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

March 1, 2016

NMOCD District II
Attn. Heather Patterson
1301 W Grand Ave
Artesia, NM 88210

SUBJECT: SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-1167 Solt State, API# 30-015-25277, EDDY COUNTY, NEW MEXICO

Dear Ms. Patterson:

On behalf Alamo Permian Resources, Souder Miller & Associates (SMA) is pleased to submit the attached Work Plan summarizing the soil remediation planned for the release site located on the Solt in Eddy County, New Mexico. The purpose of the work plan is to obtain approval from the New Mexico Oil Conservation Division for remediation of the release that occurred on June 6, 2012.

At the request of Alamo Permian Resources, SMA assessed and delineated the produced water release associated with the Solt State well location. The release was initially reported to NMOCD by COG Operating on June 6, 2012 and was a result of a poly flowline leak incident. The table below summarizes information regarding the release. Results of the assessment and delineation follow in the attached report.

Table 1: Release information and Site Ranking

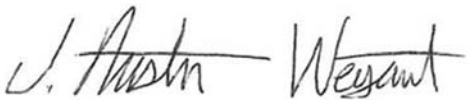
Name	Solt State				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-1167	30-015-25277	SW/SE (UL O)	Section 5	T 18S, R 28E NMPM
Estimated Date of Release	June 6, 2012				
Date Reported to NMOCD	June 6, 2012				
Reported by	Tom Fulvi, Alamo Permian Resources				
Land Owner	New Mexico State Land Office				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Poly Flow Line Leak				
Released Material	Produced Water				
Released Volume	150 bbls Produced Water				
Recovered Volume	0 bbls Produced Water				
Net Release	150 bbls Produced Water				
Nearest Waterway	1.8 miles West of the location.				
Depth to Groundwater	Estimated to be 95 feet				

Nearest Domestic Water Source	Greater than 1000 feet
NMOCD Ranking	10
SMA Response Dates	Initial: 02/17/16 Mitigation Activities: Unknown
Subcontractors	MSI

A copy of the C-141 Initial is 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



Austin Weyant
Project Scientist

Reviewed by:

Cynthia Gray, CHMM
Senior Scientist

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

SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-1167

ALAMO PERMIAN RESOURCES
SOLT STATE
API# 30-015-25277
UL O SECTION 5, T18S R28E, NMPM
EDDY COUNTY, NM

Prepared for:
Alamo Permian Resources
415 West Wall St
Midland, TX 79701

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

March 1, 2016
SMA Reference
5B24270 BG7

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1.0 Introduction

On behalf of Alamo Permian Resources (Alamo), Souder Miller and Associates (SMA) has prepared this report that describes the assessment and initial delineation of a release associated with the Solt State #1, API #30-015-25277, well site. The site is located in Section 5, T 18S, R 28 E NMPM, Eddy County, New Mexico, on land owned by the New Mexico State Land Office. Figure 1 illustrates the vicinity and location of the site.

2.0 Site Ranking and Land Jurisdiction

The Solt State #1 release site is located approximately 7 miles (> 1,000 feet) east of Pecos River, in an area administered by New Mexico State Land Office with an elevation of approximately 3,640 feet above sea level. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be less than 100 feet but greater than 50 feet below ground surface (bgs). Figure 1 depicts the site vicinity and Figure 2 depicts the site details and sample locations.

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. No well is located within a 1000 foot radius of the site. 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.

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 February 17, 2016, after receiving 811 clearance, SMA field personnel assessed the release area onsite with a backhoe and Bobcat auger, a Photo Ionization Detector (PID), and a mobile chlorides titration kit. The affected area was found to be 372 feet long and 177 feet wide. Delineation samples were taken to depths of six feet bgs. Using field screening, samples at six foot bgs were found to exhibit elevated levels of chloride. Initial assessment activities did not show chloride results below NMOCD guidelines. Sample locations are noted on Figure 2 Site Details and Sample Location Map. 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 has determined that the impacted area was previously excavated to approximately one foot bgs during initial response activities. SMA proposes to mobilize a hollow stem auger HSA to the location to continue vertical delineation, final samples well be collected delimiting the impacted area. The in-situ cap will be placed over the delineated impacted area to encompass the horizontal extent of the impact. The cap will consist of bentonite and geotextile layer and two feet of soil. The construction of the in-situ cap (Figure #3) has been designed to prevent both capillary and leaching movement of the brine affected soils. Starting at surface grade the affected soils will be compacted and amended with a bentonite impregnated geotextile liner to act as a capillary break

between the affected soils and the proposed caliche cap. Then 2 feet of top soil will be added above the geotextile liner. The geotextile liner on the bottom of the top soil will effectively break the communication of precipitation through the cap. The imported topsoil will be added as over burden to help with contouring to prevent ponding and pooling on the cap area. Any contaminated soil will be transported to Lea Land, near Carlsbad, NM.

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. The release consisted of produced and associated petroleum found during the initial assessment and delineation.

SMA will finish delineating on a vertical extent with samples collected for lab confirmation.

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.

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 Cindy Gray at 505-325-7535.

Submitted by:

SOUDER, MILLER & ASSOCIATES

J. Austin Weyant

Austin Weyant
Project Scientist

Reviewed by:

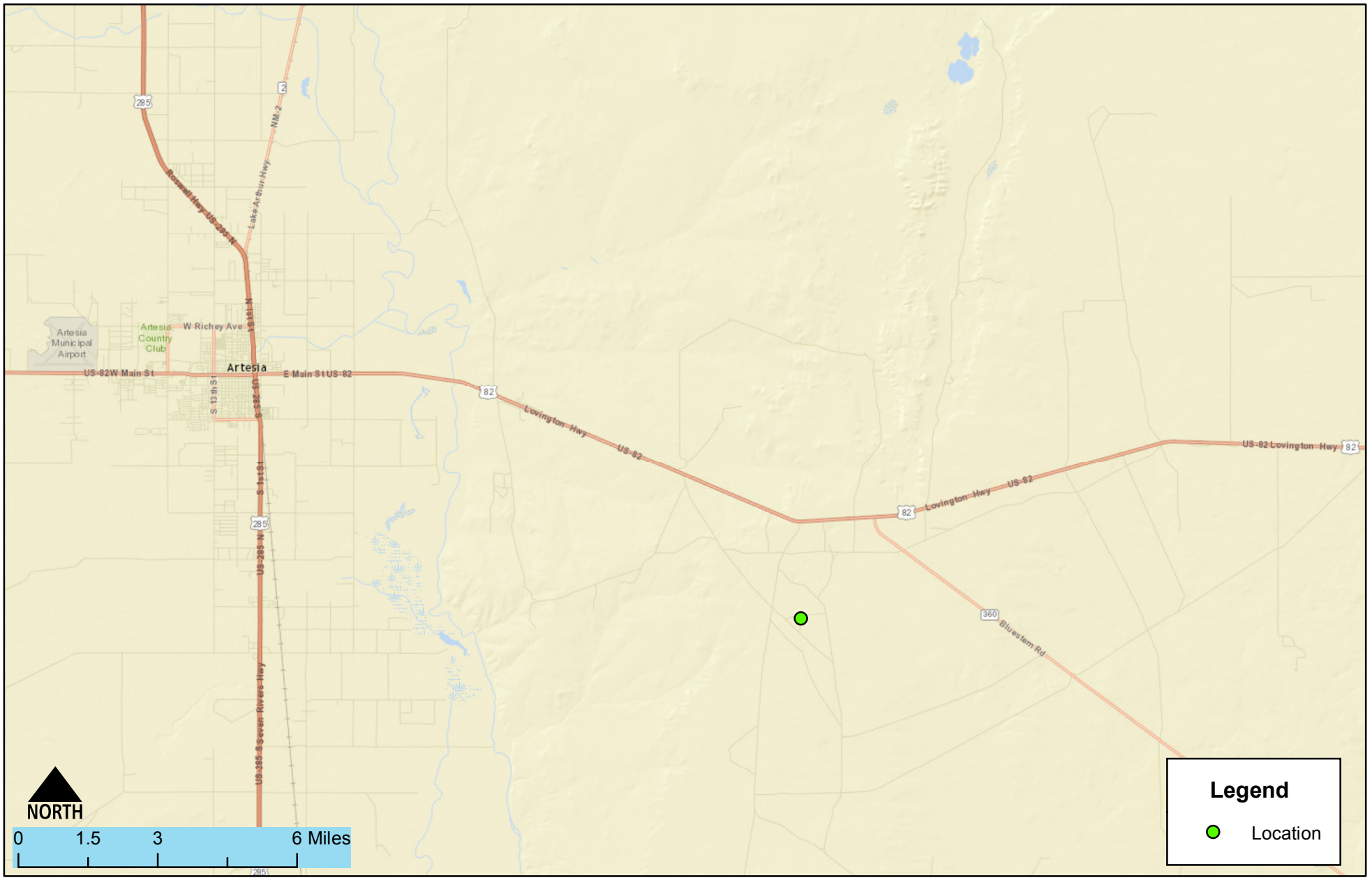
Cynthia Gray, CHMM
Senior Scientist

Figures:

Tables:

Appendices:

FIGURE 1
VICINITY MAP



Vicinity Map
Alamo Permian Resources- Solt State
Artesia, New Mexico

Figure 1

Document: C:\Users\lcm\Documents\GIS DATA\MAPS\Figure 1 Solt State.mxd

Date Saved: 3/9/2016

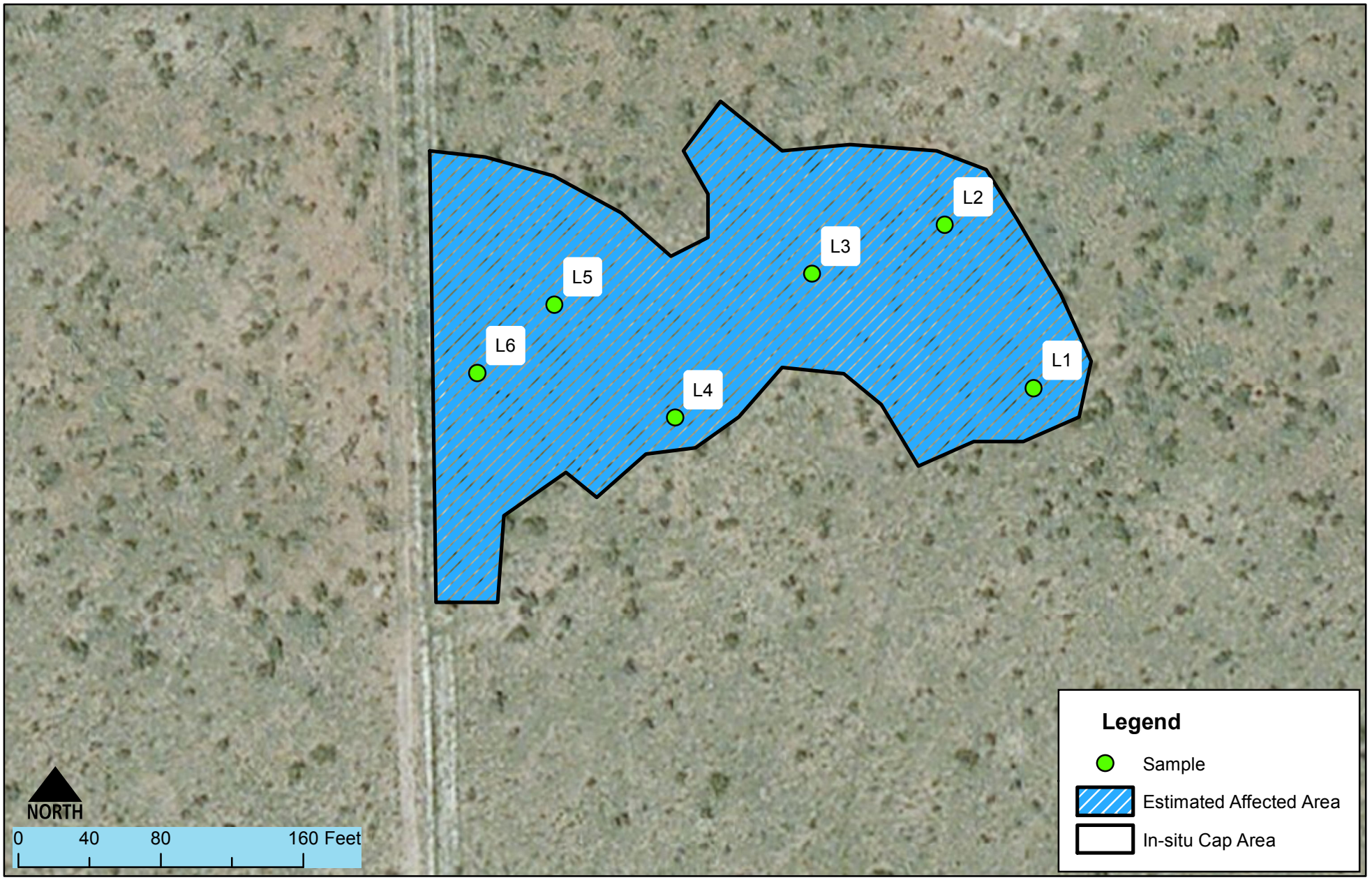
Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lucas Middleton
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689.7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains

FIGURE 2

SITE DETAILS AND SAMPLE LOCATIONS MAP



Site Detail and Sample Locations
Alamo Permin Resources -Solt State
Artesia, New Mexico

Figure 2

Revisions
By: Date: Descr:
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Drawn Lucas Middleton
Checked
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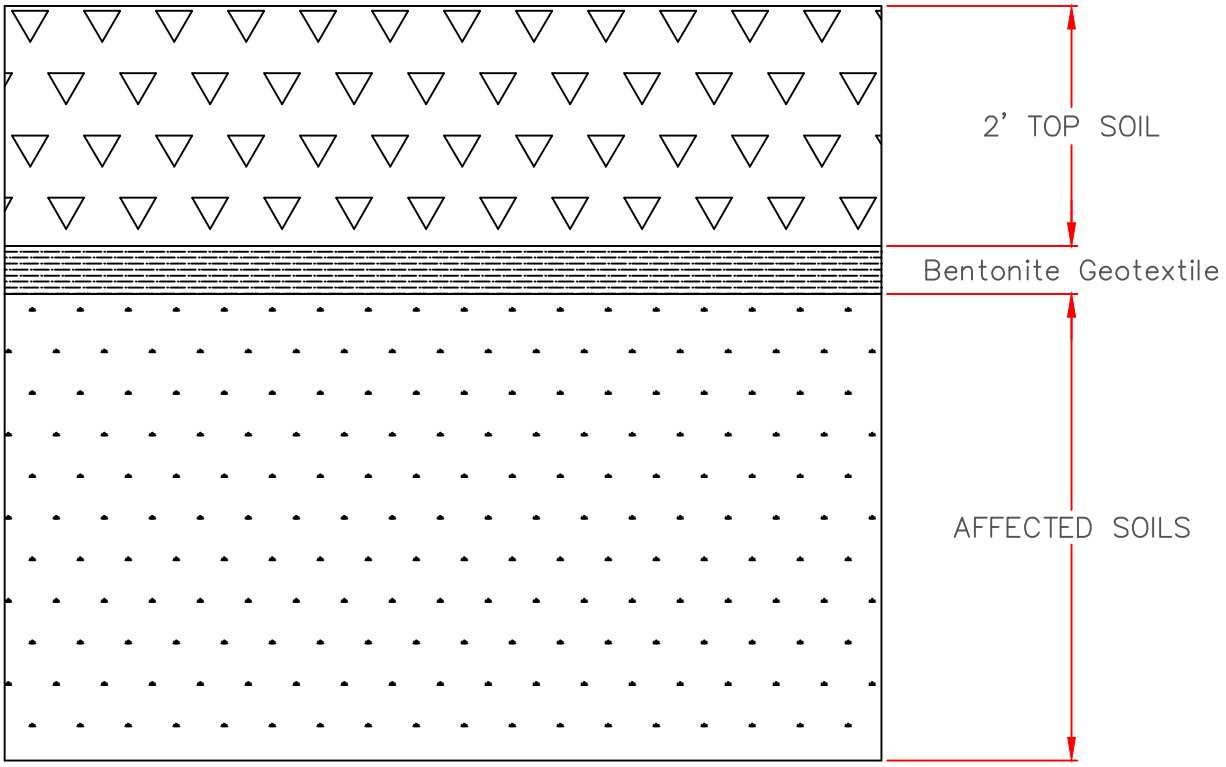
Date Saved: 3/9/2016

Document: C:\Users\lcm\Documents\GIS DATA\MAPS\Figure 2 Solt State.mxd

FIGURE 3

IN-SITU CAP AND BIO BARRIER DESIGN



SMA
Engineering
Environmental
Surveying

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COG

IN-SITU CAP
AND BIOBARRIER DESIGN
Alamo Premian Resources- Solt State

Designed	Drawn	Checked
LM	GJF	KT

Date: February 2016
Scale: Horiz: NA Vert: NA
Project No: 5B24270
Figure 3

T:\5-Alamo Permian Saunders A No.2 (5B24270)\BG7 - Solt State #001\Figure 3.dwg, LCM, 2/25/2016 3:58 PM

TABLE 1

RELEASE INFORMATION AND SITE RANKING

Table 1: Release information and Site Ranking					
Name	Solt State				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-1167	30-015-25277	SW/SE (UL O)	Section 5	T 18S, R 28E NMPM
Estimated Date of Release	June 6, 2012				
Date Reported to NMOCD	June 6, 2012				
Reported by	Tom Fulvi, Alamo Permian Resources				
Land Owner	New Mexico State Land Office				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Equipment error				
Released Material	Produce Water				
Released Volume	150 bbls Produce Water				
Recovered Volume	0 bbls Produce Water				
Net Release	150 bbls Produce Water				
Nearest Waterway	1.8 miles West of the location.				
Depth to Groundwater	Estimated to be 95 feet				
Nearest Domestic Water Source	Greater than 1000 feet				
NMOCD Ranking	10				
SMA Response Dates	Initial: 02/17/16 Mitigation Activities: Unknown				
Subcontractors	MSI				

TABLE 2

SUMMARY OF LABORATORY ANALYSES

Table 2: Summary of Laboratory Analyses

Analytical Report- 1602A13	Sample Number on Figure 2 Map	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1602A13-001	L1	2/17/2016	1'	BDL	BDL	BDL	BDL	1,100
1602A13-002	L1	2/17/2016	6'	N/A	N/A	N/A	N/A	14,000
1602A13-003	L4	2/17/2016	3'	N/A	N/A	N/A	N/A	470
1602A13-004	L4	2/17/2016	6'	N/A	N/A	N/A	N/A	440
1602A13-005	L5	2/17/2016	2'	BDL	BDL	BDL	BDL	1,200
1602A13-006	L5	2/17/2016	6'	N/A	N/A	N/A	N/A	7,200
1602A13-007	L6	2/17/2016	3'	N/A	N/A	N/A	N/A	49

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

March 03, 2016

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

RE: Solt State OrderNo.: 1602A13

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 7 sample(s) on 2/24/2016 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
Client Sample ID: L1-1
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-001
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	1100	30		mg/Kg	20	2/26/2016 4:17:46 PM	23978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	1400	94		mg/Kg	10	2/26/2016 4:51:12 PM	23916
Motor Oil Range Organics (MRO)	720	470		mg/Kg	10	2/26/2016 4:51:12 PM	23916
Surr: DNOP	0	70-130	S	%Rec	10	2/26/2016 4:51:12 PM	23916
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.8	4.9		mg/Kg	1	2/25/2016 8:57:50 PM	23925
Surr: BFB	152	66.2-112	S	%Rec	1	2/25/2016 8:57:50 PM	23925
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	2/25/2016 8:57:50 PM	23925
Toluene	ND	0.049		mg/Kg	1	2/25/2016 8:57:50 PM	23925
Ethylbenzene	ND	0.049		mg/Kg	1	2/25/2016 8:57:50 PM	23925
Xylenes, Total	ND	0.098		mg/Kg	1	2/25/2016 8:57:50 PM	23925
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	1	2/25/2016 8:57:50 PM	23925

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: L1-6
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-002
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	14000	750		mg/Kg	500	3/1/2016 9:51:23 PM	23978

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: L4-3
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-003
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	470	30		mg/Kg	20	2/26/2016 3:40:33 PM	23978

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: L4-6
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-004
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	440	30		mg/Kg	20	2/26/2016 4:55:01 PM	23978

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: L5-2
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-005 **Matrix:** SOIL **Received Date:** 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	1200	30		mg/Kg	20	2/26/2016 5:07:27 PM	23978
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/26/2016 5:34:39 PM	23916
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	2/26/2016 5:34:39 PM	23916
Surr: DNOP	73.8	70-130		%Rec	1	2/26/2016 5:34:39 PM	23916
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/25/2016 9:21:25 PM	23925
Surr: BFB	94.1	66.2-112		%Rec	1	2/25/2016 9:21:25 PM	23925
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	2/25/2016 9:21:25 PM	23925
Toluene	ND	0.048		mg/Kg	1	2/25/2016 9:21:25 PM	23925
Ethylbenzene	ND	0.048		mg/Kg	1	2/25/2016 9:21:25 PM	23925
Xylenes, Total	ND	0.096		mg/Kg	1	2/25/2016 9:21:25 PM	23925
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	1	2/25/2016 9:21:25 PM	23925

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: L5-6
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-006
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	7200	300		mg/Kg	200	3/1/2016 10:03:48 PM	23979

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: L6-3
Project: Solt State
Collection Date: 2/17/2016 8:00:00 AM
Lab ID: 1602A13-007
Matrix: SOIL
Received Date: 2/24/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	49	30		mg/Kg	20	2/29/2016 12:28:02 PM	23979

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
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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#: **1602A13**

09-Mar-16

Client: Souder, Miller & Associates

Project: Solt State

Sample ID	**MB-23978**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**23978**	RunNo:	**32456**					
Prep Date:	**2/26/2016**	Analysis Date:	**2/26/2016**	SeqNo:	**992631**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-23978**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**23978**	RunNo:	**32456**					
Prep Date:	**2/26/2016**	Analysis Date:	**2/26/2016**	SeqNo:	**992632**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.8	90	110			

Sample ID	**MB-23979**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**23979**	RunNo:	**32483**					
Prep Date:	**2/29/2016**	Analysis Date:	**2/29/2016**	SeqNo:	**993599**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-23979**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**23979**	RunNo:	**32483**					
Prep Date:	**2/29/2016**	Analysis Date:	**2/29/2016**	SeqNo:	**993600**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.2	90	110			

Qualifiers:

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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#: **1602A13**

09-Mar-16

Client: Souder, Miller & Associates

Project: Solt State

Sample ID	**LCS-23916**	SampType: **LCS**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **23916**		RunNo: **32421**					
Prep Date:	**2/24/2016**	Analysis Date: **2/26/2016**		SeqNo: **991462**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.3	65.8	136			
Surr: DNOP	4.6		5.000		91.1	70	130			

Sample ID	**MB-23916**	SampType: **MBLK**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **23916**		RunNo: **32421**					
Prep Date:	**2/24/2016**	Analysis Date: **2/26/2016**		SeqNo: **991464**		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	9.3		10.00		92.6	70	130			

Sample ID	**1602996-001AMS**	SampType: **MS**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**BatchQC**	Batch ID: **23916**		RunNo: **32422**					
Prep Date:	**2/24/2016**	Analysis Date: **2/26/2016**		SeqNo: **991875**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	70	9.6	47.80	0	146	31.2	162			
Surr: DNOP	6.1		4.780		127	70	130			

Sample ID	**1602996-001AMSD**	SampType: **MSD**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**BatchQC**	Batch ID: **23916**		RunNo: **32422**					
Prep Date:	**2/24/2016**	Analysis Date: **2/26/2016**		SeqNo: **991951**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	73	9.9	49.65	0	147	31.2	162	4.79	31.7	
Surr: DNOP	5.9		4.965		119	70	130	0	0	

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#: **1602A13**

09-Mar-16

Client: Souder, Miller & Associates

Project: Solt State

Sample ID	**MB-23925**	SampType: **MBLK**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991237**		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	930		1000		92.8	66.2	112			

Sample ID	**LCS-23925**	SampType: **LCS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991238**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	79.6	122			
Surr: BFB	970		1000		97.3	66.2	112			

Sample ID	**1602A03-003AMS**	SampType: **MS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**BatchQC**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991245**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.8	23.99	0	118	59.3	143			
Surr: BFB	980		959.7		102	66.2	112			

Sample ID	**1602A03-003AMSD**	SampType: **MSD**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**BatchQC**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991246**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.8	24.04	0	119	59.3	143	1.28	20	
Surr: BFB	980		961.5		102	66.2	112	0	0	

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#: **1602A13**

09-Mar-16

Client: Souder, Miller & Associates

Project: Solt State

Sample ID	**MB-23925**	SampType: **MBLK**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991270**		Units: **mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Sample ID	**LCS-23925**	SampType: **LCS**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991271**		Units: **mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	100	80	120			
Toluene	1.0	0.050	1.000	0	104	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.2	0.10	3.000	0	105	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	80	120			

Sample ID	**1602A03-001AMS**	SampType: **MS**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**BatchQC**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991274**		Units: **mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.048	0.9634	0	89.3	71.5	122			
Toluene	0.95	0.048	0.9634	0	98.3	71.2	123			
Ethylbenzene	1.0	0.048	0.9634	0	105	75.2	130			
Xylenes, Total	3.1	0.096	2.890	0	108	72.4	131			
Surr: 4-Bromofluorobenzene	1.1		0.9634		116	80	120			

Sample ID	**1602A03-001AMSD**	SampType: **MSD**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**BatchQC**	Batch ID: **23925**		RunNo: **32403**					
Prep Date:	**2/24/2016**	Analysis Date: **2/25/2016**		SeqNo: **991275**		Units: **mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.048	0.9643	0	87.3	71.5	122	2.23	20	
Toluene	0.92	0.048	0.9643	0	95.5	71.2	123	2.78	20	
Ethylbenzene	0.95	0.048	0.9643	0	98.3	75.2	130	6.56	20	
Xylenes, Total	3.0	0.096	2.893	0	102	72.4	131	5.14	20	
Surr: 4-Bromofluorobenzene	1.1		0.9643		118	80	120	0	0	

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: **1602A13** RcptNo: **1**

Received by/date: 02/24/16

Logged By: **Joe Archuleta** **2/24/2016 10:05:00 AM** JCA

Completed By: **Joe Archuleta** **2/24/2016 1:47:31 PM** JCA

Reviewed By: 02/24/16

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	4.1	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

ient: SMA - Carlsbad

ailing Address:

hone #:

nail or Fax#:

VQC Package:

Standard ☐ Level 4 (Full Validation)

ccreditation

NELAP ☐ Other

EDD (Type)

Turn-Around Time:

☑ Standard ☐ Rush

Project Name: Salt Stab

Project #:

Project Manager: Austin Weyant

Sampler: LCM

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.1

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1602413	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)
2/16	800	Soil	L1-1	4oz		-001	X			✓				X				
			L1-6			-002								X				
			L4-3			-003								X				
			L4-6			-004								X				
			L5-2			-005	X		X					X				
			L5-6			-006								X				
↓	↓		L6-3	↓		-007								X				

Date	Time	Relinquished by:	Received by:	Date	Time
			[signature]	02/24/16	1005
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

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 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nMLB1216746727, 274841 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company ALAMO PERMIAN RESOUCES, LLC	Contact STEVEN MASTIN
Address 415 W. WALL ST. SUITE 500	Telephone No. 432 557 5847
Facility Name SOLT STATE	Facility Type BATTERY

Surface Owner STATE	Mineral Owner STATE	API No. 30-015-25277

LOCATION OF RELEASE

	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	5	18S	28E	660	S	1980	E	EDDY

Latitude 32.7705300
Longitude -104.1952600

NATURE OF RELEASE

Type of Release: PRODUCED WATER	Volume of Release: 150 BBLS WATER	Volume Recovered: 0
Source of Release: FLOW LINE LEAK	Date and Hour of Occurrence: JUNE 6, 2012	Date and Hour of Discovery JUNE 6, 2012
Was Immediate Notice Given? TO NMOCD ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? STEVEN MASTIN	
By Whom? RICKY RODRIGUEZ, FIELD SUPERVISOR	Date and Hour JUNE 6, 2012, 1:30 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
JUN 07 2012
NMOCD ARTESIA

Describe Cause of Problem and Remedial Action Taken.*

Cause of problem: Flowline leak at wellsite location; Scraping up and hauling to Gandy Marley.

Describe Area Affected and Cleanup Action Taken.*

Clean up action: To be determined based on environmental assessment.

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: Tom Fulvi

Printed Name: TOM FULVI

Title: REGULATORY/ PRODUCTION TECH

E-mail Address: tfulvi@alamoresources.com

Date: 06/06//2012 Phone: 432 897 0673

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: JUN 13 2012 Expiration Date:

Conditions of Approval:

Remediation per OCD Rules & Guidelines. **SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:** 7/13/2012

Attached ☐

2RP-1167

* Attach Additional Sheets If Necessary

(I)

APPENDIX C

API AMIGO SUMMARY

AMIGO

New File | Save | Quick Start | Manual | AMIGO

Units

Metric (m) / English (inches)

Climate

Arid Hot (NM/W.Texas, Hobbs)

Input for a Distant Well

Distance to Well	1000	[ft]
Source Width	120	[ft]
Longitudinal Dispersivity	10	[-]
Transverse Dispersivity	1	[-]

Groundwater Characterictics

Background Cl Concentration in Aquifer	cGW =	350	[mg/L]
Aquifer porosity	n =	0.3	[-]
Groundwater Table Depth	D =	10	[ft]
Aquifer Thickness	H =	120	[ft]
Slope of Water Table	i =	0.05	[-]
Hydraulic Conductivity	Ks =	3.28	[ft/d]
Groundwater Flux	Q =	19.69	[ft2/d]

Source Characteristics

Chloride Load: M = 0.25 [kg/m2]

Max. length of the spill in direction of GW flow: L = 177 [ft]

Plant Uptake Trigger

1% Input Concentration / 10% Input Concentration

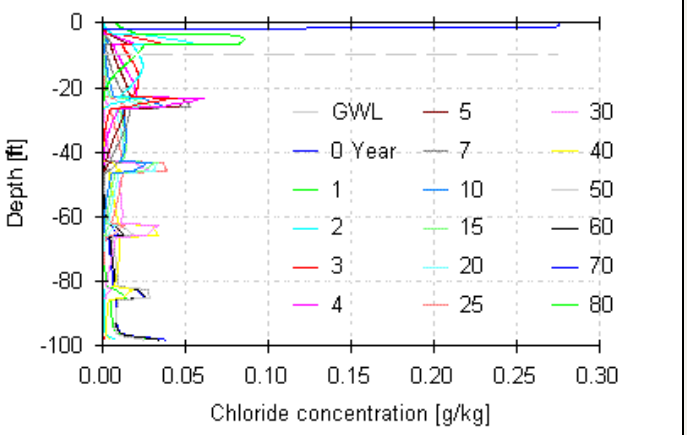
Soil Profiles

Surface Layer: Medium Sand

Soil Profile: P4 - Caliche (1) + Medium Sand (5)

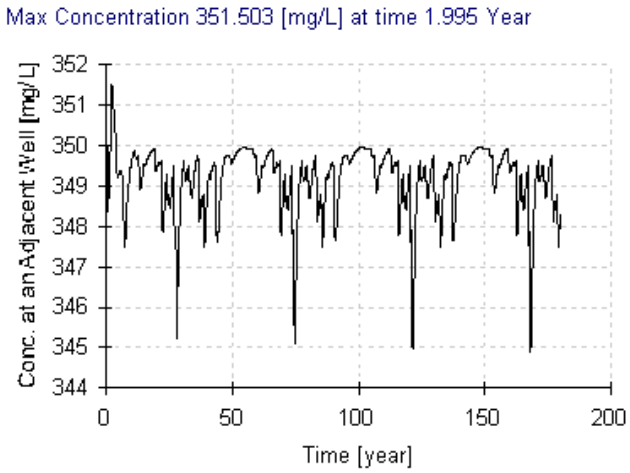
Output Charts

Quantity 1: Chloride concentration [g/kg]



Reduce | Display All | Legend | Export | Export All

Quantity 2: Conc. at an Adjacent Well [mg/L]



Refresh | Auto-Refresh | Export | Export All