Souder, Miller & Associates ♦ 201 S. Halagueno ♦ Carlsbad, NM 88221
(575) 689-7040

March 8, 2017

#5B25501-BG5

NMOCD District II
Mike Bratcher
811 S. First St.
Eddy, NM 88210

SUBJECT: WORK PLAN FOR INCIDENT 2RP-4081, Ford State #2, UNIT F SECTION 2-T22S-R28E NMPM, API# 30-015-22714, EDDY COUNTY, NEW MEXICO

Dear Mr. Bratcher:

On behalf of Judah Oil LLC, Souder Miller & Associates is pleased to submit a work plan summarizing the planned soil remediation for the release site located at the Ford State # 002 in Eddy County, New Mexico. The purpose of the work plan is to obtain approval from the New Mexico Oil Conservation Division (NMOCD) for the remediation of the release that occurred on State Lands on January 10, 2017.

Souder, Miller & Associates (SMA) responded at the request of Judah Oil, to assess and delineate the release of production fluids associated with the Ford State # 002 well location. The release was initially reported to NMOCD by Judah Oil, on January 10, 2017 and was a result of an equipment failure. The table below summarizes information regarding the release. Results of the assessment, delineation are described in the following report.

Table 1: Release information and Site Ranking

Name	Ford State # 002				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-4081	30-015-22714	SE/NW (F Unit)	Section 2	T22S, R28E
Estimated Date of Release	January 10, 2017				
Date Reported to NMOCD	January 10, 2017				
Reported by	Blaise Campanella				
Land Owner	State				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Equipment Failure				
Released Material	Produced Fluids and Crude Oil				
Released Volume	10 bbls of Produced Fluids and Crude Oil				
Recovered Volume	0 bbls of Produced Fluids and Crude Oil				
Net Release	10 bbls of Produced Fluids and Crude Oil				
Nearest Waterway	5 miles West of the location				
Depth to Groundwater	Estimated to be 55 feet				

Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	10

Attached is a copy of the C-141 initial located in Appendix B. For questions or comments pertaining to the release or the attached work plan please feel free to contact either of us.

Submitted by:

SOUDER, MILLER & ASSOCIATES

J. Austin Weyant

Austin Weyant
Project Scientist

Reviewed by:

Cynthia Gray, CHMM
Senior Scientist

SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-4081

JUDAH OIL LLC

FORD STATE # 002
UL F, SECTION 02, T22S R28E, NMPM
API #30-015-22714
EDDY COUNTY, NM

Prepared for:
Judah Oil LLC
PO Box 568,
Artesia, NM 88211

Prepared by:
Souder, Miller & Associates
201 S. Halagueno
Carlsbad, NM 88221
575-689-704

January 10, 2017
SMA Reference
5B25501 BG5

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1.0 Introduction

On behalf of Judah Oil LLC, Souder, Miller & Associates (SMA) has prepared this report that describes the assessment, initial delineation and proposed remediation for a release associated with the Ford State # 002 location API# 30-015-22714. The site is located in Section 2, Township 22S, Range 28E NMPM, Eddy County, New Mexico, on state lands. Figure 1 illustrates the vicinity and location of the site.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 9 miles east of the Carlsbad, with an elevation of approximately 3,162 feet above sea level. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be 55 feet below ground surface (bgs).

SMA searched the New Mexico State Engineer's Office (NMOSE) online water well database for water wells in the vicinity of the release. 8 wells are located within a three mile radius of the site. The NMOSE water column data is included in appendix C. Figure 1 depicts the site vicinity and Figure 2 shows the site itself. The physical location of this release is within the jurisdiction of NMOCD.

Based on the NMOCD Guidelines Ranking Criteria, this release location has been assigned a NMOCD ranking of 10 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 1000 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates site ranking rationale.

3.0 Assessment and Initial Results

On January 11, 2017 after receiving 811 clearance, SMA field personnel assessed the remediated release area onsite with a gas powered auger, Photo Ionization Detector (PID), and a mobile chlorides titration kit EPA method 9045D meter. The potentially affected area was found to be approximately 80 feet long and 50 feet wide. The effected spill area has already been scraped to approximately six inches. The resultant spill pile was sampled and hauled off to an NMOCD permitted facility. The site delineation samples were taken to depths of about one foot bgs. Location 1 (L1), Location 2 (L2), and Location 3 (L3) do not meet the recommended remediation action levels for TPH. Further field screens were taken around the perimeter of the spill to ensure horizontal delineation. Specific sample locations for all samples are depicted on Figure 2 (Sample Location Map) along with sampling details. All samples were collected and processed according to NMOCD soil sampling procedures. The samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis for Benzene and Total BTEX using EPA Method 8021B, DRO and GRO by EPA Method 8015D, and total Chlorides using EPA Method 300.0.

4.0 Soil Remediation Work Plan

SMA will continue to vertically delineate the location to satisfy NMOCD requirements. With approval from area utilities owners via 811 and NMOCD, SMA will conduct an in-situ remediation of the hydrocarbons using high nitrogen fertilizer to reach RRAL's for a site ranking of 10. Once bioremediation is complete, SMA will resample all three sample locations. In the event RRAL's cannot be met within 180 days of the remediation approval, soils with elevated hydrocarbons will be excavated and hauled to an NMOCD permitted facility.

5.0 Conclusions and Recommendations

NMOCD Guidelines for Remediation of Leaks, Spills, and Releases have established the following action levels for contaminants of concern with a site ranking of 10: 10 ppm (mg/kg) Benzene, 50 ppm total BTEX, and 1000 ppm TPH

After the soil remediation work plan is approved by NMOCD, SMA will begin soil remediation activities on site.

Soil contaminant concentrations found during the initial delineation are illustrated in Figure 2. A summary of the laboratory analyses is included in Table 2. Laboratory reports are included in Appendix A.

Photo documentation is available by request.

6.0 Re-vegetation Plan

Seeding of the location is recommended for June or July to coincide with the "rainy" season to achieve optimum results. Seed will be planted a quarter to half- inch deep using a disc type or similar rangeland drill sufficient to accommodate variations in seed sizes. If broadcast, seeding rates should be doubled. Seeding can be accomplished as early as May given all dirt work for the location is stabilized. Soil in this area will be tilled to reduce compaction.

Seed-bed preparation will be performed to provide a hospitable environment for germinating seed by breaking up impermeable soil layers that have formed and increasing void spaces for air and water. Ground shall be roughed-up prior to planting, by raking, harrowing or other methods.

Mulch will be placed to prevent loss of moisture and seed to wind.
Mulching shall be accomplished using one of these following methods:
a. weed free straw (2 tons/ac;kg/ha)
b. wood residues (sawdust, wood chips, bark (2 tons/ac;kg/ha)
c. hydro-mulching (1,500 lb/ac;kg/ha)
d. composted manure (5 tons/ac;kg/ha)
e. excelsior blanket
f. straw jute
g. peanut hulls (2 tons/ac;kg/ha)

Stabilization should occur after a minimum of two full summer growing seasons after planting.

SMA will monitor the site in late August for Noxious Weeds, any species of concern will be treated chemically by a NMDA licensed applicator.

7.0 Closure and Limitations

The scope of our services consisted of the performance of confirmatory spill and spill mitigation assessment sampling, verification of release stabilization, regulatory liaison, and preparation of this work 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 Austin Weyant at 575-689-7040 or Cindy Gray at 505-325-7535.

Submitted by:

SOUDER, MILLER & ASSOCIATES

Austin Weyant
Project Scientist

Reviewed by:

Cynthia Gray, CHMM
Senior Scientist

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Table 3: Summary of Laboratory Analyses

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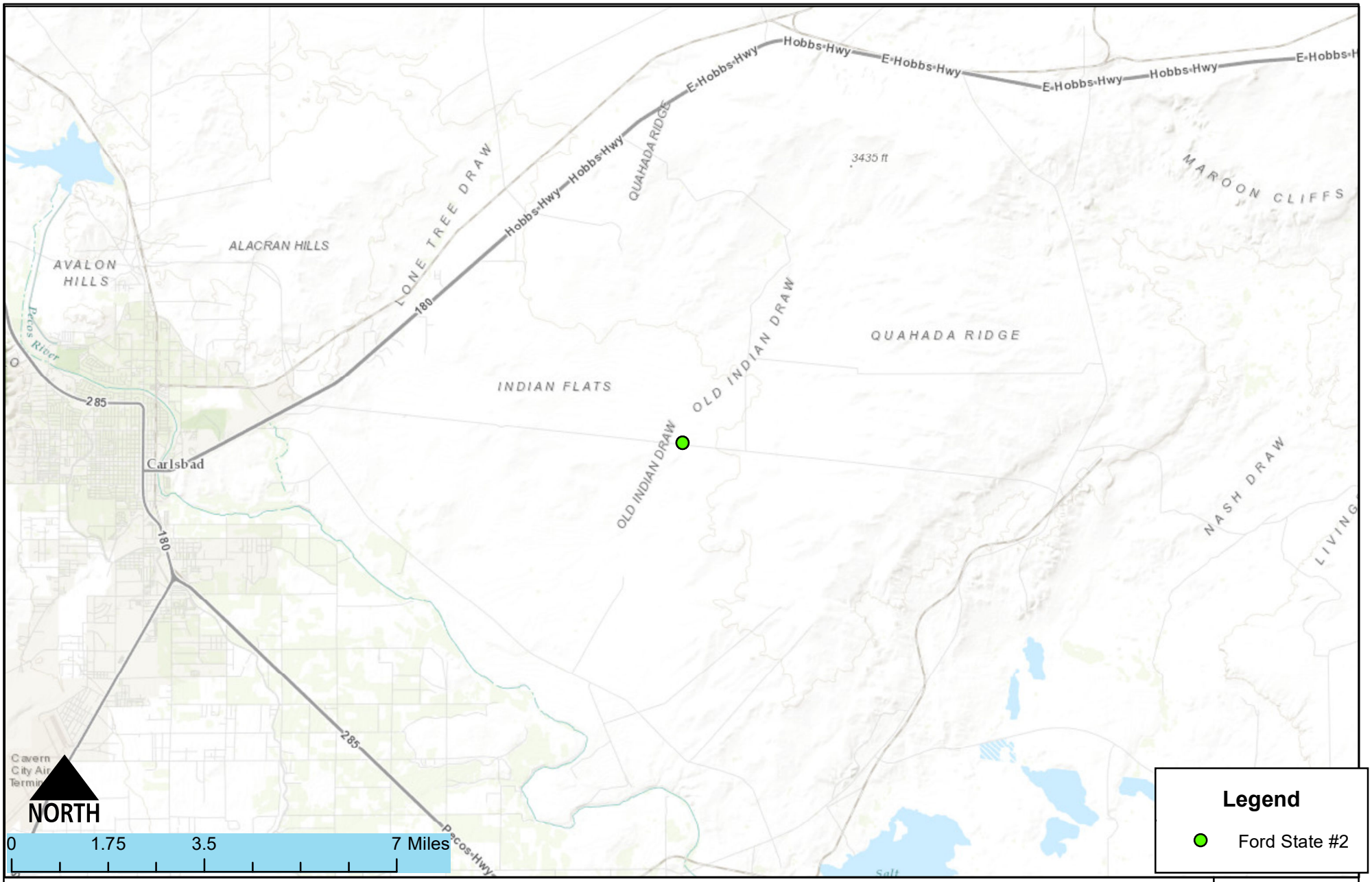
Appendix A: Laboratory Analytical Reports
Appendix B: Form C141 Initial
Appendix C: NMOSE Water Column

FIGURE 1
VICINITY MAP



Detailed Site and Sample Map
Ford State #2
Carlsbad, New Mexico

Figure 1

Date Saved: 2/6/2017

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

Drawn Lucas Middleton
Checked
Approved

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

FIGURE 2

DETAILED SITE AND SAMPLE MAP

Detailed Site and Sample Map
Ford- Judah Oil
Carlsbad, NM

Figure 2

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

Drawn Lucas Middleton
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Date Saved: 1/16/2017

Document: C:\Users\lcm.CBO\Documents\GIS DATA\MAPS\Ford.mxd

TABLE 1

RELEASE INFORMATION AND SITE RANKING

Judah Oil
Table 1: Site Ranking

Ford State #2
Flowline Release
1/10/2017

Site Ranking Determination Table

Depth to Groundwater	NMOCD Numeric Rank for this Site	Source for Ranking	Notes
< 50 BGS = 20		USGS Topo Maps; Google Earth , NMOSE database	average depth of ground water is 54 feet bgs
50' to 99' = 10	10		
>100' = 0			
Ranking Criteria for Horizontal Distance to Nearest Surface Water	**NMOCD Numeric Rank for this Site**	**Source for Ranking**	**Notes**
< 200' = 20		USGS Topo Maps; Google Earth ; ArcMap	nearset surface water 5.3 miles to the Pecos River
200' - 1000' = 10			
>1000' = 0	0		
Ranking Criteria for Horizontal Distance to a Water Well or Water Source	**NMOCD Numeric Rank for this Site**	**Source for Ranking**	**Notes**
<1000' from a water source? <200' from a private domestic water source? YES OR NO to BOTH. YES = 20, NO = 0	0	NM State Engineer Water Well Database	nearest well 3500 feet south of location
	0		
Total Site Ranking	**10**		
Soil Remedation Standards	**0 to 9**	**10 to 19**	**>19**
Benzene	**10 PPM**	**10 PPM**	**10 PPM**
BTEX	**50 PPM**	**50 PPM**	**50 PPM**
TPH	**5000 PPM**	**1000 PPM**	**100 PPM**

TABLE 2

SUMMARY OF CHLORIDE FIELD SCREENING RESULTS

Table 2: Summary of Chloride Field Screening Results

FIELD SCREENING RESULTS SUMMARY					
Date	Time	Field Screening Reference	Sample Depth (Feet BGS)	Chlorides Results	Lab Sample Collected Y/N
1/11/2017	1:00	L1	1'	85	N
1/11/2017	1:00	L1	1.5'	1580	Y
1/11/2017	1:00	L2	0.5'	<300	Y
1/11/2017	1:00	L3	0.5'	1351	N
1/11/2017	1:00	L3	1'	1717	Y
1/11/2017	1:00	West	0.5'	<300	N
1/11/2017	1:00	NW	0.5'	<300	N
1/11/2017	1:00	NE	0.5'	<300	N
1/11/2017	1:00	East	0.5'	<300	N
1/11/2017	1:00	South	0.5'	<300	N
1/11/2017	1:00	SW	0.5'	<300	N

TABLE 3

SUMMARY OF LABORATORY ANALYSES

Table 3: Summary of Laboratory Analyses

Analytical Report- 1701763	Sample Number on Figure 2 Map	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1701763-001	BG1	1/11/2017	0.5'	N/A	N/A	N/A	N/A	30
1701763-002	L1	1/11/2017	1.5'	14.57	BDL	440	8300	1400
1701763-003	L2	1/11/2017	0.5'	4.09	BDL	170	3200	380
1701763-004	L3	1/11/2017	1'	5.34	BDL	190	2500	1500
1701763-005	SP1	1/11/2017	comp.	27.4	BDL	550	18000	6700

APPENDIX A

LABORATORY ANALYTICAL REPORTS

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

January 27, 2017

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Ford State 2 OrderNo.: 1701763

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 5 sample(s) on 1/18/2017 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 qualifers 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701763**
Date Reported: **1/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1-0.5
Project: Ford State 2
Collection Date: 1/11/2017 11:08:00 AM
Lab ID: 1701763-001
Matrix: SOIL
Received Date: 1/18/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	1/20/2017 10:13:54 PM	29816

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1.5
Project: Ford State 2
Collection Date: 1/11/2017 12:15:00 PM
Lab ID: 1701763-002
Matrix: SOIL
Received Date: 1/18/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	1400	75		mg/Kg	50	1/23/2017 2:56:15 PM	29816
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	8300	97		mg/Kg	10	1/20/2017 12:26:09 PM	29778
Motor Oil Range Organics (MRO)	3400	480		mg/Kg	10	1/20/2017 12:26:09 PM	29778
Surr: DNOP	0	70-130	S	%Rec	10	1/20/2017 12:26:09 PM	29778
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	440	99		mg/Kg	20	1/20/2017 12:49:27 PM	29781
Surr: BFB	200	68.3-144	S	%Rec	20	1/20/2017 12:49:27 PM	29781
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.50		mg/Kg	20	1/20/2017 12:49:27 PM	29781
Toluene	0.77	0.50		mg/Kg	20	1/20/2017 12:49:27 PM	29781
Ethylbenzene	1.8	0.99		mg/Kg	20	1/20/2017 12:49:27 PM	29781
Xylenes, Total	12	2.0		mg/Kg	20	1/20/2017 12:49:27 PM	29781
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	20	1/20/2017 12:49:27 PM	29781

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-0.5
Project: Ford State 2
Collection Date: 1/11/2017 12:50:00 PM
Lab ID: 1701763-003
Matrix: SOIL
Received Date: 1/18/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	380	30		mg/Kg	20	1/23/2017 12:49:45 PM	29834
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	3200	96		mg/Kg	10	1/20/2017 12:49:21 PM	29778
Motor Oil Range Organics (MRO)	1500	480		mg/Kg	10	1/20/2017 12:49:21 PM	29778
Surr: DNOP	0	70-130	S	%Rec	10	1/20/2017 12:49:21 PM	29778
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	170	49		mg/Kg	10	1/20/2017 1:12:50 PM	29781
Surr: BFB	178	68.3-144	S	%Rec	10	1/20/2017 1:12:50 PM	29781
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.24		mg/Kg	10	1/20/2017 1:12:50 PM	29781
Toluene	0.25	0.24		mg/Kg	10	1/20/2017 1:12:50 PM	29781
Ethylbenzene	0.54	0.49		mg/Kg	10	1/20/2017 1:12:50 PM	29781
Xylenes, Total	3.3	0.97		mg/Kg	10	1/20/2017 1:12:50 PM	29781
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	10	1/20/2017 1:12:50 PM	29781

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-1
Project: Ford State 2
Collection Date: 1/11/2017 1:05:00 PM
Lab ID: 1701763-004
Matrix: SOIL
Received Date: 1/18/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1500	75		mg/Kg	50	1/25/2017 12:55:19 PM	29834
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2500	94		mg/Kg	10	1/20/2017 1:12:36 PM	29778
Motor Oil Range Organics (MRO)	1100	470		mg/Kg	10	1/20/2017 1:12:36 PM	29778
Surr: DNOP	0	70-130	S	%Rec	10	1/20/2017 1:12:36 PM	29778
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	190	98		mg/Kg	20	1/20/2017 10:52:36 AM	29781
Surr: BFB	119	68.3-144		%Rec	20	1/20/2017 10:52:36 AM	29781
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.49		mg/Kg	20	1/20/2017 10:52:36 AM	29781
Toluene	0.57	0.49		mg/Kg	20	1/20/2017 10:52:36 AM	29781
Ethylbenzene	0.77	0.49		mg/Kg	20	1/20/2017 10:52:36 AM	29781
Xylenes, Total	4.0	2.0		mg/Kg	20	1/20/2017 10:52:36 AM	29781
Surr: 4-Bromofluorobenzene	89.8	80-120		%Rec	20	1/20/2017 10:52:36 AM	29781

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SP1
Project: Ford State 2
Collection Date: 1/11/2017 11:10:00 AM
Lab ID: 1701763-005
Matrix: SOIL
Received Date: 1/18/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	6700	300		mg/Kg	200	1/25/2017 1:07:44 PM	29834
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	18000	950		mg/Kg	100	1/20/2017 10:52:51 AM	29778
Motor Oil Range Organics (MRO)	7200	4800		mg/Kg	100	1/20/2017 10:52:51 AM	29778
Surr: DNOP	0	70-130	S	%Rec	100	1/20/2017 10:52:51 AM	29778
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	550	250		mg/Kg	50	1/20/2017 11:15:58 AM	29781
Surr: BFB	126	68.3-144		%Rec	50	1/20/2017 11:15:58 AM	29781
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.2		mg/Kg	50	1/20/2017 11:15:58 AM	29781
Toluene	3.8	2.5		mg/Kg	50	1/20/2017 11:15:58 AM	29781
Ethylbenzene	3.6	2.5		mg/Kg	50	1/20/2017 11:15:58 AM	29781
Xylenes, Total	20	5.0		mg/Kg	50	1/20/2017 11:15:58 AM	29781
Surr: 4-Bromofluorobenzene	92.4	80-120		%Rec	50	1/20/2017 11:15:58 AM	29781

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701763**

27-Jan-17

Client: Souder, Miller & Associates

Project: Ford State 2

Sample ID	**MB-29816**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**29816**	RunNo:	**40191**					
Prep Date:	**1/20/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1260055**	Units:	**mg/Kg**			

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

Sample ID	**LCS-29816**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**29816**	RunNo:	**40191**					
Prep Date:	**1/20/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1260056**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Sample ID	**MB-29834**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**29834**	RunNo:	**40216**					
Prep Date:	**1/23/2017**	Analysis Date:	**1/23/2017**	SeqNo:	**1260604**	Units:	**mg/Kg**			

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

Sample ID	**LCS-29834**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**29834**	RunNo:	**40216**					
Prep Date:	**1/23/2017**	Analysis Date:	**1/23/2017**	SeqNo:	**1260605**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701763**

27-Jan-17

Client: Souder, Miller & Associates

Project: Ford State 2

Sample ID **MB-29778**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **29778**	RunNo: **40157**
Prep Date: **1/19/2017**	Analysis Date: **1/20/2017**	SeqNo: **1258850** 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	12		10.00		117	70	130			

Sample ID **LCS-29778**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **29778**	RunNo: **40157**
Prep Date: **1/19/2017**	Analysis Date: **1/20/2017**	SeqNo: **1258898** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.2	63.8	116			
Surr: DNOP	5.9		5.000		117	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701763**

27-Jan-17

Client: Souder, Miller & Associates

Project: Ford State 2

Sample ID	**LCS-29781**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**29781**		RunNo:	**40152**				
Prep Date:	**1/19/2017**	Analysis Date:	**1/20/2017**		SeqNo:	**1259993**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.8	74.6	123			
Surr: BFB	840		1000		83.7	68.3	144			

Sample ID	**MB-29781**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**29781**		RunNo:	**40152**				
Prep Date:	**1/19/2017**	Analysis Date:	**1/20/2017**		SeqNo:	**1259994**	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	780		1000		77.9	68.3	144			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701763**

27-Jan-17

Client: Souder, Miller & Associates

Project: Ford State 2

Sample ID	**LCS-29781**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**29781**	RunNo:	**40152**
Prep Date:	**1/19/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1260015** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	75.2	115			
Toluene	0.93	0.050	1.000	0	92.9	80.7	112			
Ethylbenzene	0.90	0.050	1.000	0	90.0	78.9	117			
Xylenes, Total	2.8	0.10	3.000	0	92.3	79.2	115			
Surr: 4-Bromofluorobenzene	0.85		1.000		84.7	80	120			

Sample ID	**MB-29781**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**PBS**	Batch ID:	**29781**	RunNo:	**40152**
Prep Date:	**1/19/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1260016** 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: 4-Bromofluorobenzene	0.82		1.000		81.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: 1701763 | RcptNo: 1

Received by/date: 01/18/17
Logged By: Ashley Gallegos 1/18/2017 9:30:00 AM
Completed By: Ashley Gallegos 1/18/2017 12:32:56 PM
Reviewed By: 01/18/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			

Chain-of-Custody Record

Client: SMA Carlsbad

Mailing Address:

Phone #:

Email or Fax#:

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

Accreditation
NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Ford State #2

Project #:

Project Manager:
Austin Wegant

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.0 — 1.0 CF = 2.0°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 Request ID	Container Type and #	Preservative Type	HEAL No. 1701763	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
11/17	11:08		BG1-0.5			-001								X								
	12:15		L1-1.5			-002	X		X					X								
	12:50		L2-0.5			-003	X		X					X								
	1:05		L3-1			-004	X		X					X								
	11:10		SP1			-005	X		X					X								

Date:	Time:	Relinquished by:	Received by:	Date	Time
			[signature]	11/18/17	0930
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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 B
FORM C141 INITIAL

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 17 2017
RECEIVED

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1701954977

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Judah Oil 245872	Contact	Blaise Campanella
Address	PO Box 568, Artesia NM, 88211	Telephone No.	575-748-5488
Facility Name	Ford State #2	Facility Type	oil

Surface Owner State	Mineral Owner	API No. 30-015-22714

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	02	22s	28e	1650	FNL	1650	FWL	Eddy

Latitude 32.42498 **Longitude** -104.06112

NATURE OF RELEASE

Type of Release pw/oil	Volume of Release 5bbl/oil 5bbl/pw Volume Recovered 0
Source of Release flowline	Date and Hour of Occurrence 1/10/17 Date and Hour of Discovery 1/10/17
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher
By Whom?	Date and Hour 1/10/17 in the A.M. call from B. Campanella
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Flowline ruptured, the polyline was immediately repaired and discharge ceased.

Describe Area Affected and Cleanup Action Taken.*
Area affected is approximately 15' x 80' just to the east side of the production pad. The top 6" of impacted soil has been scraped and hauled to an NMOCD approved facility. Further remediation efforts will be per an NMOCD approved work plan.

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

Signature: [signature]

Printed Name: Blaise Campanella

Title: Member/Manager

E-mail Address: judahoil@yahoo.com

Date: 1/17/2017 Phone: 575-748-5488

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By [signature]

Approval Date: 1/17/17 Expiration Date: N/A

Conditions of Approval: See attached

Attached ☐

* Attach Additional Sheets If Necessary

2RP-4081

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 1/17/17 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4081 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in Artesia on or before 2/17/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

APPENDIX C
OSE WATER COLUMN DATA

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 01171 POD1		ED		1	4	35	21S	28E	588814	3588862	1074	70		
CP 01171 POD3		ED		1	4	35	21S	28E	588814	3588862	1074	115		
CP 01171 POD2		ED		1	4	35	21S	28E	588866	3588862	1102	110		
C 03533 POD1	C	ED	3	4	4	03	22S	28E	587377	3586934	1342	55		
C 03533 POD2	C	ED	3	4	4	03	22S	28E	587358	3586935	1355	55		
C 03533 POD3	C	ED	3	4	4	03	22S	28E	587370	3586911	1364	55		
C 03533 POD4	C	ED	4	3	4	03	22S	28E	587331	3586892	1404	55		
C 03534 POD1	C	ED	4	3	4	03	22S	28E	587240	3586950	1427	150		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 588277.25 **Northing (Y):** 3587930.79 **Radius:** 5000