JUDAH OIL, LLC
Oil, Gas and SWD Operating

July 30, 2020

NMOCD
Environmental Bureau
I/O Brad Billings
1220 South St. Francis Dr.
Santa Fe, NM 87505

RE: Ford State #2 Incident No. NMR1935739461
Section 2, T-22-S, R-28-E, Eddy County NM

Good morning Mr. Billings,

I have attached our work plan to remediate a spill caused by a poly line rupture on 10/01/2019. The purpose of this letter is to highlight a few points that I am hoping you will consider in your decision in setting guidelines to continue forward with final closure of this incident.

When this incident was first discovered by my pumper, I had him take pictures, call a vacuum truck to pick up what standing fluid he could, and go pick up our backhoe to scrape up all he could into a pile so it could be immediately removed the next day. There is a very hard pan of cliché around 6" deep which would not allow him to scrape any deeper. I had MMX load up all the contaminated soil they could scrape up which was 87 yards and hauled to Lea Land Solid Waste Station located on State HYW 62/180 in Lea County (Copy of Lea Land invoice attached). We estimated a total of 56 bbls of fluid was released with 9 bbls recovered.

I requested MMX to take care of the environmental assessments and prepare the paperwork to be submitted. The guy working for MMX took another job and the paperwork wasn't completed. I then asked SMA to finish this project and to make recommendations and prepare the documents to submit to the NMOCD Environmental department.

MMX originally took samples which are enclosed in the report found on the page labeled "Table 3, Sample Results". Later SMA took additional samples with a coring machine due to the extremely hard cliché pan along with a background sample to the NW of the spill area. The BGS showed a reading of 1940 Cl. (Table 3 of Sample results). As you will note on the Sample page, as you broke through the pan on S1, the chloride reading showed much higher than the samples above the pan.

In conclusion, I would like you to take into consideration that most of the contamination was immediately removed, there is an extremely hard pan at 6" which serves as a barrier, and the high chloride BGS, would help to make the case that the high chloride sample of S1 4-10' is a naturally present chloride, and not caused by the pipeline rupture. The presence of chlorides are higher on the north and falls off as you go south Example: S1 8'-3640 ppm, S2 8'-1200 ppm, and S3 8' is 960 ppm. The only area showing contamination is S2 with an area of 25' X 15' X 4' due to high Total TPh, this is not present in S1 nor S3.

I am requesting that you allow us to reclaim S2 as we have proposed and place topsoil over the entire disturbed area and reseed.

Thank you for your consideration,

James B Campanella
Member/Manager

Judah Oil, LLC
611 West Mahone, Suite F
P.O. Box 568
Artesia. New Mexico 88211-0568

E-mail: ibc@iudahoil.com

Office; (575)748-4730
Fax; (575)748-4731
Cell; (575)748-5488

Souder, Miller & Associates • 201 S. Halagueno St. • Carlsbad, NM 88220

July 6, 2020

5E28448-BG5

NMOCD District 2
Ms. Victoria Venegas
811 S. First Street
Artesia, New Mexico 88210

SUBJECT: Remediation Plan for the Ford State #002 Release, Carlsbad, New Mexico

Dear Ms. Venegas:

On behalf of Judah Oil, Souder, Miller & Associates (SMA) has prepared this Remediation Plan that describes the delineation and proposed remediation of a release of liquids related to oil and gas production activities at the Ford State #2 site. The site is in Unit F3, Section 02, Township 22S, Range 28E, Eddy County, New Mexico, on State land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1 summarizes release information and Closure Criteria.

Table 1: Release Information and Closure Criteria			
Name	Ford State #002	Company	Judah Oil
API Number	30-015-22714	Location	32.4280109, -104.0593843
Incident Number	NRM1935739461		
Estimated Date of Release	10/01/2019	Date Reported to NMOCD	10/01/2019
Land Owner	State	Reported To	District 2 NMOCD
Source of Release	Release was due to a hole in a flowline.		
Released Volume	8 bbls & 48 bbls,	Released Material	Crude Oil & Produced Water
Recovered Volume	<1 bbls, 8 bbls	Net Release	48 bbls
NMOCD Closure Criteria	<50 feet to groundwater		
SMA Response Dates	1/15/2020 (MMX), 4/8/2020, 5/6/2020		

1.0 Background

On October 1, 2019, a failure of a flowline at the Ford State #002 location resulted in the release of approximately 8 bbls of crude oil and 48 bbls of produced water. Initial response activities were conducted by Judah personnel and included source elimination and site containment. These initial efforts recovered less than 1 bbl of crude oil and 8 bbls of produced water. Figures 1 and 2 illustrate the vicinity and site location. Figure 3 illustrates the release location. The C-141 forms are included in Appendix A.

2.0 Site Information and Closure Criteria

The Ford State #002 is located approximately 9.5 miles east of Carlsbad, New Mexico on State land at an elevation of approximately 3,182 feet above mean sea level (amsl).

Based upon well water data (Appendix B), depth to groundwater in the area is estimated to be 50 feet below grade surface (bgs). There are no known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 7/2/2020). The nearest significant watercourse is the Old Indian Draw, located approximately 1,460 feet to the north west. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of less than 50 feet bgs. The site has been restored to meet the standards of Table I of 19.15.29.12 NMAC.

Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

On January 15, 2020, MMX personnel arrived on site in response to the release associated with Ford State #002. MMX collected initial soil samples around the release site at three (3) different sample locations (S1-S3) using a truck-mounted auger. At each sample location, six (6) samples were collected from depths of 2, 3, 4, 6, 8 and 10 feet bgs, for a total of eighteen (18) samples. On April 8, and May 6, 2020, SMA returned to the Ford State #002 and collected additional samples at location S2, and four sidewall delineation samples (S2, SW1-SW4) and one (1) background sample (BG1), indicating a baseline of naturally occurring salts in the surrounding soil.

A total of 24 samples were collected for laboratory analysis of a mixture of total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Table 3 itemizes the samples results as well as identifying any variances from the typical specification of two samples per boring. Locations for all samples are depicted on Figure 3.

Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

As summarized in Table 3, results indicate that the area surrounding sample location S2, measuring approximately 25 feet by 15 feet by 4 feet deep has been impacted.

4.0 Proposed Soil Remediation Work Plan

SMA proposes excavation and removal of contaminated soil in the area of sample S2. The impacted area will be excavated to approximately 4 feet bgs. SMA will guide the excavation by collecting composite soil samples for field screening for chloride using an EC meter and for hydrocarbon impacts using a calibrated MiniRAE 3000 photoionization detector (PID).

The release area will be excavated to the NMOCD Closure Criteria as demonstrated on Figure 3.

Confirmation samples will be comprised of representative wall and base 5-point composite samples, each representing less than 200 ft^2 of exposed excavation area.

Approximately 55 cubic yards of contaminated soil are projected to be removed and replaced with clean backfill material in order to return the surface to previous contours. The contaminated soil will be transported for disposal at R360 Environmental Solutions near Hobbs, NM, an NMOCD permitted disposal facility. Upon approval by NMOCD, the projected timeline for completion of remediation activities is approximately 90 days.

5.0 Site Geology

The Ford State #002 site area is comprised of mostly Upton gravelly loam (UG), derived from fan/ ridge residuum weathered from limestone. The Upton soils range in salinity levels from 0.0 to 2.0 microSemen/meter (µS/m) (NRCS, 2019). To the North, soils consist of Tonuco (TC) loamy sand, and Kermit- Berino (KM) fine sands, both derived from alluvium and eolian sand deposits. These soils range in salinity from 0.0 to 1.0 (µS/m). To the West, soils are comprised of the Reeves-Gypsum (RG) land complex, derived from hill and ridge residuum weathered from gypsum. The Reeves Gypsum range in salinity from 2.0 to 8.0 (µS/m). Figure 4 illustrates the formation and site location associated with Appendix D.

6.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization, regulatory liaison, and preparing this remediation plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Ashley Maxwell at 505-320-9241 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Ashley Maxwell
Project Manager

Shawna Chubbuck
Senior Scientist

LEA LAND, LLC

OIL FIELD WASTE LANDFILL

1300 W. MAIN STREET
OKLAHOMA CITY, OK 73106

PHONE: 405-236-4257
FAX: 405-236-4261

Bill To:
BLAISE CAMPANELLA
JUDAH OIL, LLC
P. O. BOX 568
ARTESIA, NM 88211

INVOICE # 27524

Date: **10/9/2019**

AFE Number:

Charge to: Ford State #2 330

Date(s) of Service: 10/02/19 - 10/03/19

Manifest #: 132020, 132027

Ship Via: Judah Oil

Qty	U/M	Description	Unit Price	Total
87.28	Tons	Non-regulated & non-hazardous waste (soil)	$20.00	$1,745.60
		Landfill located at Carlsbad, NM		

RECEIVED OCT 2 2 2019

Subtotal	$1,745.60
Sales tax rate	5.500%
Sales tax	$96.01
Total	**$1,841.61**

TERMS: NET 30

Make all checks payable to LEA LAND, LLC
If you have any questions concerning this invoice, please contact:
Saralyn Hall at 405-519-1187 E-mail: shall119@cox.net

Thank you for your business!

RECEIVED OCT 2 2 2019

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Surface Water Radius Map
Figure 3: Site and Sample Location Map
Figure 4: Soil Formation Site Map

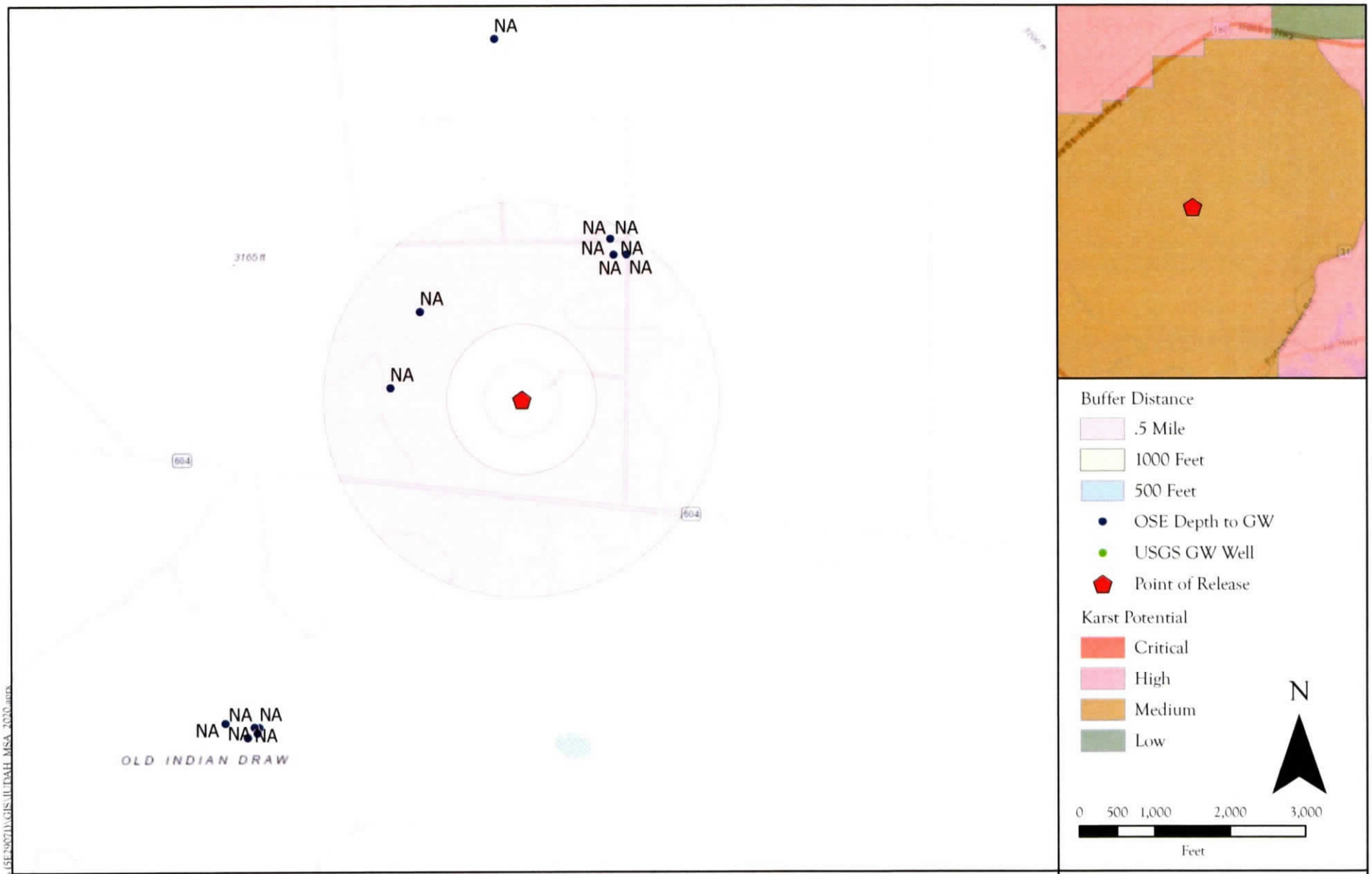
Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report
Appendix C: Laboratory Analytical Reports
Appendix D: Soil Classification

FIGURES



Site Map
Ford State #002- Judah Oil
32.4280109, -104.0593843 Eddy County, New Mexico

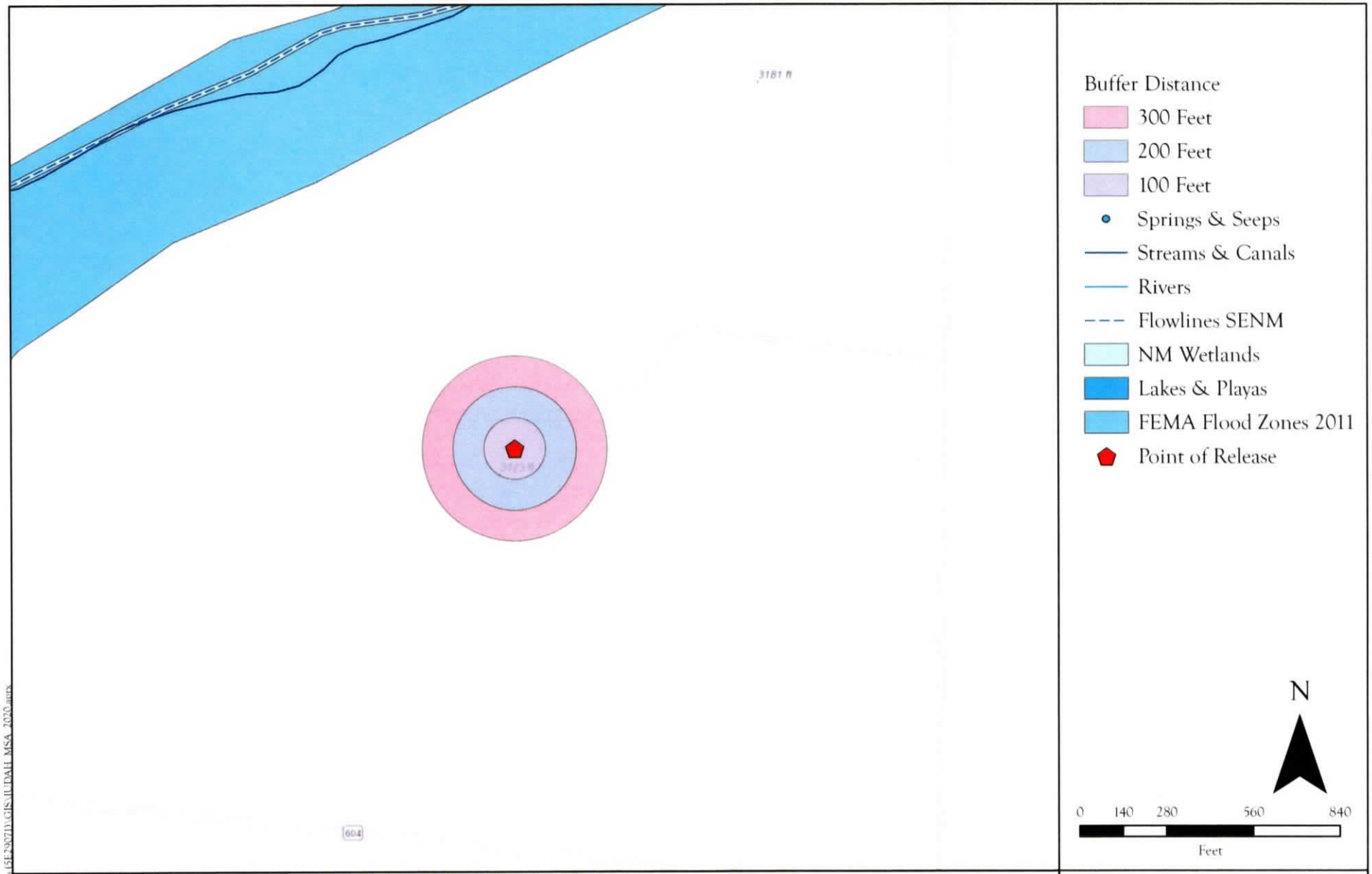
Figure 1

P:\Judah 2020 MSA On Call Services (SF20071)\GIS\JUDAH_MSA_2020.aprx
Date Saved: 7/2/2020

Revisions
By:_____ Date:_____ Descr: _____
By:_____ Date:_____ Descr: _____

Drawn Sebastian Orozco
Date 7/2/2020
Checked
Approved

SMA
201 South Halagueña Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains



Surface Water Protection Map
Ford State #002- Judah Oil
32.4280109, -104.0593843 Eddy County, New Mexico

Figure 2

P:\Judah 2020 MSA On Call Services (SE290711)\GIS\JUDAH_MSA_2020.aprx
Date Saved: 7/2/2020

Revisions
By:_____ Date:_____ Descr:_____
By:_____ Date:_____ Descr:_____

Drawn Sebastian Orozco
Date 7/2/2020
Checked
Approved

SMA
201 South Halagueña Street
Carlsbad, New Mexico 88221
(575) 689.7040
Serving the Southwest & Rocky Mountains

Site and Sample Location Map
Ford State #002- Judah Oil
32.4280109, -104.0593843 Eddy County, New Mexico

Figure 3

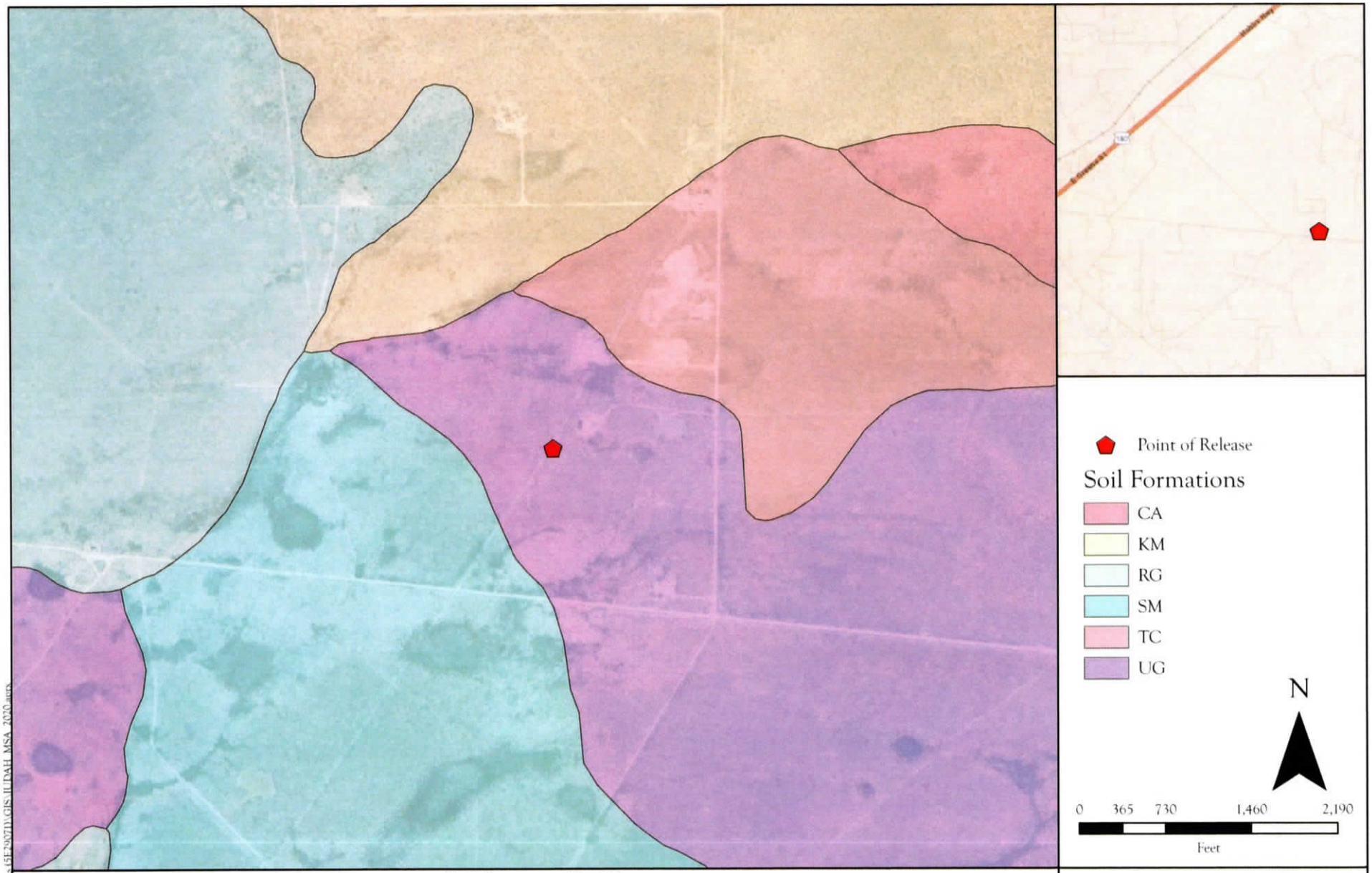
P:\Judah, 2020 MSA On Call Services (SE290711)\GIS\JUDAH_MSA_2020.aprx
Date Saved: 7/2/2020

Revisions
By:_____ Date:_____ Descr:_____
By:_____ Date:_____ Descr:_____

Drawn Sebastian Orozco
Date 7/2/2020
Checked
Approved

SMA

201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689.7040
Serving the Southwest & Rocky Mountains



Soil Formation Site Map
Ford State #002- Judah Oil
S2- T22S- R28E Eddy County, New Mexico

Figure 4

P:\Judah 2020 MSA On Call Services (5E29071)\GIS\JUDAH_MSA_2020.aprx

Date Saved: 7/6/2020

Revisions
By:_____ Date:_____ Descr:_____
By:_____ Date:_____ Descr:_____

Drawn Sebastian Orozco
Date 7/6/2020
Checked
Approved

SMA

201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689 7040
Serving the Southwest & Rocky Mountains

TABLES

Table 2:
NMOCD Closure Criteria

Judah Oil
Ford State#002(NRM1935739461)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	<50	NMOSE & USGS waterwell databases (Appendix B)
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	NA	-
Hortizontal Distance to Nearest Significant Watercourse (ft)	1,460	Old Indian Draw to Northwest

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		Closure Criteria (units in mg/kg)				
		Chloride *numerical limit or background, whichever is greater	TPH	GRO + DRO	BTEX	Benzene
< 50' BGS	X	600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'		20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	X					
<200' from lakebed, sinkhole or playa lake?	X					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	X					
<1000' from fresh water well or spring?	X					
Human and Other Areas		600	100		50	10
<300' from an occupied permanent residence, school, hospital, institution or church?	X					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	X					
<100' from wetland?	X					
within area overlying a subsurface mine	X					
within an unstable area?	X					
within a 100-year floodplain?	X					

Table 3:
Sample Results

Judah Oil
Ford State #2 (NRM1935739461)

Sample ID	Sample Date	Depth of Sample (feet bgs)	Method 8021B		Method 8015D				Method 300.0
			BTEX	Benzene	GRO	DRO	MRO	Total TPH	Cl-
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
NMOCD Closure Criteria (>4 ft)			50	10				100	600
BG1	5/6/2020	4	-	-	-	-	-	-	1940
S1	1/15/2020	*2	<0.300	<0.050	<10.0	28.1	<10.0	28.1	592
		*3	<0.300	<0.050	<10.0	12.9	<10.0	12.9	912
		4	-	-	-	-	-	-	1,090
		6	-	-	-	-	-	-	2,130
		8	-	-	-	-	-	-	3,640
		10	-	-	-	-	-	-	2,320
S2	1/15/2020	*2	<0.300	<0.050	19.9	301	47.1	368	1,330
		*3	<0.300	<0.050	10.6	178	24.6	213.2	1,330
	4/8/2020	4	-	-	<4.9	<9.1	<45	<59	1,360
		5	-	-	<4.9	<10	<50	<64.9	-
	1/15/2020	*6	-	-	-	-	-	-	1,360
		*8	-	-	-	-	-	-	1,200
		*10	-	-	-	-	-	-	1,310
S3	1/15/2020	*2	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	3,160
		*3	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	1,970
		*4	-	-	-	-	-	-	2,320
		*6	-	-	-	-	-	-	864
		*8	-	-	-	-	-	-	960
		*10	-	-	-	-	-	-	624
SW1	4/8/2020	Surface	<0.224	<0.025	<5.0	<9.3	<47	<61.3	200
SW2		Surface	<0.224	<0.025	<5.0	<10	<50	<65	<60
SW3		Surface	<0.224	<0.025	<5.0	<9.6	<48	<62.6	<60
SW4		Surface	<0.224	<0.025	<5.0	<8.9	<44	<57.9	390

"--" = Not Analyzed
BG: Background sample
* : Sample collection per MMX

SMA #

APPENDIX A

FORM C141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	Judah Oil	OGRID	245872
Contact Name	Blaise Campanella	Contact Telephone	(575) 748-5488
Contact email	judahoil@yahoo.com	Incident # *(assigned by OCD)*	
Contact mailing address	PO Box 568, Artesia, NM 88221		

Location of Release Source

Latitude 32.424900 Longitude -104.060900
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Ford State #2	Site Type Flow Line
Date Release Discovered 10/1/2019 8:00 am	API# *(if applicable)* 30-015-22714

Unit Letter	Section	Township	Range	County
F	02	22S	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) 8	Volume Recovered (bbls) < 1
☒ Produced Water	Volume Released (bbls) 48	Volume Recovered (bbls) 8
	Is the concentration of dissolved chloride 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

Release was due to a hole in a flowline. A vacuum truck was dispatched to collect free standing fluids and the line was repaired. An area measuring approximately 21' X 110' was impacted in the pasture.

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM1935739461
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?	≤50 (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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM1935739461
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: James B Campanella Title: Member / Manager

Signature: Date: 7-13-2020

email: judahoil@yahoo.com Telephone: 575-748-4730

OCD Only

Received by: Cristina Eads Date: 08/03/2020

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	NRM1935739461
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: James B Campanella Title: Member / Manager

Signature: Date: 7-13-2020

email: judahoil@yahoo.com Telephone: 575-748-4730

OCD Only

Received by: Cristina Eads Date: 08/03/2020

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

Signature: Date: 10/15/2020

APPENDIX B
NMOSE WELLS REPORT

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	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 01171 POD1		CP	ED	1	4		35	21S	28E	588814	3588862	705	70		
CP 01171 POD3		CP	ED	1	4		35	21S	28E	588814	3588862	705	115		
CP 01171 POD2		CP	ED	1	4		35	21S	28E	588866	3588862	735	110		
CP 01118 POD1		CP	ED	1	4		35	21S	28E	588800	3588926	753	25		
CP 01118 POD2		CP	ED	1	4		35	21S	28E	588800	3588926	753	56		

Average Depth to Water: --
Minimum Depth: --
Maximum Depth: --

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 588433.555 **Northing (Y):** 3588267.766 **Radius:** 804.67

1/30/20 11:52 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 322547104035001

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

USGS 322547104035001 22S.28E.02.11111

Eddy County, New Mexico
Latitude 32°25'47", Longitude 104°03'50" NAD27
Land-surface elevation 3,162 feet above NAVD88
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status
1965-12-02		D	133.04			2		U		U	A

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status	
1968-06-27		D	143.43			2	R	U		U		A
1970-12-04		D	132.78			2		U		U		A
1976-12-16		D	130.67			2		U		U		A
1983-01-18		D	129.42			2		U		U		A
1987-10-30		D	128.73			2		U		U		A
1992-12-10		D	129.09			2	P	S		U		A
1998-01-27		D	128.52			2		S		U		A

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Status	P	Site was being pumped.
Status	R	Site had been pumped recently.
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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

APPENDIX C

LABORATORY ANALYTICAL REPORTS

CARDINAL Laboratories

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

January 21, 2020

LUPE CARRASCO

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: FORD STATE #2

Enclosed are the results of analyses for samples received by the laboratory on 01/16/20 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. 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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 1 - 2' (H000157-01)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	<0.050	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PIL 93.5 % 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	**592**	16.0	01/20/2020	ND	432	108	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	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	**28.1**	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	<10.0	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 91.1 % 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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 1 - 3' (H000157-02)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	<0.050	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PIL 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	**912**	16.0	01/20/2020	ND	432	108	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	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	**12.9**	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	<10.0	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane 88.8 % 41-142

Surrogate: 1-Chlorooctadecane 88.1 % 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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 1 - 4' (H000157-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1090**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 1 - 6' (H000157-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2130**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 1 - 8' (H000157-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3640**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 1 - 10' (H000157-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2320**	16.0	01/20/2020	ND	432	108	400	3.77	

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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 2 - 2' (H000157-07)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	**0.053**	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *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	**1310**	16.0	01/20/2020	ND	432	108	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*	**19.9**	10.0	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	**301**	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	**47.1**	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane *93.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *98.7 %* *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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 2 - 3' (H000157-08)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	**0.070**	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *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	**1330**	16.0	01/20/2020	ND	432	108	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*	**10.6**	10.0	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	**178**	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	**24.6**	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane *93.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *97.6 %* *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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 2 - 4' (H000157-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1360**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 2 - 6' (H000157-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1360**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 2 - 8' (H000157-11)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1200**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 2 - 10' (H000157-12)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1310**	16.0	01/20/2020	ND	432	108	400	3.77	

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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 3 - 2' (H000157-13)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	<0.050	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID 94.9 % 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	**3160**	16.0	01/20/2020	ND	432	108	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	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	<10.0	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	<10.0	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane 82.9 % 41-142

Surrogate: 1-Chlorooctadecane 82.6 % 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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 3 - 3' (H000157-14)

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	01/20/2020	ND	1.74	86.9	2.00	13.7	
Toluene*	<0.050	0.050	01/20/2020	ND	1.69	84.5	2.00	14.7	
Ethylbenzene*	<0.050	0.050	01/20/2020	ND	1.75	87.6	2.00	13.6	
Total Xylenes*	<0.150	0.150	01/20/2020	ND	5.02	83.7	6.00	14.8	
Total BTEX	<0.300	0.300	01/20/2020	ND					

Surrogate: 4-Bromofluorobenzene (PIL 95.1 % 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	**1970**	16.0	01/20/2020	ND	432	108	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	01/20/2020	ND	201	101	200	3.88	
DRO >C10-C28*	<10.0	10.0	01/20/2020	ND	185	92.5	200	3.94	
EXT DRO >C28-C36	<10.0	10.0	01/20/2020	ND					

Surrogate: 1-Chlorooctane 98.8 % 41-142

Surrogate: 1-Chlorooctadecane 99.1 % 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:

MMX
LUPE CARRASCO
2737 PECOS HWY
CARLSBAD NM, 88220
Fax To: (575) 236-6201

Received:	01/16/2020	Sampling Date:	01/15/2020
Reported:	01/21/2020	Sampling Type:	Soil
Project Name:	FORD STATE #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 3 - 4' (H000157-15)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2320**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 3 - 6' (H000157-16)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**864**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 3 - 8' (H000157-17)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**960**	16.0	01/20/2020	ND	432	108	400	3.77	

Sample ID: S 3 - 10' (H000157-18)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	01/20/2020	ND	416	104	400	3.77	

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.
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

163

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO**	
Project Manager:		P.O. #:	
Address:		Company:	MMX
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	Ford State #2	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Lupe	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	BTEX	TPH	Chlorides
H000157																	
1	S1 - 2'	C	1			X							11/15/20		X	X	X
2	S1 - 3'	C	1			X									X	X	X
3	S1 - 4'	C	1			X											X
4	S1 - 6'	C	1			X											X
5	S1 - 8'	C	1			X											X
6	S1 - 10'	C	1			X							11/15/20				X

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

Relinquished By: Tom Munn	Date: 1-16-20 Time: 1030	Received By: Tamara Oldaker	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: #113 4.6°C	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials) TO-	

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

* Run until Cl⁻ fall below 600ppm

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

2 of 3

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO** P.O. #:	
Project Manager:		Company:	MMX
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	Ford State #2	Phone #:	
Project Location:		Fax #:	
Sampler Name:	Lupe		

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	BTEX	TPH	Chlorides
H000157																	
7	S2 - 2'												11/15/20		X	X	X
8	S2 - 3'														X	X	
9	S2 - 4'																X
10	S2 - 6'																X
11	S2 - 8'																X
12	S2 - 10'																X

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

Relinquished By: Pam Munn	Date: 1-16-20 Time: 1030	Received By: Tamara Oldaker	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: #113 4.6°C	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials) TO	

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

* Run until Cl⁻ fall below 600ppm

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

3 of 3

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO** P.O. #:	
Project Manager:		Company:	MMX
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	Ford State #2	Phone #:	
Project Location:		Fax #:	
Sampler Name:	Lupe		

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	BTEX	TPH	Chlorides
H000157																	
13	S3 - 2'												1/13/20		X	X	X
14	S3 - 3'														X	X	X
15	S3 - 4'																X
16	S3 - 4'																X
17	S3 - 8'																X
18	S3 - 10'																X

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

Relinquished By:	Date: 1-16-20	Received By:	
	Time: 1050		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #113 4.6c

Sample Condition: Cool ☐ Yes ☐ No; Intact ☐ Yes ☐ No

CHECKED BY: (Initials) TO

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

* Run until Cl⁻ fall below 600ppm

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

CARDINAL Laboratories

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

May 08, 2020

ASHLEY MAXWELL

SOUDER MILLER AND ASSOCIATES

201 S. HALAGUENO

CARLSBAD, NM 88220

RE: FORD STATE

Enclosed are the results of analyses for samples received by the laboratory on 05/06/20 14:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. 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:

SOUDER MILLER AND ASSOCIATES
ASHLEY MAXWELL
201 S. HALAGUENO
CARLSBAD NM, 88220
Fax To: NONE

Received:	05/06/2020	Sampling Date:	05/05/2020
Reported:	05/08/2020	Sampling Type:	Soil
Project Name:	FORD STATE	Sampling Condition:	Cool & Intact
Project Number:	FORD STATE #2	Sample Received By:	Tamara Oldaker
Project Location:	JUDAH OIL		

Sample ID: BG (H001255-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1940**	16.0	05/08/2020	ND	416	104	400	3.77	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: SMA	**BILL TO**
Project Manager: Ashley Maxwell	P.O. #:
Address: 201 S. Halagueno St.	Company:
City: Carlsbad State: NM Zip: 88220	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: Ford State #2	State: Zip:
Project Location:	Phone #:
Sampler Name: Sebastian Orozco (SO)	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
H001255 1	BG1	G	1			X					X		5/5/20	12:48	X

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

Relinquished By: Sebastian Orozco	Date: 5-6-20 Time: 1410	Received By: Jamara Oldaker	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 4.9c #113	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) TO.	REMARKS:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 15, 2020

Ashley Maxwell
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX:

RE: Ford State 002 OrderNo.: 2004512

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 7 sample(s) on 4/10/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-001 **Matrix:** SOIL

Client Sample ID: S2-4'
Collection Date: 4/8/2020 10:15:00 AM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/13/2020 6:09:36 PM	51733
Surr: BFB	98.4	70-130		%Rec	1	4/13/2020 6:09:36 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	4/12/2020 3:02:25 PM	51739
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/12/2020 3:02:25 PM	51739
Surr: DNOP	73.3	55.1-146		%Rec	1	4/12/2020 3:02:25 PM	51739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-002 **Matrix:** SOIL

Client Sample ID: S2-5'
Collection Date: 4/8/2020 10:18:00 AM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/13/2020 6:38:41 PM	51733
Surr: BFB	95.5	70-130		%Rec	1	4/13/2020 6:38:41 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/12/2020 3:26:38 PM	51739
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/12/2020 3:26:38 PM	51739
Surr: DNOP	84.9	55.1-146		%Rec	1	4/12/2020 3:26:38 PM	51739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-003 **Matrix:** SOIL

Client Sample ID: BG 1
Collection Date: 4/8/2020 9:41:00 AM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	210	59		mg/Kg	20	4/14/2020 11:20:56 AM	51779

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-004 **Matrix:** SOIL

Client Sample ID: SW 1
Collection Date: 4/8/2020 2:09:00 PM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	200	60		mg/Kg	20	4/14/2020 11:33:21 AM	51779
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/13/2020 7:07:49 PM	51733
Surr: BFB	95.6	70-130		%Rec	1	4/13/2020 7:07:49 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/12/2020 4:15:02 PM	51739
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/12/2020 4:15:02 PM	51739
Surr: DNOP	87.3	55.1-146		%Rec	1	4/12/2020 4:15:02 PM	51739
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	4/13/2020 7:07:49 PM	51733
Toluene	ND	0.050		mg/Kg	1	4/13/2020 7:07:49 PM	51733
Ethylbenzene	ND	0.050		mg/Kg	1	4/13/2020 7:07:49 PM	51733
Xylenes, Total	ND	0.099		mg/Kg	1	4/13/2020 7:07:49 PM	51733
Surr: 1,2-Dichloroethane-d4	90.4	70-130		%Rec	1	4/13/2020 7:07:49 PM	51733
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	4/13/2020 7:07:49 PM	51733
Surr: Dibromofluoromethane	99.5	70-130		%Rec	1	4/13/2020 7:07:49 PM	51733
Surr: Toluene-d8	96.4	70-130		%Rec	1	4/13/2020 7:07:49 PM	51733

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-005 **Matrix:** SOIL

Client Sample ID: SW 2
Collection Date: 4/8/2020 2:13:00 PM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/14/2020 11:45:46 AM	51779
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/13/2020 7:36:58 PM	51733
Surr: BFB	98.0	70-130		%Rec	1	4/13/2020 7:36:58 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/12/2020 4:39:10 PM	51739
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/12/2020 4:39:10 PM	51739
Surr: DNOP	90.3	55.1-146		%Rec	1	4/12/2020 4:39:10 PM	51739
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	4/13/2020 7:36:58 PM	51733
Toluene	ND	0.050		mg/Kg	1	4/13/2020 7:36:58 PM	51733
Ethylbenzene	ND	0.050		mg/Kg	1	4/13/2020 7:36:58 PM	51733
Xylenes, Total	ND	0.099		mg/Kg	1	4/13/2020 7:36:58 PM	51733
Surr: 1,2-Dichloroethane-d4	93.4	70-130		%Rec	1	4/13/2020 7:36:58 PM	51733
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	4/13/2020 7:36:58 PM	51733
Surr: Dibromofluoromethane	103	70-130		%Rec	1	4/13/2020 7:36:58 PM	51733
Surr: Toluene-d8	96.9	70-130		%Rec	1	4/13/2020 7:36:58 PM	51733

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-006 **Matrix:** SOIL

Client Sample ID: SW 3
Collection Date: 4/8/2020 2:17:00 PM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/14/2020 11:58:10 AM	51779
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/13/2020 8:06:04 PM	51733
Surr: BFB	98.0	70-130		%Rec	1	4/13/2020 8:06:04 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	4/12/2020 5:03:24 PM	51739
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/12/2020 5:03:24 PM	51739
Surr: DNOP	84.8	55.1-146		%Rec	1	4/12/2020 5:03:24 PM	51739
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	4/13/2020 8:06:04 PM	51733
Toluene	ND	0.050		mg/Kg	1	4/13/2020 8:06:04 PM	51733
Ethylbenzene	ND	0.050		mg/Kg	1	4/13/2020 8:06:04 PM	51733
Xylenes, Total	ND	0.099		mg/Kg	1	4/13/2020 8:06:04 PM	51733
Surr: 1,2-Dichloroethane-d4	94.0	70-130		%Rec	1	4/13/2020 8:06:04 PM	51733
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	4/13/2020 8:06:04 PM	51733
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/13/2020 8:06:04 PM	51733
Surr: Toluene-d8	98.1	70-130		%Rec	1	4/13/2020 8:06:04 PM	51733

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004512**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: Ford State 002
Lab ID: 2004512-007 **Matrix:** SOIL

Client Sample ID: SW 4
Collection Date: 4/8/2020 2:22:00 PM
Received Date: 4/10/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	390	60		mg/Kg	20	4/14/2020 12:10:35 PM	51779
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/13/2020 8:35:08 PM	51733
Surr: BFB	100	70-130		%Rec	1	4/13/2020 8:35:08 PM	51733
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	4/12/2020 5:27:35 PM	51739
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	4/12/2020 5:27:35 PM	51739
Surr: DNOP	75.6	55.1-146		%Rec	1	4/12/2020 5:27:35 PM	51739
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	4/13/2020 8:35:08 PM	51733
Toluene	ND	0.050		mg/Kg	1	4/13/2020 8:35:08 PM	51733
Ethylbenzene	ND	0.050		mg/Kg	1	4/13/2020 8:35:08 PM	51733
Xylenes, Total	ND	0.099		mg/Kg	1	4/13/2020 8:35:08 PM	51733
Surr: 1,2-Dichloroethane-d4	92.4	70-130		%Rec	1	4/13/2020 8:35:08 PM	51733
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	4/13/2020 8:35:08 PM	51733
Surr: Dibromofluoromethane	103	70-130		%Rec	1	4/13/2020 8:35:08 PM	51733
Surr: Toluene-d8	97.4	70-130		%Rec	1	4/13/2020 8:35:08 PM	51733

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

WO#: **2004512**

Hall Environmental Analysis Laboratory, Inc.

15-Apr-20

Client: Souder, Miller & Associates
Project: Ford State 002

Sample ID: **MB-51779** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **51779** RunNo: **68129**
Prep Date: **4/14/2020** Analysis Date: **4/14/2020** SeqNo: **2355225** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-51779** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **51779** RunNo: **68129**
Prep Date: **4/14/2020** Analysis Date: **4/14/2020** SeqNo: **2355226** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

WO#: **2004512**

Hall Environmental Analysis Laboratory, Inc.

15-Apr-20

Client: Souder, Miller & Associates
Project: Ford State 002

Sample ID: **MB-51739**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **51739**	RunNo: **68052**
Prep Date: **4/11/2020**	Analysis Date: **4/12/2020**	SeqNo: **2351642** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	5.8		10.00		57.5	55.1	146			

Sample ID: **LCS-51739**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **51739**	RunNo: **68052**
Prep Date: **4/11/2020**	Analysis Date: **4/12/2020**	SeqNo: **2351643** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.9	70	130			
Surr: DNOP	4.5		5.000		89.1	55.1	146			

Sample ID: **MB-51742**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **51742**	RunNo: **68052**
Prep Date: **4/11/2020**	Analysis Date: **4/13/2020**	SeqNo: **2352273** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.2		10.00		81.7	55.1	146			

Sample ID: **LCS-51742**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **51742**	RunNo: **68052**
Prep Date: **4/11/2020**	Analysis Date: **4/13/2020**	SeqNo: **2352274** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		96.4	55.1	146			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

WO#: **2004512**

Hall Environmental Analysis Laboratory, Inc.

15-Apr-20

Client: Souder, Miller & Associates
Project: Ford State 002

Sample ID: **mb-51733** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51733** RunNo: **68063**
Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2352555** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.44		0.5000		87.2	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.3	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		89.8	70	130			
Surr: Toluene-d8	0.48		0.5000		95.0	70	130			

Sample ID: **lcs-51733** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **51733** RunNo: **68063**
Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2352556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.0	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.8	80	120			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.8	70	130			
Surr: Toluene-d8	0.47		0.5000		93.6	70	130			

Sample ID: **lcs-51743** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **51743** RunNo: **68093**
Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2354045** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.5	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.9	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.48		0.5000		96.7	70	130			

Sample ID: **mb-51743** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51743** RunNo: **68093**
Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2354046** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.9	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.1	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.3	70	130			
Surr: Toluene-d8	0.49		0.5000		98.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004512**

15-Apr-20

Client: Souder, Miller & Associates

Project: Ford State 002

Sample ID: **mb-51733** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **51733** RunNo: **68063**

Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2352567** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	500		500.0		99.6	70	130			

Sample ID: **lcs-51733** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **51733** RunNo: **68063**

Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2352568** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.1	70	130			
Surr: BFB	490		500.0		98.0	70	130			

Sample ID: **lcs-51743** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **51743** RunNo: **68093**

Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2354087** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	490		500.0		97.3	70	130			

Sample ID: **mb-51743** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **51743** RunNo: **68093**

Prep Date: **4/11/2020** Analysis Date: **4/13/2020** SeqNo: **2354088** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	510		500.0		102	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 2004512 RcptNo: 1

Received By: Isaiah Ortiz 4/10/2020 8:25:00 AM I-OL

Completed By: Desiree Dominguez 4/10/2020 9:36:53 AM DR

Reviewed By: LB 4/10/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JR 4/10/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Not Present			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☑ Standard ☐ Rush

Project Name: Ford State #002

Project #:

Project Manager: Ashley Maxwell

Sampler: SO

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.7+0.1(F) 4.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004512	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/8/20	10:15	Soil	S2-4'	402	Cool	-001		X								
	10:18		S2-5'			-002		X								
	9:41		BG1			-003							X			
	2:09		SW1			-004	X	X					X			
	2:13		SW2			-005	X	X					X			
	2:17		SW3			-006	X	X					X			
	2:22		SW4			-007	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/9/20	1307	Sebastian Droyco			4/9/20	1300
4/9/20	1910		I-Q Corrin		4/10/20	0825

Remarks: Judah

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX D
SOIL CLASSIFICATION

Eddy Area, New Mexico

KM—Kermit-Berino fine sands, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w4q
Elevation: 3,100 to 4,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 50 percent
Berino and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Alluvial fans, plains
Landform position (three-dimensional): Rise, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 7 inches: fine sand
H2 - 7 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Deep Sand (R042XC005NM)
Hydric soil rating: No

Description of Berino

Setting

Landform: Fan piedmonts, plains
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 17 inches: fine sand
H2 - 17 to 50 inches: fine sandy loam
H3 - 50 to 58 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Active dune land

Percent of map unit: 15 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020

Eddy Area, New Mexico

RG—Reeves-Gypsum land complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5f
Elevation: 1,250 to 5,000 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 190 to 235 days
Farmland classification: Not prime farmland

Map Unit Composition

Reeves and similar soils: 55 percent
Gypsum land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reeves

Setting

Landform: Hills, plains, ridges
Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope
Landform position (three-dimensional): Crest, nose slope, side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 32 inches: clay loam
H3 - 32 to 60 inches: gypsiferous material

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Gypsum, maximum in profile: 80 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Description of Gypsum Land

Setting

Landform: Hills, plains, ridges
Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope
Landform position (three-dimensional): Crest, nose slope, side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Cottonwood

Percent of map unit: 5 percent
Ecological site: Salty Bottomland (R042XC033NM)
Hydric soil rating: No

Reagan

Percent of map unit: 5 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Largo

Percent of map unit: 5 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020

Eddy Area, New Mexico

SM—Simona-Bippus complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1w5x
Elevation: 1,800 to 5,000 feet
Mean annual precipitation: 8 to 24 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 55 percent
Bippus and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

Landform: Alluvial fans, plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 19 inches: gravelly fine sandy loam
H2 - 19 to 23 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Description of Bippus

Setting

Landform: Alluvial fans, flood plains
Landform position (three-dimensional): Rise, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 37 inches: silty clay loam
H2 - 37 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 8 percent
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Bippus

Percent of map unit: 7 percent
Ecological site: Bottomland (R042XC017NM)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020

Eddy Area, New Mexico

TC—Tonuco loamy sand, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w60
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 217 days
Farmland classification: Not prime farmland

Map Unit Composition

Tonuco and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tonuco

Setting

Landform: Alluvial fans, plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 5 inches: loamy sand
H2 - 5 to 15 inches: loamy fine sand
H3 - 15 to 19 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 6 to 20 inches to petrocalcic
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Minor Components

Tonuco

Percent of map unit: 1 percent
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020

Eddy Area, New Mexico

UG—Upton gravelly loam, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: 1w64
Elevation: 1,100 to 4,400 feet
Mean annual precipitation: 7 to 15 inches
Mean annual air temperature: 60 to 70 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Upton and similar soils: 96 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Upton

Setting

Landform: Fans, ridges
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Minor Components

Atoka
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Atoka
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Upton
Percent of map unit: 1 percent
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Reagan
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020