



August 21, 2015

#5B23978-BG3

NMOCD District II  
Environmental Specialist  
1301 W Grand Ave  
ArtesiaNM88210

**SUBJECT: SOIL REMEDIATION WORK PLAN FOR INCIDENT 2RP-2844 LOCO HILLS 33 #6 SWD, EDDY COUNTY, NEW MEXICO**

Dear Ms. Patterson:

On behalf of COG Operating (COG), Souder Miller & Associates (SMA) is pleased to submit the attached Work Plan summarizing the planned soil remediation of the release site located on the Loco Hills 33 #6 SWD 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 February 7, 2015.

At the request of COG, SMA responded to assess and delineate the production fluids release associated with Loco Hills 33 #6 SWD well location. The release was initially reported to NMOCD by COG Operating on February 27, 2015 and is a result of a flow line failure. The table below summarizes information regarding the release. Results of the assessment and delineation follow in proceeding report.

<b>Table 1: Release information and Site Ranking</b>					
Name	Loco Hills 33 #6 SWD				
Location	Incident Number	API Number	Section, Township, Range		
		2RP-2844	30-015-39478	SW/NE (Unit G)	Section 33
Estimated Date of Release	February 7, 2015				
Date Reported to NMOCD	February 27, 2015				
Reported by	Amanda Trujillo, COG Operating LLC				
Land Owner	Bureau of Land Management (BLM)				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Flow line failure				
Released Material	Produced Water				
Released Volume	2246 bbls Produced Water				
Recovered Volume	2210 bbls Produced Water				
Net Release	36 bbl Produced Water				
Nearest Waterway	Pecos River is over 20 miles west of the location.				
Depth to Groundwater	Estimated to be 80 feet				

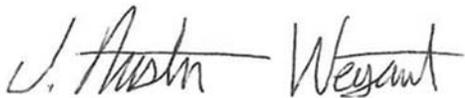


Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	10
SMA Response Dates	Initial: May 11, 2015 Mitigation Activities: Unknown
Subcontractors	TCS
Disposal Facility	Lea Land, LLC
Estimated Yd <sup>3</sup> Contaminated Soil Excavated and Disposed	483

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-2844

## COG OPERATING LLC

LOCO HILLS 33 #6 SWD  
API# 30-015-39478  
SECTION 33, T17S R30E, NMPM  
EDDY COUNTY, NM



Prepared for:  
COG Operating LLC  
2407 Pecos Ave  
Artesia, NM 88210

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

August 21, 2015  
SMA Reference  
5B23978 BG3

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Table 2: Summary of Laboratory Analyses

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## **1.0 Introduction**

On behalf of COG Operating LLC (COG), SMA has prepared this report that describes the assessment and initial delineation of a release associated with the Loco Hills 33 #6 SWD location. The site is located in Section 33, T 17S, R 30E NMPM, Eddy County, New Mexico, on land owned by the Bureau of Land Management (BLM). Figure 1 illustrates the vicinity and location of the site.

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

The release site is located approximately 20 mile east of the Pecos River, in an area owned by the BLM with an elevation of approximately 3,600 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 below ground surface (bgs).

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. No domestic or agricultural wells are located within a 1000 foot radius of the release site. Figure 1 depicts the site vicinity and Figure 2 depicts the site location.

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

## **3.0 Assessment and Initial Results**

On July 17<sup>th</sup>, 2015 after receiving 811 clearance, SMA field personnel assessed the release area onsite with a gas powered auger, Photo Ionization Detector (PID), and a mobile chlorides titration kit. The affected area was found to be 863 square yards. Surface samples were taken to determine the spill area. Specific sample locations for all samples are depicted on Figure 2 (Sample Location Map) along with sampling details. Laboratory Analytical results are noted in Table 2 in the appendices. All samples were collected and processed according to NMOCD soil sampling procedures. Because the spilled material was limited to produced water and no evidence of petroleum impact was found with field screening using the PID, the samples were 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 will begin the excavation of affected soils, with approval from area utilities owners via 811 and the NMOCD. SMA will continuously guide the excavation activities by collecting composite soil samples for field screening with a mobile titration unit (EPA 4500) and a calibrated PID. Delineation samples will be taken to show extent of the affected soil. Samples will be taken in the sidewalls in the rest of the excavation to ensure contaminated soils have been removed in the horizontal extent. Closure samples will be collected at the final depth of excavation. Excavation will be conducted in two areas on the well pad; east of the tank battery, and northwest of the tank battery. In the east, excavation will be carried to three feet bsg. The northwest area, excavation will occur to one foot bsg. Approximately 483 cubic yards of contaminated soil will be removed and replaced with clean backfill material to bring the excavated area to surface grade. The contaminated soil will be transported for proper disposal at 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 water with no evidence of petroleum impacts found during the initial assessment and delineation.

After the soil remediation workplan is approved by NMOCD, SMA will begin soil remediation activities on site as described above.

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

## 6.0 Closure and Limitations

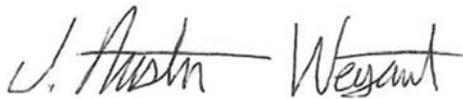
The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, and preparation of this Remediation Work Plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this Work Plan, please contact either Austin Weyant at 575-689-7040 or Cindy Gray at 505-325-7535.

Submitted by:

Reviewed by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant  
Project Scientist



Cynthia Gray, CHMM  
Senior Scientist

**Figures:**

Figure 1: Vicinity Map

Figure 2: Site Details and Sample Location Map

**Tables:**

Table 1: Release Information and Site Ranking

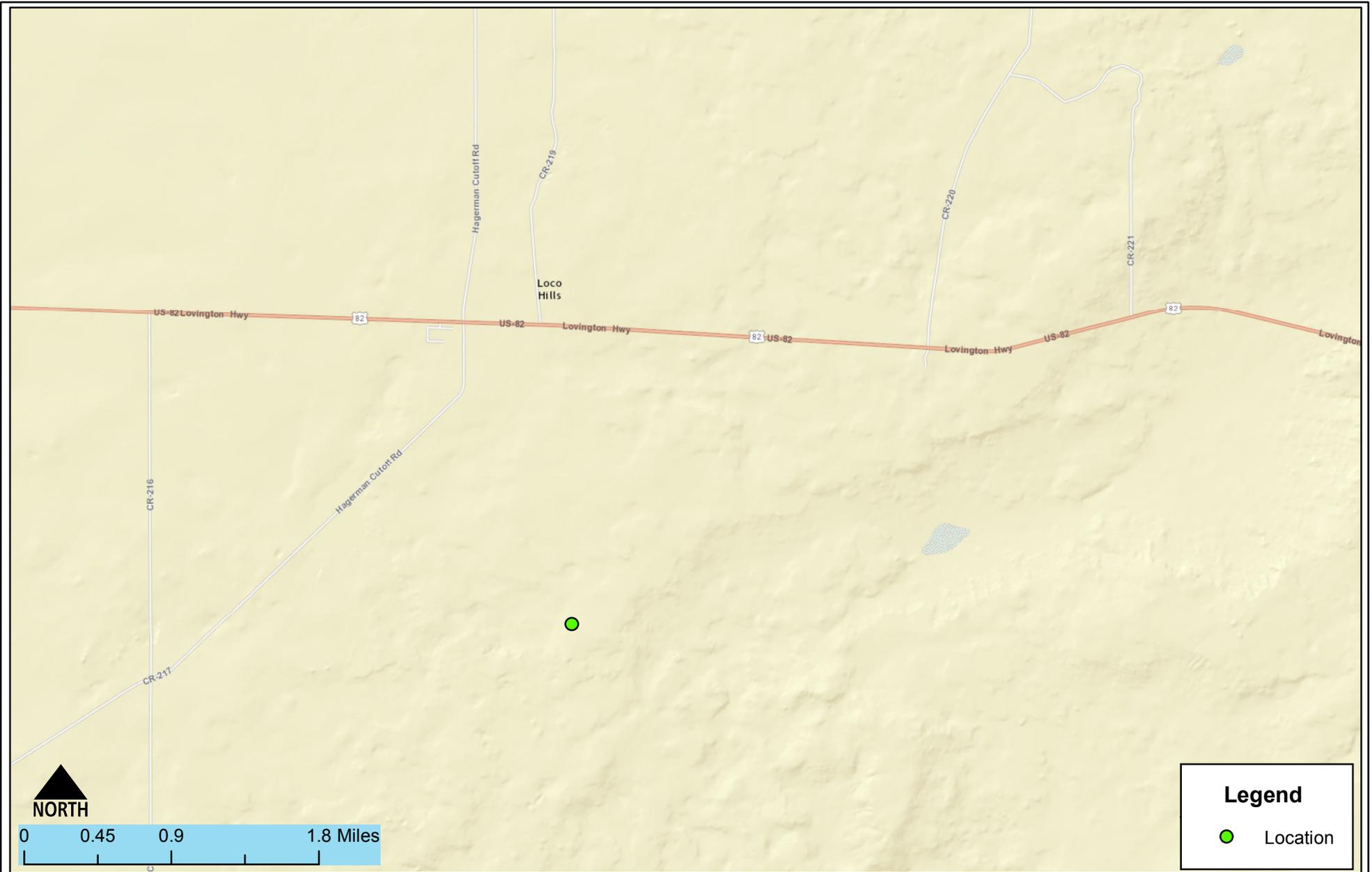
Table 2: Summary of Laboratory Analyses

**Appendices:**

Appendix A: Laboratory Analytical Reports

Appendix B: Form C141 Initial

# FIGURE 1 VICINITY MAP



**Legend**

- Location

Vicinity Map  
 COG- Loco Hills 33 #6 SWD  
 Malaga, New Mexico

Figure 1

Date Saved: 8/12/2015	By: _____	Date: _____	Revisions	Descr: _____
Copyright 2015 Souder, Miller & Associates - All Rights Reserved	By: _____	Date: _____		Descr: _____

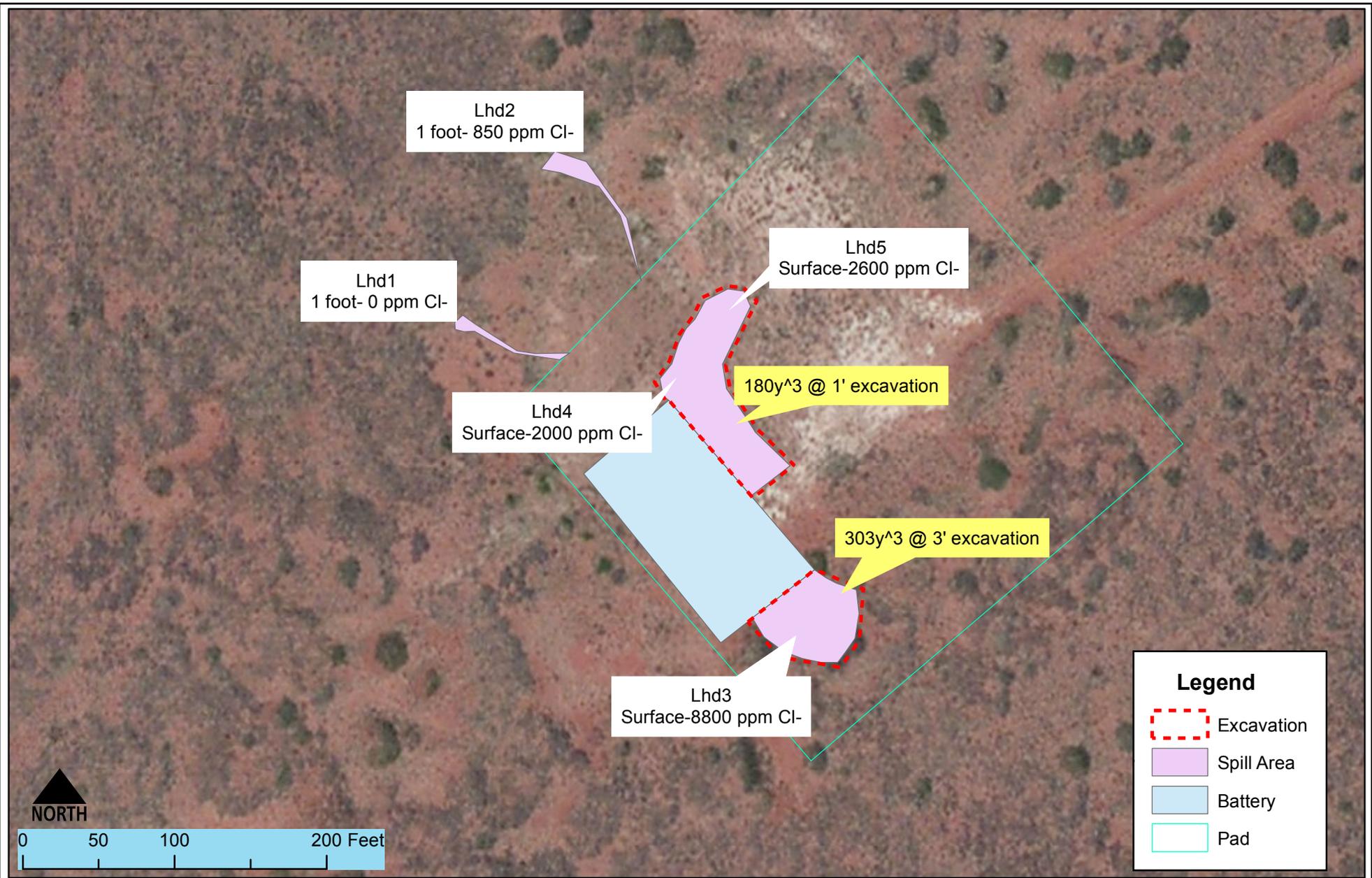
Drawn	<u>Lucas Middleton</u>
Checked	_____
Approved	_____



201 South Halaguena Street  
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# FIGURE 2

## SITE DETAILS AND SAMPLE LOCATION MAP



Detailed Site and Sample Map  
 COG- Scared Hawk State Com #1  
 Malaga, New Mexico

Figure 2

Date Saved: 8/12/2015	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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# TABLE 1

## RELEASE INFORMATION AND SITE RANKING

Table 1: Release information and Site Ranking				
Name	Loco Hills 33 #6 SWD			
Location	Incident Number	API Number	Section, Township, Range	
		2RP-2844	30-015-39478	SW/NE (Unit G)
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NMOCD Ranking	10			
SMA Response Dates	Initial: May 11, 2015 Mitigation Activities: Unknown			
Subcontractors	TCS			
Disposal Facility	Lea Land, LLC			
Estimated Yd <sup>3</sup> Contaminated Soil Excavated and Disposed	483			

# TABLE 2

## SUMMARY OF LABORATORY ANALYSES

**Table 2: Summary of Laboratory Analyses**

Analytical Report- 1507977	Sample Number on Figure 2 Map	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1507977-001	Lhd5	7/30/2015	Surface	N/A	N/A	N/A	N/A	2600
1507977-002	Lhd2	7/30/2015	1'	BDL	BDL	BDL	BDL	850
1507977-003	Lhd1	7/30/2015	1'	N/A	N/A	N/A	N/A	BDL
1507977-004	Lhd4	7/30/2015	Surface	BDL	BDL	BDL	BDL	2,000
1507977-005	Lhd3	7/30/2015	Surface	N/A	N/A	N/A	N/A	8,800

# 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)

July 30, 2015

Lucas Middleton  
Souder, Miller & Associates  
201 S Halagueno  
Carlsbad, NM 88221  
TEL: (575) 689-5351  
FAX

RE: Loco Hills

OrderNo.: 1507977

Dear Lucas Middleton:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/22/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1507977

Date Reported: 7/30/2015

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** LHD3

**Project:** Loco Hills

**Collection Date:** 7/17/2015 1:00:00 AM

**Lab ID:** 1507977-001

**Matrix:** SOIL

**Received Date:** 7/22/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	2600	150		mg/Kg	100	7/29/2015 5:15:30 PM	20481

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 1507977

Date Reported: 7/30/2015

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** LHD2-1

**Project:** Loco Hills

**Collection Date:** 7/17/2015 1:00:00 AM

**Lab ID:** 1507977-002

**Matrix:** SOIL

**Received Date:** 7/22/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	850	30		mg/Kg	20	7/28/2015 1:05:31 PM	20481
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Surr: BFB	110	70-130		%REC	1	7/24/2015 2:03:47 AM	20387
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/25/2015 5:41:29 AM	20379
Surr: DNOP	95.3	57.9-140		%REC	1	7/25/2015 5:41:29 AM	20379
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Benzene	ND	0.050		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Toluene	ND	0.050		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Ethylbenzene	ND	0.050		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Xylenes, Total	ND	0.099		mg/Kg	1	7/24/2015 2:03:47 AM	20387
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	7/24/2015 2:03:47 AM	20387
Surr: 4-Bromofluorobenzene	96.6	70-130		%REC	1	7/24/2015 2:03:47 AM	20387
Surr: Dibromofluoromethane	113	70-130		%REC	1	7/24/2015 2:03:47 AM	20387
Surr: Toluene-d8	99.4	70-130		%REC	1	7/24/2015 2:03:47 AM	20387

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	

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1507977

Date Reported: 7/30/2015

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** LHD1-1

**Project:** Loco Hills

**Collection Date:** 7/17/2015 1:00:00 AM

**Lab ID:** 1507977-003

**Matrix:** SOIL

**Received Date:** 7/22/2015 9:15:00 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	7/28/2015 1:17:55 PM	20481

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 1507977

Date Reported: 7/30/2015

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** LHD4

**Project:** Loco Hills

**Collection Date:** 7/17/2015 1:00:00 AM

**Lab ID:** 1507977-004

**Matrix:** SOIL

**Received Date:** 7/22/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	2000	75		mg/Kg	50	7/29/2015 5:27:55 PM	20481
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Surr: BFB	108	70-130		%REC	1	7/24/2015 2:31:17 AM	20387
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/25/2015 6:08:31 AM	20379
Surr: DNOP	95.5	57.9-140		%REC	1	7/25/2015 6:08:31 AM	20379
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Benzene	ND	0.049		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Toluene	ND	0.049		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Ethylbenzene	ND	0.049		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Xylenes, Total	ND	0.098		mg/Kg	1	7/24/2015 2:31:17 AM	20387
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	7/24/2015 2:31:17 AM	20387
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	7/24/2015 2:31:17 AM	20387
Surr: Dibromofluoromethane	106	70-130		%REC	1	7/24/2015 2:31:17 AM	20387
Surr: Toluene-d8	96.8	70-130		%REC	1	7/24/2015 2:31:17 AM	20387

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	

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1507977

Date Reported: 7/30/2015

**CLIENT:** Souder, Miller & Associates

**Client Sample ID:** LHD3

**Project:** Loco Hills

**Collection Date:** 7/17/2015 1:00:00 AM

**Lab ID:** 1507977-005

**Matrix:** SOIL

**Received Date:** 7/22/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	8800	300		mg/Kg	200	7/29/2015 5:40:19 PM	20481

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#: 1507977

30-Jul-15

**Client:** Souder, Miller & Associates

**Project:** Loco Hills

Sample ID	<b>MB-20481</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>20481</b>	RunNo:	<b>27833</b>					
Prep Date:	<b>7/28/2015</b>	Analysis Date:	<b>7/28/2015</b>	SeqNo:	<b>836878</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-20481</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>20481</b>	RunNo:	<b>27833</b>					
Prep Date:	<b>7/28/2015</b>	Analysis Date:	<b>7/28/2015</b>	SeqNo:	<b>836879</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.3	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#: 1507977

30-Jul-15

**Client:** Souder, Miller & Associates

**Project:** Loco Hills

Sample ID <b>MB-20379</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>20379</b>		RunNo: <b>27723</b>							
Prep Date: <b>7/22/2015</b>	Analysis Date: <b>7/24/2015</b>		SeqNo: <b>834383</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								
Surr: DNOP	10		10.00		105	57.9	140			

Sample ID <b>LCS-20379</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>20379</b>		RunNo: <b>27723</b>							
Prep Date: <b>7/22/2015</b>	Analysis Date: <b>7/24/2015</b>		SeqNo: <b>834384</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.1	57.4	139			
Surr: DNOP	5.5		5.000		111	57.9	140			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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- 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#: 1507977

30-Jul-15

**Client:** Souder, Miller & Associates

**Project:** Loco Hills

Sample ID	<b>mb-20387</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8260B: Volatiles Short List</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>20387</b>	RunNo:	<b>27718</b>					
Prep Date:	<b>7/22/2015</b>	Analysis Date:	<b>7/23/2015</b>	SeqNo:	<b>833184</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.050								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.5	70	130			
Surr: Dibromofluoromethane	0.58		0.5000		115	70	130			
Surr: Toluene-d8	0.47		0.5000		94.5	70	130			

Sample ID	<b>ics-20387</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8260B: Volatiles Short List</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>20387</b>	RunNo:	<b>27718</b>					
Prep Date:	<b>7/22/2015</b>	Analysis Date:	<b>7/23/2015</b>	SeqNo:	<b>833185</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.1	0.050	1.000	0	111	70	130			
Benzene	1.0	0.050	1.000	0	104	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Ethylbenzene	1.1	0.050	1.000	0	106	70	130			
Xylenes, Total	3.2	0.10	3.000	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.7	70	130			
Surr: Dibromofluoromethane	0.58		0.5000		116	70	130			
Surr: Toluene-d8	0.49		0.5000		97.8	70	130			

Sample ID	<b>mb-20417</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8260B: Volatiles Short List</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>20417</b>	RunNo:	<b>27753</b>					
Prep Date:	<b>7/23/2015</b>	Analysis Date:	<b>7/24/2015</b>	SeqNo:	<b>834422</b>	Units:	<b>%REC</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.53		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.4	70	130			
Surr: Dibromofluoromethane	0.55		0.5000		110	70	130			
Surr: Toluene-d8	0.48		0.5000		96.4	70	130			

Sample ID	<b>ics-20417</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8260B: Volatiles Short List</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>20417</b>	RunNo:	<b>27753</b>					
Prep Date:	<b>7/23/2015</b>	Analysis Date:	<b>7/24/2015</b>	SeqNo:	<b>834424</b>	Units:	<b>%REC</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**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#: 1507977

30-Jul-15

**Client:** Souder, Miller & Associates

**Project:** Loco Hills

Sample ID	Ics-20417		SampType:	LCS		TestCode:	EPA Method 8260B: Volatiles Short List			
Client ID:	LCSS		Batch ID:	20417		RunNo:	27753			
Prep Date:	7/23/2015		Analysis Date:	7/24/2015		SeqNo:	834424		Units: %REC	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.9	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: Toluene-d8	0.46		0.5000		92.5	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#: 1507977

30-Jul-15

**Client:** Souder, Miller & Associates

**Project:** Loco Hills

Sample ID <b>mb-20387</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>20387</b>		RunNo: <b>27718</b>							
Prep Date: <b>7/22/2015</b>	Analysis Date: <b>7/23/2015</b>		SeqNo: <b>833250</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	540		500.0		108	70	130			

Sample ID <b>ics-20387</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>20387</b>		RunNo: <b>27718</b>							
Prep Date: <b>7/22/2015</b>	Analysis Date: <b>7/23/2015</b>		SeqNo: <b>833278</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	106	70	123			
Surr: BFB	520		500.0		104	70	130			

Sample ID <b>mb-20417</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>20417</b>		RunNo: <b>27753</b>							
Prep Date: <b>7/23/2015</b>	Analysis Date: <b>7/24/2015</b>		SeqNo: <b>834490</b>	Units: <b>%REC</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	550		500.0		110	70	130			

Sample ID <b>ics-20417</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>20417</b>		RunNo: <b>27753</b>							
Prep Date: <b>7/23/2015</b>	Analysis Date: <b>7/24/2015</b>		SeqNo: <b>834491</b>	Units: <b>%REC</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	560		500.0		112	70	130			

**Qualifiers:**

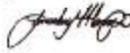
- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the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

# Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 1507977

RcptNo: 1

Received by/date:	SA	07/22/15	
Logged By:	Lindsay Mangin	7/22/2015 9:15:00 AM	
Completed By:	Lindsay Mangin	7/22/2015 10:00:24 AM	
Reviewed By:	CS	07/22/15	

### Chain of Custody

- Custody seals intact on sample bottles? Yes  No  Not Present
- Is Chain of Custody complete? Yes  No  Not Present
- How was the sample delivered? Courier

### Log In

- Was an attempt made to cool the samples? Yes  No  NA
- Were all samples received at a temperature of >0° C to 6.0°C? Yes  No  NA
- Sample(s) in proper container(s)? Yes  No
- Sufficient sample volume for indicated test(s)? Yes  No
- Are samples (except VOA and ONG) properly preserved? Yes  No
- Was preservative added to bottles? Yes  No  NA
- VOA vials have zero headspace? Yes  No  No VOA Vials
- Were any sample containers received broken? Yes  No
- Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes  No
- Are matrices correctly identified on Chain of Custody? Yes  No
- Is it clear what analyses were requested? Yes  No
- 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)

- Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	17.0	Good	Yes			

# Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S

Italgator St Carlsbad  
 Phone #: 760-439-6887-5351

email or Fax#: [www.m.dollar@sonderrill.com](mailto:www.m.dollar@sonderrill.com)

- QA/QC Package:
- Standard  Level 4 (Full Validation)
  - Accreditation:
    - NELAP  Other
    - EDD (Type)

Turn-Around Time:

Standard  Rush

Project Name:

~~Italgator St~~ Hills

Project #:

Project Manager:

Sampler:

On Ice:  Yes  No

Sample Temperature: 17.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
7/17/15	100	Soil	LH D3	A02	-	1507977
7/17/15	100	Soil	LH D2-1	A02	-	-001
7/17/15	100	Soil	LH D1-1	A02	-	-002
7/17/15	100	Soil	LH D4	A07	-	-003
7/17/15	100	Soil	LH D3	A02	-	-004
						-005

Date: Relinquished by:

Date: Relinquished by:

Received by:

*Patricia* 07/22/15 0915

Received by:

Date: Time

Remarks:

Analysis Request											
BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>							

# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

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

**NM OIL CONSERVATION**

ARTESIA DISTRICT

FEB 27 2015

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

RECEIVED

Form C-141  
Revised August 8, 2011

**Release Notification and Corrective Action**

*NAB1506156322*

**OPERATOR**

Initial Report  Final Report

Name of Company: COG Operating LLC <i>229137</i>	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: Loco Hills 33 #6 SWD	Facility Type: SWD Battery

Surface Owner: Federal	Mineral Owner:	API No. 30-015-37478
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**LOCATION OF RELEASE**

*30-015-39478*

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	33	17S	30E	2210'	North	2145'	East	Eddy

Latitude 32.7922202589621 Longitude -103.975401459275

**NATURE OF RELEASE**

Type of Release: Produced Water	Volume of Release: 2246 bbls PW	Volume Recovered: 2210 bbls PW
Source of Release: Piping	Date and Hour of Occurrence: 2/7/2015 11:30 am	Date and Hour of Discovery: 2/7/2015 8:00 pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher - NMOCD / Jeff Robertson - BLM	
By Whom? Lupe Carrasco	Date and Hour: 2/8/2015 11:12 am	
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.\*

This spill was caused fiberglass piping. Vacuum trucks were dispatched to recover standing fluid and dispose of at an NMOCD approved facility. Fiberglass was replaced with poly piping.

Describe Area Affected and Cleanup Action Taken.\*

The release occurred inside a lined facility, however approximately 36 bbls carried over the dike on to the location and into the pasture. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

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>A Trujillo</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Amanda Trujillo	Approved by Environmental Specialist:	
Title: Senior Environmental Coordinator	Approval Date: <i>3/2/15</i>	Expiration Date: <i>N/A</i>
E-mail Address: atrujillo@concho.com	Conditions of Approval:	
Date: February 27, 2015 Phone: 575-748-6940	<b>Remediation per O.C.D. Rules &amp; Guidelines</b> <b>SUBMIT REMEDIATION PROPOSAL NO</b> Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

LATER THAN: *4/2/15*

*2RP. 2844*