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

March 20, 2017

#5E25868-BG3

Mike Bratcher
Environmental Specialist
NMOCD District II
1301 W Grand Ave
Artesia, NM 88210

SUBJECT: SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-755, State D SWD #001, UNIT N SECTION 16-T20S-R24E NMPM, API# 30-015-21572, EDDY COUNTY, NEW MEXICO

Dear Mr. Bratcher:

On behalf of EOG Y Resources, Inc. (EOG), Souder Miller & Associates (SMA) is pleased to submit the attached Work Plan summarizing the planned soil remediation of the release site located by the State D SWD #001 in Eddy County, New Mexico. The purpose of this Work Plan is to obtain approval from the New Mexico Oil Conservation Division (NMOCD) for the remediation of the releases that occurred on state lands on March 12, 2006 and July 15, 2009.

SMA responded at the request of EOG, to assess, delineate and remediate the soils from the release of production fluids associated with State D SWD #001 well location. The March 12, 2006 release was initially reported to NMOCD by Yates Petroleum Corporation, on March 17, 2006 and was the result of motor valve malfunction. The July 15, 2009 release was initially reported to NMOCD on July 15, 2009 and was a result of an equipment failure. The table below summarizes information regarding the release. Results of the assessment, delineation, and remedial activities following in the Work Plan.

Table 1: Release information and Site Ranking

Name	State D SWD #001				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-755 (July 15, 2009)	30-015-21572	SE/SW (Unit N)	Section 16	T20S, R24E NMPM
Estimated Date of Release	3/12/2006 (nMLB0610137549) 7/15/2009 (2RP-755)				
Date Reported to NMOCD	3/17/2006 (nMLB0610137549) 7/15/2009 (2RP-755)				
Reported by	Jerry Fanning (nMLB0610137549) Robert Asher (2RP-755)				
Land Owner	State				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Motor valve malfunction (nMLB0610137549) Check valve malfunction (2RP-755)				

Released Material	Crude oil and produced water Produced Water (2RP-755)
Released Volume	15 bbls crude oil and 5 bbls produced water 110 bbls produced water (2RP-755)
Recovered Volume	0 bbls 100 bbls produced water (2RP-755)
Nearest Waterway	Greater than 1,000 feet
Depth to Groundwater	Greater than 100 feet
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	0
SMA Response Dates	Initial: 3/6/2017

A copy of the C-141 Initial is attached 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 INCIDENTS 2RP-755 AND NMLB0610137549 (NO RP #) EOG Y RESOURCES, INC.

STATE D SWD #001
UL N, SECTION 16, T20S R24E, NMPM
API #30-015-21572
EDDY COUNTY, NM

Prepared for:
EOG Y Resources, Inc.
105 South Fourth Street
Artesia, NM 88210

Prepared by:
Souder, Miller & Associates
201 S. Halagueno
Carlsbad, NM 88221
575-689-7040

March 20, 2017
SMA Reference
5E25868 BG3

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1.0 Introduction

On behalf of EOG Y Resources, Inc. (EOG), Souder, Miller & Associates (SMA) has prepared this report that describes the assessment, initial delineation and for two releases associated with the State D SWD #001 location API# 30-015-21572. The site is in Section 16, Township 20S, Range 24E NMPM, Eddy County, New Mexico, on state lands. Figure 1 illustrates the vicinity and location of the site.

2.0 Site Ranking, Land Status, and Jurisdiction

The release site is located approximately 11 miles west of Brantly Lake, with an elevation of approximately 3,775 feet above sea level. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be 217 feet below ground surface (bgs).

According to the ChevronTexaco Trend map, this location has a depth to ground water at 350'. SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. Several wells are located within a 5000 meter radius of the site (see appendix C). Of those well, three showed a depth to groundwater less than 100 feet. Upon further investigation RA 05146 was an oil exploratory well, RA 02906 CLW was conversion transaction for a well in Sec 14 T10s R24E, and RA 02775 could not be located. SMA considers 217 feet to ground water to be a conservative estimate for this area. Figure 1 depicts the site vicinity and Figure 2 shows the site itself. The physical location of this release is on private property and is within the jurisdiction of NMOCD.

Based on the NMOCD Guidelines Ranking Criteria, this release location has been assigned an NMOCD ranking of 0 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 5,000 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates the site ranking rationale.

3.0 Assessment and Initial Results

On March 6, 2017 SMA field personnel were on site to assess the release area using a mobile chlorides titration kit EPA method 9045D meter. The potentially affected area was found to be approximately 90 feet long and 30 feet wide within the battery, and 125 feet long and 40 feet wide outside the battery to the south and east sides. Further details about the project can be found in NMOCD Online Records under "Soil Remediation Work Plan for Incident 2RP-755." All samples were collected and processed according to NMOCD soil sampling procedures. Samples were collected in two locations and sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis for Total Chlorides using EPA Method 300.0.

4.0 Soil Remediation Work Plan

SMA proposes to excavate the area within the battery to 3 feet. Since excavation in the battery will be a major undertaking, SMA proposes to obtain the vertical delineation of chlorides at the time of excavation. TPH and BTEX confirmation samples will also be collected for bottom hole and sidewalls. SMA will then request backfill approval from the OCD.

With approval from area utilities owners via 811 and NMOCD, SMA proposes to excavate the pasture to 1 foot. Sidewall and bottom hole confirmation samples will be collected.

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 0: 10 ppm (mg/kg) Benzene, 50 ppm total BTEX, and 5,000 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 3. Laboratory reports are included in Appendix A.

6.0 Closure and Limitations

The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, and preparation of this Remediation 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 Shawna Chubbuck at 970-565-4465 ext. 1504.

Submitted by:

SOUDER, MILLER & ASSOCIATES

J. Austin Weyant

Austin Weyant
Project Scientist

Reviewed by:

Shawna Chubbuck

Shawna Chubbuck
Senior Scientist

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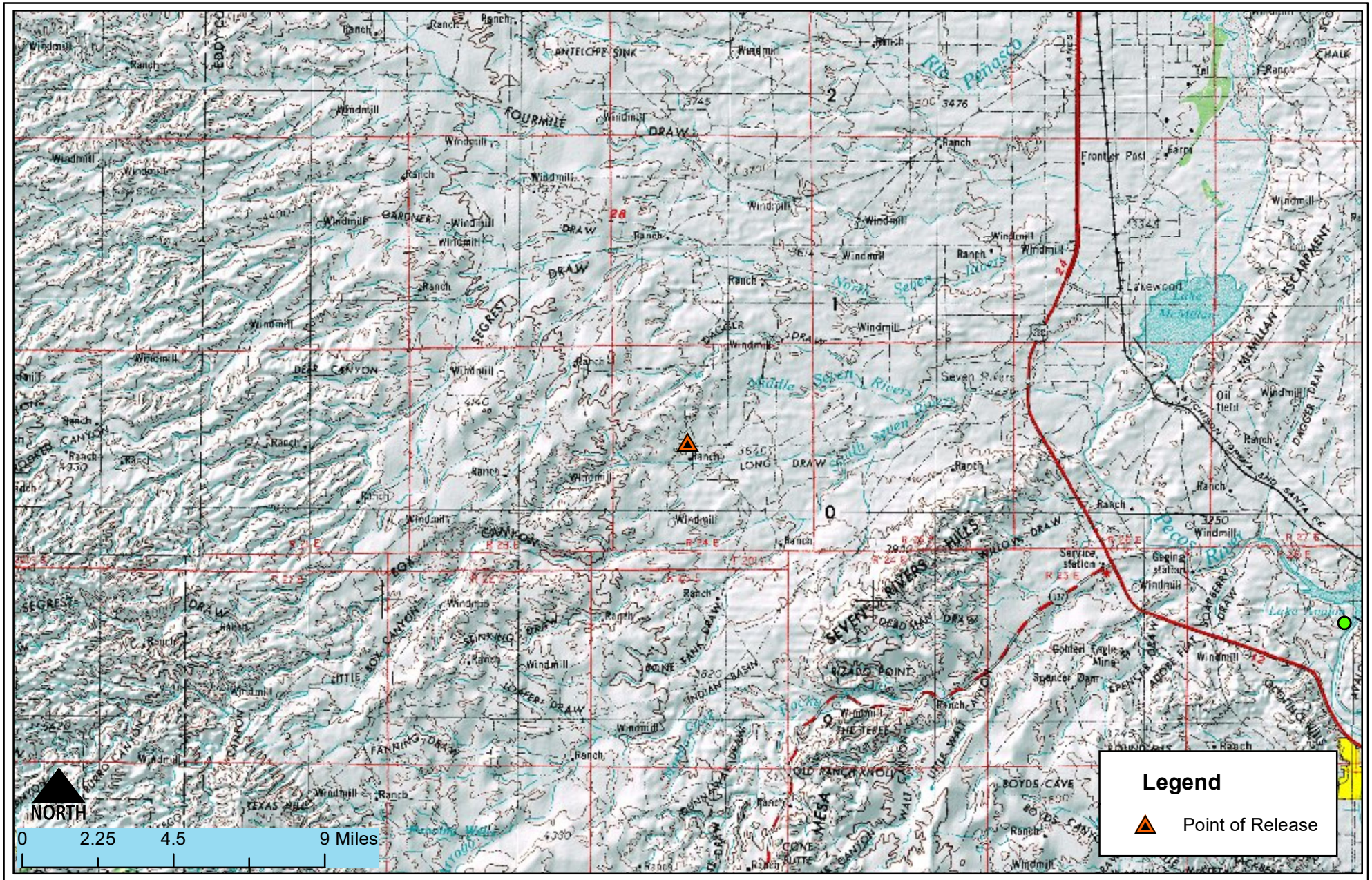
FIGURE 1
VICINITY MAP



SITE VICINTY MAP
STATE D SWD #001 EOG RESOURCES
SEC.16, T20S, R24E
EDDY COUNTY, NEW MEXICO

Figure 1

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

Drawn Curtis Pattillo
Checked
Approved

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www.soudermiller.com
Serving the Southwest & Rocky Mountains

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Document: P:\5-EOG MSA (2017) (5E25868)\BG3 - State D SWD #001\CAD-Figures\Figure 1.mxd

FIGURE 2

DETAILED SITE AND SAMPLE LOCATION MAP

Detailed Site and Sample Map
State D SWD #001 ~ EOG
Eddy County, New Mexico

Figure 2

Revisions

By: Date: Descr:

By: Date: Descr:

Date Saved: 3/27/2017

Drawn Heather Patterson

Checked

Approved

SMA

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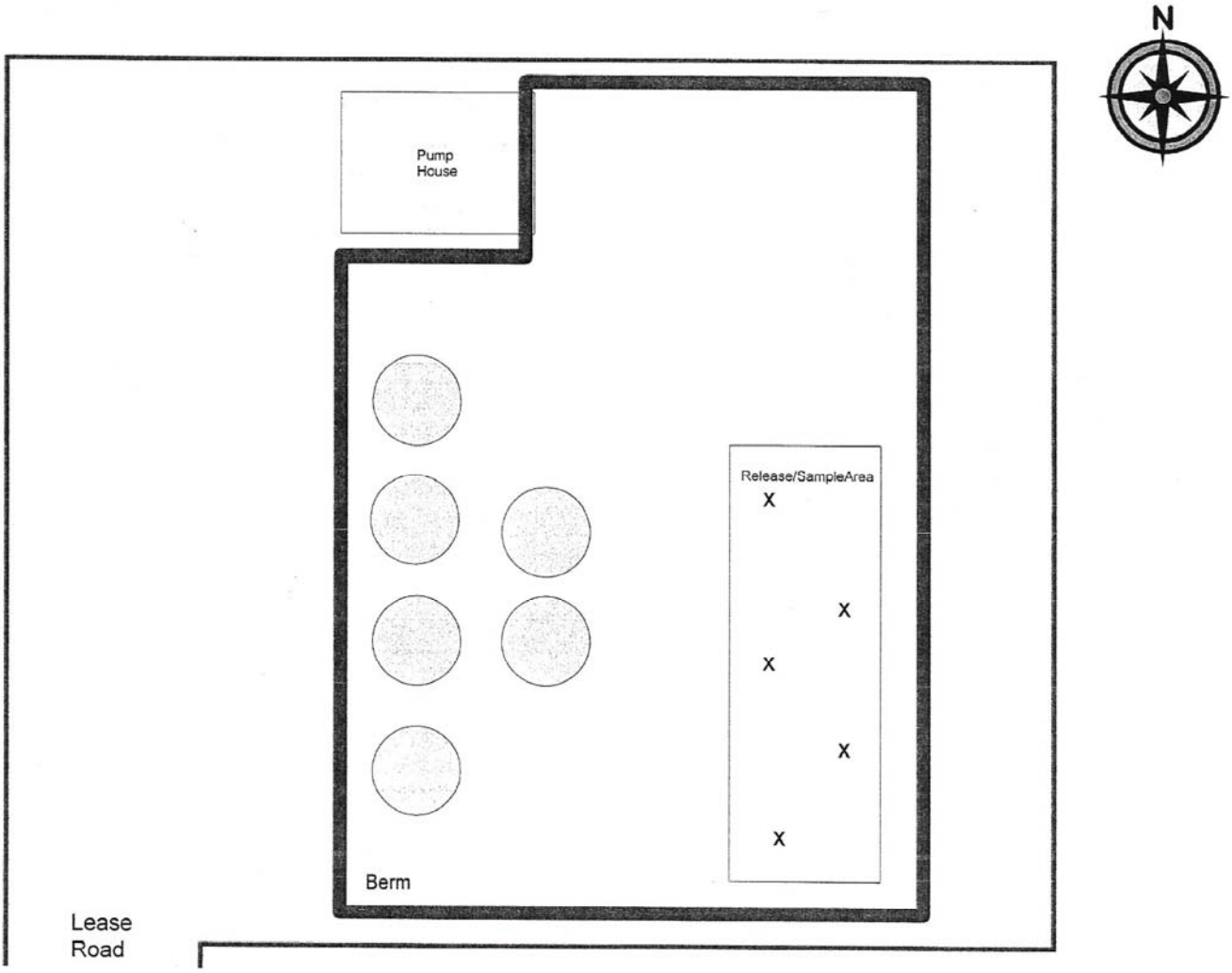

Sample ID	Sample Area	Sample Date	Sample Type	Depth	BTEX	GRO	DRO	TOTAL	Chlorides
GS/Comp-Surface	Battery Area	8/11/2009	Grab/Auger	4"	ND	ND	887	887	2910
GS/Comp-001	Battery Area	8/11/2009	Grab/Auger	12"	2.077	147	1130	1277	515
GS/Comp-002	Battery Area	8/11/2009	Grab/Auger	24"	2.319	182	787	969	299
Sample ID	Sample Area	Sample Date	Sample Type	Depth	BTEX	GRO	DRO	TOTAL	Chlorides
GS/Comp-Surface	Battery Area	2/17/2010	Grab/Auger	4"	0.2294	37.2	109	146.2	1970
GS/Comp-001	Battery Area	2/17/2010	Grab/Auger	12"	39.28	709	910	1619	682
GS/Comp-002	Battery Area	2/17/2010	Grab/Auger	24"	25.67	1820	3290	5110	397

Site Ranking is Zero (0). Depth to Ground Water >100' (approx. 350').
All results are ppm. Chloride results are for documentation. **X - Sample Points**

YATES PETROLEUM CORPORATION

State D SWD #1

30-015-21572

Section 16 T20S-R24E

Eddy County, NM

SAMPLE DIAGRAM (Not to Scale)
Xenco Laboratories: #340666
Report Date: 8/18/2009
Xenco Laboratories: #362835 & 362836
Report Date: 2/24/2010
Prepared by Robert Asher
Environmental Regulatory Agent

TABLE 1

RELEASE INFORMATION AND SITE RANKING

EOG Y Resources
Table 1: Site Ranking

State D SWD #1
Tank Battery
3/28/2017

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 217 feet bgs
50' to 99' = 10			
>100' = 0	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 11 miles east of Brantly lake
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 0.39 miles south of location
	0		
Total Site Ranking	**0**		
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 LABORATORY ANALYSES

Table 2: Summary of Laboratory Analyses

Analytical Report Reference	Sample Number on Figure 2	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1703595-001	BG-1	3/6/2017	surface	N/A	N/A	N/A	N/A	<30
1703595-002	L1-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	8,800
1703595-003	L1-1	3/6/2017	1 Ft	N/A	N/A	N/A	N/A	3,700
1703595-004	L2-1	3/6/2017	1 Ft	N/A	N/A	N/A	N/A	2,200
1703595-005	L2-2	3/6/2017	2 Ft	N/A	N/A	N/A	N/A	1,500
1703595-006	L2-3	3/6/2017	3 Ft	N/A	N/A	N/A	N/A	1,300
1703595-007	L3-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	1,900
1703595-008	L4-1	3/6/2017	1 Ft	N/A	N/A	N/A	N/A	1,400
1703595-009	L4-2	3/6/2017	2 Ft	N/A	N/A	N/A	N/A	1,100
1703595-010	L4-3	3/6/2017	3 Ft	N/A	N/A	N/A	N/A	910
1703599-001	L5-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	3700
1703599-002	L5-1	3/6/2017	1 Ft	N/A	N/A	N/A	N/A	510
1703599-003	L6-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	4700
1703599-004	L7-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	110
1703599-005	L7-1	3/6/2017	1 Ft	N/A	N/A	N/A	N/A	970
1703599-006	L8-0.5	3/6/2017	0.5 Ft	N/A	N/A	N/A	N/A	7400
1703599-007	L9-0.5	3/7/2017	0.5 Ft	N/A	N/A	N/A	N/A	BDL

APPENDIX A

LABORATORY ANALYTICAL REPORTS

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

March 24, 2017

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

RE: EOG State D OrderNo.: 1703595

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 10 sample(s) on 3/11/2017 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: EOG State D
Lab Order: 1703595

Lab ID: 1703595-001 **Collection Date:** 3/6/2017 10:10:00 AM
Client Sample ID: BG-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	3/15/2017 3:53:32 PM	30706

Lab ID: 1703595-002 **Collection Date:** 3/6/2017 10:10:00 AM
Client Sample ID: L1-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	8800	750		mg/Kg	500	3/16/2017 4:23:44 PM	30706

Lab ID: 1703595-003 **Collection Date:** 3/6/2017 10:18:00 AM
Client Sample ID: L1-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3700	150		mg/Kg	100	3/16/2017 4:36:09 PM	30706

Lab ID: 1703595-004 **Collection Date:** 3/6/2017 10:25:00 AM
Client Sample ID: L2-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2200	75		mg/Kg	50	3/16/2017 5:13:23 PM	30706

Lab ID: 1703595-005 **Collection Date:** 3/6/2017 10:34:00 AM
Client Sample ID: L2-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1500	75		mg/Kg	50	3/16/2017 5:25:48 PM	30706

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
Project: EOG State D
Lab Order: 1703595

Lab ID: 1703595-006 **Collection Date:** 3/6/2017 10:41:00 AM
Client Sample ID: L2-3 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1300	75		mg/Kg	50	3/16/2017 5:38:12 PM	30706

Lab ID: 1703595-007 **Collection Date:** 3/6/2017 10:52:00 AM
Client Sample ID: L3-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1900	75		mg/Kg	50	3/17/2017 3:49:16 PM	30730

Lab ID: 1703595-009 **Collection Date:** 3/6/2017 11:10:00 AM
Client Sample ID: L4-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1400	75		mg/Kg	50	3/17/2017 4:01:41 PM	30730

Lab ID: 1703595-010 **Collection Date:** 3/6/2017 11:16:00 AM
Client Sample ID: L4-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1100	75		mg/Kg	50	3/20/2017 5:13:48 PM	30754

Lab ID: 1703595-011 **Collection Date:** 3/6/2017 11:24:00 AM
Client Sample ID: L4-3 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	910	30		mg/Kg	20	3/17/2017 10:38:59 AM	30754

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#: **1703595**

24-Mar-17

Client: Souder, Miller & Associates

Project: EOG State D

Sample ID	**MB-30706**	SampType: **mblk**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID: **30706**			RunNo: **41382**					
Prep Date:	**3/15/2017**	Analysis Date: **3/15/2017**			SeqNo: **1298272**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-30706**	SampType: **lcs**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID: **30706**			RunNo: **41382**					
Prep Date:	**3/15/2017**	Analysis Date: **3/15/2017**			SeqNo: **1298273**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	90	110			

Sample ID	**MB-30730**	SampType: **mblk**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID: **30730**			RunNo: **41429**					
Prep Date:	**3/16/2017**	Analysis Date: **3/16/2017**			SeqNo: **1299397**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-30730**	SampType: **lcs**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID: **30730**			RunNo: **41429**					
Prep Date:	**3/16/2017**	Analysis Date: **3/16/2017**			SeqNo: **1299398**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Sample ID	**MB-30754**	SampType: **mblk**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID: **30754**			RunNo: **41494**					
Prep Date:	**3/17/2017**	Analysis Date: **3/17/2017**			SeqNo: **1301123**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-30754**	SampType: **lcs**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID: **30754**			RunNo: **41494**					
Prep Date:	**3/17/2017**	Analysis Date: **3/17/2017**			SeqNo: **1301124**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.6	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
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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: 1703595 RcptNo: 1

Received by/date: 03/11/17

Logged By: Lindsay Mangin 3/11/2017 8:15:00 AM

Completed By: Lindsay Mangin 3/13/2017 9:17:50 AM

Reviewed By: 03/13/17

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 ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
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 ☐	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	17.8	Good	Not Present			

Chain-of-Custody Record

Client: SMA - CARLSBAD

Mailing Address:

Phone #: 575 689-7040

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: EOG State D

Project #:

Project Manager: Austin Weyant

Sampler: ICM / HMT

On Ice: ☐ Yes ☑ No

Sample Temperature: 17.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1703595	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)
3/9/17	10:10	SOIL	BG-1	4oz, 1	-	-001								X								
	10:10	SOIL	L1-0.5	4oz 1		-002								X								
	10:18		L1-1			-003								X								
			[redacted]																			
	10:25		L2-1			-004								X								
	10:34		L2-2			-005								X								
	10:41		L2-3			-006								X								
	10:52		L3-0.5			-007								X								
	10:54		L4-0.5			-008								X								
	11:10		L4-1			-009								X								
	11:16		L4-2			-010								X								
	11:24		L4-3			-011								X								

- DO NOT RECHARGE. CROSS OUT PER A.W. 3/17

Date:	Time:	Relinquished by:	Received by:	Date Time	Remarks:
				03/11/17 0856	EOG / YATES RATES
Date:	Time:	Relinquished by:	Received by:	Date Time	

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

March 24, 2017

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

RE: State D OrderNo.: 1703599

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 7 sample(s) on 3/11/2017 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Project: State D
Lab Order: 1703599

Lab ID: 1703599-001 **Collection Date:** 3/6/2017 10:30:00 AM
Client Sample ID: L5-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3700	150		mg/Kg	100	3/20/2017 6:40:41 PM	30754

Lab ID: 1703599-002 **Collection Date:** 3/6/2017 10:35:00 AM
Client Sample ID: L5-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	510	30		mg/Kg	20	3/17/2017 2:34:47 PM	30754

Lab ID: 1703599-003 **Collection Date:** 3/6/2017 10:40:00 AM
Client Sample ID: L6-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	4700	300		mg/Kg	200	3/20/2017 6:53:05 PM	30754

Lab ID: 1703599-004 **Collection Date:** 3/6/2017 10:45:00 AM
Client Sample ID: L7-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	110	30		mg/Kg	20	3/17/2017 2:59:36 PM	30754

Lab ID: 1703599-005 **Collection Date:** 3/6/2017 10:50:00 AM
Client Sample ID: L7-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	970	75		mg/Kg	50	3/20/2017 7:05:30 PM	30754

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
Project: State D

Lab Order: 1703599

Lab ID: 1703599-006 **Collection Date:** 3/6/2017 10:55:00 AM
Client Sample ID: L8-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	7400	300		mg/Kg	200	3/20/2017 7:17:55 PM	30754

Lab ID: 1703599-007 **Collection Date:** 3/6/2017 11:00:00 AM
Client Sample ID: L9-0.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/17/2017 3:36:52 PM	30754

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#: **1703599**

24-Mar-17

Client: Souder, Miller & Associates

Project: State D

Sample ID	**MB-30754**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**30754**	RunNo:	**41494**					
Prep Date:	**3/17/2017**	Analysis Date:	**3/17/2017**	SeqNo:	**1301123**	Units:	**mg/Kg**			

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

Sample ID	**LCS-30754**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**30754**	RunNo:	**41494**					
Prep Date:	**3/17/2017**	Analysis Date:	**3/17/2017**	SeqNo:	**1301124**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.6	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

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: 1703599 | RcptNo: 1

Received by/date: 03/11/17

Logged By: Lindsay Mangin 3/11/2017 8:15:00 AM

Completed By: Lindsay Mangin 3/13/2017 9:40:14 AM

Reviewed By: 03/13/17

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 ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
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 ☐	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	17.8	Good	Not Present			

Chain-of-Custody Record

Client: SMA (Agistaid)

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: State D

Project #:

Project Manager: Austin Wegant

Sampler:

On Ice: ☐ Yes ☒ No

Sample Temperature: 17.8

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. 1703599	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)
3/6/17	10:30	SOIL	L5 - 0.5	4 oz	-	-001								X				
	10:35		L5 - 1			-002								X				
	10:40		L6 - 0.5			-003								X				
	10:45		L7 - 0.5			-004								X				
	10:50		L7 - 1			-005								X				
	10:55		L8 - 0.5			-006								X				
	11:00		L9 - 0.5			-007								X				
				✓	03/11/17									✓				

Date:	Time:	Relinquished by:	Received by:	Date	Time
		Austin Wegant			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				03/11/17	0815

Remarks: EDG / Yates Rates

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

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

nKMW1111138956

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	OGRID Number	Contact
Yates Petroleum Corporation	25575	Robert Asher
Address		Telephone No.
104 S. 4TH Street		505-748-1471
Facility Name	API Number	Facility Type
State D SWD #1	30-015-21572	Battery

Surface Owner	Mineral Owner	Lease No.
State	State	V-2531

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	16	20S	24E	660	South	1980	West	Eddy

Latitude 32.56807 Longitude 104.59483

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Produced Water	110 B/PW	100 B/PW
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Pump containment vessel	7/15/2009, AM	7/15/2009, AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher/NMOCD, Artesia	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour 7/15/2009, PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Bad check valve on sump pump from building, sump pump burned out, causing containment vessel to overflow. Isolated line, called vacuum truck.

Describe Area Affected and Cleanup Action Taken.*
An approximate area of 15' X 75'. Vacuum truck recovered remaining produced water. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). If initial analytical results for TPH & BTEX are under RRAL's a Final Report, C-141 will be submitted to the OCD requesting closure. Will submit work plan if further remediation is required. **Depth to Ground Water: >100' (approx. 350'), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.**

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

Signature: Robert Asher

Printed Name: Robert Asher

Title: Environmental Regulatory Agent

E-mail Address: boba@ypcnm.com

Date: Wednesday, July 22, 2009 Phone: 505-748-1471

* Attach Additional Sheets If Necessary

OIL CONSERVATION DIVISION

Approved by District Supervisor: Mike Bratcher

Approval Date: 4/21/11 Expiration Date:

Conditions of Approval: Attached ☐

Remediation per OCD Rules & Guidelines. **SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:** 5/21/11

2RP-755

APPENDIX C
NMOSE 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	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 04956		ED		1	1	21	20S	24E	537605	3603101*	565	1013		
RA 10139		ED	3	3	2	21	20S	24E	538285	3602597*	915	308		
RA 02775		CH	1	4	3	21	20S	24E	537899	3601986*	1495	140	31	109
RA 00189		CH	3	1	4	20	20S	24E	536700	3602190*	1849	220		
RA 05424		ED	4	2	3	22	20S	24E	539669	3602194*	2082	1000	400	600
RA 07771		ED	4	1	4	22	20S	24E	540073	3602194*	2413			
RA 05478		ED	3	2	3	08	20S	24E	536272	3605389*	2596	550	500	50
RA 05146		ED		1	2	14	20S	24E	541600	3604734*	3786	300	80	220
RA 02906 CLW		CH	3	4	2	14	20S	24E	541907	3604238*	3952	145	25	120
RA 04742		ED		3	3	13	20S	24E	542408	3603517*	4379	300		
RA 03084		ED			1	03	20S	24E	539366	3607752*	4479	330	268	62
RA 10140		ED	2	1	1	35	20S	24E	540938	3599981*	4547	295		

Average Depth to Water: **217 feet**

Minimum Depth: **25 feet**

Maximum Depth: **500 feet**

Record Count: 12

UTMNAD83 Radius Search (in meters):

Easting (X): 538028.48 **Northing (Y):** 3603476.32 **Radius:** 5000

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