



303 Veterans Airpark Lane Midland, TX 79705

Remediation Plan

August 24, 2020

Re: WBDU # 12

Case # NRM2015737274

Background:

On 5/26/2020 a release occurred due to a valve failure. The release (GPS: 32.50080, -103.16790) is located north of Eunice, NM in unit letter O section 4 township 21S range 37E. A groundwater survey was conducted utilizing the NMOSE and USGS wells of record. The nearest well suggest that groundwater beneath the release is 24 feet.

On 5/27/2020 surface and 1 foot samples were collected at SP 1 and a surface sample at SP 2. All samples collected were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. Laboratory results were below table one standards for release less than or equal to 50 feet to groundwater at SP 1. On 8/6/2020 SP 2 was further delineated to a depth of 1 foot, and horizontal surface samples were collected and submitted to a commercial laboratory for analysis of chloride TPH, and BTEX. Laboratory results for chlorides were below table standards. TPH levels at SP 2 and HC2 were above table one standards. On 8/14/2020 SP 2 was delineated an additional 6 inches and submitted to a commercial laboratory for analysis of TPH. Another surface sample was collected further out from the release at HC2 and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. Laboratory results were below table one standards.

Remediation Plan:

Apache Corporation proposes that the area around SP 1 be excavated to a depth of 1 foot. The area around SP 2 be excavated to a depth of 1.5 feet. All excavated material (60 yards) will be hauled to an OCD approved disposal facility. After the excavation is complete final 5 point bottom and wall composite samples will be collected not to exceed 200 square feet and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. Once analytical data confirms that the excavation meets table 1 standards for releases less than 50 feet to groundwater the excavation will be backfilled with clean imported caliche for the pad area and clean imported topsoil for the pasture. The pasture will be re-seeded in accordance with the surface landowner. The remediation will be completed within 90 days of OCD approval of the plan.

Enclosed: Corrected C-141, Groundwater data, Maps, Sample Data, and Laboratory Results

Submitted by;

Bruce Baker

Environmental Technician

larry.baker@apachecorp.com

Cell# 432-631-6982

Off# 432-818-1000

Incident ID	NRM2015737274
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?	<u>24</u> (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 checked="" type="checkbox"/> Yes <input 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.

Oil Conservation Division

Incident ID	NRM2015737274
District RP	
Facility ID	
Application ID	

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

Printed Name: Larry Baker Title: Environmental Tech SR.
Signature: *Larry Baker* Date: 8/24/2020
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Cristina Eads Date: 08/24/2020

Incident ID	NRM2015737274
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: Larry Baker Title: Environmental Tech SR.
Signature: Larry Baker Date: _____
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Cristina Eads Date: 08/24/2020

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

Signature: Cristina Eads Date: 10/22/2020



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National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:

Groundwater ▼

Geographic Area:

New Mexico ▼

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- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 323012103094901

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 323012103094901 21S.37E.04.412442

Available data for this site

Groundwater: Field measurements ▼

GO

Lea County, New Mexico

Hydrologic Unit Code 13070007

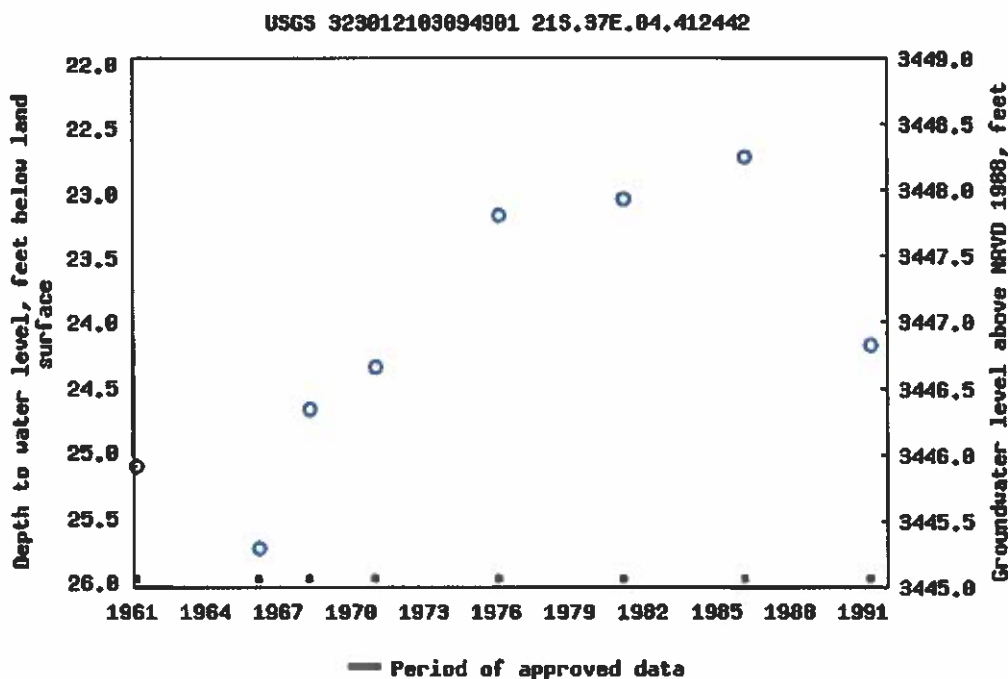
Latitude 32°30'12", Longitude 103°09'49" NAD27

Land-surface elevation 3,471 feet above NAVD88

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

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



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for New Mexico: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>



Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2020-01-16 16:12:04 EST

0.64 0.48 nadww01

Buffer Size (miles) : 0.5

Click Map to Draw Radius

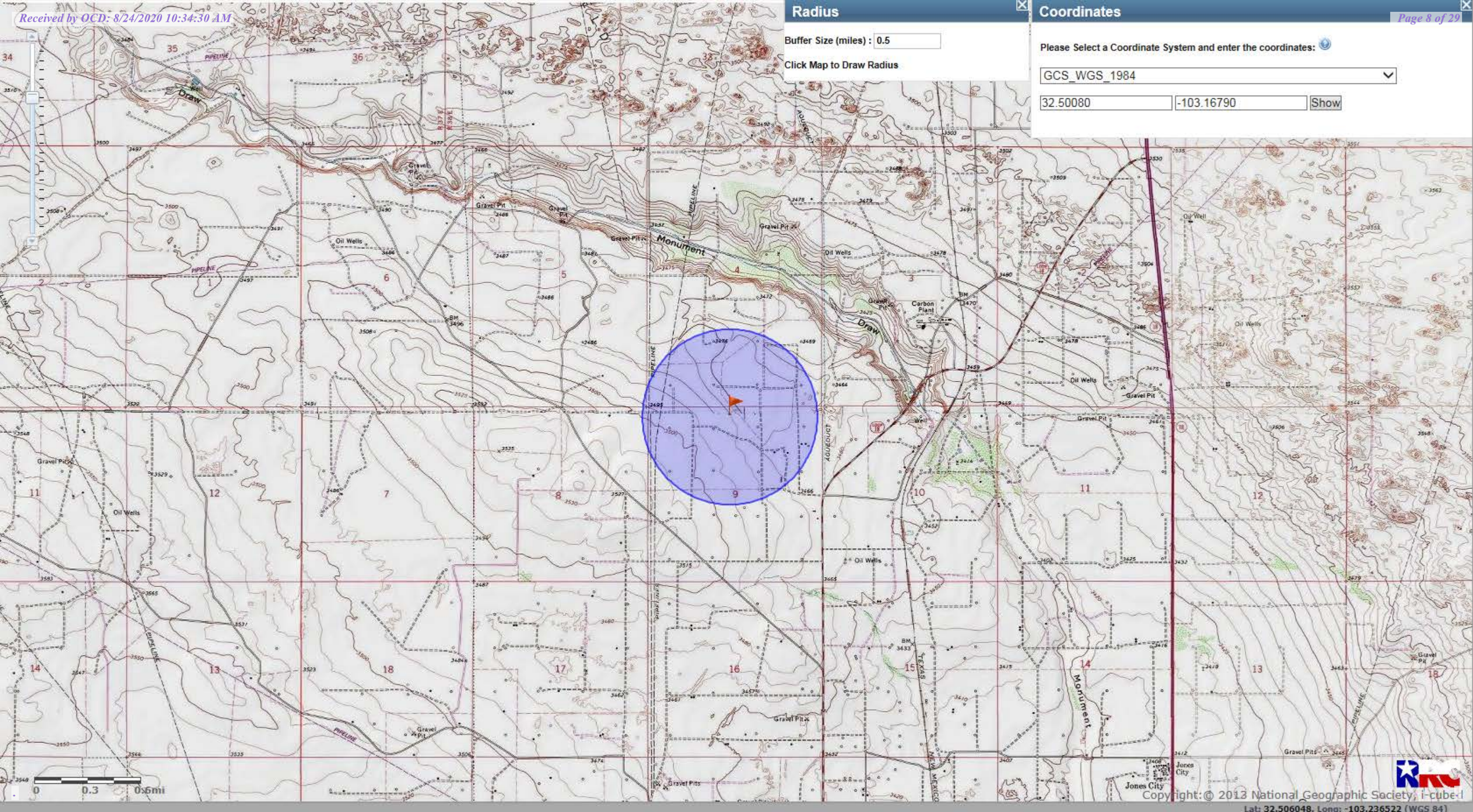
Please Select a Coordinate System and enter the coordinates:

GCS_WGS_1984

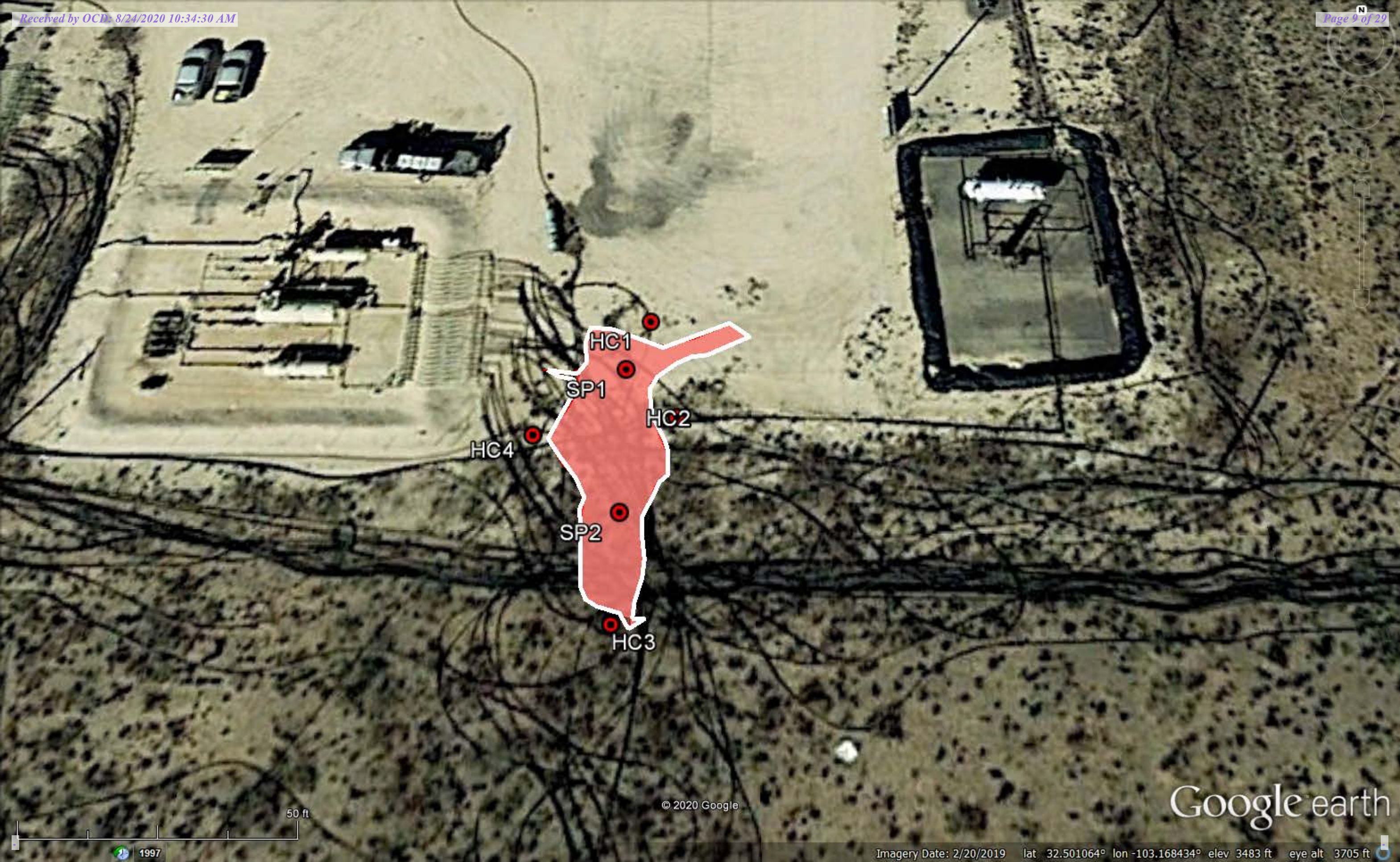
32.50080

-103.16790

Show



0 0.3 0.6mi



HC1

HC2

HC3

HC4

SP1

SP2

Google earth

© 2020 Google

50 ft

1997

Imagery Date: 2/20/2019 lat 32.501064° lon -103.168434° elev 3483 ft eye alt 3705 ft

NEDU Injection Line

Complete List

WBDU 12 Delineation Samples

Map ID	Sample Date	Sample ID	Depth	Chloride	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS Coordinates
SP1	5/27/2020	SP1 @ Surface	S	1,380	2.89	38.30	47	123	211	3410	24000	4190	32.500750 -103.16788
	5/27/2020	SP1 @ 1'	1'	32	<.050	0.058	<.050	<.150	<.300	<10.0	52.9	<10.0	
SP2	5/27/2020	SP2 @ Surface	S	336	<.050	0.263	0.216	0.568	1.05	11.00	1930	383	32.500658 -103.167893
	8/6/2020	SP2 @ 1'	1'	32	<.050	<.050	<.050	<.150	<.300	<10.0	188	130	
	8/14/2020	SP2 @ 1.5'	1.5'		<.050	<.050	<.050	<.150	<.300	<10.0	<10.0	<10.0	
HC1	8/6/2020	HC1	S	16	<.050	<.050	<.050	<.150	<.300	<10.0	25.0	13.5	32.500785 -103.167892
HC2	8/6/2020	HC2	S	368	<.050	<.050	<.050	<.150	<.300	<10.0	148	41.5	32.500717 -103.167892
	8/14/2020	HC2	S	16	<.050	<.050	<.050	<.150	<.300	<10.0	29.1	21.0	
HC3	8/6/2020	HC3	S	<16.0	<.050	<.050	<.050	<.150	<.300	<10.0	51.5	22.0	32.500589 -103.167892
HC4	8/6/2020	HC4	S	48	<.050	<.050	<.050	<.150	<.300	<10.0	<10.0	<10.0	32.500704 -103.167951



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

June 01, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: WBDU #12

Enclosed are the results of analyses for samples received by the laboratory on 05/27/20 11:22.

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 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' and 'K'.

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:	05/27/2020	Sampling Date:	05/27/2020
Reported:	06/01/2020	Sampling Type:	Soil
Project Name:	WBDU #12	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA COUNTY, NM		

Sample ID: SP 1 @ SURFACE (H001435-01)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	2.89	0.500	05/28/2020	ND	1.96	98.1	2.00	3.14	
Toluene*	38.3	0.500	05/28/2020	ND	1.92	96.0	2.00	2.80	
Ethylbenzene*	47.0	0.500	05/28/2020	ND	1.93	96.5	2.00	3.44	
Total Xylenes*	123	1.50	05/28/2020	ND	5.52	92.0	6.00	3.72	
Total BTX	211	3.00	05/28/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 165 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1380	16.0	05/28/2020	ND	384	96.0	400	4.08	

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*	3410	50.0	05/28/2020	ND	178	88.9	200	3.53	
DRO >C10-C28*	24000	50.0	05/28/2020	ND	211	106	200	4.33	
EXT DRO >C28-C36	4190	50.0	05/28/2020	ND					

Surrogate: 1-Chlorooctane 794 % 44.3-144

Surrogate: 1-Chlorooctadecane 823 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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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: 05/27/2020
 Reported: 06/01/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 05/27/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 1' (H001435-02)

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	05/28/2020	ND	1.96	98.1	2.00	3.14	
Toluene*	0.058	0.050	05/28/2020	ND	1.92	96.0	2.00	2.80	
Ethylbenzene*	<0.050	0.050	05/28/2020	ND	1.93	96.5	2.00	3.44	
Total Xylenes*	<0.150	0.150	05/28/2020	ND	5.52	92.0	6.00	3.72	
Total BTEx	<0.300	0.300	05/28/2020	ND					

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

Chloride, SM4500CI-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	05/28/2020	ND	384	96.0	400	4.08	

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	05/28/2020	ND	178	88.9	200	3.53	
DRO >C10-C28*	52.9	10.0	05/28/2020	ND	211	106	200	4.33	
EXT DRO >C28-C36	<10.0	10.0	05/28/2020	ND					

Surrogate: 1-Chlorooctane 94.3 % 44.3-144

Surrogate: 1-Chlorooctadecane 107 % 42.2-156

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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: 05/27/2020
 Reported: 06/01/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 05/27/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ SURFACE (H001435-03)

BTX 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	05/28/2020	ND	1.96	98.1	2.00	3.14	
Toluene*	0.263	0.050	05/28/2020	ND	1.92	96.0	2.00	2.80	
Ethylbenzene*	0.216	0.050	05/28/2020	ND	1.93	96.5	2.00	3.44	
Total Xylenes*	0.568	0.150	05/28/2020	ND	5.52	92.0	6.00	3.72	
Total BTX	1.05	0.300	05/28/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	05/28/2020	ND	384	96.0	400	4.08		
TPH 8015M		mg/kg		Analyzed By: MS						S-04

TPH 8015M	mg/kg		Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	11.0	10.0	05/29/2020	ND	189	94.5	200	6.42	
DRO >C10-C28*	1930	10.0	05/29/2020	ND	180	90.2	200	5.48	QR-03
EXT DRO >C28-C36	383	10.0	05/29/2020	ND					

Surrogate: 1-Chlorooctane 88.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 168 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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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.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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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*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "C. D. Keene".

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

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



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

August 12, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: WBDU #12

Enclosed are the results of analyses for samples received by the laboratory on 08/06/20 14:15.

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 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, flowing style.

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: 08/06/2020
 Reported: 08/12/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/06/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 1' (H002050-01)

BTX 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	08/07/2020	ND	1.85	92.6	2.00	5.01	
Toluene*	<0.050	0.050	08/07/2020	ND	1.85	92.4	2.00	5.17	
Ethylbenzene*	<0.050	0.050	08/07/2020	ND	1.84	92.2	2.00	5.33	
Total Xylenes*	<0.150	0.150	08/07/2020	ND	5.29	88.1	6.00	5.30	
Total BTX	<0.300	0.300	08/07/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.2 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/07/2020	ND	400	100	400	3.92	

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	08/07/2020	ND	206	103	200	3.93	
DRO >C10-C28*	188	10.0	08/07/2020	ND	217	109	200	4.16	
EXT DRO >C28-C36	130	10.0	08/07/2020	ND					

Surrogate: 1-Chlorooctane 83.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 96.6 % 42.2-156

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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: 08/06/2020
 Reported: 08/12/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/06/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HC 1 (H002050-02)

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	08/07/2020	ND	1.85	92.6	2.00	5.01	
Toluene*	<0.050	0.050	08/07/2020	ND	1.85	92.4	2.00	5.17	
Ethylbenzene*	<0.050	0.050	08/07/2020	ND	1.84	92.2	2.00	5.33	
Total Xylenes*	<0.150	0.150	08/07/2020	ND	5.29	88.1	6.00	5.30	
Total BTEx	<0.300	0.300	08/07/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.4 % 73.3-129

Chloride, SM4500CI-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	08/07/2020	ND	400	100	400	3.92	

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	08/07/2020	ND	206	103	200	3.93	
DRO >C10-C28*	25.0	10.0	08/07/2020	ND	217	109	200	4.16	
EXT DRO >C28-C36	13.5	10.0	08/07/2020	ND					

Surrogate: 1-Chlorooctane 73.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 75.4 % 42.2-156

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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: 08/06/2020
 Reported: 08/12/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/06/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HC 2 (H002050-03)

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	08/07/2020	ND	1.85	92.6	2.00	5.01	
Toluene*	<0.050	0.050	08/07/2020	ND	1.85	92.4	2.00	5.17	
Ethylbenzene*	<0.050	0.050	08/07/2020	ND	1.84	92.2	2.00	5.33	
Total Xylenes*	<0.150	0.150	08/07/2020	ND	5.29	88.1	6.00	5.30	
Total BTEx	<0.300	0.300	08/07/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	08/07/2020	ND	400	100	400	3.92	

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	08/07/2020	ND	206	103	200	3.93	
DRO >C10-C28*	148	10.0	08/07/2020	ND	217	109	200	4.16	
EXT DRO >C28-C36	41.5	10.0	08/07/2020	ND					

Surrogate: 1-Chlorooctane 69.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 77.0 % 42.2-156

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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: 08/06/2020
 Reported: 08/12/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/06/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HC 3 (H002050-04)

BTX 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	08/07/2020	ND	1.91	95.7	2.00	4.07	
Toluene*	<0.050	0.050	08/07/2020	ND	1.92	96.1	2.00	4.13	
Ethylbenzene*	<0.050	0.050	08/07/2020	ND	1.92	96.0	2.00	4.39	
Total Xylenes*	<0.150	0.150	08/07/2020	ND	5.59	93.2	6.00	4.15	
Total BTX	<0.300	0.300	08/07/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.3-129

Chloride, SM4500CI-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	08/07/2020	ND	400	100	400	3.92	

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	08/07/2020	ND	206	103	200	3.93	
DRO >C10-C28*	51.5	10.0	08/07/2020	ND	217	109	200	4.16	
EXT DRO >C28-C36	22.0	10.0	08/07/2020	ND					

Surrogate: 1-Chlorooctane 78.0 % 44.3-144

Surrogate: 1-Chlorooctadecane 81.5 % 42.2-156

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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: 08/06/2020
 Reported: 08/12/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/06/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HC 4 (H002050-05)

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	08/07/2020	ND	1.91	95.7	2.00	4.07		
Toluene*	<0.050	0.050	08/07/2020	ND	1.92	96.1	2.00	4.13		
Ethylbenzene*	<0.050	0.050	08/07/2020	ND	1.92	96.0	2.00	4.39		
Total Xylenes*	<0.150	0.150	08/07/2020	ND	5.59	93.2	6.00	4.15		
Total BTEx	<0.300	0.300	08/07/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 73.3-129

Chloride, SM4500CI-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	08/07/2020	ND	400	100	400	3.92		

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	08/07/2020	ND	199	99.6	200	1.12	
DRO >C10-C28*	<10.0	10.0	08/07/2020	ND	206	103	200	0.587	
EXT DRO >C28-C36	<10.0	10.0	08/07/2020	ND					

Surrogate: 1-Chlorooctane 74.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 80.7 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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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.
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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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

August 20, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: WBDU #12

Enclosed are the results of analyses for samples received by the laboratory on 08/14/20 13:26.

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 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, flowing style.

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: 08/14/2020
 Reported: 08/20/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/14/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 1.5" (H002132-01)

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	08/17/2020	ND	2.10	105	2.00	2.53	
Toluene*	<0.050	0.050	08/17/2020	ND	2.12	106	2.00	2.49	
Ethylbenzene*	<0.050	0.050	08/17/2020	ND	2.11	105	2.00	2.51	
Total Xylenes*	<0.150	0.150	08/17/2020	ND	6.13	102	6.00	2.59	
Total BTEX	<0.300	0.300	08/17/2020	ND					

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

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	08/17/2020	ND	184	91.8	200	1.80	
DRO >C10-C28*	<10.0	10.0	08/17/2020	ND	178	89.1	200	2.95	
EXT DRO >C28-C36	<10.0	10.0	08/17/2020	ND					

Surrogate: 1-Chlorooctane 79.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 89.4 % 42.2-156

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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: 08/14/2020
 Reported: 08/20/2020
 Project Name: WBDU #12
 Project Number: NONE GIVEN
 Project Location: LEA COUNTY, NM

Sampling Date: 08/14/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HC 2 (H002132-02)

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	08/17/2020	ND	2.10	105	2.00	2.53	
Toluene*	<0.050	0.050	08/17/2020	ND	2.12	106	2.00	2.49	
Ethylbenzene*	<0.050	0.050	08/17/2020	ND	2.11	105	2.00	2.51	
Total Xylenes*	<0.150	0.150	08/17/2020	ND	6.13	102	6.00	2.59	
Total BTEx	<0.300	0.300	08/17/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	08/17/2020	ND	400	100	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	08/17/2020	ND	184	91.8	200	1.80	
DRO >C10-C28*	29.1	10.0	08/17/2020	ND	178	89.1	200	2.95	
EXT DRO >C28-C36	21.0	10.0	08/17/2020	ND					

Surrogate: 1-Chlorooctane 79.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 88.5 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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.
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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A handwritten signature in black ink, appearing to read "C. D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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ANALYSIS REQUEST

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