



June 22, 2015

#5B23978-BG6

NMOCD District II
1301 W Grand Ave
ArtesiaNM88210

SUBJECT: SOIL REMEDIATION WORKPLAN FOR INCIDENT 2RP-2918 SCARED HAWK STATE COM #1 , EDDY COUNTY, NEW MEXICO

Dear Heather Patterson:

Souder Miller & Associates, is pleased to submit the attached Work plan summarizing the soil remediation of the release site located on the Scared Hawk State Com #1 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 March 08, 2015.

Souder, Miller & Associates (SMA) responded to assess and delineate the production fluids release associated with the Scared Hawk State Com #1 well location. The release was initially reported to NMOCD by COG Operating on March 25, 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.

Table 1: Release information and Site Ranking					
Name	Scared Hawk State Com #1				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-2918	30-015-35102	SW/NE (Unit A)	Section 4	T 25S, R 28E NMPM
Estimated Date of Release	8-Mar-15				
Date Reported to NMOCD	25-Mar-15				
Reported by	Amanda Trujillo, COG Operating LLC				
Land Owner	State				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Flow line failure				
Released Material	Produced Water				
Estimated Release Volume	30 bbls Produced Water, Recovered 5 bbls Produced Water: Net release 25 bbls Produced Water				
Nearest Waterway	The Salt Draw is over one mile to the west of the location.				
Depth to Groundwater	Estimated to be 41 feet				

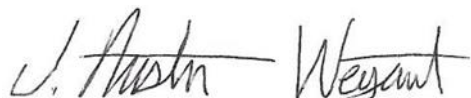


Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	20
SMA Response Dates	Initial: April 28, 2015 Mitigation Activities:
Subcontractors	TCS
Disposal Facility	Lea Land, LLC
Estimated Yd ³ Contaminated Soil Excavated and Disposed	1,500 (Reported on Completed C-138)

Attached is a copy of the C-141 initial located in Appendix B. For questions or comments pertaining to the release or the attaches Closure Report 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 WORKPLAN FOR INCIDENT 2RP-2918

COG OPERATING LLC

SCARED HAWK STATE COM #1
API# 30-015-35102
SECTION 4, T25S R28E, 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

June 22, 2015
SMA Reference
5B23978 BG6

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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 Scared Hawk State Com #1 release site. The site is located in Section 4, T 25S, R 28E NMPM, Eddy County, New Mexico, on land owned by the State of New Mexico. Figure 1 illustrates the vicinity and location of the site.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 1 mile east of Salt Draw, in an area owned by the State with an elevation of approximately 3,000 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). Figure 1 depicts the site vicinity and Figure 2 depicts the site location.

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. One well is located within a one mile radius of the site. The physical location of this release is within the jurisdiction of NMOCD.

Based on the NMOCD Guidelines Ranking Criteria, this release location has been assigned a NMOCD ranking of 20 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 100 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates site ranking rationale.

3.0 Assessment and Initial Results

On June 18th, 2015 after receiving 811 clearance SMA field personal assessed the release area onsite with a backhoe, Photo Ionization Detector (PID), and a mobile chlorides titration kit. The affected area was found to be 150 feet long and 90 feet wide. The western extent of the spill path is over a high pressure gas line. Delineation samples were taken to depths of seven feet bsg. Bottom hole samples were found to exhibit only background levels of all contaminants of concern at approximately 7 feet bsg on the eastern area of the spill. The western portion contained the highest concentration of contaminants at depths below seven foot bsg, due to the proximity to the point of failure of the flow line and site topography. Specific sample locations for all samples are depicted on Figure 2 (Sample Location Map) along with sampling details. Field screening 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, 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 Workplan

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. In the eastern area of the spill is a buried Kinder Morgan pipeline. No excavation will occur within that area due to safety concerns and request by Kinder Morgan. SMA will work with Kinder Morgan on any excavation close to their high pressure gas line. Samples will be taken as close to the pipeline as possible to document the level of contamination in the soils left next to pipeline. 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 to three feet bsg in the spill area to remove the soils affected by the release. An in-situ cap will be constructed within the excavation. The construction of the in-situ cap (Figure #3) has been designed to prevent both capillary and leaching movement of the brine affected soils contained beneath. Starting from three feet below surface grade, a plastic liner will be added as a capillary break between the affected soils and the proposed caliche cap. The cap will consist of two feet of contaminant-free caliche material placed, and compacted. Then, a geo-synthetic liner will be added above the compacted caliche cap to form an intrusion barrier. This barrier will prevent leaching and formation of deep root systems into the cap itself. Topsoil will then be placed on top of the cap. The plastic liner on both sides of the caliche cap will effectively break the communication of precipitation through the compacted cap. After excavation, installation of in-situ cap, and backfill, a minimum of 18 inches of topsoil will be added to help with contouring of the area and to promote vegetation growth. Approximately 1,444 cubic yards of contaminated soil will be removed and replaced with the cap and clean backfill material to bring the excavated area to surface grade. The contaminated soil will be transported for 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 100 ppm TPH. The release consisted of produced water and evidence of petroleum impacts were not 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 3. Laboratory reports are included in Appendix A.

6.0 Closure and Limitations

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

Reviewed by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant
Project Scientist



Cynthia Gray, CHMM
Senior Scientist

Figures:

Figure 1: Vicinity Map

Figure 2: Site Map

Figure 3: In-situ Cap and Bio barrier Design

Tables:

Table 1: Release Information and Site Ranking

Table 2: Field Screening

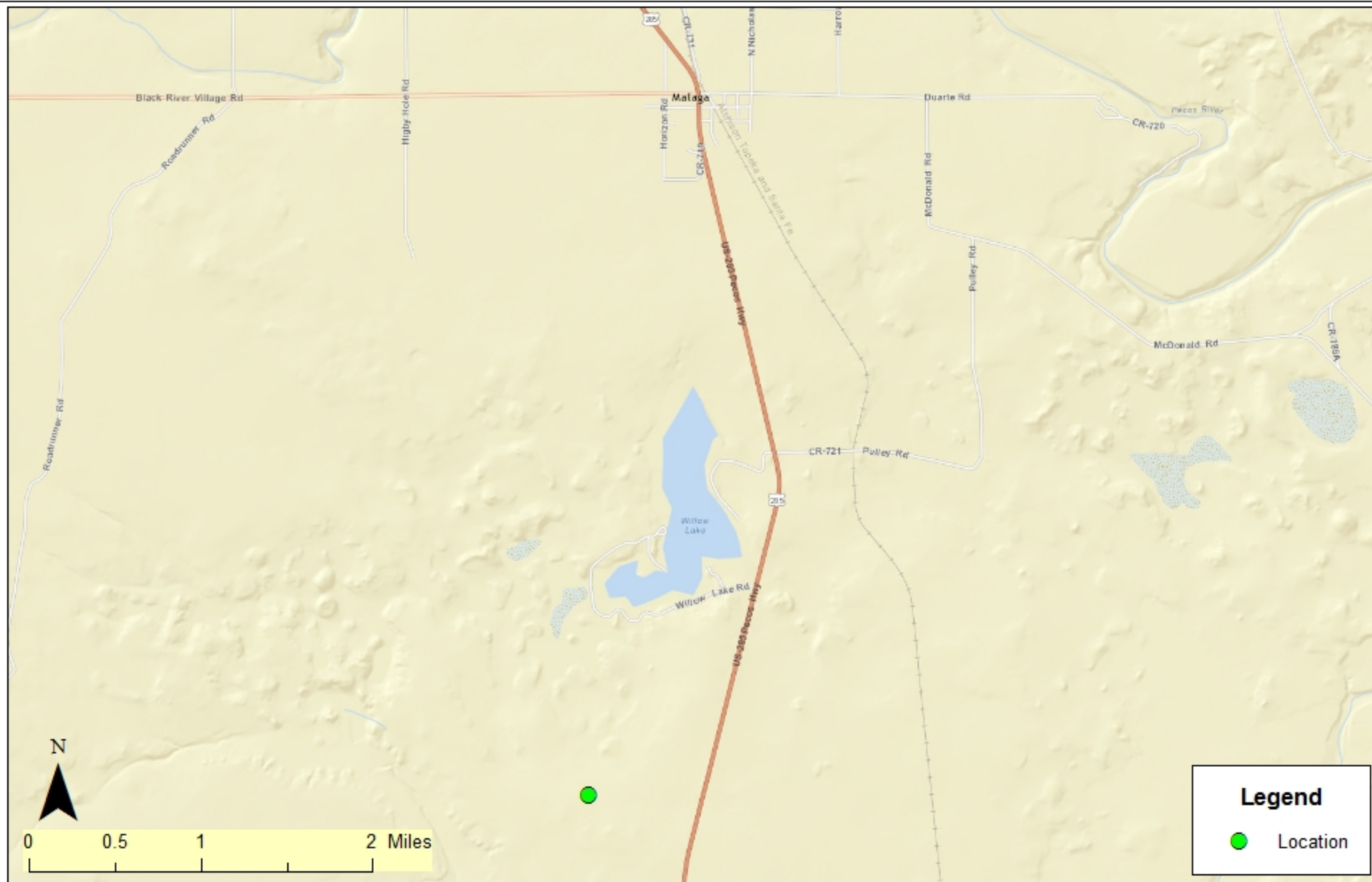
Table 3: Summary of Laboratory Analyses

Appendices:

Appendix A: Laboratory Analytical Reports

Appendix B: Form C141 Initial

FIGURE 1 VICINITY MAP



Vicinity Map
Scared Hawk Sate Com #1
Malaga, New Mexico

Figure 1

Date Saved:
7/26/2015

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

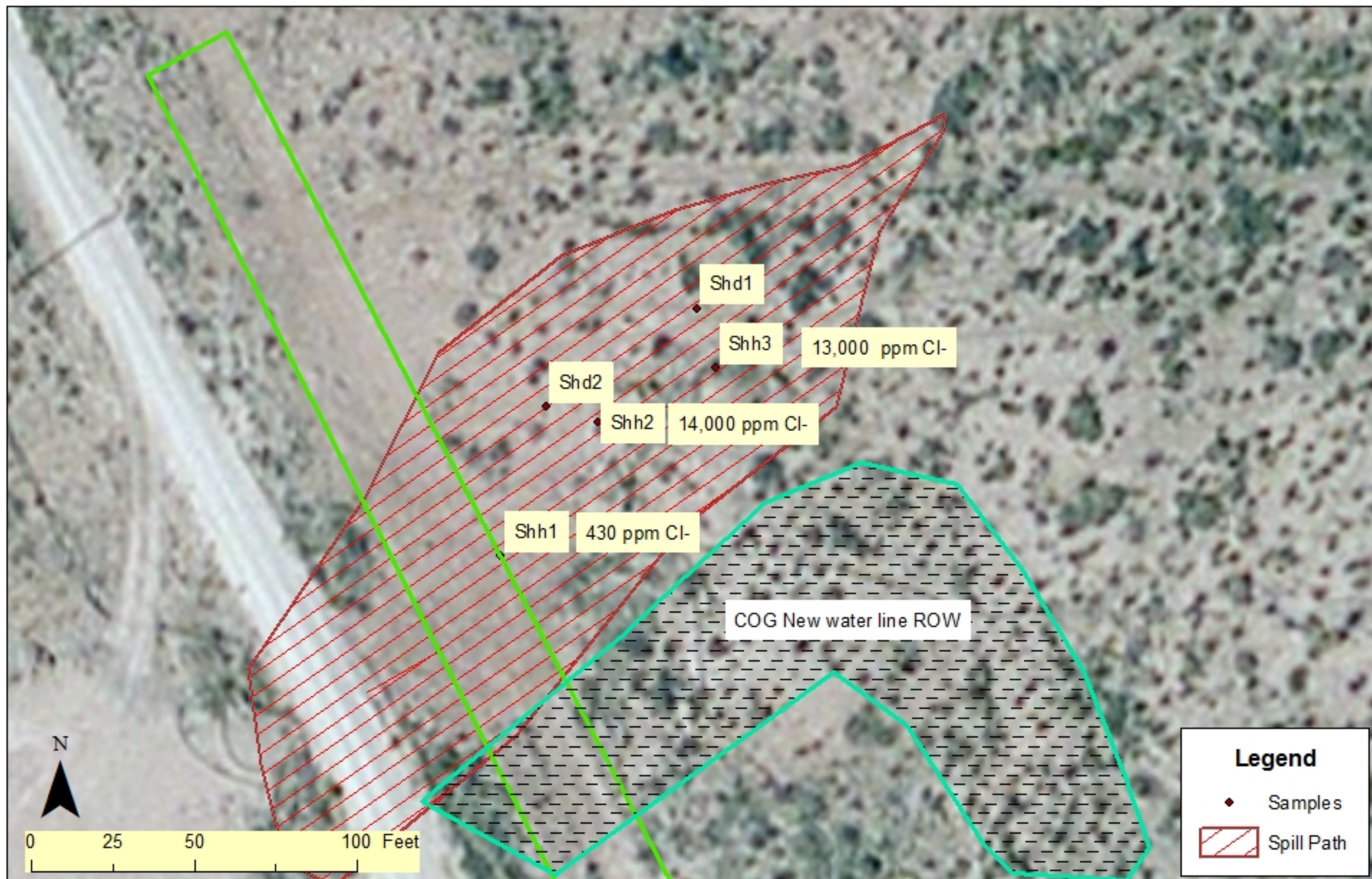
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Drawn	Lucas Middleton
Checked	_____
Approved	_____



201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-3331
www.soudermiller.com
Serving the Southwest & Rocky Mountain States

FIGURE 2 SITE MAP



SITE DETAILS AND SAMPLE LOCATION MAP
 Scared Hawk State Com #1
 Malaga, New Mexico

Figure 2

Date: 7/20/15

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

Copyright 2014 Souder, Miller & Associates - All Rights Reserved

Drawn: Lucas Middleton
 Checked: _____
 Approved: _____

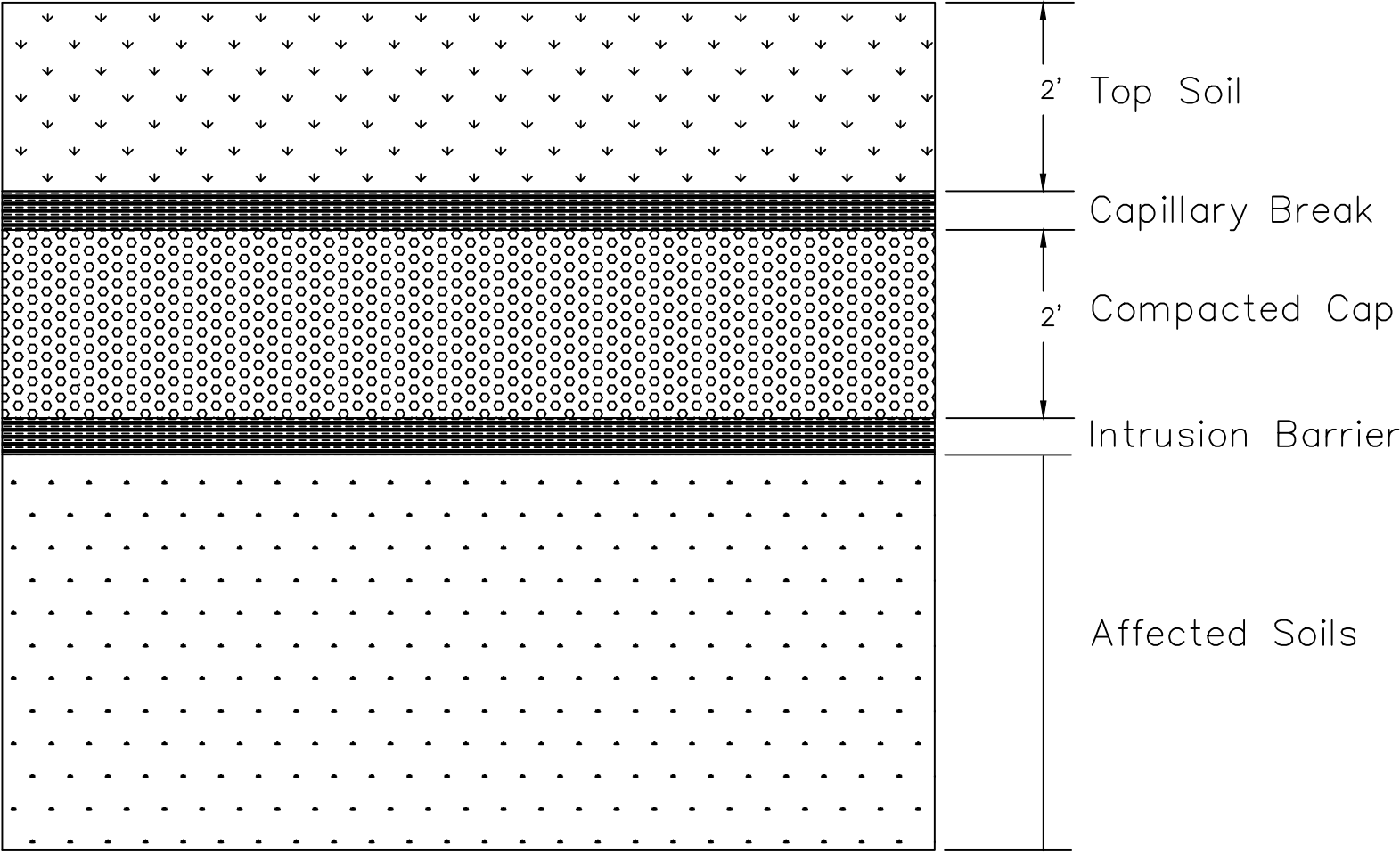


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FIGURE 3

IN-SITU CAP AND BIO BARRIER DESIGN

Figure 3: Proposed In-situ Cap and Biobarrier Design



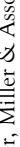
 Souders, Miller & Associates Carlsbad, NM 88220 201 S. Halaqueno Street Phone (575) 689-7040 www.soudemiller.com Serving the Southwest & Rocky Mountains			CLIENT		TOWN	Rev #	Date	Description
			COG					
			FIGURE 3: PROPOSED CAP AND BIOBARRIER DESIGN					
			COG-SCARED_HAWK_STATE_COM_#1					
Designed	Drawn	Checked						
Date: July 2015								
Scale: Horiz: 1"=5'								
Vert: 1"=5'								
Project No: 5B23978								
COG								

TABLE 1

RELEASE INFORMATION AND SITE RANKING

Table 1: Release information and Site Ranking

Name	Scared Hawk State Com #1				
Location	Incident Number	API Number	Section, Township, Range		
	2RP-2809	30-015-35102	SW/NE (Unit A)	Section 4	T 25S, R 28E NMPM
Estimated Date of Release	8-Mar-15				
Date Reported to NMOCD	25-Mar-15				
Reported by	Amanda Trujillo, COG Operating LLC				
Land Owner	State				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Flow line failure				
Released Material	Produced Water and Oil				
Estimated Release Volume	30 bbls Produced Water, Recovered 5 bbls Produced Water: Net release 25 bbls Produced Water				
Nearest Waterway	The Salt Draw is over one miles to the west of the location.				
Depth to Groundwater	Estimated to be 41 feet				
Nearest Domestic Water Source	Greater than 1,000 feet				
NMOCD Ranking	20				
SMA Response Dates	Initial: April 28, 2015 Mitigation Activities:				
Subcontractors	TCS				
Disposal Facility	Lea Land, LLC				
Estimated Yd ³ Contaminated Soil Excavated and Disposed	40,500 (Reported on Completed C-138)				

TABLE 2

SUMMARY OF FIELD SCREENING

Scared Hawk State Com #1
Produced Water
5/20/15

[illegible]

TABLE 3

SUMMARY OF LABORATORY ANALYSES

Table 3: Summary of Laboratory Analyses

Analytical Report- 1505718	Sample Number on Figure 2 Map	Sample Date	Depth	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	Cl- mg/Kg
1505718-001	SH-1	5/22/2015	1'	N/A	N/A	N/A	N/A	430
1505718-002	SH-2	5/22/2015	1'	N/A	N/A	N/A	N/A	14,000
1505718-003	SH-3	5/22/2015	1'	N/A	N/A	N/A	N/A	13,000

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

May 22, 2015

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

RE: Scared Hawk

OrderNo.: 1505718

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/15/2015 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 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 horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical ReportLab Order: **1505718**Date Reported: **5/22/2015****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Souder, Miller & Associates
Project: Scared Hawk**Lab Order:** 1505718**Lab ID:** 1505718-001**Collection Date:** 5/13/2015 9:00:00 AM**Client Sample ID:** SH-1**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	430	30		mg/Kg	20	5/19/2015 12:36:13 PM	19298

Lab ID: 1505718-002**Collection Date:** 5/13/2015 9:00:00 AM**Client Sample ID:** SH-2**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	14000	750		mg/Kg	500	5/20/2015 3:57:33 PM	19298

Lab ID: 1505718-003**Collection Date:** 5/13/2015 9:00:00 AM**Client Sample ID:** SH-3**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	13000	750		mg/Kg	500	5/20/2015 4:09:57 PM	19298

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505718

22-May-15

Client: Souder, Miller & Associates

Project: Scared Hawk

Sample ID	MB-19298		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS		Batch ID:	19298		RunNo:	26305				
Prep Date:	5/19/2015		Analysis Date:	5/19/2015		SeqNo:	781402		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-19298		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 19298		RunNo: 26305					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781403		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.6	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit



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: 1505718

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

5/15/2015 9:08:00 AM

Completed By: Ashley Gallegos

5/15/2015 11:40:13 AM

Reviewed By:

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 $>0^{\circ}\text{C}$ 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?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.5	Good	Yes			

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

MAR 26 2015

Form C-141
Revised August 8, 2011

Submittal to appropriate District Office in accordance with 19.15.29 NMAC.

RECEIVED

Release Notification and Corrective Action

NAB1508552342

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: Scared Hawk State Com #1	Facility Type: Well

Surface Owner: State	Mineral Owner:	API No. 30-015-35102
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LOCATION OF RELEASE

Unit Letter A	Section 4	Township 25S	Range 28E	Feet from the 330	North/South Line North	Feet from the 25	East/West Line East	County Eddy
------------------	--------------	-----------------	--------------	----------------------	---------------------------	---------------------	------------------------	----------------

Latitude 32.16563543 Longitude -104.083854368812

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 30 bbls PW	Volume Recovered: 5 bbls PW
Source of Release: Flowline	Date and Hour of Occurrence: 3/8/2015 11:00 am	Date and Hour of Discovery: 3/8/2015 11:00 am
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	
By Whom? Amanda Trujillo	Date and Hour: 3/9/2015 5:49 pm	
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 release was caused when the weld in a poly flowline failed to hold. Vacuum trucks were dispatched to recover any standing fluids.

Describe Area Affected and Cleanup Action Taken.*

The impacted area occurred within the pasture and road, approximately 150' x 90'. 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: 	OIL CONSERVATION DIVISION	
Printed Name: Amanda Trujillo	Signed By  Approved by Environmental Specialist:	
Title: Senior Environmental Coordinator	Approval Date: 3/26/15	Expiration Date: N/A
E-mail Address: atrujillo@concho.com	Conditions of Approval:	
Date: March 25, 2015 Phone: 575-748-6940	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: <u>4/26/15</u>	

Attached ☐

* Attach Additional Sheets If Necessary

2RP-2918