampling Date:	03/28/2017
Reported:	04/03/2017	Sampling Type:	Soil
Project Name:	WARN STATE BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	N-6-18-35		

Sample ID: SP9.1 2' (H700810-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	03/29/2017	ND	448	112	400	3.51	

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	03/29/2017	ND	189	94.5	200	1.59	
DRO >C10-C28	<10.0	10.0	03/29/2017	ND	197	98.7	200	1.50	

Surrogate: 1-Chlorooctane	*80.4 %*	*25.1-158*
Surrogate: 1-Chlorooctadecane	*88.1 %*	*26.8-170*

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: Jennifer VanCleave		P.O. #:	
Address:		Company: Apache	
City:	State: Zip:	Attn: Bruce	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name: Warren State Battery		State: Zip:	
Project Location: N-16-18-35		Phone #:	
Sampler Name: Jennifer VanCleave		Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	PRESERV: ACID/BASE	ICE / COOL	OTHER	SAMPLING: DATE	TIME	TPH	Chloride
H700810-01	SP 2.1 0'	X	1			X					X		3/28/17	1240	X	X
02	SP 2.1 1'	X	1			X					X		3/28/17	1241	X	X
03	SP 2.1 2'	X	1			X					X		3/28/17	1242	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

Relinquished By:	Date: 3/29/17	Received By:	Phone Result: ☐ Yes ☐ No	Add'l Phone #:
Relinquished By:	Time: 12:56	Received By:	Fax Result: ☐ Yes ☐ No	Add'l Fax #:
	Date:		REMARKS:	
	Time:			
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 4.9°C		Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) Cool #75	

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

Appendix C

OCD Communications

Baker, Larry

From: Groves, Amber <agroves@slo.state.nm.us>
Sent: Thursday, February 23, 2017 1:12 PM
To: Van Curen, Jennifer; Yu, Olivia, EMNRD
Cc: Oberding, Tomas, EMNRD; Baker, Larry
Subject: RE: 1RP 4516 Apache Corp Warn State AC Battery 10-10-16
Attachments: February 23, 2017 007.JPG

Good Morning, Jennifer,

Attached, please see a photo taken this morning in the overspray area of product on the ground. NMSLO is in agreement with the conditions set forth by NMOCD and would like to request representative soil sampling in the overspray area. Please run for CL, TPH and BTEX.

Thank you,

Amber Groves
Remediation Specialist
Field Operations Division
(575)392-3697
(575)263-3209 cell
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88260

-----Original Message-----
From: Van Curen, Jennifer [mailto:Jennifer.VanCuren@arcadis.com]
Sent: Monday, February 20, 2017 3:39 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>; Groves, Amber <agroves@slo.state.nm.us>
Subject: Re: 1RP 4516 Apache Corp Warn State AC Battery 10-10-16

Hi Olivia,

I had spoken to Tomas on this one and the plan was to delineate with PID as we do the cleanup and send a bottom and side walls to lab. Everything should be right at surface due to ground hardness. We will also delineate inside the firewall area. The pasture doesn't have any hydrocarbon on the ground. It is only on the vegetation. I will go ahead and grab a sample if you feel it is necessary.
I will make the changes to the plan for approval to start work.

Thanks,

Jennifer

Sent from my iPhone

> On Feb 20, 2017, at 2:07 PM, Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us> wrote:
>
> Dear Ms. Van Curen:
>
> Please address the following concerns with the workplan for 1RP-4516.
>
> 1. Complete vertical delineation until permissible BTEX, TPH, and Chloride levels are achieved.
> 2. There appears to be some pooling around SP3. Request another sample point north of SP3 (within berm).
> 3. Obtain a soil sample within the area where the vegetation was misted with oil.
>
> Thanks,
>
> Olivia Yu
> Environmental Specialist
> NMOCD, District I
> Olivia.yu@state.nm.us
> 575-393-6161 x113
>
> OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.
>
>
>
>
> -----Original Message-----
> From: Van Curen, Jennifer [mailto:Jennifer.VanCuren@arcadis.com]
> Sent: Tuesday, January 31, 2017 12:36 PM
> To: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>
> Cc: 'agroves@slo.state.nm.us' <agroves@slo.state.nm.us>; Yu, Olivia,
> EMNRD <Olivia.Yu@state.nm.us>
> Subject: 1RP 4516 Apache Corp Warn State AC Battery 10-10-16
>
>
>
> Resending with OCD release number on the pages as requested.
>
> Please find attached plan for the Warn State AC battery.
>

>
>
> Your message is ready to be sent with the following file or link attachments:
>
> Binder1.pdf
>
>
> Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.
> This e-mail and any files transmitted with it are the property of Arcadis. All rights, including without limitation copyright, are reserved. This e-mail contains information which may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not the intended recipient(s) please note that any form of distribution, copying or use of this communication or the information in it is strictly prohibited and may be unlawful. If you have received this communication in error please return it to the sender and then delete the e-mail and destroy any copies of it. Whilst reasonable precautions have been taken to ensure no software viruses are present in our emails we cannot guarantee that this e-mail or any attachment is virus-free or has not been intercepted or changed. Any opinions or other information in this e-mail that do not relate to the official business of Arcadis are neither given nor endorsed by it.

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This email has been scanned by the Symantec Email Security.cloud service.
For more information please visit https://urldefense.proofpoint.com/v2/url?u=http-3A__www.symanteccloud.com&d=DwIFAw&c=dbuucrGIs9xXk6Z5aWDgzQ&r=bhTyka8Jnva1WGpZhi63j83ilRSlUBr3E_uWI9VT2G0&m=nqGajBBUj3CPfP2nKfeXGNvtS4zeuHDrwzmWZ-07HEE&s=BPOrYxQ5BmrCvIQCBKnhT1rVIeED9ytmyCJKej_X0G0&e=

Baker, Larry

From: Groves, Amber <agroves@slo.state.nm.us>
Sent: Wednesday, July 05, 2017 3:09 PM
To: Yu, Olivia, EMNRD; 'Van Curen, Jennifer'
Cc: Billings, Bradford, EMNRD; Baker, Larry
Subject: RE: 1RP-4516 Warn State A/C Battery

Good Afternoon,

As Apache is proposing tilling at SP9, a noxious weed plan without a full revegetation plan is insufficient. Please revise your work plan accordingly and re-submit for approval.

Thank you,

Amber Groves
Remediation Specialist
Field Operations Division
(575)392-3697
(575)263-3209 cell
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88260

-----Original Message-----
From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Monday, July 03, 2017 10:59 AM
To: 'Van Curen, Jennifer' <Jennifer.VanCuren@arcadis.com>
Cc: Groves, Amber <agroves@slo.state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Larry Baker <Larry.Baker@apachecorp.com>
Subject: RE: 1RP-4516 Warn State A/C Battery

Ms. Van Curen:

Thank you for your prompt response with the additional information. If you have written communication between you and Tomáš, please send them to me.

Olivia

-----Original Message-----
From: Van Curen, Jennifer [mailto:Jennifer.VanCuren@arcadis.com]
Sent: Monday, July 3, 2017 9:44 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Groves, Amber <agroves@slo.state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Larry Baker <Larry.Baker@apachecorp.com>
Subject: Re: 1RP-4516 Warn State A/C Battery

Hi Olivia,
This area has a solid layer of rock that is very shallow. The bottom sample is the soil scraped from that rock layer.

I discussed this one with Tomas sometime ago and he was fine with addressing it at abandonment due to the equipment and lines and the sheer difficulty of getting through material and getting samples other than rock. I attached a photo of the bottom of one of the samples points to the report and it will show a solid white area. I can also send you a video where the backhoe did try to break through and was not successful with even cracking the rock.

I will look for the video as soon as I return from the field to send you. We did make a long driven effort to go deeper.

Thank you for your time to help us find a solution to this site and others in the same area. We realize that this site will remain open until and after abandonment and are in approval of this action.

Thanks again.

Jennifer

Sent from my iPhone

> On Jul 3, 2017, at 10:08 AM, Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us> wrote:
>
> Dear Ms. Van Curen:
>
> Please address these concerns regarding 1RP-4516:
>
> 1. Vertical and horizontal delineation at sample locations SP1 - SP5 are not complete. At 6" bgs, all sample location exceed permissible TPH levels, BTEX levels are exceeded at all sample locations except SP4, and chloride levels are exceeded at SP4 and 5. Vertical and horizontal delineation must be advanced until permissible levels are obtained for BTEX, TPH, and chlorides at SP1- SP5. Permissible levels must be obtained and maintained for a minimum of 2 ft. further in depth.
> 2. SP6 and SP7 exceeds permissible TPH levels. Further vertical delineation is required.
> 3. All confirmation bottom and sidewall samples must have BTEX, TPH, and chloride analyzed.
>
> Thanks,
> Olivia
>
>
> -----Original Message-----
> From: Van Curen, Jennifer [mailto:Jennifer.VanCuren@arcadis.com]
> Sent: Monday, June 19, 2017 10:12 AM
> To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; Oberding, Tomas, EMNRD
> <Tomas.Oberding@state.nm.us>

> Cc: Groves, Amber <agroves@slo.state.nm.us>
> Subject: RE: 1RP-4516 Warn State A/C Battery
>
> Olivia,
> I checked on this and found that it did not get sent out. Thanks
>
> Jennifer Van Curen
> T. 432.217.2699
> C. 432.270.8753
> ARCADIS, Imagine the result
> Please consider the environment before printing this email.
>
> Connect with us! https://urldefense.proofpoint.com/v2/url?u=http-3A__www.arcadis.com&d=DwIFBA&c=dbuucrGls9xXk6Z5aWDgzQ&r=bhTyka8Jnva1WGpZhi63j83ilRSlUBr3E_uWI9VT2G0&m=DqGNF6wOx0ufLKIxFcuahFn0Bnh9tbCmRK4GpcBhL6M&s=rujZxS0d0clYjXvIh-KBj-GGwVZpNb1AjX0fSc1rltI&e= | LinkedIn | Twitter | Facebook
>
> Be green, leave it on the screen.
>
> -----Original Message-----
> From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
> Sent: Tuesday, June 06, 2017 11:07 AM
> To: Van Curen, Jennifer <Jennifer.VanCuren@arcadis.com>; Oberding,
> Tomas, EMNRD <Tomas.Oberding@state.nm.us>
> Cc: Groves, Amber <agroves@slo.state.nm.us>
> Subject: RE: 1RP-4516 Warn State A/C Battery
>
> Ms. Van Curen:
>
> The provided image in the report for 1RP-4516 is not clear. Please include a scaled map with sample locations visible.
>
> Thanks,
> Olivia
>
> -----Original Message-----
> From: Van Curen, Jennifer [mailto:Jennifer.VanCuren@arcadis.com]
> Sent: Thursday, May 11, 2017 11:59 AM
> To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; Oberding, Tomas, EMNRD
> <Tomas.Oberding@state.nm.us>
> Subject: 1RP-4516 Warn State A/C Battery
>
> Olivia,
>
> Please see the attached revised plan with further sampling completed
> you had requested. We will complete remediation after approval.
> Thanks
>
> Jennifer
>

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Appendix D

Laboratory Report

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Warn State A/C Battery
Project Number: 19-0112-47
Location: Warn State A/C Battery

Lab Order Number: 9H29015

NELAP/TCEQ # T104704516-18-9

Report Date: 09/09/19

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP-5 (0')	9H29015-01	Soil	08/28/19 12:36	08-29-2019 11:00
SP-5 (5')	9H29015-02	Soil	08/28/19 12:38	08-29-2019 11:00
SP-5 (10')	9H29015-03	Soil	08/28/19 12:41	08-29-2019 11:00
SP-5 (15')	9H29015-04	Soil	08/28/19 12:48	08-29-2019 11:00
SP-5 (20')	9H29015-05	Soil	08/28/19 12:50	08-29-2019 11:00
SP-5 (25')	9H29015-06	Soil	08/28/19 12:54	08-29-2019 11:00
SP-5 (30')	9H29015-07	Soil	08/28/19 12:57	08-29-2019 11:00

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (0')

9H29015-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.0208	mg/kg dry	20	P9I0302	09/03/19	09/05/19	EPA 8021B	
Toluene	ND	0.0208	mg/kg dry	20	P9I0302	09/03/19	09/05/19	EPA 8021B	
Ethylbenzene	ND	0.0208	mg/kg dry	20	P9I0302	09/03/19	09/05/19	EPA 8021B	
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P9I0302	09/03/19	09/05/19	EPA 8021B	
Xylene (o)	ND	0.0208	mg/kg dry	20	P9I0302	09/03/19	09/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*116 %*	*75-125*		*P9I0302*	*09/03/19*	*09/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*80.1 %*	*75-125*		*P9I0302*	*09/03/19*	*09/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**4.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	260	mg/kg dry	10	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	**8730**	260	mg/kg dry	10	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	**2650**	260	mg/kg dry	10	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*84.5 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*93.4 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**11400**	260	mg/kg dry	10	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (5')

9H29015-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.0217	mg/kg dry	20	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.0217	mg/kg dry	20	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.0217	mg/kg dry	20	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*82.2 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*116 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**8.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**180**	27.2	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	**2480**	27.2	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	**368**	27.2	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*123 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**3030**	27.2	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (10')

9H29015-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*86.5 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**9.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (15')

9H29015-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*82.9 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*105 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (20')

9II29015-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*94.2 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*80.2 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**9.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*124 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*131 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (25')

9II29015-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*115 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.7 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*124 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*132 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Larson & Associates, Inc	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

SP-5 (30')

9H29015-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9I0302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*86.3 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P9I0302*	*09/03/19*	*09/04/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**7.0**	0.1	%	1	P9H3002	08/30/19	08/30/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9H2908	08/29/19	09/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.8 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*101 %*	*70-130*		*P9H2908*	*08/29/19*	*09/01/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/29/19	09/01/19	calc	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9I0302 - General Preparation (GC)										
Blank (P9I0302-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0984*		"	*0.120*		*82.0*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.123*		"	*0.120*		*103*	*75-125*			
LCS (P9I0302-BS1)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0879	0.00100	mg/kg wet	0.100		87.9	70-130			
Toluene	0.0972	0.00100	"	0.100		97.2	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.209	0.00200	"	0.200		104	70-130			
Xylene (o)	0.105	0.00100	"	0.100		105	70-130			
Surrogate: 4-Bromofluorobenzene	*0.131*		"	*0.120*		*109*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.128*		"	*0.120*		*107*	*75-125*			
LCS Dup (P9I0302-BSD1)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0968	0.00100	mg/kg wet	0.100		96.8	70-130	9.58	20	
Toluene	0.104	0.00100	"	0.100		104	70-130	6.50	20	
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130	1.18	20	
Xylene (p/m)	0.216	0.00200	"	0.200		108	70-130	3.28	20	
Xylene (o)	0.113	0.00100	"	0.100		113	70-130	7.03	20	
Surrogate: 1,4-Difluorobenzene	*0.121*		"	*0.120*		*101*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.122*		"	*0.120*		*102*	*75-125*			
Calibration Blank (P9I0302-CCB1)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.122*		"	*0.120*		*102*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.107*		"	*0.120*		*89.2*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Warn State A/C Battery
Project Number: 19-0112-47
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9I0302 - General Preparation (GC)										
Calibration Blank (P9I0302-CCB2)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.134*		"	*0.120*		*111*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.101*		"	*0.120*		*84.0*	*75-125*			
Calibration Blank (P9I0302-CCB3)				Prepared: 09/03/19 Analyzed: 09/05/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.0964*		"	*0.120*		*80.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.135*		"	*0.120*		*112*	*75-125*			
Calibration Check (P9I0302-CCV1)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0819	0.00100	mg/kg wet	0.100		81.9	80-120			
Toluene	0.0885	0.00100	"	0.100		88.5	80-120			
Ethylbenzene	0.0922	0.00100	"	0.100		92.2	80-120			
Xylene (p/m)	0.172	0.00200	"	0.200		86.1	80-120			
Xylene (o)	0.0978	0.00100	"	0.100		97.8	80-120			
Surrogate: 1,4-Difluorobenzene	*0.120*		"	*0.120*		*99.9*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.114*		"	*0.120*		*95.0*	*75-125*			
Calibration Check (P9I0302-CCV2)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0987	0.00100	mg/kg wet	0.100		98.7	80-120			
Toluene	0.114	0.00100	"	0.100		114	80-120			
Ethylbenzene	0.119	0.00100	"	0.100		119	80-120			
Xylene (p/m)	0.235	0.00200	"	0.200		118	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: 1,4-Difluorobenzene	*0.135*		"	*0.120*		*113*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.139*		"	*0.120*		*115*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9I0302 - General Preparation (GC)										
Calibration Check (P9I0302-CCV3)				Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0870	0.00100	mg/kg wet	0.100		87.0	80-120			
Toluene	0.105	0.00100	"	0.100		105	80-120			
Ethylbenzene	0.113	0.00100	"	0.100		113	80-120			
Xylene (p/m)	0.216	0.00200	"	0.200		108	80-120			
Xylene (o)	0.116	0.00100	"	0.100		116	80-120			
Surrogate: 1,4-Difluorobenzene	*0.125*		"	*0.120*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.135*		"	*0.120*		*113*	*75-125*			
Matrix Spike (P9I0302-MS1)		**Source: 9H30018-01**		Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0653	0.00103	mg/kg dry	0.103	ND	63.4	80-120			QM-05
Toluene	0.0812	0.00103	"	0.103	ND	78.7	80-120			QM-05
Ethylbenzene	0.0976	0.00103	"	0.103	ND	94.7	80-120			
Xylene (p/m)	0.149	0.00206	"	0.206	ND	72.2	80-120			QM-05
Xylene (o)	0.0713	0.00103	"	0.103	ND	69.2	80-120			QM-05
Surrogate: 1,4-Difluorobenzene	*0.126*		"	*0.124*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.142*		"	*0.124*		*115*	*75-125*			
Matrix Spike Dup (P9I0302-MSD1)		**Source: 9H30018-01**		Prepared: 09/03/19 Analyzed: 09/04/19						
Benzene	0.0675	0.00103	mg/kg dry	0.103	ND	65.4	80-120	3.20	20	QM-05
Toluene	0.0853	0.00103	"	0.103	ND	82.7	80-120	4.95	20	
Ethylbenzene	0.102	0.00103	"	0.103	ND	99.2	80-120	4.72	20	
Xylene (p/m)	0.158	0.00206	"	0.206	ND	76.6	80-120	5.94	20	QM-05
Xylene (o)	0.0823	0.00103	"	0.103	ND	79.9	80-120	14.3	20	QM-05
Surrogate: 1,4-Difluorobenzene	*0.126*		"	*0.124*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.138*		"	*0.124*		*111*	*75-125*			

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9I3002 - * DEFAULT PREP *** **										
Blank (P9I3002-BLK1)				Prepared & Analyzed: 08/30/19						
% Moisture	ND	0.1	%							
Duplicate (P9I3002-DUP1)		Source: 9I29005-09		Prepared & Analyzed: 08/30/19						
% Moisture	1.0	0.1	%		1.0			0.00	20	
Duplicate (P9I3002-DUP2)		Source: 9I29012-01		Prepared & Analyzed: 08/30/19						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P9H3002-DUP3)		Source: 9I29015-07		Prepared & Analyzed: 08/30/19						
% Moisture	7.0	0.1	%		7.0			0.00	20	

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P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9H2908 - TX 1005										
Blank (P9H2908-BLK1)				Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*96.7*		"	*100*		*96.7*	*70-130*			
Surrogate: o-Terphenyl	*51.3*		"	*50.0*		*103*	*70-130*			
LCS (P9H2908-BS1)				Prepared: 08/29/19 Analyzed: 08/31/19						
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125			
>C12-C28	1140	25.0	"	1000		114	75-125			
Surrogate: 1-Chlorooctane	*102*		"	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*54.0*		"	*50.0*		*108*	*70-130*			
LCS Dup (P9H2908-BSD1)				Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	1180	25.0	mg/kg wet	1000		118	75-125	4.19	20	
>C12-C28	1130	25.0	"	1000		113	75-125	0.647	20	
Surrogate: 1-Chlorooctane	*97.3*		"	*100*		*97.3*	*70-130*			
Surrogate: o-Terphenyl	*46.6*		"	*50.0*		*93.2*	*70-130*			
Calibration Blank (P9H2908-CCB1)				Prepared: 08/29/19 Analyzed: 08/31/19						
C6-C12	7.13		mg/kg wet							
>C12-C28	16.2		"							
Surrogate: 1-Chlorooctane	*96.5*		"	*100*		*96.5*	*70-130*			
Surrogate: o-Terphenyl	*51.7*		"	*50.0*		*103*	*70-130*			
Calibration Blank (P9H2908-CCB2)				Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	6.41		mg/kg wet							
>C12-C28	18.8		"							
Surrogate: 1-Chlorooctane	*95.6*		"	*100*		*95.6*	*70-130*			
Surrogate: o-Terphenyl	*51.2*		"	*50.0*		*102*	*70-130*			

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9H2908 - TX 1005										
Calibration Check (P9H2908-CCV1)				Prepared: 08/29/19 Analyzed: 08/31/19						
C6-C12	544	25.0	mg/kg wet	500		109	85-115			
>C12-C28	574	25.0	"	500		115	85-115			
Surrogate: 1-Chlorooctane	*120*		"	*100*		*120*	*70-130*			
Surrogate: o-Terphenyl	*51.0*		"	*50.0*		*102*	*70-130*			
Calibration Check (P9H2908-CCV2)				Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	538	25.0	mg/kg wet	500		108	85-115			
>C12-C28	562	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	*116*		"	*100*		*116*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		"	*50.0*		*100*	*70-130*			
Calibration Check (P9H2908-CCV3)				Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	573	25.0	mg/kg wet	500		115	85-115			
>C12-C28	533	25.0	"	500		107	85-115			
Surrogate: 1-Chlorooctane	*118*		"	*100*		*118*	*70-130*			
Surrogate: o-Terphenyl	*50.9*		"	*50.0*		*102*	*70-130*			
Duplicate (P9H2908-DUP1)	**Source: 9H29019-05**			Prepared: 08/29/19 Analyzed: 09/01/19						
C6-C12	ND	25.8	mg/kg dry		10.7				20	
>C12-C28	18.4	25.8	"		14.2			26.0	20	
Surrogate: 1-Chlorooctane	*108*		"	*103*		*104*	*70-130*			
Surrogate: o-Terphenyl	*58.1*		"	*51.5*		*113*	*70-130*			

Larson & Associates, Inc.	Project: Warn State A/C Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-47	
Midland TX, 79710	Project Manager: Mark Larson	

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 9/9/2019

Brent Barron, Laboratory Director/Technical Director

Nº 0726

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8-29-2019 PAGE 1 OF 1
PO#: LAB WORK ORDER#: 9H29015
PROJECT LOCATION OR NAME: Warn State A/C Bg 7
LAI PROJECT #: 19-0112-47 COLLECTOR: RO

TRRP report? ☐ Yes ☒ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

TIME ZONE: Time zone/State: MST

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
SP-5 (0')	1	8-28-19	12:36	S	1				X		X	
(5')	2		12:38								X	
(10')	3		12:41								X	
(15')	4		12:48								X	
(20')	5		12:50								X	
(25')	6		12:54									
(30')	7		12:57									

ANALYSES: ☒ BTEX ☐ MTBE ☐ TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☒ DIESEL - MOD 8015 ☒ OIL - MOD 8015 ☒ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐

TOTAL 7

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 8-29-19 / 11:00 RECEIVED BY:(Signature) Jessa Bledsoe

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY:(Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

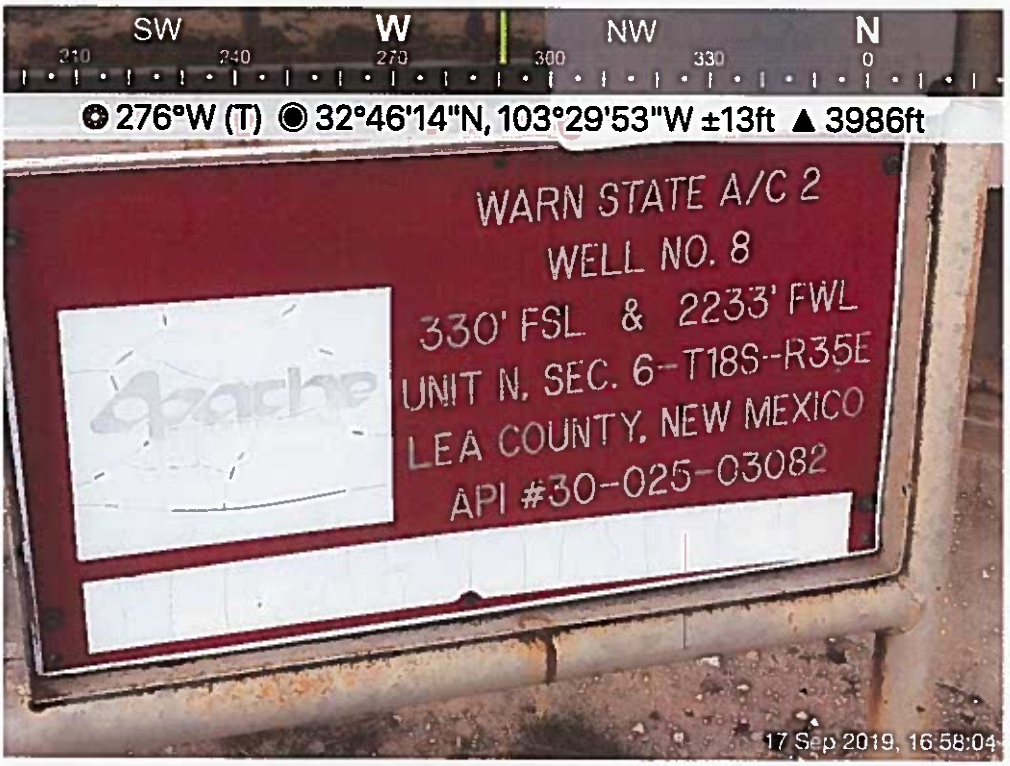
LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 4.2 5.2 THERM#: CF#1 L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Appendix E

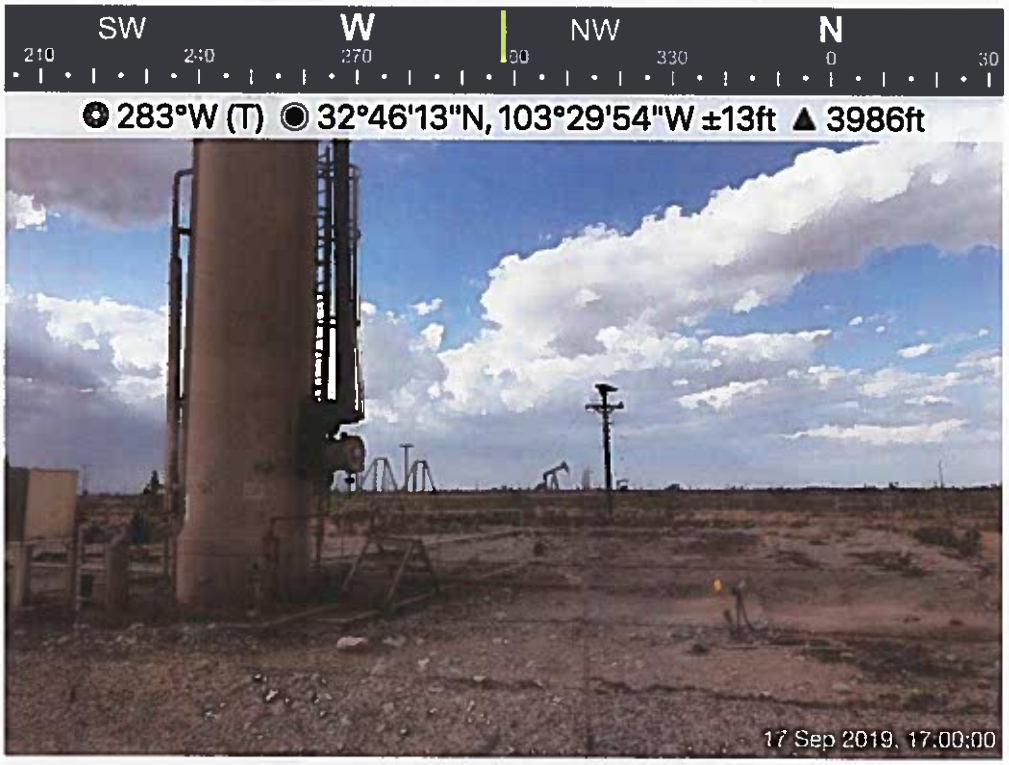
Photographs



Warn State AC Facility Location, September 17, 2019

Site Viewing Southwest, September 17, 2019

1RP-4516
Warn State AC Battery
9/20/2019



Site Viewing Northwest, September 17, 2019

SP 5 sample point Viewing Southwest, September 17, 2019

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Apache Corporation	OGRID 873
Contact Name Bruce Baker	Contact Telephone 432-631-6982
Contact email Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)* 1RP-4516
Contact mailing address 2350 West Marland Blvd. Hobbs, New Mexico 88240	

Location of Release Source

Latitude 32.77060° N Longitude -103.49812° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Warn State A/C Battery	Site Type Tank Battery
Date Release Discovered 10/10/2016	API# *(if applicable)* 30-025-03082

Unit Letter	Section	Township	Range	County
N	6	18S	35E	Lea

Surface Owner: [x] State [ ] Federal [ ] Tribal [ ] Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

[x] Crude Oil	Volume Released (bbls) 50 bbls	Volume Recovered (bbls) 40 bbls
[x] Produced Water	Volume Released (bbls) 30 bbls	Volume Recovered (bbls) 20 bbls
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	[ ] Yes [ ] No
[ ] Condensate	Volume Released (bbls)	Volume Recovered (bbls)
[ ] Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
[ ] Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
The release was caused due to a gasket failure on the heater treater.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? [X] Yes [ ] No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls of liquid.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Bruce Baker notified Kristen Lynch (NMOCD) on 10/11/2016 at 15:23 via phone and email.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- [X] The source of the release has been stopped.
- [X] The impacted area has been secured to protect human health and the environment.
- [X] Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- [X] All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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: Sr. Environmental Tech

Signature: Bruce Baker Date: 9/27/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

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?	60 (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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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: Sr. Environmental Tech

Signature: Bruce Baker Date: 9/27/2019

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.***

- [x] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [x] Extents of contamination must be fully delineated.
- [x] 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: Sr. Environmental Tech

Signature: Bruce Baker Date: 9/27/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [x] Approved with Attached Conditions of Approval
- [ ] Denied
- [x] Deferral Approved With Conditions

Signature: Bradford Billings Date: 05/21/2020

At least two soil samples from surface or nearly so must be taken for hydrocarbons in the pasutre area. If needed this secton to be reclaimed, or deemed clean. When this is done, Apache may defer the locations indictaed for remdiation until P&A or other opportunity avails.