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1 RP-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 Description of the study population	Table 2 Description of the study population
<p>Table 1: Description of the study population. The table contains demographic and clinical data for the study population. The data is presented in a tabular format with columns for variables and rows for the population characteristics.</p>	<p>Table 2: Description of the study population. The table contains demographic and clinical data for the study population. The data is presented in a tabular format with columns for variables and rows for the population characteristics.</p>

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

Page 1 of 1

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-5	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 80218 (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

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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
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LOCATION OF RELEASE

Unit Letter N	Section 6	Township 18S	Range 35E	Feet from the 330	North/South Line FSL	Feet from the 2233	East/West Line FWL	County Lea
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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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

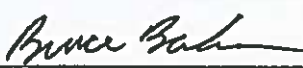
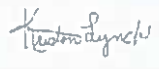
If a Watercourse was Impacted, Describe Fully.*

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: 	OIL CONSERVATION DIVISION	
Printed Name: Bruce Baker	Approved by Environmental Specialist: 	
Title: Environmental Technician	Approval Date: 11/22/2016	Expiration Date: 1/22/2017
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval: Please see attached directive	Attached <input type="checkbox"/> IRP 4516
Date: 10/24/2016	Phone: (432) 631-6982	

* Attach Additional Sheets If Necessary

nKL1632730937
pKL1632731127

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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

10/1/2017

10/1/2017



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
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Our Ref
MT001200.0000.0000

Date
January 31, 2017

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**WARN STATE A/C
BATTERY**

**Remediation
Plan Proposal**

Apache
Corporation
Lea County, New Mexico

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**WARN STATE A/C
BATTERY**

**Remediation
Plan Proposal
1RP 4516**

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

**WARN STATE A/C
BATTERY**

**Remediation
Plan Proposal
1RP 4516**

Apache
Corporation
Lea County, New Mexico

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:

**WARN STATE A/C
BATTERY**

**Remediation
Plan Proposal
1RP 4516**

Apache
Corporation
Lea County, New Mexico

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.



Appendix A

Attachments





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
<u>L 02348</u>	L	LE					06	18S	35E	640791	3627548*	215	105	110
<u>L 04796</u>	L	LE	4	4	3	06		18S	35E	640667	3626847*	150	95	55
<u>L 05411</u>	L	LE		3	4	06		18S	35E	640970	3626952*	120	60	60
<u>L 05523</u>	L	LE	3	3	2	06		18S	35E	640855	3627660*	147	85	62
<u>L 07119</u>	L	LE	1	1	1	06		18S	35E	640068	3628255*	233	95	138
<u>L 07119 S</u>	L	LE	1	2	1	06		18S	35E	640445	3628259*	233	95	138
<u>L 10337</u>	L	LE	4	1	1	06		18S	35E	640268	3628055*	190	100	90
<u>L 13041 POD1</u>	L	LE		2	2	06		18S	35E	641152	3628026	130		
<u>L 13041 POD2</u>	L	LE		2	2	06		18S	35E	641152	3628026	140		
<u>L 13041 POD3</u>	L	LE		2	2	06		18S	35E	641152	3628026	140		
<u>L 13041 POD4</u>	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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

12/18/16 10:30 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



Appendix B

Photos

PHOTOGRAPH LOG

Apache Corp 1RP 4516

Warn State A/C Battery



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



Appendix C

Laboratory Sample Results



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 accredited 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
Lab Director/Quality Manager



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
Reported: 11/02/2016
Project Name: WARN BATTERY 1RP 4516
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

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 (PIC) 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

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Celey D. Keene, Lab Director/Quality Manager



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
Reported: 11/02/2016
Project Name: WARN BATTERY IRP 4516
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 2 (H602421-02)

BTEX 88218		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 (PIC) 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					

Surrogate 1-Chlorooctane 217 % 35-147

Surrogate 1-Chlorooctadecane 172 % 28-171

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Celey D. Keene
Celey D. Keene, Lab Director/Quality Manager



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
Reported: 11/02/2016
Project Name: WARN BATTERY 1RP 4516
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

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 (PIC) 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					
				5-06					

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

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Analytical Results For:

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

Received: 10/27/2016
Reported: 11/02/2016
Project Name: WARN BATTERY 1RP 4516
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

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 (PIC) 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: HS					
				S-06					

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 325 % 28-171

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Celey D. Keene
Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 10/27/2016
Reported: 11/02/2016
Project Name: WARN BATTERY IRP 4516
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 5 (H602421-05)

BTX 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 BTX	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

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Celey D. Keene, Lab Director/Quality Manager

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 of 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

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL
Laboratories

101 East Maryland, Hobbs, NM 88240
(576) 393-2328 FAX (576) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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-B. 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 accredited 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
Lab Director/Quality Manager



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
Reported: 04/03/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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							

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Celey D. Keene
Celey D. Keene, Lab Director/Quality Manager



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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
Reported: 04/03/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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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
Reported: 04/03/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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							

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Celey D. Keene, Lab Director/Quality Manager



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-8 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

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Celey D. Keene, Lab Director/Quality Manager



Page 6 of 6

(676) 393-2328 FAX (676) 393-2476

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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_accr_cred_certif.html.

Cardinal Laboratories is accredited 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
Lab Director/Quality Manager



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
Reported: 11/02/2016
Project Name: WARREN BATTERY
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/26/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 1 (H602421-01)

BTX 80218			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 BTX	390	30.0	11/01/2016	ND					

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

Chloride, SM4500Cl-8			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

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C. D. Keene
Celey D. Keene, Lab Director/Quality Manager



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 accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Halocetic 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,

A handwritten signature in black ink that reads "Coley D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene
Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBBS, 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
Reported: 03/29/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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							

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Celey D. Keene, Lab Director/Quality Manager



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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
Reported: 03/29/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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

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Celey D. Keene
Celey D. Keene, Lab Director/Quality Manager



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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 SM4500C-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

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Coley D. Keene
Coley D. Keene, Lab Director/Quality Manager



ANALYSIS REQUEST

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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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' at the beginning.

Celey D. Keene
Lab Director/Quality Manager



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
Reported: 04/03/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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 89.3 % 26.8-170

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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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
Reported: 04/03/2017
Project Name: WARN STATE BATTERY
Project Number: NONE GIVEN
Project Location: N-6-18-35

Sampling Date: 03/28/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

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

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Celey D. Keene, Lab Director/Quality Manager



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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

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



(575) 383-2378 FAX (575) 383-2476

Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #
REMARKS:			

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

.....
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-----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.

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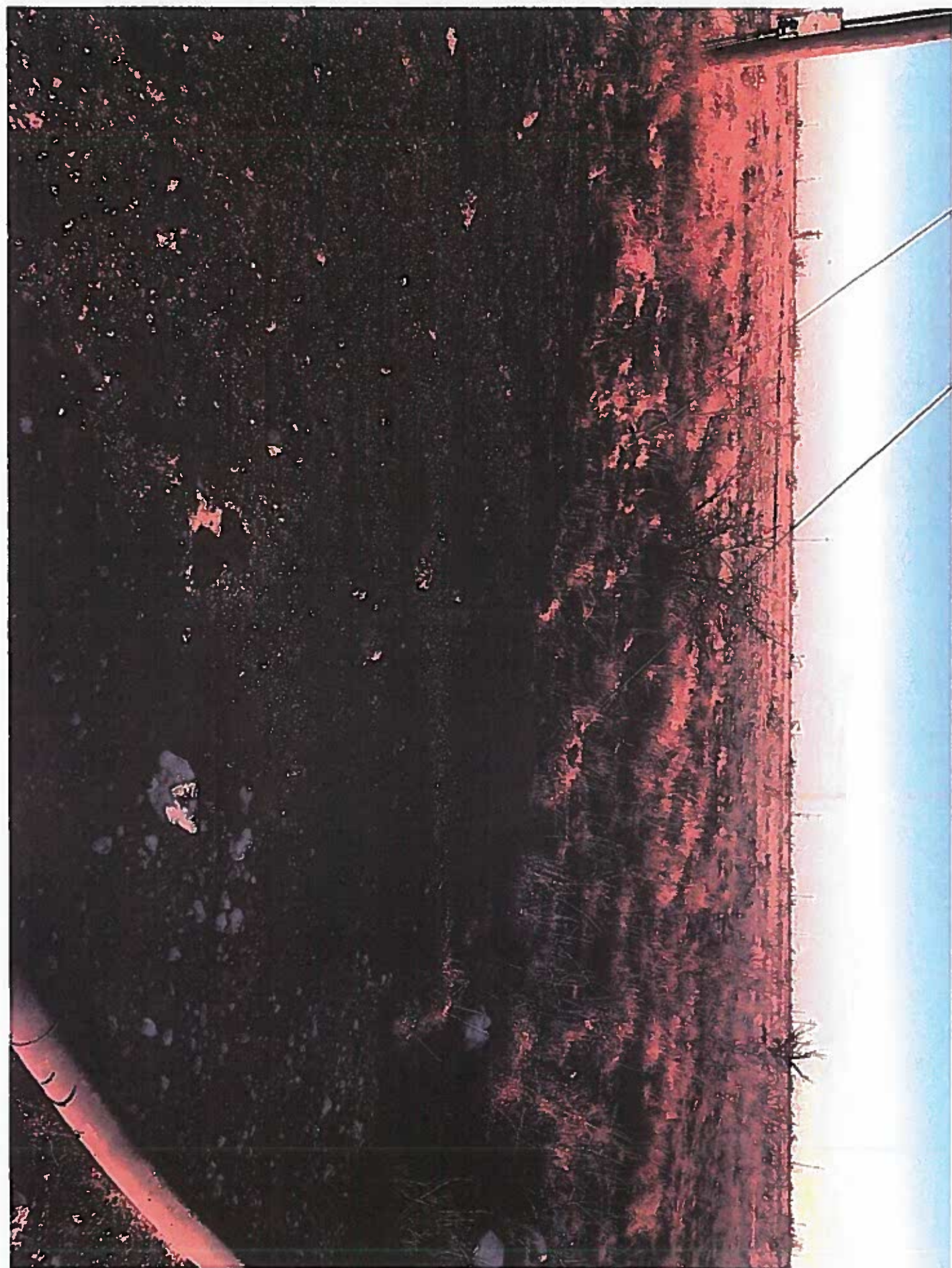
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Baker, Larry

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

.....
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-----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=bhTyka8Jnva1WGpZhi63j83ilRSIU8r3E_uWI9VT2G0&m=DqGNF6wOxOufLKlxFcuahFn0Bnh9tbCmRK4GpcBhL6M&s=rUjZxS0d0cIYjXvIh-KBj-GGwVZpNb1AjX0fSc1rItI&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**



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.
P.O. Box 50685
Midland TX, 79710

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

Fax: (432) 687-0456

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.
P.O. Box 50685
Midland TX, 79710

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

Fax: (432) 687-0456

**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	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

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Page 3 of 17

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

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

Fax: (432) 687-0456

SP-5 (5')
9H29015-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	
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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	

Permian Basin Environmental Lab, L.P.

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

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

Fax (432) 687-0456

SP-5 (10')
9H29015-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00110	mg/kg dry	1	P910302	09/03/19	09/04/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P910302	09/03/19	09/04/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P910302	09/03/19	09/04/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P910302	09/03/19	09/04/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P910302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		86.5 %	75-125		P910302	09/03/19	09/04/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		104 %	75-125		P910302	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	

Permian Basin Environmental Lab, L.P.

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

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

Fax: (432) 687-0456

**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	

Permian Basin Environmental Lab, L.P.

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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

SP-5 (20')
9H29015-05 (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	
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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	

Permian Basin Environmental Lab, L.P.

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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

**SP-5 (25')
9H29015-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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 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	

Permian Basin Environmental Lab, L.P.

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

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

Fax: (432) 687-0456

SP-5 (30')
9H29015-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	
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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	

Permian Basin Environmental Lab, L.P.

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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
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Batch P910302 - General Preparation (GC)

Blank (P910302-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 (P910302-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 (P910302-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 (P910302-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			

Permian Basin Environmental Lab, L.P.

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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
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Batch P910302 - General Preparation (GC)

Calibration Blank (P910302-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 (P910302-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 (P910302-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 (P910302-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			

Permian Basin Environmental Lab, L.P.

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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
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Batch P910302 - General Preparation (GC)

Calibration Check (P910302-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 (P910302-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 (P910302-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			

Permian Basin Environmental Lab, L.P.

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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

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
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Batch P9H3002 - * DEFAULT PREP *****

Blank (P9H3002-BLK1)

Prepared & Analyzed 08/30/19

% Moisture ND 0.1 %

Duplicate (P9H3002-DUP1)

Source: 9H29005-09

Prepared & Analyzed 08/30/19

% Moisture 1.0 0.1 % 1.0 0.00 20

Duplicate (P9H3002-DUP2)

Source: 9H29012-01

Prepared & Analyzed 08/30/19

% Moisture 11.0 0.1 % 11.0 0.00 20

Duplicate (P9H3002-DUP3)

Source: 9H29015-07

Prepared & Analyzed 08/30/19

% Moisture 7.0 0.1 % 7.0 0.00 20

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

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			

Permian Basin Environmental Lab, L.P.

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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

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			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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

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:



Date:

9/9/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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Varison & Associates, Inc.
Environmental Consultants

507 N. Marientfeld, Ste. 200
Midland, TX 79701
432-687-0901

Date Reported to:

DATE: B-29-2019

PO#: 91122015
PROJECT LOCATION OR NAME: Warn State A/C Bq #40
LAB PROJECT #: 19-012-47
COLLECTOR: RO

PAGE 1 OF 1

CHAIN-OF-CUSTODY

No 0726

TRRP report? ☐ Yes ☒ No
S=SOIL W=WATER P=PAINT
A=AIR SL=SLUDGE OT=OTHER

TIME ZONE:
Time zone/State:

MST

Field Sample I.D.

Lab #

Date

Time

Matrix

of Containers

HCl

HNO₃

H₂SO₄ ☐ NaOH ☐

ICE

UNPRESERVED

ANALYSES

BTEX/MTBE ☐

TRPH 418.1 ☐ TPH 1005 ☐ TPH 1008 ☐

GASOLINE MOD 8015 ☒

DIESEL - MOD 8015 ☒

OR - MOD 8015 ☒

VOC 8260 ☐

SVOC 8270 ☐

8081 PESTICIDES ☐

8082 PESTICIDES ☐

8083 PESTICIDES ☐

8084 PESTICIDES ☐

8085 PESTICIDES ☐

8086 PESTICIDES ☐

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8315 PESTICIDES ☐

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8318 PESTICIDES ☐

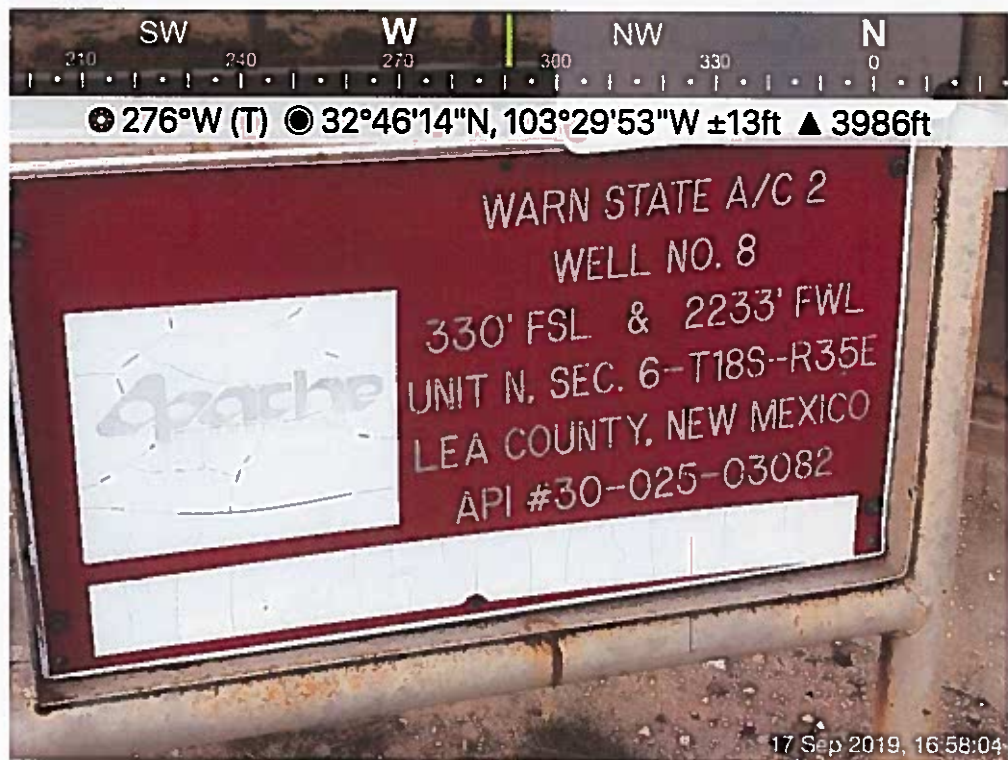
8319 PESTICIDES ☐

Appendix E

Photographs

11

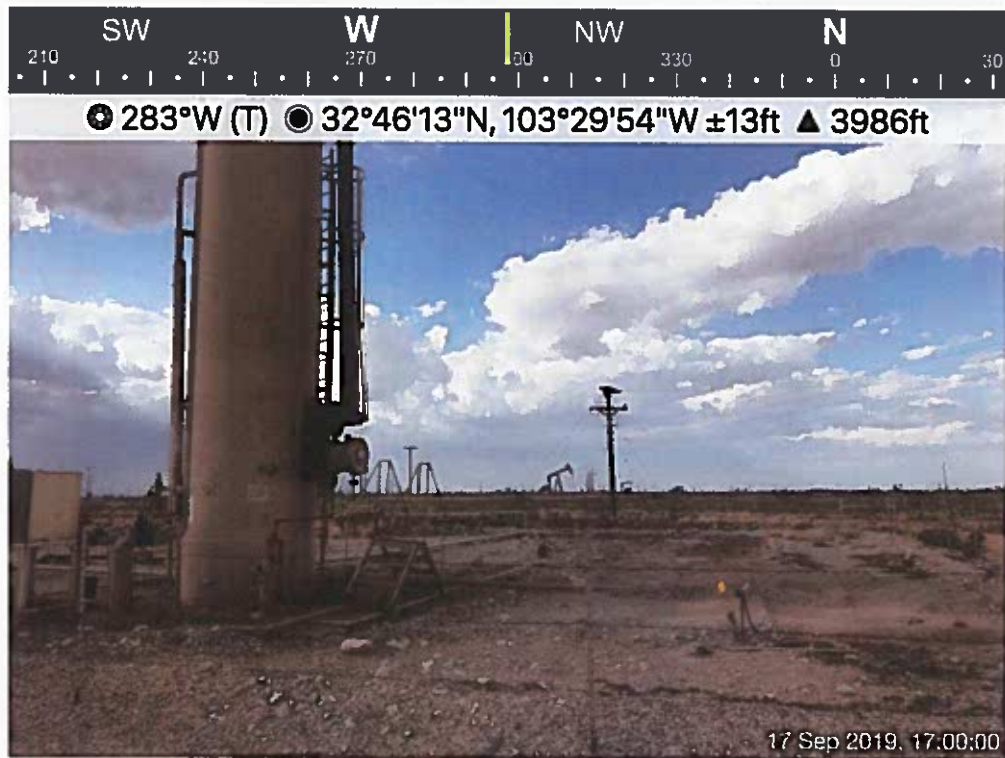
12



Warn State AC Facility Location, September 17, 2019



Site Viewing Southwest, September 17, 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) IRP-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 Warm 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: ☒ 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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 50 bbls	Volume Recovered (bbls) 40 bbls
<input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> 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: <u>Bruce Baker</u>	Title: <u>Sr. Environmental Tech</u>
Signature: <u></u>	Date: <u>9/27/2019</u>
email: <u>Larry.Baker@apachecorp.com</u>	Telephone: <u>432-631-6982</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	

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Printed Name: Bruce BakerTitle: Sr. Environmental TechSignature: Bruce BakerDate: 9/27/2019email: Larry.Baker@apachecorp.comTelephone: 432-631-6982**OCD Only**

Received by: _____

Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Bruce BakerTitle: Sr. Environmental TechSignature: Bruce BakerDate: 9/27/2019email: Larry.Baker@apachecorp.comTelephone: 432-631-6982**OCD Only**

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☒ Deferral ApprovedSignature: Bradford BillingsDate: 05/22/2020

NOTE: Pasture samples will be taken at P&A and address then. Especially as regards Section 13 of Part 29 Rule.