2350 W Marland Blvd Hobbs, NM 88240

Remediation Plan

December 6, 2018

Re: Geronimo 28 State # 2 SWD
API# 30-015-40876
Case # 2RP-4977

To: Mike Bratcher
District Supervisor-New Mexico Oil Conservation Division Energy, Minerals and Natural Resources Department 811 S. 1st Street Artesia, NM 88210

Background:

On 9/10/2018 a release occurred due to a hole developed on a 4 inch transition. An initial C-141 was submitted to NMOCD and approved on 9/20/2018. The release is located east of Artesia New Mexico (GPS Coordinates 32.80423 -104.17411) in unit letter I section 28 township 17S range 28E. Section 28 is in an area of high karst potential. A groundwater survey was conducted utilizing USGS and NMOSE well search in the area which indicates an average depth of groundwater below the release at 157 feet. On 10/19/18 five surface samples were collected and submitted to a commercial laboratory for analysis of Cl-, TPH, and BTEX. The laboratory results for all five initial samples were below table 1 standards.

Remediation Plan:

Apache Corporation purposes to collect 5 point surface samples not to exceed 500 square feet and submit to a commercial laboratory for analysis of Cl-, TPH, and BTEX. If the surface samples meet the table 1 criteria of CL- 600 mg/kg, TPH 100 mg/kg, BTEX 50 mg/kg, and Benzene 10 mg/kg then a closure report will be submitted to NMOCD. If the samples exceed the criteria those areas will be delineated and excavated to a depth not to exceed 4 feet. If contamination exceeds four feet in depth then a revised remediation plan will be submitted. Once excavations are complete 5 point bottom and wall samples will be collected not to exceed 500 square feet on the bottom and 200 square feet for the walls. All excavated material will be hauled to an NMOCD approved facility and backfill with clean imported caliche and contoured to the surrounding area. NMOCD will be emailed 48 hours in advance of final samples being collected. The remediation will be completed within 90 days of NMOCD approval of the remediation plan.

Enclosed: Initial C-141, groundwater data, Maps, and Laboratory Results
Submitted by;

Bruce Baker

Environmental Technician
larry.baker@apachecorp.com
Cell# 432-631-6982
Off# 575-393-7106

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NMAP1826375984
District RP	2RP-4977
Facility ID	N/A
Application ID	pMAP1826375677

Release Notification

Responsible Party

Responsible Party: Apache Corp.	OGRID: 873
Contact Name: Bruce Baker	Contact Telephone: 432-631-6982
Contact email: larry.baker@apachecorp.com	Incident # (assigned by OCD): NMAP1826375984
Contact mailing address: 2350 W. Marland BLVD Hobbs, NM 88240	

Location of Release Source

Latitude: 32.80424 Longitude: -104.22689
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Geronimo 28 State #2 SWD	Site Type: SWD
Date Release Discovered: 9/10/18	API# (if applicable): 30-015-40876

Unit Letter	Section	Township	Range	County
I	28	17S	28E	Eddy

Surface Owner: ☑ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☑ Produced Water	Volume Released (bbls): 24 barrels	Volume Recovered (bbls): 10 barrels
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A 4" transition developed a hole.

State of New Mexico
Oil Conservation Division

Incident ID	NMAP1826375984
District RP	2RP-4977
Facility ID	
Application ID	pMAP1826375677

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☑ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

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

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

Printed Name: Bruce Baker Title: Environmental Tech. SR

Signature: Bruce Baker Date: 9/18/18

email: larry.baker@apachecorp.com Telephone: 432-631-6932

OCD Only

Received by: Date: 09/20/18

Volume Calculation

240ft.3 x 7.48 = 1,795gal/42 = 42bbls x .33soil porosity = 14 barrels + 10 recove

= 24 barrels total

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	157 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☑ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☑ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☑ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☑ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☑ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☑ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☑ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☑ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☑ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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Printed Name: Bruce BAKer Title: Environmental Tech. SR

Signature: Bruce Baker Date: 12-6-18

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

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Bruce Baker Title: Environmental Tech. SR

Signature: Bruce Baker Date: 12-5-18

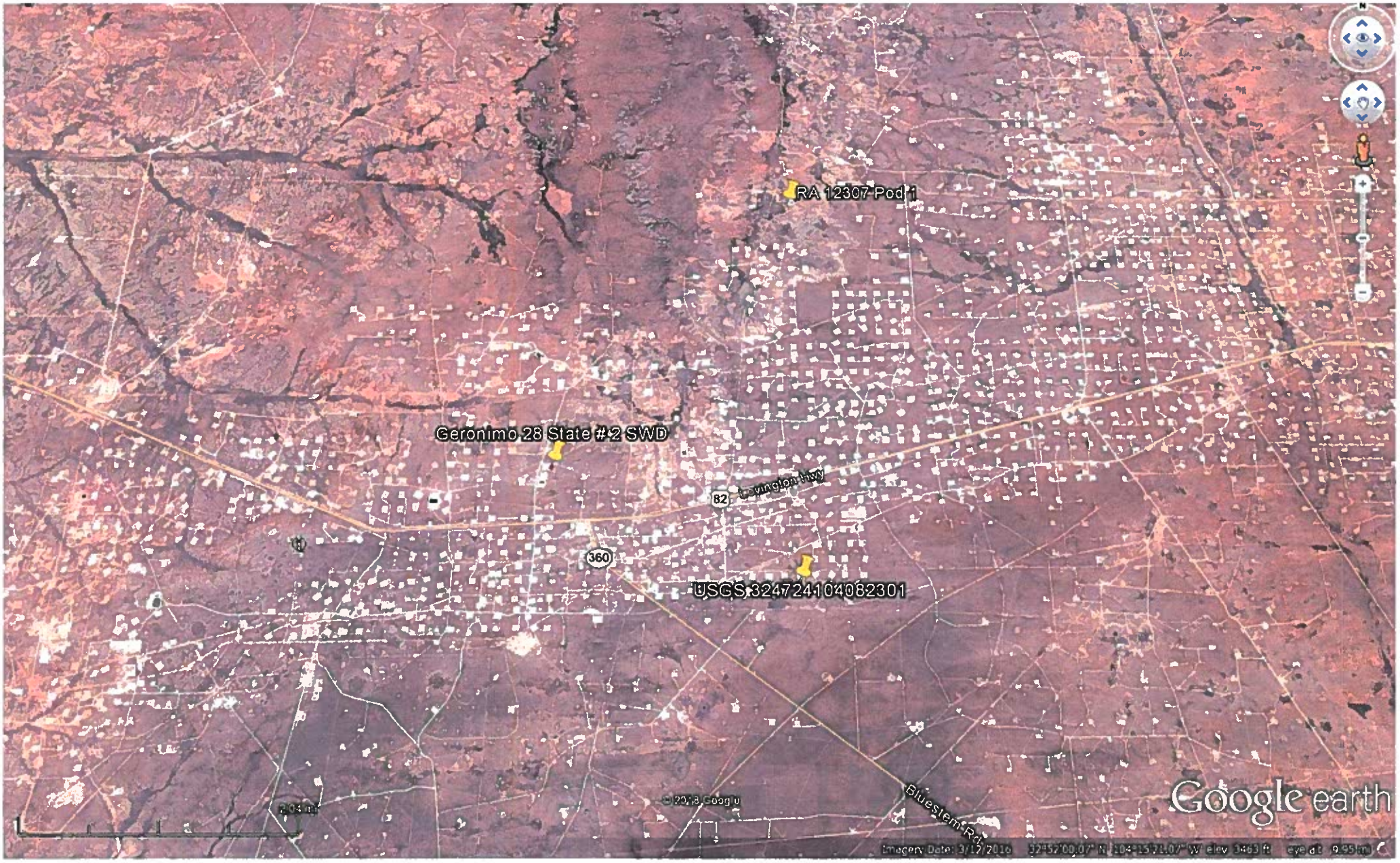
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____


RA 12307 Pod 1
Geronimo 28 State #2 SWD
82
360
USGS 324724104082301
Bluestem Rd
Google earth

USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: New Mexico | GO

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324724104082301

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

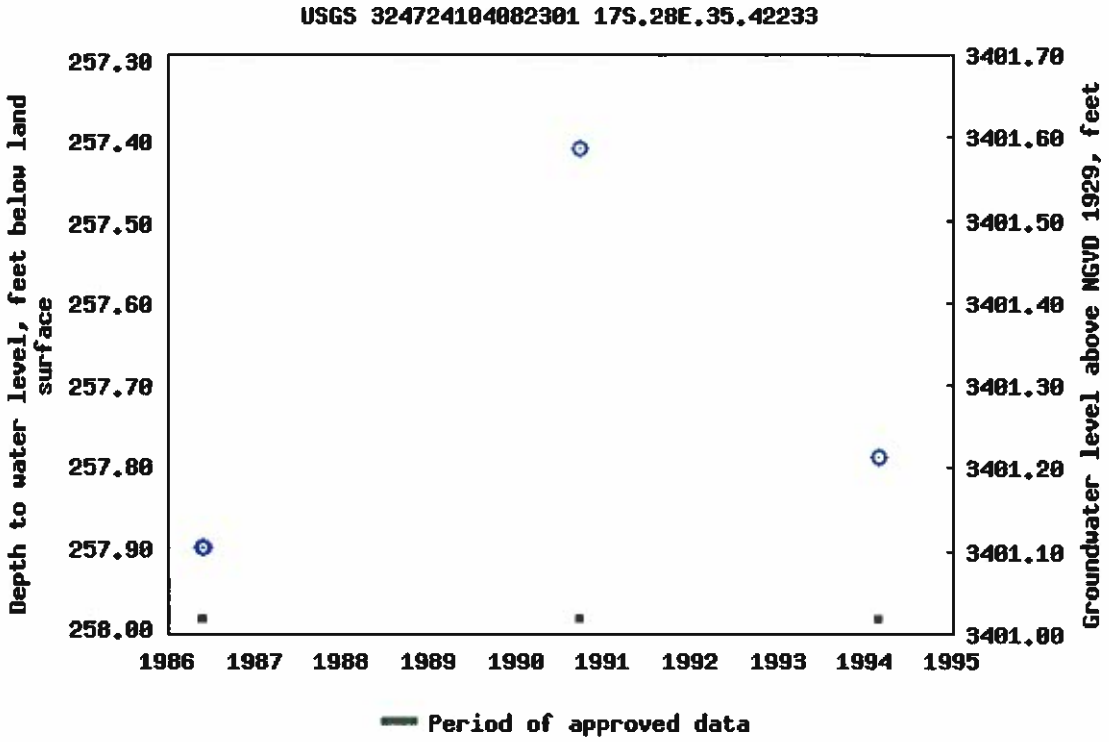
USGS 324724104082301 17S.28E.35.42233

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°47'24", Longitude 104°08'23" NAD27
Land-surface elevation 3,659 feet above NGVD29
The depth of the well is 280.00 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



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

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

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
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: 2018-12-03 16:31:20 EST
1.05 0.92 nadww01

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	Distance	Depth Well	Depth Water	Water Column
RA 12307 POD1			ED	4	2	2	14	17S	28E	580495	3633981	3792	140	58	82

Average Depth to Water: **58 feet**

Minimum Depth: **58 feet**

Maximum Depth: **58 feet**

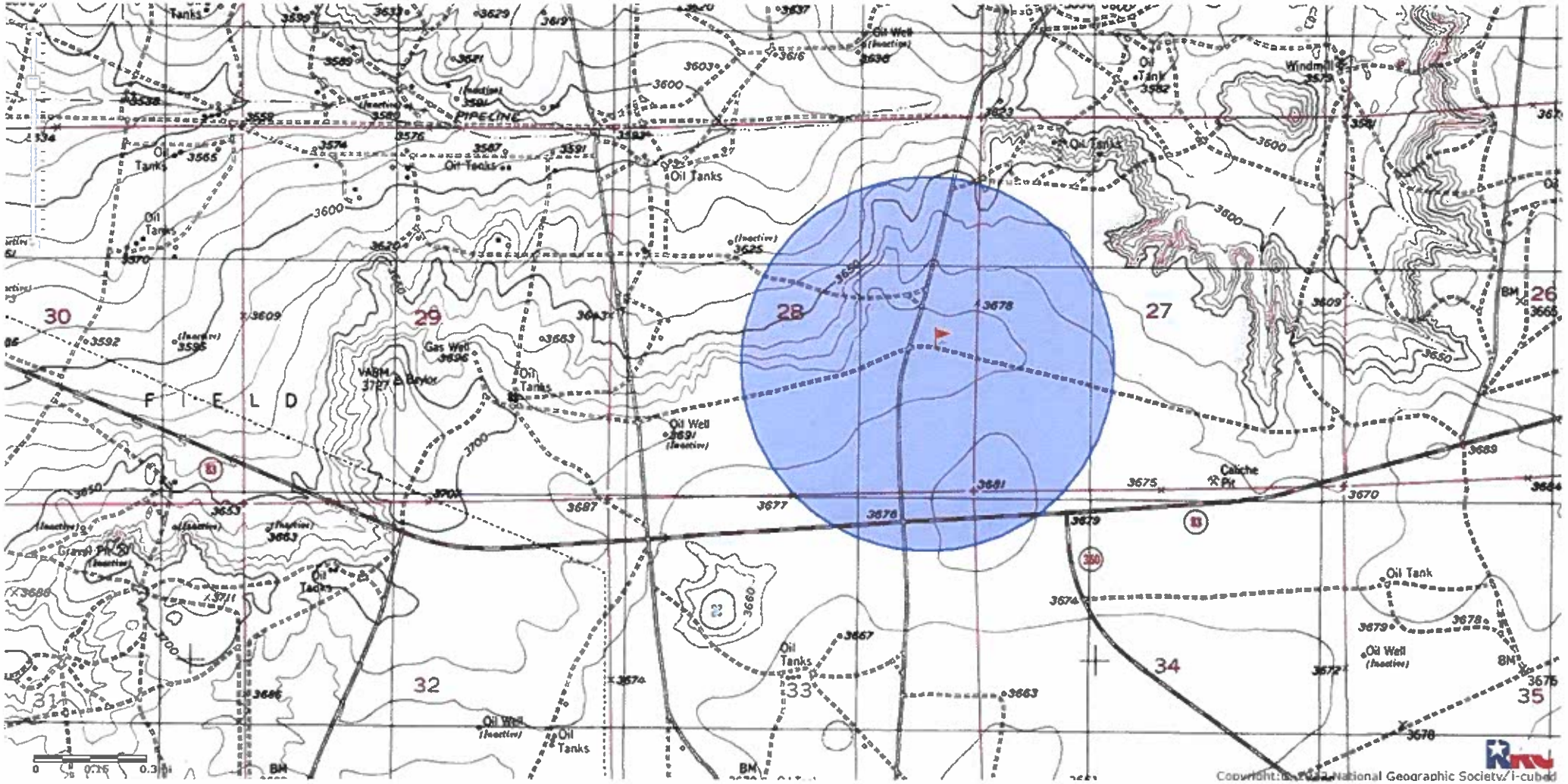
Record Count: 1

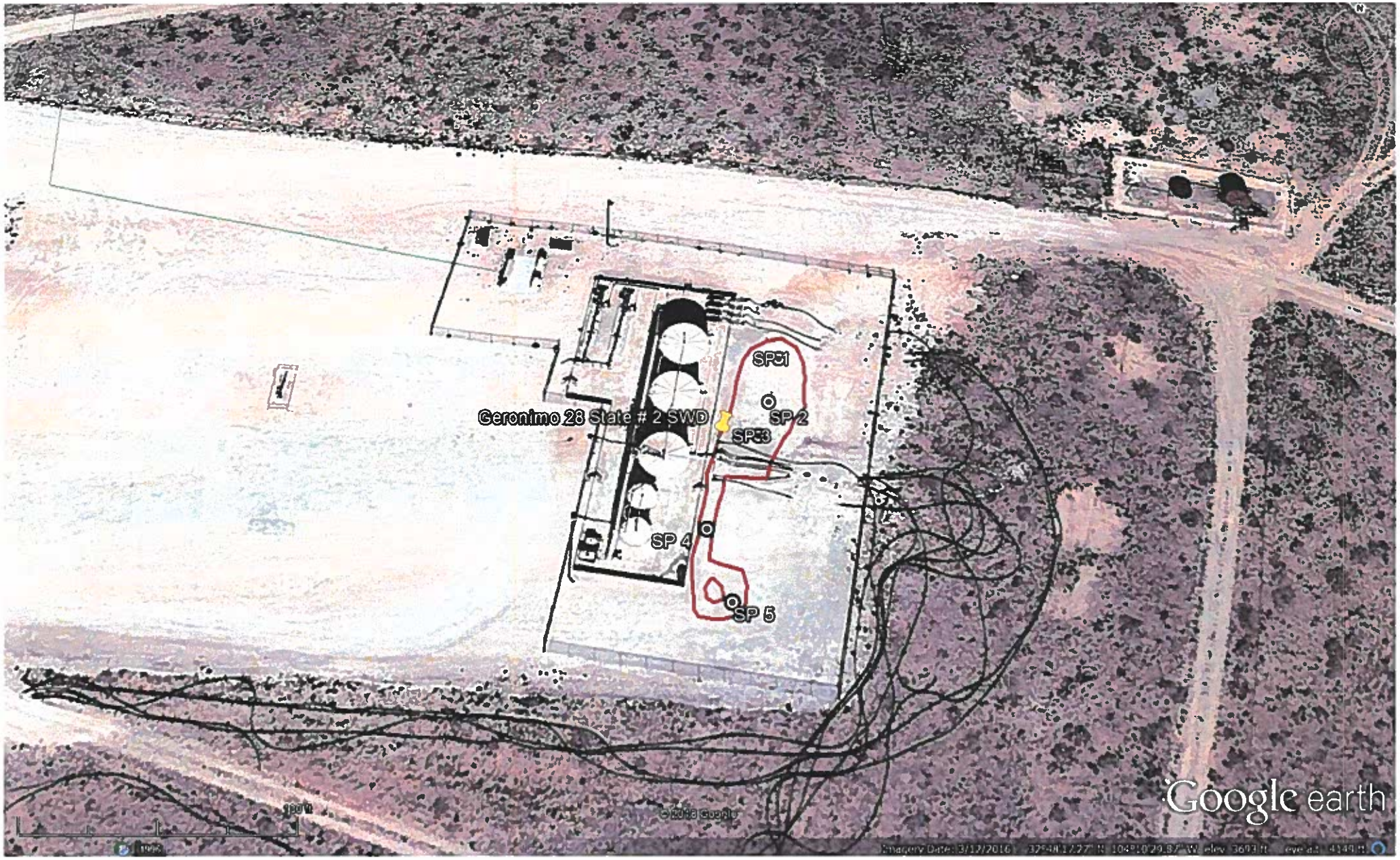
UTMNAD83 Radius Search (in meters):

Easting (X): 577879 **Northing (Y):** 3631236 **Radius:** 4000

6/1/18 9:02 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER




SP1
SP 2
Geronimo 23 State # 2 SWD
SP3
SP 4
SP 5
Google earth

Geronimo 28 State # 2 SWD

Sample Pt.	Depth	Chloride	Benzene	Toluene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS
1	Surface	480	<0.050	<0.050	<0.050	<0.150	<0.300	<10	<10	<10	32.80435 - 104.17403
2	Surface	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10	<10	<10	32.80428 - 104.17404
3	Surface	400	<0.050	<0.050	<0.050	<0.150	<0.300	<10	<10	<10	32.80425 - 104.17405
4	Surface	256	<0.050	<0.050	<0.050	<0.150	<0.300	<10	<10	<10	32.80413 - 104.17411
5	Surface	112	<0.050	<0.050	<0.050	<0.150	<0.300	<10	<10	<10	32.80405 - 104.17407

CARDINAL Laboratories

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

October 24, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: GERONIMO 28 ST 2 SWD

Enclosed are the results of analyses for samples received by the laboratory on 10/19/18 14:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/19/2018	Sampling Date:	10/19/2018
Reported:	10/24/2018	Sampling Type:	Soil
Project Name:	GERONIMO 28 ST 2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SAMPLE POINT 1 @ SURFACE (H803017-01)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEX	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.9 %* *69.8-142*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**480**	16.0	10/23/2018	ND	432	108	400	7.69	

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	10/22/2018	ND	216	108	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/22/2018	ND	211	106	200	4.60	
EXT DRO >C28-C36	<10.0	10.0	10/22/2018	ND					

Surrogate: 1-Chlorooctane *87.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.0 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/19/2018	Sampling Date:	10/19/2018
Reported:	10/24/2018	Sampling Type:	Soil
Project Name:	GERONIMO 28 ST 2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 @ SURFACE (H803017-02)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEX	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.9 %* *69.8-142*

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	10/23/2018	ND	432	108	400	7.69	

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	10/22/2018	ND	216	108	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/22/2018	ND	211	106	200	4.60	
EXT DRO >C28-C36	<10.0	10.0	10/22/2018	ND					

Surrogate: 1-Chlorooctane *83.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *78.4 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/19/2018	Sampling Date:	10/19/2018
Reported:	10/24/2018	Sampling Type:	Soil
Project Name:	GERONIMO 28 ST 2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 @ SURFACE (H803017-03)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEX	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL *91.8 %* *69.8-142*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	10/23/2018	ND	432	108	400	7.69	

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	10/22/2018	ND	216	108	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/22/2018	ND	211	106	200	4.60	
EXT DRO >C28-C36	<10.0	10.0	10/22/2018	ND					

Surrogate: 1-Chlorooctane *83.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *82.3 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/19/2018	Sampling Date:	10/19/2018
Reported:	10/24/2018	Sampling Type:	Soil
Project Name:	GERONIMO 28 ST 2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 @ SURFACE (H803017-04)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEX	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID *90.5 %* *69.8-142*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**256**	16.0	10/23/2018	ND	432	108	400	7.69	

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	10/22/2018	ND	216	108	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/22/2018	ND	211	106	200	4.60	
EXT DRO >C28-C36	<10.0	10.0	10/22/2018	ND					

Surrogate: 1-Chlorooctane *90.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *86.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/19/2018	Sampling Date:	10/19/2018
Reported:	10/24/2018	Sampling Type:	Soil
Project Name:	GERONIMO 28 ST 2 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 @ SURFACE (H803017-05)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEX	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.3 %* *69.8-142*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	10/23/2018	ND	432	108	400	7.69	

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	10/22/2018	ND	216	108	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/22/2018	ND	211	106	200	4.60	
EXT DRO >C28-C36	<10.0	10.0	10/22/2018	ND					

Surrogate: 1-Chlorooctane *86.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *81.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Apache	**BILL TO**	
Project Manager:	Bruce Baker	P.O. #:	
Address:		Company:	
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	Geronimo 28 St 2 SWD	Phone #:	
Sampler Name:	Joe Quesada Jr.	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE/COOL	OTHER:	DATE	TIME	Cl	Ext TPH	BTEX
H803017																	
1	Sample point 1 Surface	G	1			1					-		10-19-18	12:45pm	1	1	1
2	S.P. 2 @ Surface	G	1			1					1		10.19.18	12:30pm	1	1	1
3	SP. 3 @ Surface	G	1			1					1		10.19.18	1:00pm	1	1	1
4	Sp.4 @ Surface	G	1			1					1		10.19.18	1:15pm	1	1	1
5	SP.5 @ Surface	G	1			1					1		10.19.18	1:40pm	1	1	1

Relinquished By:	Date: 10-19-18	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 14:10		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email Results.
	Time:		

Delivered By: (Circle One)	Sample Condition		CHECKED BY: (Initials)
Sampler - UPS - Bus - Other: 3.4° #197	Cool ☑ Yes ☐ No	Intact ☑ Yes ☐ No	T.O.

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