



March 07, 2016

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

SUBJECT: SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-1099 Cowtown Unit 101, API# 30-015-01843 EDDY COUNTY, NEW MEXICO

Dear Ms. Patterson:

On behalf of Alamo Permian Resources (Alamo), Souder Miller & Associates (SMA) is pleased to submit the attached Work Plan summarizing the soil remediation planned for the of produced oil release associated with the Cowtown Unit #101 in Eddy County, New Mexico. The work plan is request for approval from the New Mexico Oil Conservation Division (NMOCD) for remediation of the release that occurred on June 6, 2012.

At the request of Alamo, SMA assessed and delineated soil affected by produced water release associated with the Cowtown Unit #101 well location. The release was initially reported to NMOCD by Alamo on April 4, 2012 and was a result of equipment error. The table below summarizes information regarding the produced water release. Results of the assessment and delineation follow in the attached report.

Table 1: Release information and Site Ranking					
Name	Cowtown Unit #101				
Location	Incident Number	API Number	Section, Township, Range		
		2RP-1099	30-015-01843	SW/SE (UL K)	Section 13
Estimated Date of Release	April 4, 2012				
Date Reported to NMOCD	April 4, 2012				
Reported by	Carie Stoker , Alamo Permian Resources				
Land Owner	New Mexico State Land Office				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Corrosion Hole in tank				
Released Material	Oil				
Released Volume	97 bbls Oil				

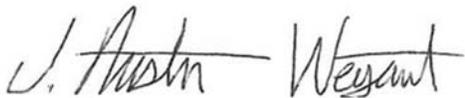


Recovered Volume	0 bbls Oil
Net Release	97 bbls Oil
Nearest Waterway	10.17 miles West of the location.
Depth to Groundwater	Estimated to be 95 feet
Nearest Domestic Water Source	Greater than 1000 feet
NMOCD Ranking	10
SMA Response Dates	Initial: 12/9/15 Mitigation Activities: TBD
Subcontractors	Atkins Engineering

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

# SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-1099

## ALAMO PERMIAN RESOURCES

COWTOWN UNIT 101

API# 30-015-01843

UL K SECTION 13, 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 07, 2016  
SMA Reference  
5B24270 BG7

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- Appendix B: Form C141 Initial

## **1.0 Introduction**

On behalf of Alamo Permian Basin LLC (Alamo), Souder Miller & Associates (SMA) has prepared this work plan to begin remediation for closure activities related to incident #2RP-1099 by providing a summary of the releases and spill response efforts at the Cowtown Tank Battery #101, a lease held by Alamo Permian Basin LLC. The Release Notification and Corrective Action Form C-141 states that incident #2RP-1099 occurred over many years, but with a particular spill dated April 4, 2012, with no standing fluid remaining. The initial C-141 incident report states “Hole developed in oil tank”. No remedial action taken as there was no standing oil remaining. There was approximately 97 bbls of oil released. The spill traveled downhill approximately 300 yards in two separate areas approximately 5 feet wide. The extent of the impact will be determined by an environmental assessment and agreement with current NMOCD procedures and regulations.” The site is located in Unit K, Section 13, Township 18 South, Range 28 East, Eddy County, New Mexico. Figure 1, Site Location Map, illustrates the location of the release.

This work plan presents the results of the initial assessment and soil sampling performed at the release site, the regulatory framework for existing activities, and a summary of work to be completed at the location to facilitate incident mitigation and closure. Site details, proposed sampling locations and the remedial excavation area are presented in Figure 2, Site Details and Sample Location Map. Appendices include the laboratory analytical reports for the initial sampling, New Mexico Oil Conservation Division (NMOCD) Form C-141 (initial).

## **2.0 Site Ranking and Land Jurisdiction**

The release site is located approximately 10 miles (> 1,000 feet) east of Pecos River, in an area administered by New Mexico State Land Office at an elevation of approximately 3,600 feet above sea level. 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. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be greater than 50 feet below ground surface (bgs) but less than 100 feet bgs. Figure 2 depicts the site details and sample locations. The physical location of this release is within the jurisdiction of NMOCD.

This release location has been assigned a NMOCD ranking of 10 under “Guidelines Remediation” 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**

Multiple field samples were collected at depths ranging from surface to 4.0 feet to aid in extent and delineation with four laboratory soil samples collected at depths ranging from 2.0 to 14 feet below surface grade (bsg). 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 DRO and GRO by EPA

Method 8015D, and total Chlorides using EPA Method 300.0. On May 21, 2012, Tetra Tech submitted a work plan to NMOCD *“Work Plan for the Alamo Permian Resources, LLC. Cowtown Tank Battery, Unit K, Section 13, Township 18 South, Range 28 East, Eddy County, New Mexico. According to Tetra Tech Work Plan the affected area was found to be 300 yards long and 5 feet wide.”*

#### **4.0 Vertical Delineation of Soils Impacts**

After an 811 follow-up clearance, two soil borings will be installed, one at the location of the release on the pad surface near the tank battery and another west off the pad surface. As the borings are advanced, each location will be sampled and field screened every 4 feet to 18 foot depth and every 2 feet after. The borings will be advanced to a depth at least five feet below the deepest level of impact as determined by field screening or ten feet into ground water if encountered. The bottom hole sample and the highest field-screened sample are to be sent to a third party lab for confirmation. Chlorides, Total Petroleum Hydrocarbons (TPH), and Benzene, Toluene, Ethyl-benzene, and Xylene (BTEX) are the constituents of concern. The borings will be constructed, completed, and developed as groundwater monitoring wells (MW). The completed MWs will be purged, ground water levels measured, samples taken, preserved, and sent to the laboratory for analysis for Chlorides and BTEX.

#### **5.0 Permitting and Pre Mobilization**

After approval of this proposed scope, SMA will prepare and submit a New Mexico Office of the State Engineer (NMOSE) application for non-consumptive use (ANCU) and a NMOSE plugging plan of operations for both soil borings. These permits will prevent any regulatory issues if and when the soil borings come in contact with ground water.

The NMOCD District Office will be notified 48 hours in advance of scheduled activities. The MW locations will be marked via white pin flags and an 811 NM call made by SMA's contracted licensed well driller. A Lea Land lined roll-off will be utilized for waste disposal and to facilitate steam cleaning boring and sampling equipment. A site Health and Safety Plan will be created and reviewed with all personnel on site prior to initiating activities.

#### **6.0 Monitoring Well (MW) installation and Sampling**

After an 811 follow-up clearance, the 2 locations will be drilled first with the Advance Hollow Stem Auger (HSA) and sampled via split spoon until either results are below NMOCD standards or to top of the suspected water bearing formation. Then SMA will advance the HSA approximately 10 feet into the water bearing formation, and install 15 feet of 2 inch schedule 40 0.020 slot screen and enough 2 inch schedule 40 riser to be above the ground surface. As outlined in the NMOSE (ANCU) permit, 17 feet of 12/20 silica sand will be set from total depth to 2 feet above the screened interval and 5 feet of hydrated bentonite chips will be installed above the silica pack. This will insure that any surface runoff will not affect the wells and will allow SMA to collect an unbiased ground water sample for the purposes of this investigation. The boring within the affected area will follow the same NMOSE approved steps with a clean set of augers.

Both wells will be temporally capped at the end of the first day and all soil samples will be processed and placed in cold storage.

On the second day, both wells will be completed and purged using a GeoTech Georeclaimer. SMA will sample each well with a clean bailer. Water samples will be preserved as required by the analytical methods, EPA method 8021B for BTEX and EPA method 300.0 for Chlorides. Then both wells will be capped, secured, and protected for future use if needed. The site contours will be restored and returned to surface grade. The estimated 2 yd<sup>3</sup> of affected soil/drill cuttings and purge water will be hauled for disposal at Lea Land, an NMOCD approved disposal facility.

### **7.0 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 oil found during the initial assessment and delineation.

Soil sample locations are illustrated in Figure 2. A summary of the laboratory analyses is included in Table 2. Laboratory reports are included in Appendix A.

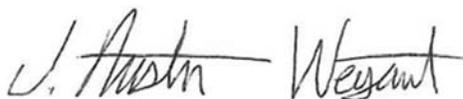
### **8.0 Closure and Limitations**

The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, and preparation of a 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



Austin Weyant  
Project Scientist

Reviewed by:



Cynthia Gray, CHMM  
Senior Scientist

**Figures:**

Figure 1: Vicinity Map

Figure 2: Site Details and Sample Locations Map

**Tables:**

Table 1: Release Information and Site Ranking

Table 2: Summary of Laboratory Analyses

Table 3: Summary of EC Field Screening Results

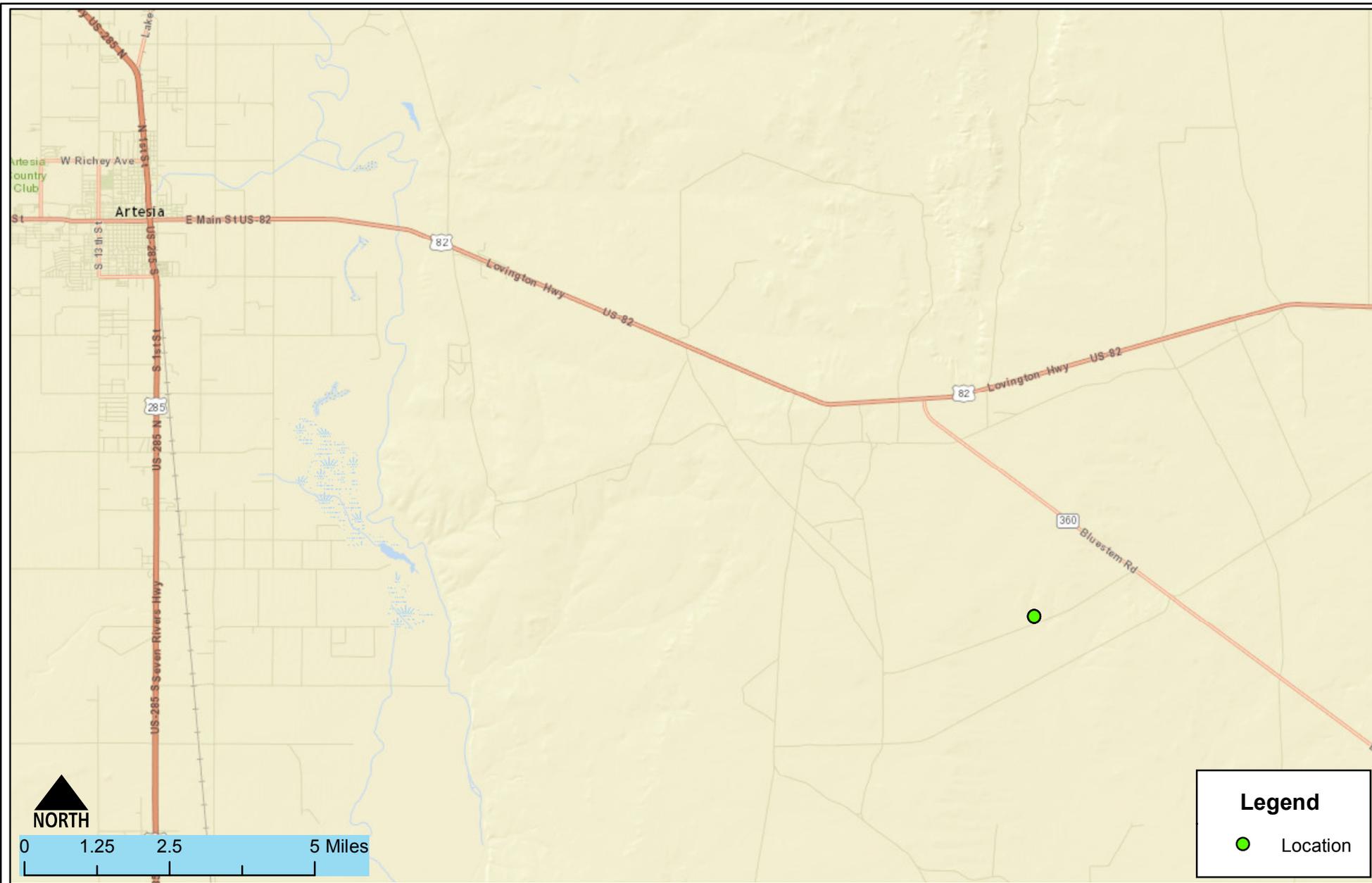
**Appendices:**

Appendix A: Laboratory Analytical Reports

Appendix B: Form C141 Initial

# FIGURE 1

## VICINITY MAP



**Legend**

- Location

Vicinity Map  
 Alamo Permian Resources- Cowtown Unit 101  
 Artesia, New Mexico

Figure 1

Date Saved: 2/19/2016	By: _____	Date: _____	Revisions	Descr: _____
	By: _____	Date: _____		Descr: _____
Copyright 2015 Souder, Miller & Associates - All Rights Reserved				

Drawn	<u>Lucas Middleton</u>
Checked	_____
Approved	_____



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 Carlsbad, New Mexico 88221  
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# FIGURE 2

## SITE DETAILS AND SAMPLE LOCATIONS MAP



Site Detail and Sample Locations  
 Alamo Permian Resources- Cowtown Unit #101  
 Artesia, New Mexico

Figure 2

Date Saved: 2/19/2016	By: _____	Date: _____	Revisions	Descr: _____
Copyright 2015 Souder, Miller & Associates - All Rights Reserved	By: _____	Date: _____		Descr: _____

Drawn	<u>Lucas Middleton</u>
Checked	_____
Approved	_____



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# TABLE 1

## RELEASE INFORMATION AND SITE RANKING

**Table 1: Release information and Site Ranking**

Name	Cowtown Unit #101				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-1099	30-015-01843	SW/SE (UL K)	Section 13	T 18S, R 28E NMPM
Estimated Date of Release	April 4, 2012				
Date Reported to NMOCD	April 4, 2012				
Reported by	Carie Stoker , Alamo Permian Resources				
Land Owner	New Mexico State Land Office				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Corrosion Hole in tank				
Released Material	Oil				
Released Volume	97 bbls Oil				
Recovered Volume	0 bbls Oil				
Net Release	97 bbls Oil				
Nearest Waterway	10.17 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: 12/9/15 Mitigation Activities: TBD				
Subcontractors	Atkins Engineering				

# TABLE 2

## SUMMARY OF LABORATORY ANALYSES

**Table 2: Summary of Laboratory Analyses**

Analytical Report- 1512799	Sample Number on Figure 2 Map	Sample Date	Depth (feet)	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1	SB-1_14	12/9/2015	14	NM	NM	31	3,300	<30
2	SB-2_2	12/9/2015	2	NM	NM	NM	NM	>30
3	SB-3_2	12/9/2015	2	NM	NM	NM	NM	<30
4	SB-4_2	12/9/2015	2	NM	NM	<4.9	550	<30

# TABLE 3

## SUMMARY OF EC FIELD SCREENING RESULTS

Table 3: Summary of EC Field Screening Results

Cowtown 101  
Crude Oil  
12/9/2015

<b>FIELD SCREENING RESULTS SUMMARY</b>					
Date	Time	Field Screening Reference	Sample Depth (Feet BGS)	EC Results	Lab Sample Collected Y/N
12/9/2015	9:15	1-S	Surface	20396	Y
12/9/2015	9:15	1-2	2'	2652	Y
12/9/2015	9:15	1-4	4'	2150	Y
12/9/2015	9:15	1-6	6'	1305	Y
12/9/2015	9:15	1-8	8'	1032	Y
12/9/2015	9:15	1-10	10'	1176	Y
12/9/2015	9:15	1-12	12'	1247	Y
12/9/2015	9:15	1-14	14'	1520	Y
12/9/2015	9:15	2-S	Surface	1190	Y
12/9/2015	9:15	2-1	1	545	Y
12/9/2015	9:15	3-S	Surface	80	Y
12/9/2015	9:15	3-1	1'	26	Y
12/9/2015	9:15	4-S	Surface	140	Y
12/9/2015	9:15	4-1	1'	60	Y
12/9/2015	9:15	5-S	Surface	168	Y
12/9/2015	9:15	5-2	2'	120	Y
12/9/2015	9:15	5-4	4'	180	Y
12/9/2015	9:15	6-S	Surface	230	Y
12/9/2015	9:15	6-2	2'	105	Y
12/9/2015	9:15	7-S	Surface	280	Y
12/9/2015	9:15	7-1	1.5'	200	Y
12/9/2015	9:15	8-S	Surface	158	Y
12/9/2015	9:15	8-2	2'	180	Y



# 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](http://www.hallenvironmental.com)

January 05, 2016

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

RE: Cowtown Tank Battery

OrderNo.: 1512799

Dear Eric Dick:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/16/2015 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512799

Date Reported: 1/5/2016

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SB-1-14

**Project:** Cowtown Tank Battery

**Collection Date:** 12/9/2015 11:30:00 AM

**Lab ID:** 1512799-001

**Matrix:** SOIL

**Received Date:** 12/16/2015 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	3700	150		mg/Kg	100	12/28/2015 5:35:26 PM	22923
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	3300	99		mg/Kg	10	12/23/2015 10:17:05 AM	22891
Motor Oil Range Organics (MRO)	3300	490		mg/Kg	10	12/23/2015 10:17:05 AM	22891
Surr: DNOP	0	70-130	S	%REC	10	12/23/2015 10:17:05 AM	22891
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	31	19		mg/Kg	4	12/21/2015 4:19:12 PM	22878
Surr: BFB	131	66.2-112	S	%REC	4	12/21/2015 4:19:12 PM	22878

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

<b>Qualifiers:</b>	* 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	Page 1 of 7
	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		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512799

Date Reported: 1/5/2016

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SB-2-2

**Project:** Cowtown Tank Battery

**Collection Date:** 12/9/2015 12:00:00 PM

**Lab ID:** 1512799-002

**Matrix:** SOIL

**Received Date:** 12/16/2015 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	ND	30		mg/Kg	20	12/22/2015 11:04:07 AM	22923

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

<b>Qualifiers:</b>	*	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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates

Client Sample ID: SB-3-2

Project: Cowtown Tank Battery

Collection Date: 12/9/2015 12:45:00 PM

Lab ID: 1512799-003

Matrix: SOIL

Received Date: 12/16/2015 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: LGT
Chloride	33	30		mg/Kg	20	12/22/2015 11:41:21 AM	22923

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

<b>Qualifiers:</b>	*	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		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512799

Date Reported: 1/5/2016

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** SB-4-2

**Project:** Cowtown Tank Battery

**Collection Date:** 12/9/2015 2:00:00 PM

**Lab ID:** 1512799-004

**Matrix:** SOIL

**Received Date:** 12/16/2015 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	410	30		mg/Kg	20	12/22/2015 11:53:45 AM	22923
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	550	10		mg/Kg	1	12/23/2015 10:38:37 AM	22891
Motor Oil Range Organics (MRO)	440	50		mg/Kg	1	12/23/2015 10:38:37 AM	22891
Surr: DNOP	99.7	70-130		%REC	1	12/23/2015 10:38:37 AM	22891
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/21/2015 4:43:46 PM	22878
Surr: BFB	103	66.2-112		%REC	1	12/21/2015 4:43:46 PM	22878

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

<b>Qualifiers:</b>	* 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	

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1512799

05-Jan-16

**Client:** Souder, Miller & Associates

**Project:** Cowtown Tank Battery

Sample ID	<b>MB-22923</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>22923</b>	RunNo:	<b>31049</b>					
Prep Date:	<b>12/22/2015</b>	Analysis Date:	<b>12/22/2015</b>	SeqNo:	<b>949689</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-22923</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>22923</b>	RunNo:	<b>31049</b>					
Prep Date:	<b>12/22/2015</b>	Analysis Date:	<b>12/22/2015</b>	SeqNo:	<b>949690</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1512799

05-Jan-16

**Client:** Souder, Miller & Associates

**Project:** Cowtown Tank Battery

Sample ID <b>MB-22891</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>22891</b>		RunNo: <b>31050</b>							
Prep Date: <b>12/21/2015</b>	Analysis Date: <b>12/23/2015</b>		SeqNo: <b>949823</b>		Units: <b>mg/Kg</b>					
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	9.4		10.00		93.9	70	130			

Sample ID <b>LCS-22891</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>22891</b>		RunNo: <b>31050</b>							
Prep Date: <b>12/21/2015</b>	Analysis Date: <b>12/23/2015</b>		SeqNo: <b>949824</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.4	65.8	136			
Surr: DNOP	4.3		5.000		86.4	70	130			

Sample ID <b>MB-22933</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>22933</b>		RunNo: <b>31045</b>							
Prep Date: <b>12/23/2015</b>	Analysis Date: <b>12/23/2015</b>		SeqNo: <b>950382</b>		Units: <b>%REC</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		92.5	70	130			

Sample ID <b>LCS-22933</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>22933</b>		RunNo: <b>31069</b>							
Prep Date: <b>12/23/2015</b>	Analysis Date: <b>12/28/2015</b>		SeqNo: <b>950983</b>		Units: <b>%REC</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		5.000		104	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1512799

05-Jan-16

**Client:** Souder, Miller & Associates

**Project:** Cowtown Tank Battery

Sample ID <b>MB-22878</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>22878</b>		RunNo: <b>30983</b>							
Prep Date: <b>12/18/2015</b>	Analysis Date: <b>12/21/2015</b>		SeqNo: <b>947878</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	790		1000		79.2	66.2	112			

Sample ID <b>LCS-22878</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>22878</b>		RunNo: <b>30983</b>							
Prep Date: <b>12/18/2015</b>	Analysis Date: <b>12/21/2015</b>		SeqNo: <b>947879</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	109	79.6	122			
Surr: BFB	1000		1000		101	66.2	112			

**Qualifiers:**

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

**Sample Log-In Check List**

Client Name: SMA-CARLSBAD

Work Order Number: 1512799

RcptNo: 1

Received by/date: JA 12/16/15

Logged By: Ashley Gallegos 12/16/2015 9:10:00 AM *AG*

Completed By: Ashley Gallegos 12/18/2015 9:04:23 AM *AG*

Reviewed By: mg 12/18/15

**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	2.9	Good	Yes			

# Chain-of-Custody Record

Client: SAA

Mailing Address: 201 Halyard

Phone #: 575, 669, 5351

email or Fax#: \_\_\_\_\_

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

Accreditation  NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time: \_\_\_\_\_

Standard  Rush

Project Name: Chowtown Tank Farm

Project #: \_\_\_\_\_

Project Manager: Eric Duki

Sampler: ETM

On Ice:  Yes  No

Sample Temperature: 2.9

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
12/15	1130	901	SB-1-14	1404	NP	1512799-001
✓	1200	✓	SB-2-2	✓	✓	-002
✓	1245	✓	SB-3-2	✓	✓	-003
✓	1400	✓	SB-4-2	✓	✓	-004

Received by: Eric Duki Date: 12/10/15 Time: 0910

Relinquished by: ER Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

## Analysis Request

BTEX + MTBE + TMBs (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 (Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
		✓					✓				
							✓				
							✓				
							✓				

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 marked 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

Form C-141  
Revised August 8, 2011

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

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

**Release Notification and Corrective Action**

274841

**OPERATOR**

Initial Report  Final Report

Name of Company ALAMO PERMIAN RESOURCES, LLC	Contact STEVEN MASTIN
Address 415 W. WALL ST. SUITE 500	Telephone No. 432 557 5847
Facility Name COWTOWN 41101	Facility Type BATTERY

Surface Owner STATE	Mineral Owner STATE	API No. 30-015-01843
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	13	18S	28E	1986	S	1932	W	EDDY

Latitude 32.7464136

Longitude -104.1321674

**NATURE OF RELEASE**

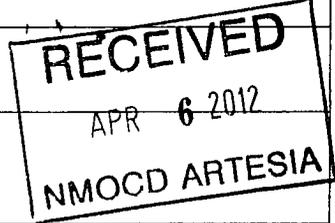
Type of Release: OIL	Volume of Release: 97 BBLS	Volume Recovered: 0
Source of Release: OIL TANK	Date and Hour of Occurrence: APRIL 4, 2012 4:00 A.M.	Date and Hour of Discovery: APRIL 4, 2012
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? STEVEN MASTIN	
By Whom? RICKY RODRIGUEZ, FIELD SUPERVISOR	Date and Hour APR 4, 2012 8:00 A.M.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*  
Cause of problem: Hole developed in oil tank. Not remedial action taken as there was no standing oil remaining.

Describe Area Affected and Cleanup Action Taken.\*  
There was approximately 97 bbls of oil released. The spill traveled downhill approximately 300 yards in two separate areas approximately 5 feet wide. Clean up action: TBD per an environmental assessment and agreement with current NMOCD procedures and regulations.

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: <i>Carie Stoker</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: CARIE STOKER	Signed By: <i>Mike Bernier</i> Approved by Environmental Specialist:	
Title: REGULATORY/ PRODUCTION TECH	Approval Date: APR 20 2012	Expiration Date:
E-mail Address: cstoker@helmsoil.com	Conditions of Approval: Remediation per OCD Rules & Guidelines. <b>SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:</b>	Attached <input type="checkbox"/>
Date: 04/04/2012 Phone: 432 664 7659	<i>5/20/2012</i>	

\* Attach Additional Sheets If Necessary

*274-1099*