July 30, 2021

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

RE: 1RP-4626 Lou Wortham 20

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 closure for the historical release discovered August 19, 2015. Apache is respectfully submitting the closure report based on remediation and studies occurring in 2021 that demonstrate the site meeting the requirements of the agency. Unless further information is requested by NMOCD, Apache Corporation considers this release closed.

If there are any questions, please feel free to contact me by telephone at 432-631-6982 or by e-mail at larry.baker@apachecorp.com

Sincerely,

Larry Baker

Larry Baker
Environmental Technician SR.
Apache Corporation

Attachment: Closure Report Dated July 30, 2021.

303 Veterans Airpark Lane Midland, TX 79705

Closure Report

July 30, 2021

Re: Lou Wortham 20
Case # 1RP 4626

On 08/19/2015 a historical contamination from a release was discovered. The release (GPS: 32.407105, -103.135463) is south of Eunice, New Mexico in unit letter F section 11 township 22S range 37E. A remediation plan was submitted and approved by OCD.

In July 2021 the release areas were excavated in accordance with the approved remediation plan. On 7/27/2021 final 5 point wall composite samples were collected not to exceed 200 square feet. All samples were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. A 20 mil reinforced liner was installed in accordance with the approved remediation plan. All excavated material was hauled to an OCD approved facility. The excavations were backfilled with clean imported top soil to ground surface and contoured to the surrounding area. The disturbed area will be reseeded in accordance with the private surface landowner.

Apache has completed remediation in accordance with the OCD approved plan and respectfully request closure of event 1RP-4626.

Enclosed: C-141, Maps, Sample Data, Laboratory Results, Photos and Remediation Plan.

Submitted by;

Bruce Baker

Environmental Technician SR.
larry.baker@apachecorp.com
Cell# 432-631-6982

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 Maryland Blvd Hobbs, NM 88240	Telephone No. 432-631-6982
Facility Name Lou Worthman 20	Facility Type Flowline
Surface Owner Private (1H0)	Mineral Owner State	API No. 30-025-30285

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	11	22S	37E	2310'	FNL	2000'	FWL	Lea

Latitude 32.407105 Longitude -103.135463

NATURE OF RELEASE

Type of Release Emulsion	Volume of Release ~3 BBLS	Volume Recovered 0
Source of Release Possible Line	Date and Hour of Occurrence ?	Date and Hour of Discovery 9/19/15
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? NO	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☑ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Landowner met with Bruce on some historical staining and had plan that he would like to have remediated. Samples were taken to delineate the areas.

Describe Area Affected and Cleanup Action Taken.* 10'x10' area with small 20'x1' pack leading to another 10'x10' area affected. Proposal submitted with this C-141 notification.

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

Signature: Bruce Baker

Printed Name: Bruce Baker

Title: Environmental Tech

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

Date: 8/30/16 Phone: 432-631-6982

OIL CONSERVATION DIVISION

Approved by ~~Environmental Specialist~~ Hydrologist

Approval Date: 03/02/2017 Expiration Date: 04/02/2017

Conditions of Approval: Follow approved workplan

Attached ☐

1RP-4626

nTO1706131573

pTO1706131747

* Attach Additional Sheets If Necessary

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Larry Baker Title: Environmental Tech SR.

Signature: Larry Baker Date: 7/30/2021

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

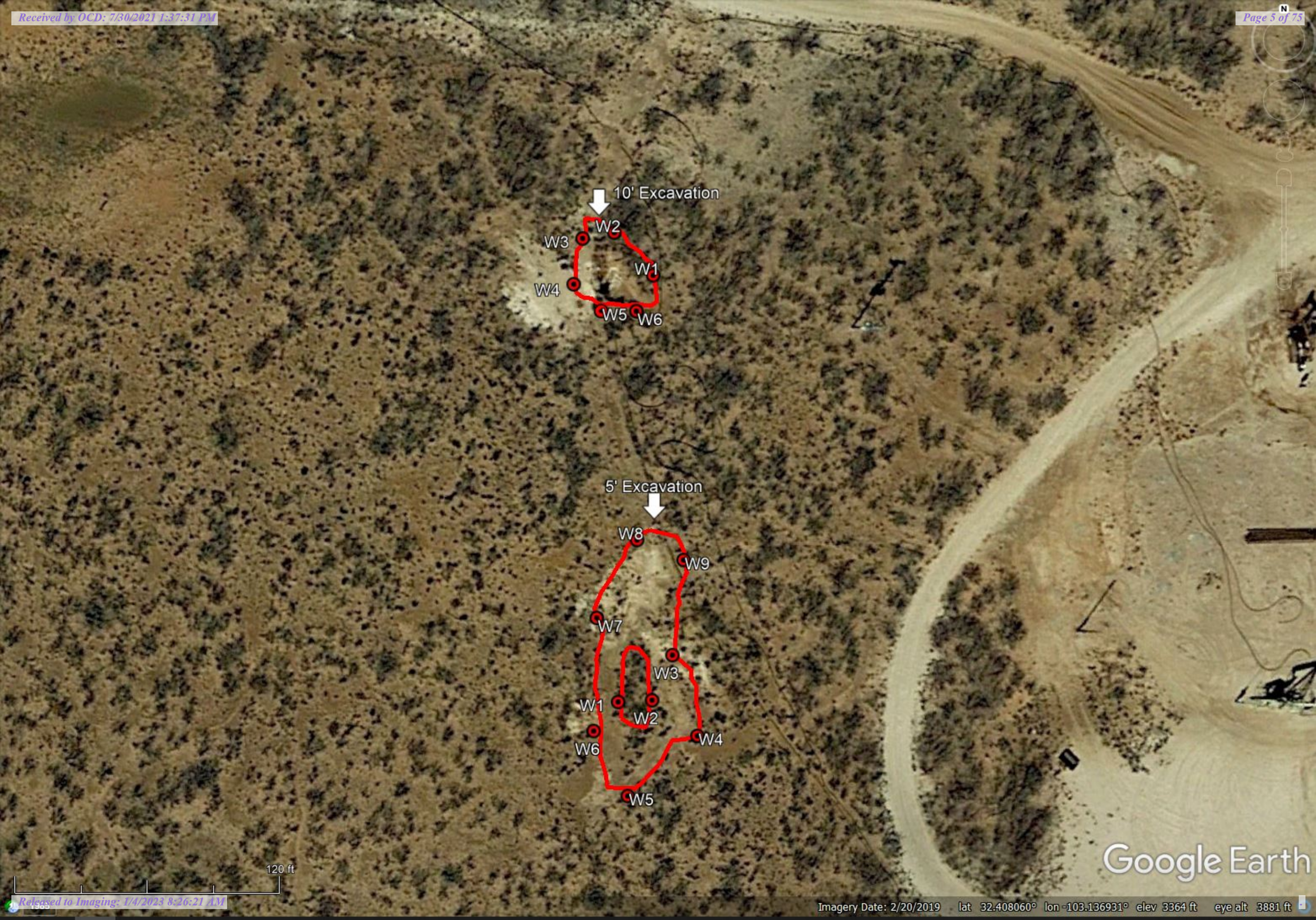
OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Brittany Hall Date: 01/04/2023

Printed Name: Brittany Hall Title: Environmental Specialist


10' Excavation
W2
W3
W1
W4
W5
W6
5' Excavation
W8
W9
W7
W3
W1
W2
W4
W6
W5
120 ft
Google Earth
Imagery Date: 2/20/2019 lat 32.408060° lon -103.136931° elev 3364 ft eye alt 3881 ft

Final Samples

Sample Date	Sample ID	Depth	Chloride Lab	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS Coordinates
5' Excavation												
7/27/2021	W1	5'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4077601 -103.1369900
7/27/2021	W2	5'	64	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4077615 -103.1369424
7/27/2021	W3	5'	96	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4078190 -103.1369163
7/27/2021	W4	5'	48	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4077157 -103.1368781
7/27/2021	W5	5'	192	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4076404 -103.1369857
7/27/2021	W6	5'	208	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4077298 -103.1370286
7/27/2021	W7	5'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4078683 -103.1370229
7/27/2021	W8	5'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4079506 -103.1369555
7/27/2021	W9	5'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4079342 -103.1368958

Sample Date	Sample ID	Depth	Chloride Lab	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS Coordinates
10' Excavation												
7/27/2021	W1	10'	32	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4082911 -103.1369434
7/27/2021	W2	10'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4083429 -103.1369998
7/27/2021	W3	10'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4083424 -103.1370440
7/27/2021	W4	10'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	10.7	<10.0	32.4082487 -103.1370507
7/27/2021	W5	10'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	12.9	<10.0	32.4082761 -1031370219

7/27/2021	W6	10'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.4082558 -103.1369703

CARDINAL Laboratories

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

July 28, 2021

JEFFREY BROOM

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: LOU WORTHAM 5' DIG

Enclosed are the results of analyses for samples received by the laboratory on 07/27/21 11:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 1 BGS 1-5' (H211972-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *101 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *114 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 2 BGS 1-5' (H211972-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *69.9-140*

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	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *104 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *117 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 3 BGS 1-5' (H211972-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *69.9-140*

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	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *99.8 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *111 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 4 BGS 1-5' (H211972-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *99.7 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *113 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 5 BGS 1-5' (H211972-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.9 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *107 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *119 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 6 BGS 1-5' (H211972-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *103 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *115 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 7 BGS 1-5' (H211972-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *102 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *113 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 8 BGS 1-5' (H211972-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *109 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *123 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM 5' DIG	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 9 BGS 1-5' (H211972-09)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2021	ND	1.80	89.8	2.00	7.00	
Toluene*	<0.050	0.050	07/27/2021	ND	1.93	96.6	2.00	7.03	
Ethylbenzene*	<0.050	0.050	07/27/2021	ND	1.89	94.7	2.00	6.89	
Total Xylenes*	<0.150	0.150	07/27/2021	ND	5.70	95.0	6.00	6.84	
Total BTEX	<0.300	0.300	07/27/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/28/2021	ND	432	108	400	0.00	

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	07/28/2021	ND	187	93.3	200	7.07	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	204	102	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *104 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *118 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Apache
Project Manager: Jeff Bruem
Address:
City: Hobbs State: NM Zip: 88240
Phone #: Fax #:
Project #: Project Owner:
Project Name:
Project Location: Lou Wortham 5' Dig
Sampler Name: Joe Ramsey Jr.

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

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE	COOL	OTHER:	SAMPLING DATE	TIME	Cl	Ext TPH	BTEX
H211972																		
1	W1 BGS 1-5'	C	1			X					X			7/27	10:10	X	X	X
2	W2 BGS 1-5'					X					X				10:12	X	X	X
3	W3 BGS 1-5'					X					X				10:14	X	X	X
4	W4 BGS 1-5					X					X				10:16	X	X	X
5	W5 BGS 1-5'					X					X				10:18	X	X	X
6	W6 BGS 1-5'					X					X				10:20	X	X	X
7	W7 BGS 1-5					X					X				10:22	X	X	X
8	W8 BGS 1-5					X					X				10:38	X	X	X
9	W9 BGS 1-5'	C	1			X					X			7/27	10:40	X	X	X

Relinquished By: Date: 7-27-21 Time: 1155 Received By:
Relinquished By: Date: Time: Received By:

Verbal Result: ☐ Yes ☐ No Add'l Phone #:
All Results are emailed. Please provide Email address:

REMARKS: 2nd Results to Jeff

Turnaround Time: Standard ☐ Rush ☒
Thermometer ID #113
Correction Factor None

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:
Observed Temp. °C 1.0
Corrected Temp. °C
Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No
CHECKED BY: (Initials) T.O.

Bacteria (only) Sample Condition Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No
Observed Temp. °C
Corrected Temp. °C

FORM-006 R 3.1 06/04/20

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

CARDINAL Laboratories

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

July 28, 2021

JEFFREY BROOM

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: LOU WORTHAM #20

Enclosed are the results of analyses for samples received by the laboratory on 07/27/21 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 1 BGS 1-10 ' (H211981-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *82.7 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *74.2 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 2 BGS 1-10 ' (H211981-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *81.0 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *73.5 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 3 BGS 1-10 ' (H211981-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *79.2 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *70.5 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 4 BGS 1-10 ' (H211981-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.2 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	**10.7**	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *78.4 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *70.0 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 5 BGS 1-10 ' (H211981-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	**12.9**	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *79.8 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *71.7 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/27/2021	Sampling Date:	07/27/2021
Reported:	07/28/2021	Sampling Type:	Soil
Project Name:	LOU WORTHAM #20	Sampling Condition:	Cool & Intact
Project Number:	LOU WORTHAM 20 10FT DIG	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: W 6 BGS 1-10 ' (H211981-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2021	ND	1.95	97.5	2.00	5.75	
Toluene*	<0.050	0.050	07/28/2021	ND	2.07	103	2.00	6.34	
Ethylbenzene*	<0.050	0.050	07/28/2021	ND	2.02	101	2.00	4.13	
Total Xylenes*	<0.150	0.150	07/28/2021	ND	6.04	101	6.00	4.63	
Total BTEX	<0.300	0.300	07/28/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID *96.7 %* *69.9-140*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/28/2021	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/28/2021	ND	197	98.3	200	1.97	
DRO >C10-C28*	<10.0	10.0	07/28/2021	ND	201	101	200	0.185	
EXT DRO >C28-C36	<10.0	10.0	07/28/2021	ND					

Surrogate: 1-Chlorooctane *73.9 %* *44.3-133*

Surrogate: 1-Chlorooctadecane *65.5 %* *38.9-142*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Apache
Project Manager: Jeff Broom
Address:
City: Hobbs State: NM Zip: 88240
Phone #: Fax #:
Project #: Project Owner:
Project Name:
Project Location: Lea Workman 20 10' Pit
Sampler Name: Joe Rasmussen Jr.

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

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Cl	Ext TPH	BTEX
H21981																	
1	W1 BGS 1-10'	C	1			1					1		7-27	2:15	X	X	X
2	W2 BGS 1-10'	C	1			1					1		7-27	2:45	X	X	X
3	W3 BGS 1-10'	C	1			1					1		7-27	3:10	X	X	X
4	W4 BGS 1-10'	C	1			1					1		7-27	3:12	X	X	X
5	W5 BGS 1-10'	C	1			1					1		7-27	3:14	X	X	X
6	W6 BGS 1-10'	C	1			1					1		7-27	3:16	X	X	X

Relinquished By: Joe Rasmussen Jr. Date: 7-27 Time: 1655
Received By: Tamara Oldaker
Relinquished By: Date: Time:
Received By:

Delivered By: (Circle One) Sampler - UPS - Bus - Other:
Observed Temp. °C 5.3
Corrected Temp. °C
Sample Condition: Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No
CHECKED BY: (Initials) JD

Verbal Result: ☐ Yes ☐ No Add'l Phone #:
All Results are emailed. Please provide Email address:
REMARKS: Send Results to Jeff
Turnaround Time: Standard ☐ Rush ☒
Thermometer ID #113
Correction Factor None
Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No
Observed Temp. °C
Corrected Temp. °C

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

FORM-006 R 3.1 06/04/20

Lou Wortham 5’ Final Excavation

East Elevation

259°W (T) 32°24'28"N, 103°8'12"W ±13ft ▲ 3363ft

North East Elevation

226°SW (T) 32°24'28"N, 103°8'12"W ±22ft ▲ 3363ft

East Elevation

251°W (T) 32°24'27"N, 103°8'12"W ±13ft ▲ 3362ft

North Elevation

188°S (T) 32°24'28"N, 103°8'13"W ±13ft ▲ 3363ft

Lou Wortham 10’ Final Excavation


WGS84
±20ft
32.40832, -103.13704
ft
±10ft
3364
°T
±16
SE142
27Jul21 15:23 Ad-hoc Lou Wortham 10' Dig
Jal NM 88231, United States 27-Jul-21 15:23:23


WGS84
±20ft
32.40824, -103.13709
ft
±10ft
3364
°T
±17
NE62
27Jul21 15:23 Ad-hoc Lou Wortham 10' Dig
Jal NM 88231, United States 27-Jul-21 15:23:41

ARCADIS Design & Consultancy for natural and built assets

Imagine the result

APPROVED
By OCD Dr Oberding at 9:23 am, Mar 02, 2017

Apache Corporation

Lou Wortham Remediation Proposal

Lou Wortham 20
F-11-T22S-R37E
2310’ FNL & 2000’ FWL
30-025-30285
Lea County, New Mexico

August 26, 2016

Jennifer Van Curen
Environmental Project Scientist

Lou Wortham

Remediation Proposal
Lou Wortham 20
F-11-T22S-R37E
2310' FNL & 2000' FWL
30-025-30285
Lea County, New Mexico

Prepared for:
Apache
Corporation
Eddy County, New Mexico

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

Our Ref.:
MT001200.0000.0000

Date:
August 26, 2016

Lou Wortham 20

Remediation Proposal

Apache Corporation
Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

Appendix C
Constraints Maps
- Existing Development Map
- Geology Map
- Hydrology Map
- Karst Potential Map
- Soils Map
- Surface and Mineral Map
- Topo Map
- Vicinity Map

Appendix D
Soil Sampling Results

Appendix E
2011 Water Monitor Well Report

1. INTRODUCTION

1.1 Site Information

The subject site is a pasture area located approximately 2.5 miles southeast of Eunice, New Mexico at GPS coordinates of 32°46'5.01"N, 104°15'3.87"W, and at UL/C, D, E & F, Sec. 11, T22S, R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located approximately +/-40 feet below ground surface (bgs). The well site is owned and operated by Apache Corporation.

This is a historical event the rancher had located and requested that Apache consider remediating. Apache evaluated the site and estimated that there was at one time approximately 3 bbl hydrocarbon leak at a production line. There is no estimated date of the occurrence.

2. SUMMARY OF SITE INVESTIGATION ACTIVITIES

2.1 Initial Reporting and Incident Description

There was no initial reporting on this as it was below reportable levels and site is now a historical. A C-141 will be generated with this report.

2.2 Sampling Activities

Initial release site investigation activities were conducted on September 14, 2015 (0 - 45 feet bgs). Grab samples were collected utilizing a core drill rig to a depth of 45-feet bgs. Laboratory results are presented below in Table 1, and the laboratory results is shown in Appendix D.

Table 1: Laboratory Sampling Results

	Depth (FBGS)	Benzene mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Chloride (mg/Kg)	Field Chloride	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)
SB-1	5	< 0.05	0.063	0.615	1.52	2.19	5200	6960	88.9	2500
	10	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1330	288	< 10	28.3
	15	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	352	404	< 10	< 10
	20	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	544	592	< 10	< 10
	25	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	384	492	< 10	< 10
	30	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	304	288	< 10	< 10
	35	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1040	764	< 10	< 10
	40	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1230	1040	< 10	15.2
	45	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	560	324	< 10	40.6
SB-2	5	< 0.05	0.054	0.318	3.34	3.71	7120	5436	179	5160
	10	< 0.05	0.074	0.1	3.74	3.91	7400	5900	73.4	1440
	15	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	2560	1204	< 10	129
	20	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	864	644	< 10	136
	25	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	608	448	< 10	82.7
	30	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	720	592	< 10	< 10
	35	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1170	964	< 10	< 10
	40	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1630	1256	< 10	< 10
	45	< 0.05	< 0.05	< 0.05	< 0.15	< 0.3	1330	1412	< 10	37.7

3. ENVIRONMENTAL ASSESSMENT

3.1 Surface and Mineral Ownership

The release site is located on private land (Mr. Boyd) and state minerals. Apache will work with the landowner and OCD to complete the remediation of the release site. (Appendix C)

3.2 Hydrology

Water depths for this area is approximately 40 feet bgs. There are no bodies of water, lakes, or streams near this release site. (Appendix C)

The site ranking for this site is a 20 based on the following:

Depth to ground water ~ 40'
Wellhead Protection Area >1000'
Distance to surface water body >1000'

From the monitor well sampling conducted at the site in 2011, it is evident that chloride levels coming onto the site are higher than those leaving the site suggesting the site has an up gradient source of contamination (Appendix A). Based on data found in the NMOCD website, there is evidence of an up gradient chloride contamination source which has impacted the surrounding area (Figure 3 and 4).

These results indicate that this location and the surrounding area have pre-existing groundwater quality impairment, and that the effects of the Lou Wortham 20 are inconsequential. In addition, the liners proposed to be installed at the site and the re-vegetation of the surface will inhibit chloride migration through the vadose zone to the aquifer. Since the up gradient monitor well shows higher chloride readings than the source well, and liners will be installed at the site which will inhibit chloride migration, the site will not contribute to the degradation of the aquifer.

3.3 Karst

The area surrounding this release site has a low karst potential.

3.4 Soils, Geology, and Vegetation

According to the soil survey data in the United States Department of Agriculture Natural Resources Conservation Service (NRCS), the soil description is BE - Berino-Cacique: loamy fine sands, 0-3 percent slopes. The natural drainage is well-drained. Water movement is well drained. Shrink – swell potential is moderate. The soils in the area is a loamy sand soil. The parent material consists of sandy eolian deposits derived from sedimentary rock over calcareous sandy alluvium derived from sedimentary rock. According to United States Geological Survey, the underlying geology is in the eolian deposits / piedmont alluvial deposits. The vegetation in the area consist of mesquite, four-wing saltbush, and grasses found in loamy sand soils.

4. REMEDIATION PLAN

4.1 Soil Remediation Plan

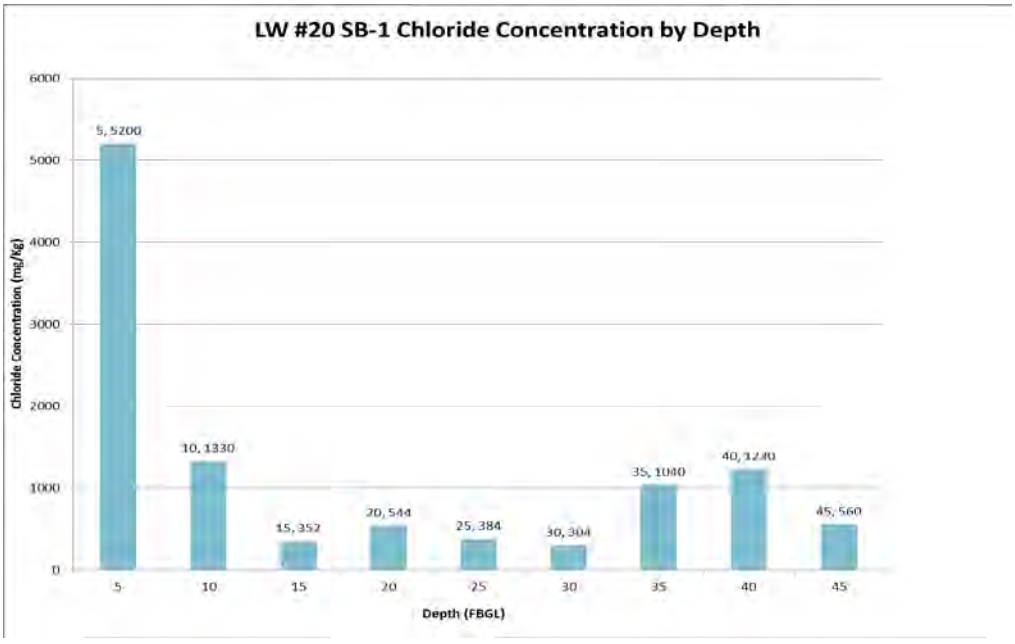
Apache has met with the OCD to visit about the plans for remediation of this site. Apache will remove 5 feet bgs at SB1 and 10 feet bgs at SB2. A reinforced liner will be placed at bottom of excavation, and the lined excavation will be backfilled with clean soil.

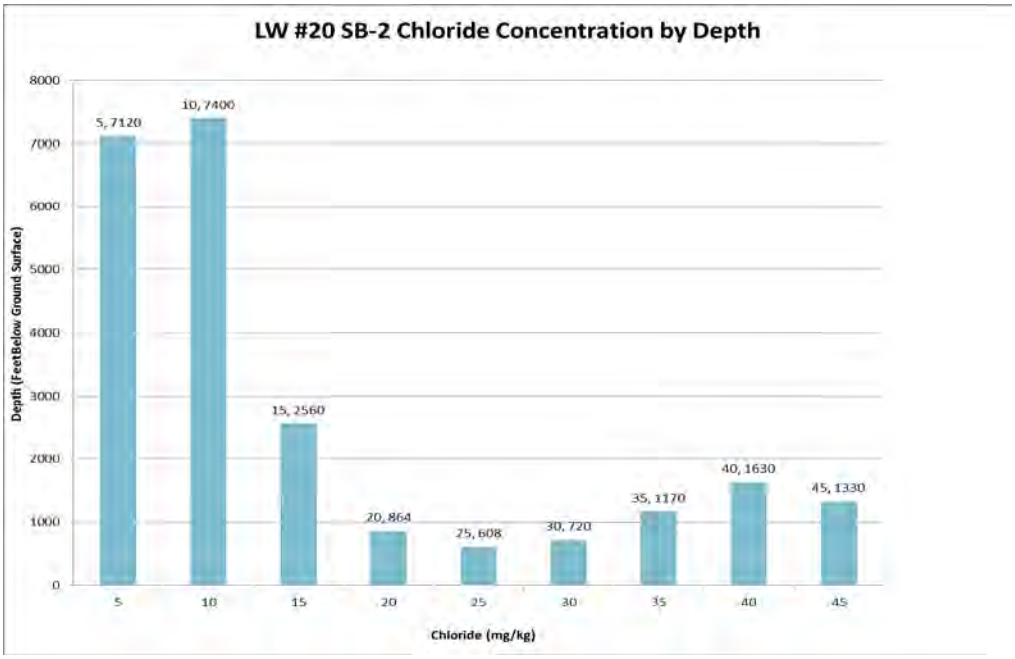
All contaminants removed will be disposed of at an NMOCD approved disposal facility.

Lou Wortham 20

Remediation Proposal

Apache Corporation
Lea County, New Mexico





4.2 Seeding Plan

The area will be seeded after the remediation work has been completed. The seed bed will be prepared by raking area, broadcast seeding, and raking lightly to cover seed.

5. REMEDIATION WORK SCHEDULE

Initial section of the remediation activities are expected to commence after receiving approval and funding of this proposed plan.

6. FOLLOW-UP SCHEDULE

A remediation report for this section will be completed and mailed within 30 days of remediation work being completed to OCD. This report will have the map of actual remediation area, photos of remediation, and finished product of proposed section.

ARCADIS

Appendix A

Attachments

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 Maryland Blvd Hobbs, NM 88240	Telephone No. 432-631-6982
Facility Name Lou Doris Com 20	Facility Type Flowline
Surface Owner Private (BOYD)	Mineral Owner STATE
	API No. 30-025-30285

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	11	22S	37E	2310'	FNL	2000'	FWL	Lea

Latitude 32.407105 Longitude -103.135463

NATURE OF RELEASE

Type of Release Emulsion	Volume of Release ~3 BBLS / Volume Recovered 0
Source of Release Possible Line	Date and Hour of Occurrence ? / Date and Hour of Discovery 9/19/15
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? NO
By Whom?	Date and Hour
Was a Watercourse Reached? ☐ Yes ☑ No	If YES, Volume Impacting the Watercourse.

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Historical staining and landowner met with Bruce on same requested. Samples were taken to delineate the areas.

Describe Area Affected and Cleanup Action Taken.* 10'x10' area with small 20'x1' path leading to another 10'x10' area affected. Proposal submitted with this C-141 notification.

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

Signature: Bruce Baker	OIL CONSERVATION DIVISION
Printed Name: Bruce Baker	Approved by Environmental Specialist:
Title: Environmental Tech	Approval Date: / Expiration Date:
E-mail Address: bruce.baker@apachecorp.com	Conditions of Approval: / Attached ☐
Date: 8/30/16 Phone: 432-631-6982	

* Attach Additional Sheets If Necessary

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 00496 POD2		CUB	ED	4	4	4	35	22S	37E	676339	3579884*	172	30	142
CP 00003 POD1		CP	LE			4	22	22S	37E	674372	3583367*	142	110	32
CP 00009 POD2		CP	LE	4	4	1	27	22S	37E	673883	3582253*	90	52	38
CP 00081 POD1		CP	LE	2	4	4	21	22S	37E	673064	3583243*	120		
CP 00141			LE	4	4	4	27	22S	37E	674701	3581464*	41		
CP 00142			LE	1	2	1	34	22S	37E	673704	3581247*	350		
CP 00143			LE	1	1	4	34	22S	37E	674121	3580450*	140		
CP 00144 POD1		CP	LE	2	4	1	35	22S	37E	675520	3580874*	68	57	11
CP 00146 POD1		CP	LE	3	1	2	35	22S	37E	675715	3581083*	75	67	8
CP 00149 POD1		CP	LE		4	1	29	22S	37E	670568	3582296*			
CP 00154 POD2		CP	LE	3	3	3	09	22S	37E	671600	3586239*	172		
CP 00187	O		LE	3	3	1	24	22S	37E	676468	3583912*	70		
CP 00188	O		LE	4	4	4	01	22S	37E	677803	3587954*	56		
CP 00195 POD1		CP	LE	4	1	1	12	22S	37E	676602	3587532*	70		
CP 00199 POD1		CP	LE	2	4	2	14	22S	37E	676237	3585714*	75		
CP 00231 POD2		CP	LE	4	4	1	27	22S	37E	673883	3582253*	97		
CP 00233 POD2		CP	LE	1	2	3	27	22S	37E	673690	3582051*	90		
CP 00243 POD1		CP	LE	3	3	1	27	22S	37E	673281	3582246*	106		
CP 00243 POD2		CP	LE	1	2	3	27	22S	37E	673690	3582051*	90	54	36
CP 00244 POD2		CP	LE	3	4	1	27	22S	37E	673683	3582253*	87		
CP 00254 POD2	R	CP	LE	2	4	1	04	22S	37E	672159	3588860*	165	116	49
CP 00254 POD3		CP	LE	2	4	1	04	22S	37E	672159	3588860*	162	90	72
CP 00255 POD2		CP	LE	2	2	3	04	22S	37E	672166	3588458*	157	120	37
CP 00313			LE	3	3	3	15	22S	37E	673237	3584659*	100		
CP 00381			LE	3	1	4	22	22S	37E	674063	3583467*	130		
CP 00382			LE	3	3	4	22	22S	37E	674070	3583065*	130		

***UTM location was derived from PLSS - see Help**

(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 Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00383			LE	3	1	4	22	22S	37E	674063	3583467*	130		
CP 00384			LE	2	2	1	27	22S	37E	673875	3582855*	82		
CP 00391			LE	4	4	4	17	22S	37E	671426	3584623*	96		
CP 00395			LE	4	2	3	28	22S	37E	672282	3581822*	90		
CP 00399			LE	4	1	4	17	22S	37E	671017	3585017*	110		
CP 00400			LE	2	1	3	28	22S	37E	671880	3582015*	108		
CP 00422			LE	3	4	4	04	22S	37E	672777	3587870*	130	92	38
CP 00427 POD1	O	CP	LE	3	3	3	02	22S	37E	674787	3587906*	4900		
CP 00445			LE	2	1	2	27	22S	37E	674277	3582863*	150		
CP 00451			LE	3	1	3	04	22S	37E	671564	3588250*			
CP 00467			LE	1	2	2	09	22S	37E	672784	3587668*	120		
CP 00468			LE	3	4	4	04	22S	37E	672777	3587870*	112		
CP 00470			LE	2	1	2	26	22S	37E	675886	3582892*	99	65	34
CP 00481			LE	4	2	2	05	22S	37E	671349	3589047*	125	90	35
CP 00503			LE		4	4	21	22S	37E	672965	3583144*	115	65	50
CP 00545			LE	3	2	2	35	22S	37E	676117	3581091*	70	35	35
CP 00547			LE		2	2	18	22S	37E	669696	3585901*	200		
CP 00560			LE	2	1	1	09	22S	37E	671778	3587646*	350		
CP 00561			LE	3	3	3	34	22S	37E	673324	3579834*	137	60	77
CP 00581			LE	2	2	2	14	22S	37E	676229	3586116*	125	65	60
CP 00628			LE		2	1	18	22S	37E	668892	3585888*	525	190	335
CP 00662			LE	3	3	1	15	22S	37E	673223	3585464*	180	150	30
CP 00666			LE			2	05	22S	37E	671055	3588939*	120	79	41
CP 00674			LE		1	1	15	22S	37E	673316	3585967*	100	75	25
CP 00675			LE	2	2	1	15	22S	37E	673817	3586073*	100		
CP 00679			LE		3	3	15	22S	37E	673338	3584760*	164	98	66
CP 00684			LE		1	1	15	22S	37E	673316	3585967*	200	180	20
CP 00699			LE	1	1	1	15	22S	37E	673215	3586066*	163	100	63
CP 00706			LE	3	3	1	24	22S	37E	676468	3583912*	96	60	36

***UTM location was derived from PLSS - see Help**

(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-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00708		LE				15	22S	37E	673941	3585363*	200	185	15
CP 00709		LE		1	3	15	22S	37E	673331	3585163*	200	87	113
CP 00756		LE	2	2	4	09	22S	37E	672999	3586863*	125	85	40
CP 00871		LE			3	09	22S	37E	671902	3586541*	167	94	73
CP 00911		LE	4	4	4	21	22S	37E	673064	3583043*	153		
CP 00929 POD1		LE	3	3	3	02	22S	37E	674939	3587915	1100		
CP 01101 POD1	CP	LE	2	4	4	21	22S	37E	673064	3583281	142		
CP 01157 POD1		LE	1	1	1	34	22S	37E	673325	3581348	143		
CP 01159 POD1		LE			2	03	22S	37E	674217	3589009	45		
CP 01159 POD2		LE			2	03	22S	37E	674223	3588982	40		
CP 01159 POD3		LE			2	32	22S	37E	674266	3588993	40		
CP 01159 POD4		LE			2	03	22S	37E	674279	3588986	40		
CP 01220 POD1		LE		1	2	02	22S	37E	675925	3589363	65	48	17
CP 01220 POD2		LE		1	2	02	22S	37E	675951	3589363	65	48	17
CP 01353 POD1		LE	3	1	3	09	22S	37E	671514	3586640	93	73	20

Average Depth to Water: **87 feet**

Minimum Depth: **30 feet**

Maximum Depth: **190 feet**

Record Count: 70

PLSS Search:

Township: 22S **Range:** 37E

***UTM location was derived from PLSS - see Help**

ARCADIS

Appendix B

Historical Well Monitoring

1RP-2726

Termination Request

DATE: April 19th, 2012

Rice Environmental Consulting & Safety
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECIEPT NO. 7008 1140 0001 3070 6266

April 19th, 2012

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

RE: **Termination Request**
Apache Corporation
Lou Wortham #20 AD (1R0711-2726): UL/F sec. 11 T22S R37E

Mr. Hansen:

Apache Corporation (Apache) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site. The site is located approximately 2.5 miles southeast of Eunice, New Mexico at UL/F, Sec. 11, T22S, R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located approximately +/-37 feet below ground surface (bgs).

On May 25th, 2011 six soil bores were installed at the site. The samples were field tested for chlorides and screened in the field for hydrocarbons with a photo-ionization detector. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride field numbers. Laboratory readings showed chloride numbers ranging from a high of 7,900 mg/kg at 18 ft bgs in SB-2 to a low of 16 mg/kg at the surface of SB-3.

Per the approval of the NMOCD District 1 Office, the site was excavated to 120 ft by 188 ft by 5 ft bgs. Two additional areas within the excavation were excavated to 21 ft bgs. These two areas surrounded SB-1 and SB-2 respectively and measured 10' x 10' each. At the base of these two excavations, liners were installed to inhibit the downward migration of chlorides. A one foot clay layer was placed at the base of the two excavations and a 20-mil reinforced poly liner was properly seated on top of the clay. Then the two excavations were backfilled to 5 ft bgs with clean imported caliche. On August 12th, 2011, a 20-mil reinforced poly liner was properly seated over the entire 120 ft by 188 ft excavation. The site was backfilled with clean, imported soil and contoured to the surrounding area. Soil amendments were added to the site and the site was seeded with a native vegetative mix on September 6th, 2011.

On August 9th, 2011, two monitor wells were installed at the site. MW-1, the source monitor well, was installed 35 ft south southeast of the excavation and MW-2, the up gradient monitor well, was installed 63 ft north northwest of the excavation. MW-1 has been sampled twice since its installation and MW-2 has been sampled three times since its installation (Figure 2). From the monitor well sampling conducted at the site, it is evident that chloride levels coming onto the site are higher than those leaving the site suggesting the site has an up gradient source of contamination. (Appendix A). Based on data found in the NMOCD website, there is evidence of an up gradient chloride contamination source which has impacted the surrounding area (Figure 3 and 4). These results indicate that this location and the surrounding area have pre-existing groundwater quality impairment, and that the effects of the Lou Wortham #20 AD are inconsequential. In addition, the liners installed at the site and the re-vegetation of the surface will inhibit chloride migration through the vadose zone to the aquifer. Since the up gradient monitor well shows higher chloride readings than the source well, and liners have been installed at the site which will inhibit chloride migration, the site will not contribute to the degradation of the aquifer. Therefore, RECS requests that the site be granted 'remediation termination' status of the regulatory file.

Upon NMOCD's approval of the Termination Request, both monitor wells will be plugged and abandoned with a 1-3% bentonite/concrete slurry with a three foot concrete cap.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder − RECS at (575) 393-9174 or Natalie Gladden − Apache Corp. (575) 394-1503 if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

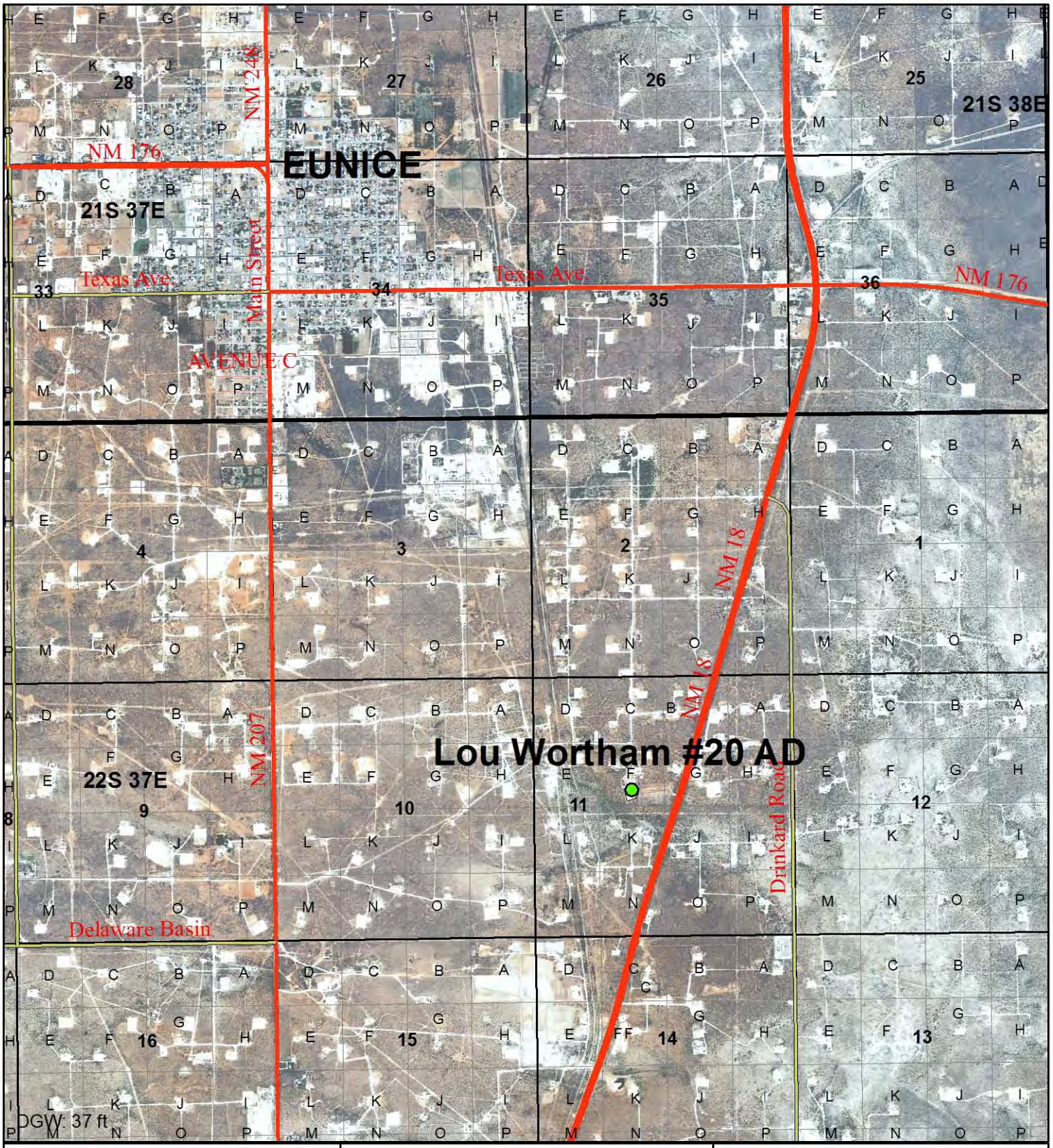
Attachments:

Figure 1 – Site Location Map
Figure 2 – Monitor Well Sampling Data
Figure 3 – Up Gradient Chloride Contamination Source Map
Figure 4 – Potentiometric Map
Appendix A – Laboratory Confirmation

Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

Site Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

Apache
Lou Wortham #20 AD

NMOCD Case #: 1R0711-2726

LEGALS: UL/F sec. 11
T22S R37E

Figure 1

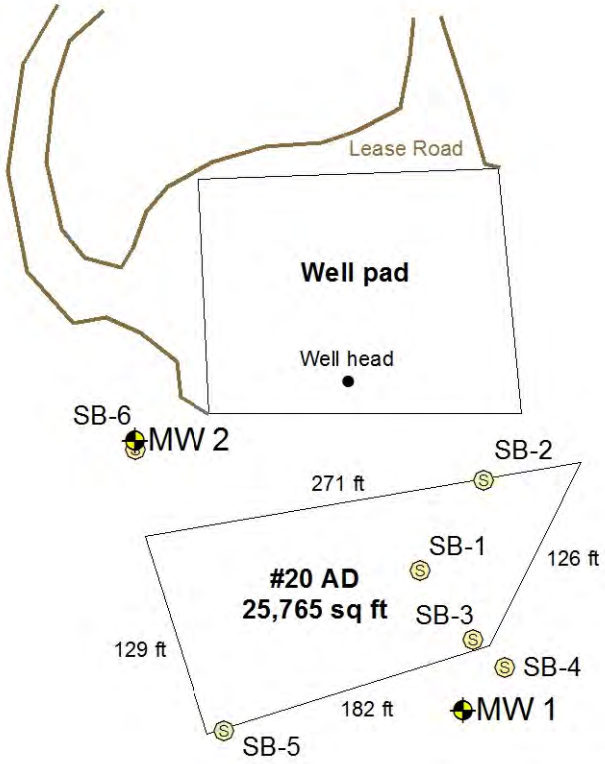
N W E S

0 0.25 0.5 1 Miles

Drawing date: 8-18-11
Drafted by: L. Weinheimer

Monitor Well Sampling

MW	Depth to Water	Total Depth	Sample Date	Cl
2	40.34	50.95	8/13/2011	18000
2	40.35	50.95	9/12/2011	17800
2	40.35	50.95	11/16/2011	18000



MW	Depth to Water	Total Depth	Sample Date	Cl
1	39.67	80.78	9/12/2011	17400
1	39.69	80.78	11/16/2011	17000

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

Apache Lou Wortham #20 AD

LEGALS: UL/F sec. 11 T22S R37E

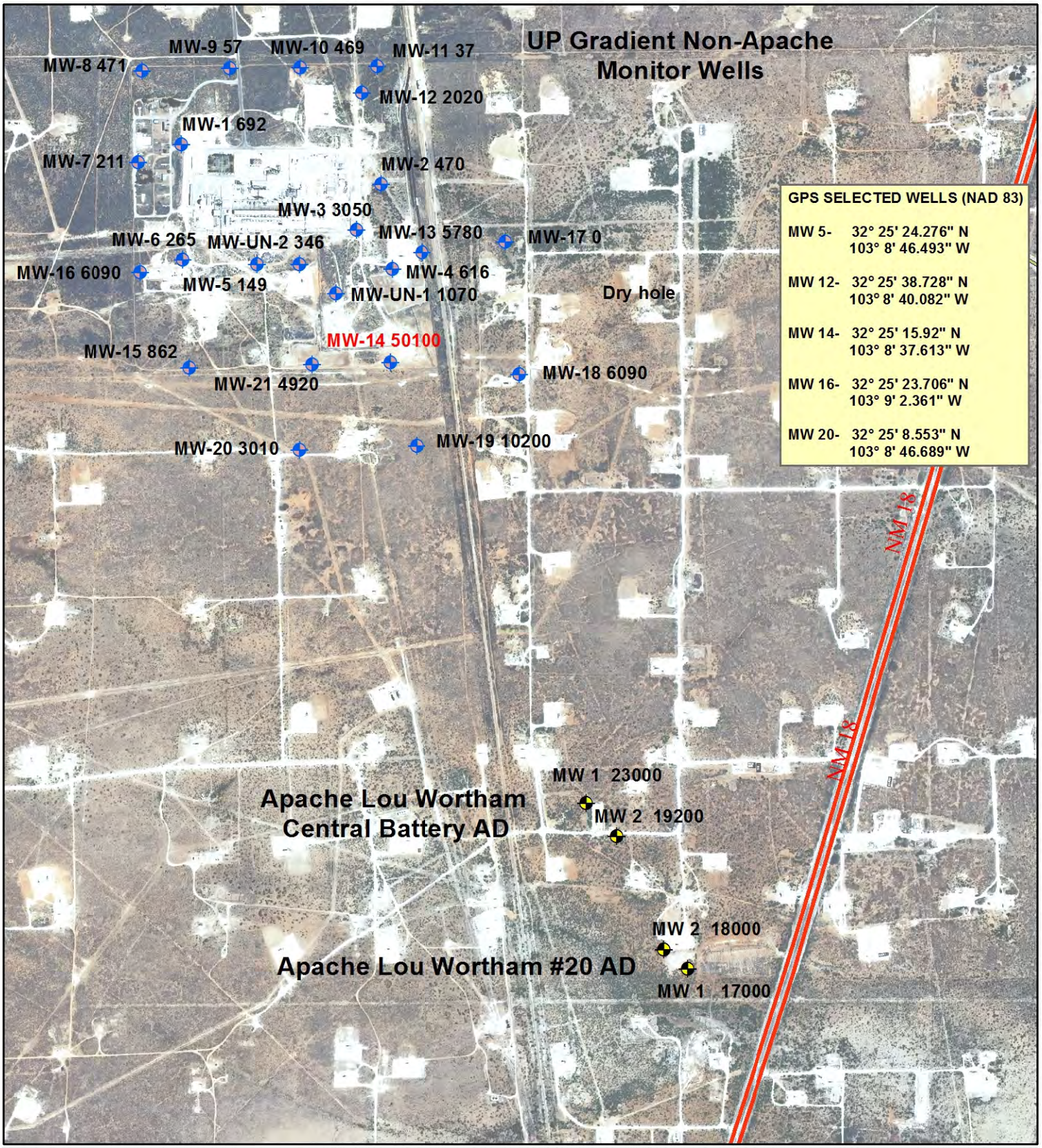
NMOCD Case #: 1R0711-2726

Figure 2

N W E S

0 37.5 75 150 Feet

Drawing date: 12-22-11
Drafted by: L. Weinheimer



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

Regional Chloride Concentrations

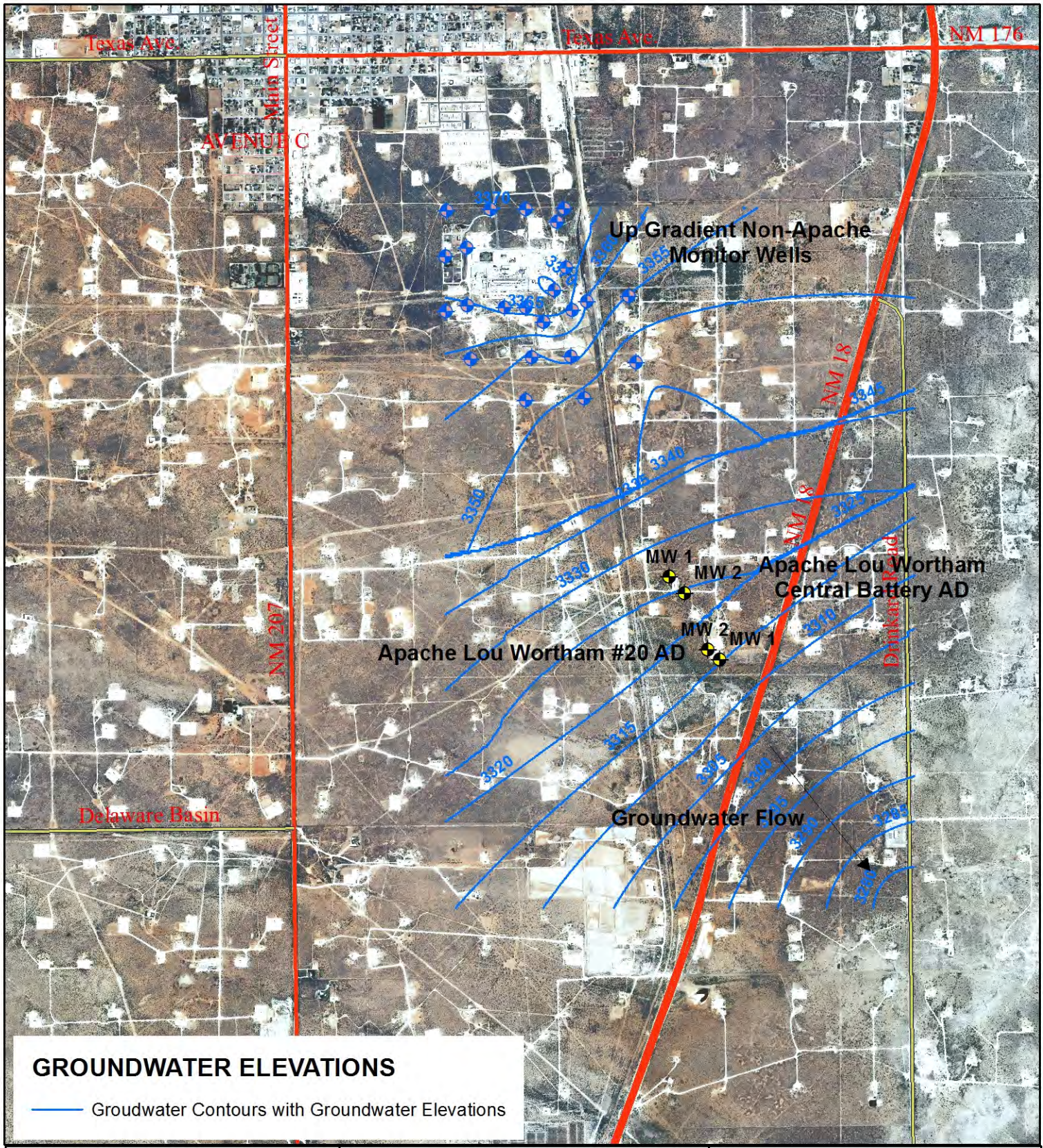
LEGALS: sec. 2, 3, 10 & 11
T22S R37E

Figure 3

N
W E
S

0 500 1,000 2,000
Feet

Drawing date: 1-5-12
Drafted by: L. Weinheimer & T. Grieco



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

Regional Potentiometric Map

LEGALS: sec. 2, 3, 10 & 11 T22S R37E

Figure 4

N W E S

0 875 1,750 3,500 Feet

Drawing date: 1-5-11
Drafted by: L. Weinheimer

Appendix A
Laboratory Confirmation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CARDINAL Laboratories

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

November 18, 2011

NATALIE GLADDEN

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: APACHE LOU WORTHAM #20 AD

Enclosed are the results of analyses for samples received by the laboratory on 11/17/11 14:25.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/17/2011	Sampling Date:	11/16/2011
Reported:	11/18/2011	Sampling Type:	Water
Project Name:	APACHE LOU WORTHAM #20 AD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S-R37E-SEC11 UL-F ~ LEA CTY NM		

Sample ID: MONITOR WELL #1 (H102506-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**17000**	4.00	11/18/2011	ND	104	104	100	3.77	

Sample ID: MONITOR WELL #2 (H102506-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**18000**	4.00	11/18/2011	ND	104	104	100	3.77	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: Apache	BILL TO Company: Apache
Project Manager: Hack Conder, Rice Env Consulting Safety	Address: (Street, City, Zip)
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: Fax#:
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #: Project Name: Apache Lou Wortham #20 AD	
Project Location: T22S-R37E-Sec11 UL-F ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY) H102505	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2011)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	1	X								1		11-16	13:55																					X	
2	Monitor Well #2	G	1	X								1		11-16	15:00																					X	

Relinquished by: Rozanne Johnson	Date: 11-17-2011	Time: 14:25	Received by: Jodi Henson
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 11/17/11 Time: 14:25

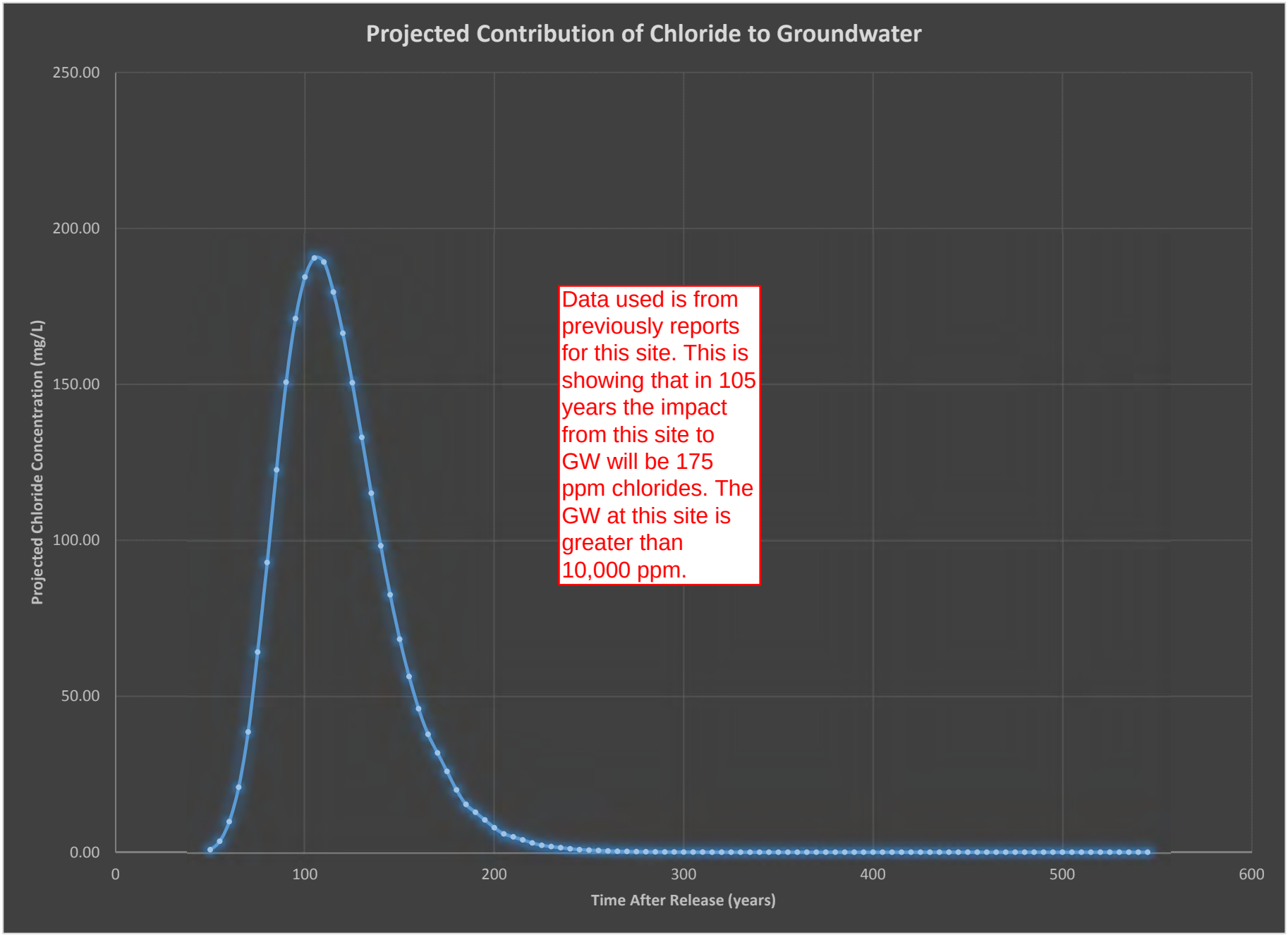
Phone Results		Yes		No	
Fax Results		Yes		No	Additional Fax Number:

REMARKS:

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

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes / No; Intact: Yes / No	CHECKED BY: (Initials)

#26



1RP-2733

Approvals

DATE:
February 10, 2014

From: Lowe, Leonard, EMNRD
To: "Hack Conder (hconder@riceswd.com)"
Subject: Terminated (1R-811-2733) - Apache Corporation Lou Wortham Central Battery AD
Date: Monday, February 10, 2014 10:34:00 AM

Termination Request Approved
for the Apache Corporation Lou Wortham Central Batter AD (1R-811-2733)
Unit Letter C, D, E,F Section 11, T22S, R37E, NMPM, Lea County, New Mexico

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received Apache Corporation report and request to terminate the above-referenced site, dated April 19, 2012. The termination request is acceptable to the OCD.

The above-referenced report, submitted in accordance with 19.15.29 NMAC (Rule 29; formally, Rule 116), indicates that Apache Corporation has met the requirements of 19.15.29 NMAC; therefore, the OCD approves the report and hereby notifies you that the remediation plan (1R-811-2733) is terminated in accordance with 19.15.29 NMAC.

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

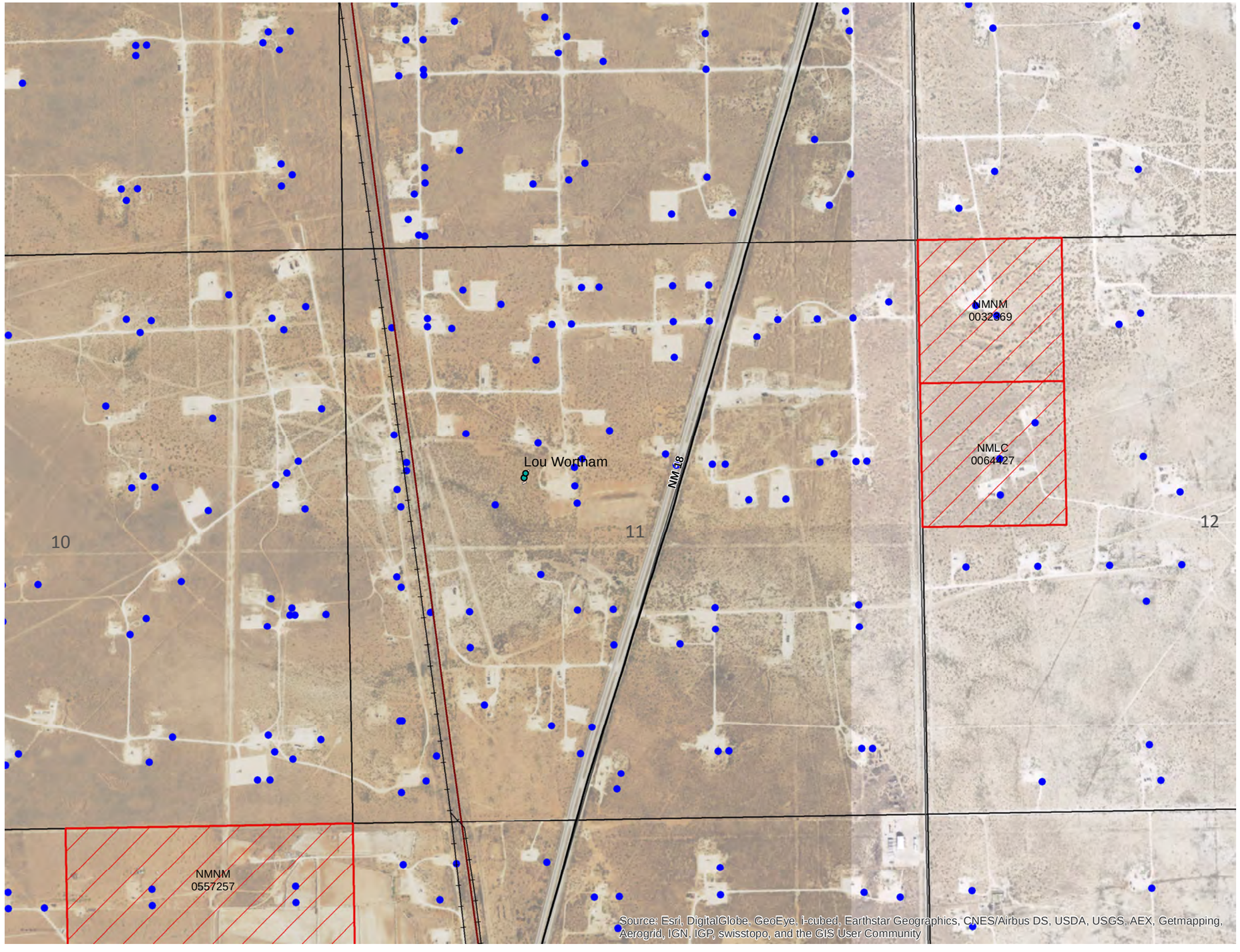
If you have any questions regarding this matter, please contact me at 505-476-3492.

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

ARCADIS

Appendix C

Figures



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LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads
- ROWs
- Completed Wells
- Leases
- Sections
- Townships
- World Imagery

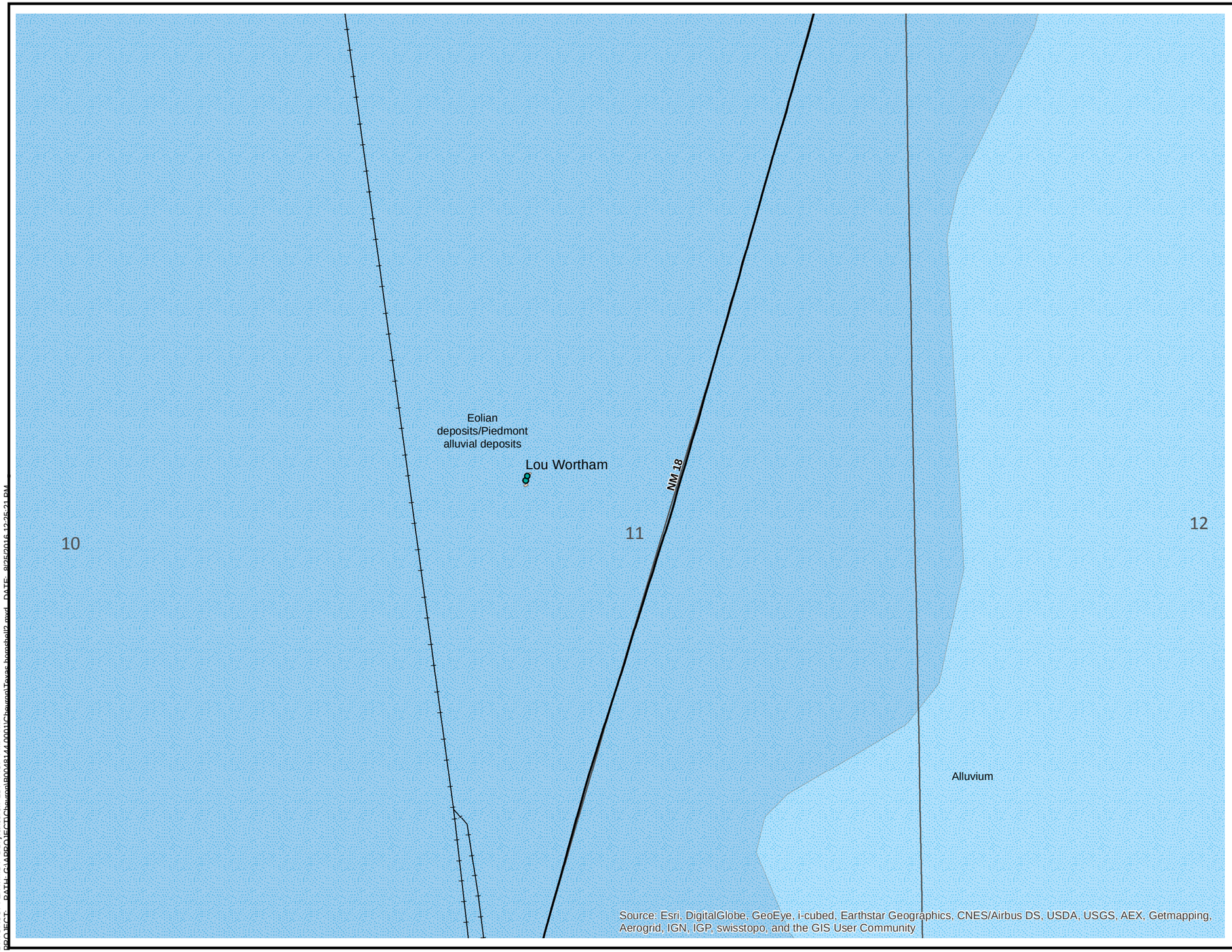
0 1,000

Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

EXISTING DEVELOPMENT

ARCADIS



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LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads

Aquifer

Aquifer Name

- Pecos River Basin Alluvial

Geology

NAME

- Qa
- Qe/Qp
- Sections
- Townships

World Imagery

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Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

GEOLOGY

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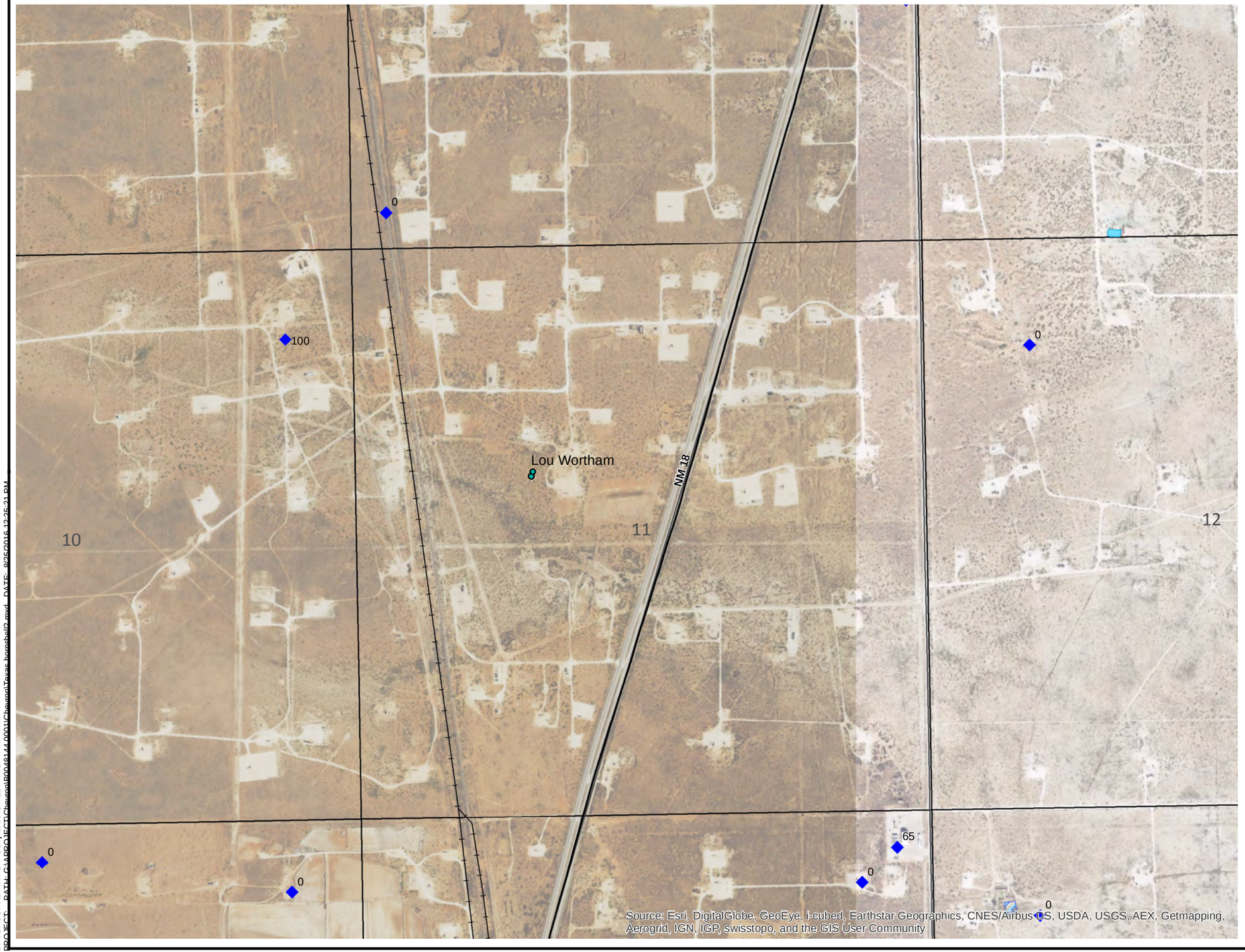

LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads
- Groundwater Wells (OSE)

NHDWaterbo...

FType

- LakePond
- Reservoir

- Sections
- Townships

World Imagery

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Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

HYDROLOGY

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LEGEND

points

area

Railroads

Major Roads

Lea County Roads

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Sections

Townships

World Imagery

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Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

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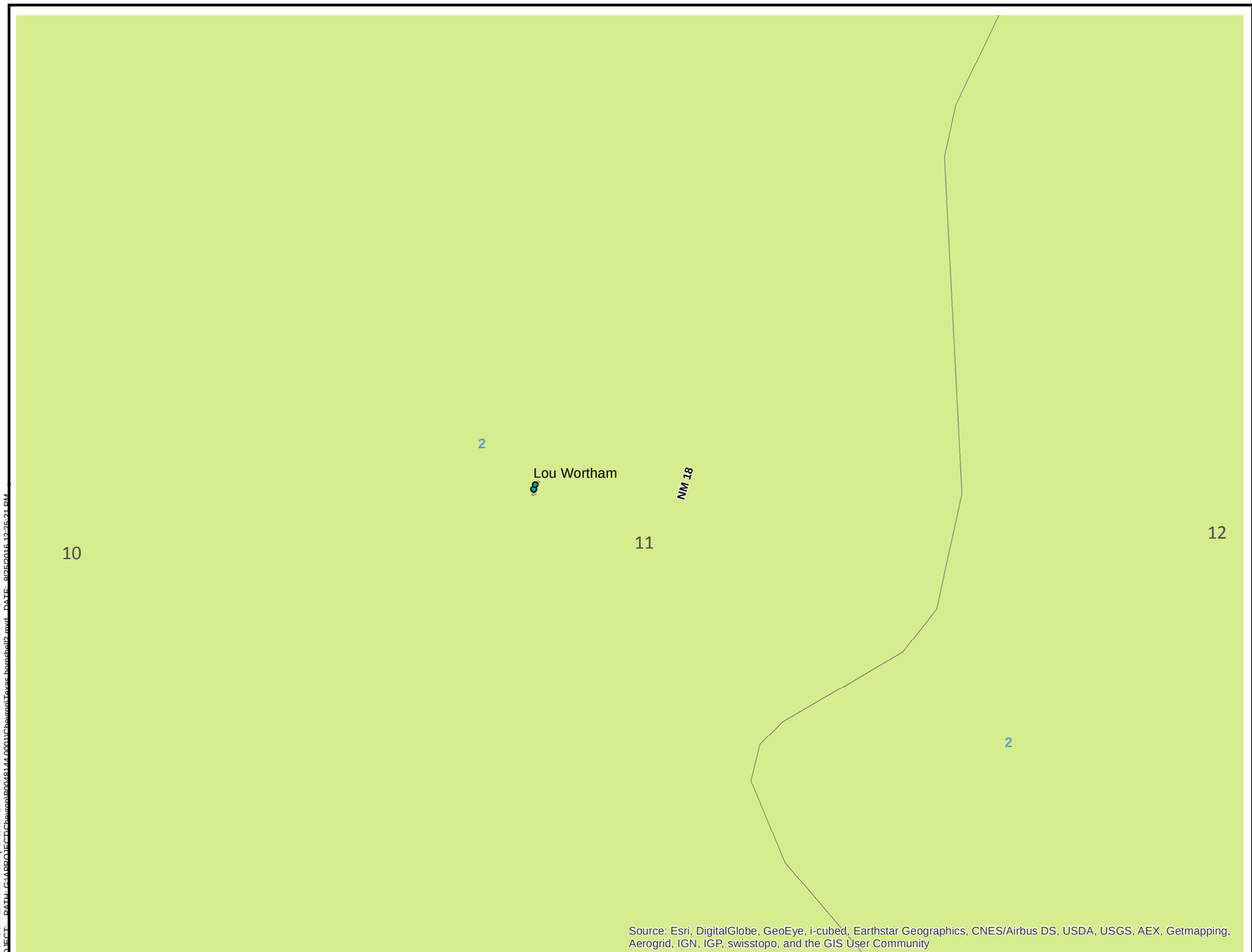

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LEGEND

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area

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Railroads

Major Roads

Lea County Roads

Sections

Townships

World Imagery

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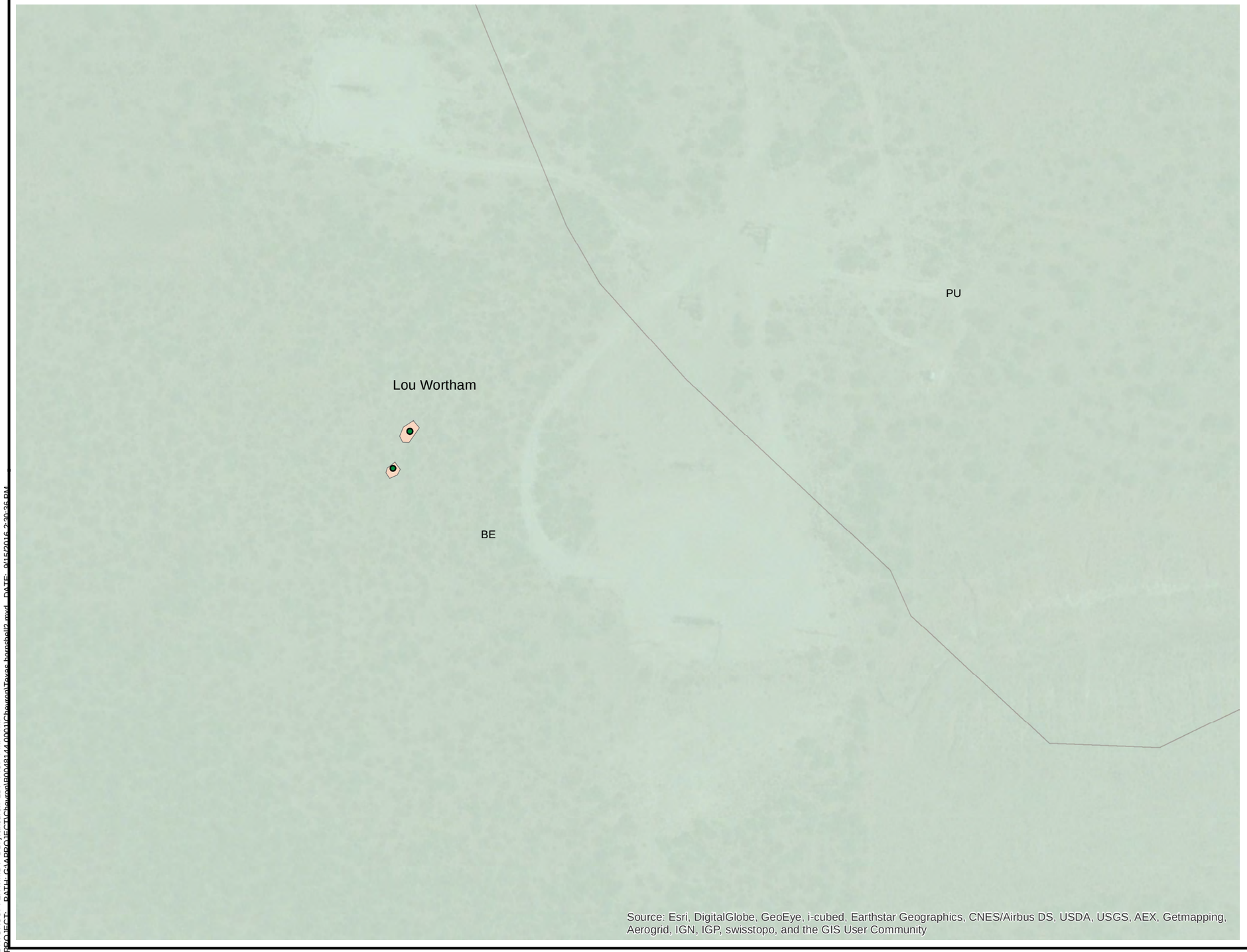
Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

PALEOANTOLOGY

ARCADIS



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LEGEND

- Lou Wortham points
- Lou Wortham
- Lea County Soil Data
- Sections
- Townships
- World Imagery

200 Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

SOILS

ARCADIS

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LEGEND

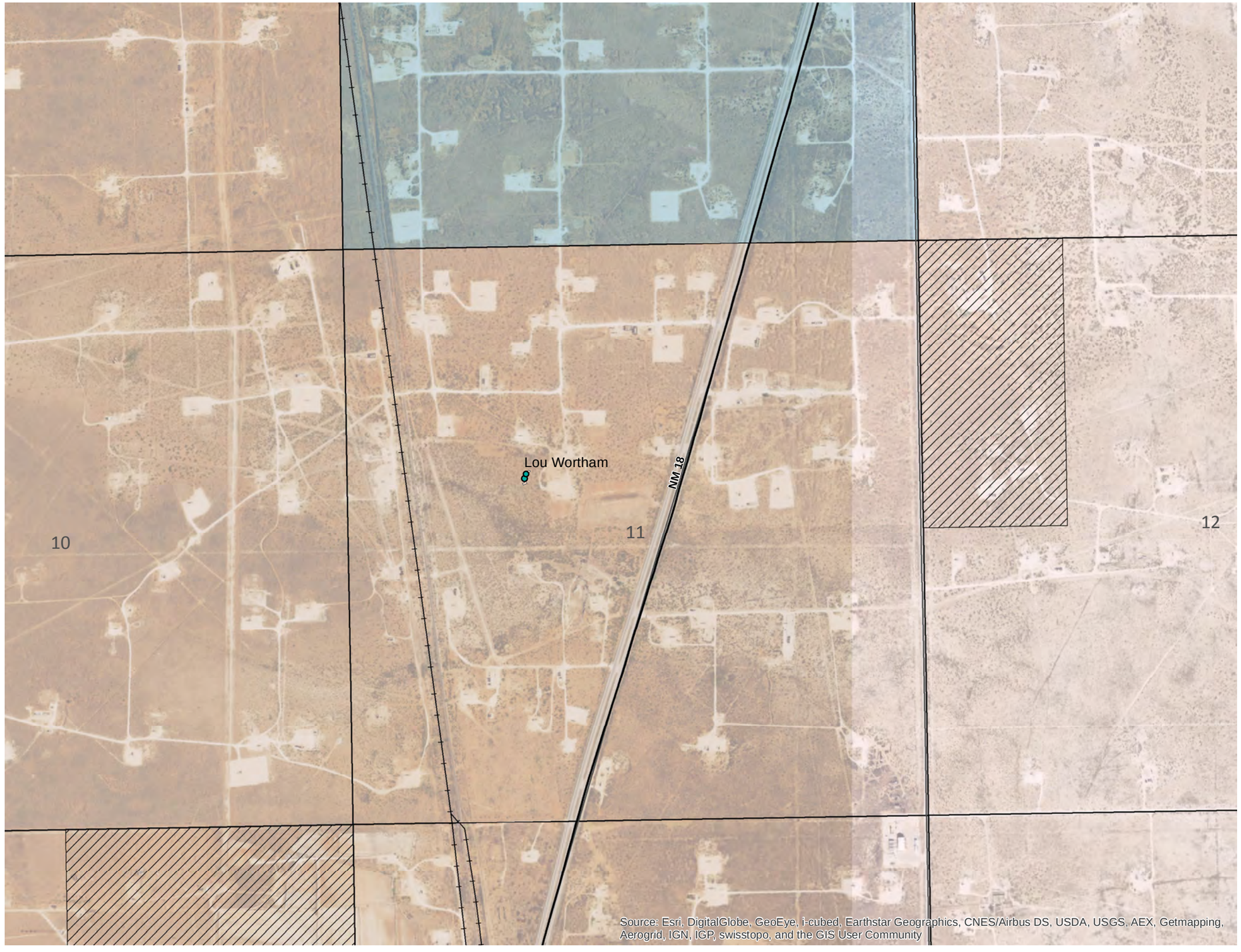
- Lou Wortham points
- Lou Wortham
- Sections
- Townships
- World Imagery

200 Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

SPILL SITE

ARCADIS



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LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads
- Sections
- Townships

Mineral Owne...

minown

- A
- N
- Private
- State

World Imagery

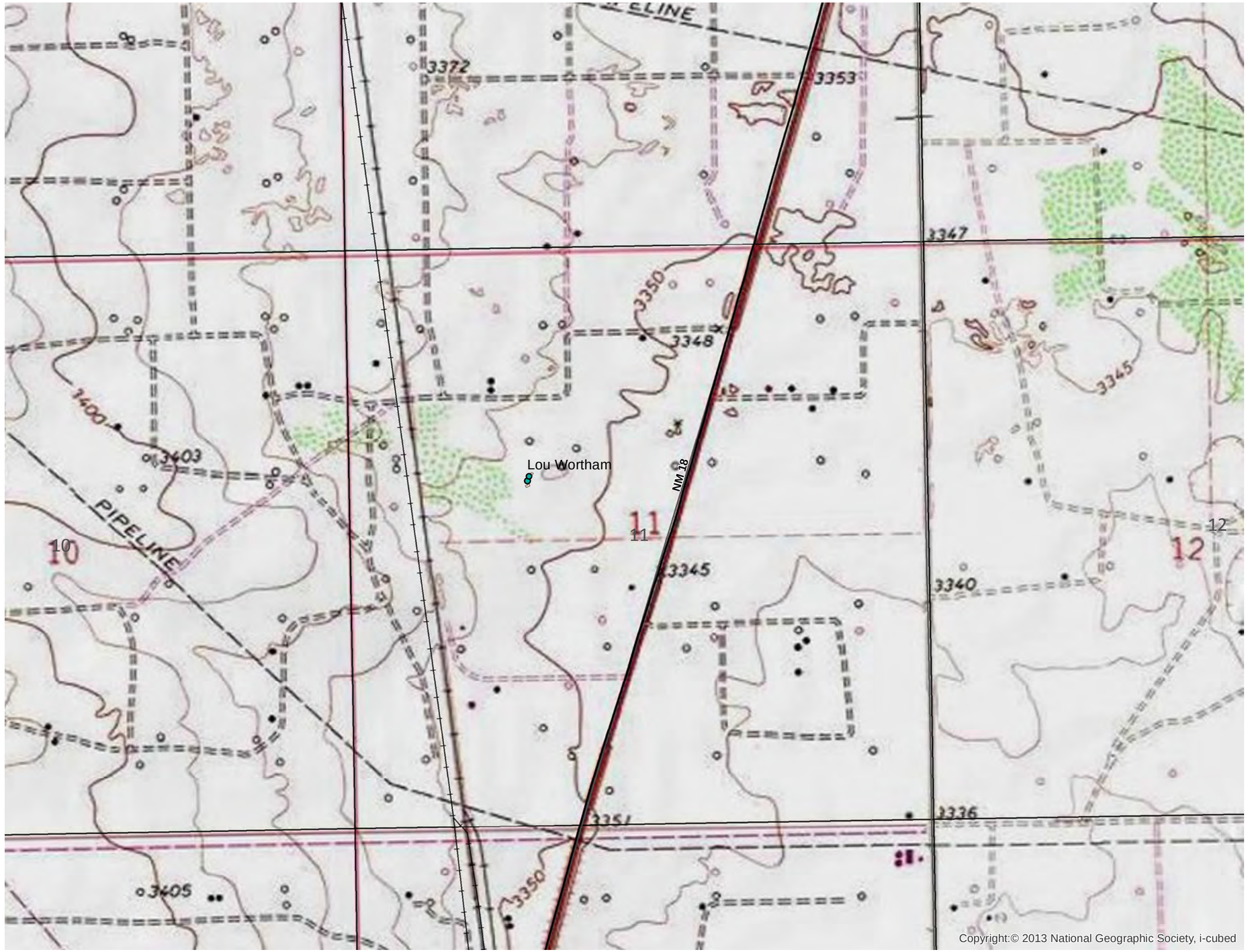
0 1,000

Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

MINERAL AND SURFACE OWNERSHIP

ARCADIS



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LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads
- Sections
- Townships
- USA Topo Maps

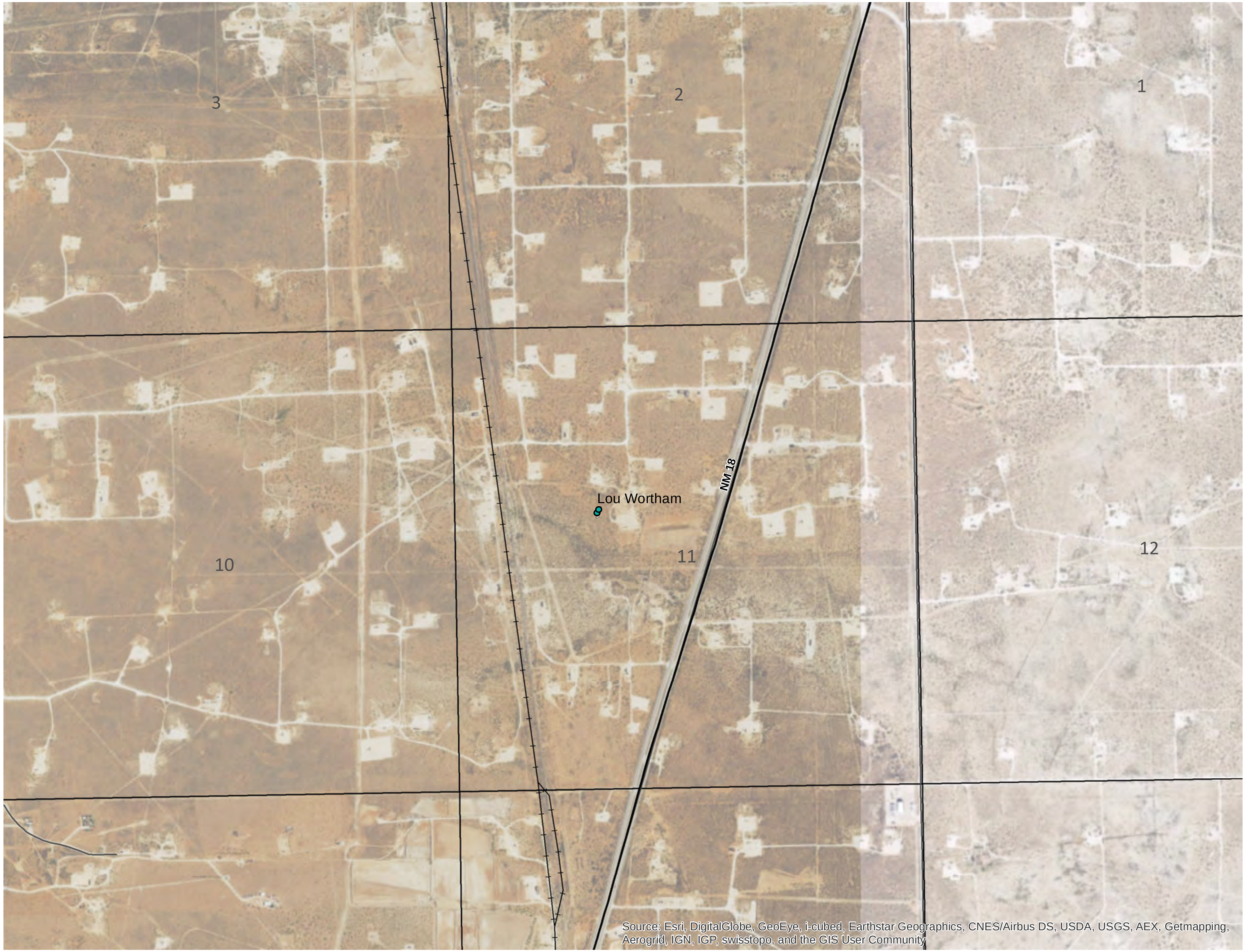
0 1,000

Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

TOPOGRAPHY

ARCADIS



LEGEND

- points
- area
- Railroads
- Major Roads
- Lea County Roads
- Sections
- Townships
- World Imagery

0 2,000
Feet

APACHE CORPORATION.
ENVIRONMENTAL ASSESSMENT
EDDY COUNTY, NEW MEXICO

ARCADIS

FIGURE

DIV/GROUP: ENV/IMDV DB: jvancuren LD: PIC: PM: TM:
PROJECT: PATH: G:\APROJECT\Chevron\B0048144.0001\Chevron\Texas hornshell2.mxd DATE: 8/25/2016 12:25:21 PM

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District III
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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 38951

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 38951
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	1/4/2023