

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	SRO 17 State Com					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec 9	26S	28E		
Lease Number:	(API#) 30-015-38257					
County:	Eddy County					
GPS:	32.06133° N			104.09988° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From Malaga NM go 11.3 miles south on US 285. Turn west on County Rd 724 and go 2 1/4 miles. Turn south on lease road and go 0.1 mile and turn east into location.					

Release Data:

Date Released:	1/21/2014
Type Release:	Produced Water
Source of Contamination:	Poly line failure
Fluid Released:	15 bbls Produced Water
Fluids Recovered:	14 bbls Produced Water

Official Communication:

Name:	Robert Grubbs	Darrell Moore
Company:	COG Operating, LLC	EnTech Consulting
Address:	One Concho Center	PO Box 9843
	600 W. Illinois Ave.	
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 661-6601	(432) 266-8375
Fax:	(432) 684-7137	
Email:	RGrubbs@concho.com	darrell.moore@entechservice.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	0
>100 ft.	0	0
Wellhead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000



March 27, 2014

Mr. Mike Bratcher
Environmental Engineer Specialist
New Mexico Oil Conservation Division, Dist. 2
811 S. First Street
Artesia, NM 88210

RE: Work Plan for the COG Operating LLC., SRO 17 State Com., Unit D, Section 9, Township 26 South, Range 28 East, Eddy County, New Mexico.

Dear Mr. Bratcher:

EnTech Consulting Corp. (EnTech) has been contacted by COG Operating LLC. (COG) to assess a spill from a poly line at the SRO 17 State Com. located in Unit D, Section 9, Township 26 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.06133°, W 104.09988°. The site location is shown on **Figures 1 and 2**.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on January 21, 2014, and released approximately 15 barrels of produced water from a "Y" on a poly line. COG personnel shut down the transfer pump and fused the line back together. Approximately 14 barrels of standing fluids were recovered. The initial C-141 form is enclosed in **Appendix A**.

Groundwater

No water wells were listed in the State Engineers Office Database in Section 9, Township 26 South, Range 28 East. The closest reference was in Section 5, Township 26 South, Range 28 East, which is just north of the Site. Groundwater at that location is listed at 100'. Groundwater data is shown in **Appendix B**.

Regulatory

A risk based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts

per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On February 20, 2014, EnTech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1, AH-2 and AH-3) were installed using a stainless steel hand auger to assess the impacted soils (**Figure 3**). Samples were analyzed for TPH analysis by EPA Method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA Method 300.0. The sampling results are summarized in **Table 1**. Copies of laboratory analysis and chain-of-custody documentation are included in **Appendix C**.

Referring to **Table 1**, none of the samples exceeded the TPH, BTEX, and benzene RRAL. However, elevated chloride concentrations were detected in all three auger holes. Chloride concentrations decline with depth in all three holes but vertical delineation was not gained due to the rocky nature of the subsurface.

Work Plan

COG proposes to remove impacted material as highlighted (green) in **Table 1** and shown in **Figure 4**. The proposed excavation depth is estimated at 5.0 to 6.0' below surface in the vicinity of AH #1 and AH #3. In the vicinity of AH #2 it is proposed to excavate to a depth of 2'. Although the 4.5' sample in AH #2 shows a chloride concentration of 2720 mg/kg, it is believed that this is an anomaly either due to cross contamination or a pocket of gypsum in this area. We propose to collect a bottom hole confirmation sample at 3' in the vicinity of AH #2 to verify the clean-up in this area. However, the excavation will be guided by visual evidence and field chloride titration samples. Once the contaminated soils have been excavated and confirmation samples have confirmed the clean-up, the excavation will be backfilled with clean soil. The excavated soil will be transported to proper disposal.

The proposed excavation depths may not be reached due to situations beyond our control including safety concerns for onsite personnel and impacted soil around structures or lines. As such, EnTech will excavate the soils to the maximum extent practicable.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning this assessment or the proposed remediation activities for this site, please call me at 432-266-8375.

Mr. Mike Bratcher
Work Plan for the COG Operating LLC.
Project Name: SRO 17 State Com.

Page 3 of 3
March 27, 2014

Respectfully submitted,
EnTech Consulting Corp.



Darrell Moore
Regional Project Manager

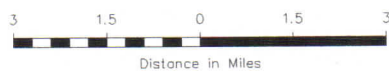
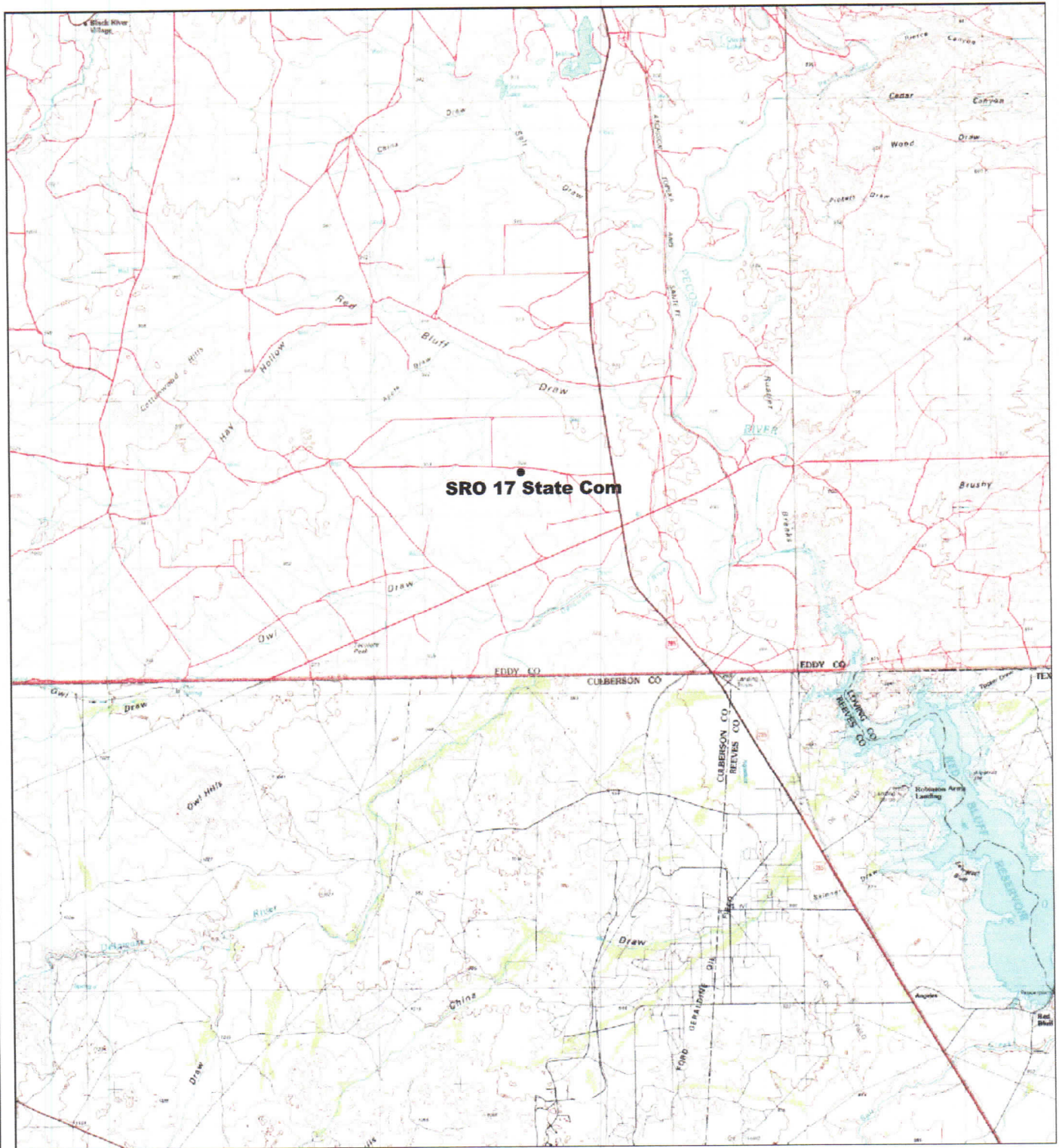


Chan Patel
Sr. Project Manager

Enclosures
Figures 1-4
Table 1
Appendix A - Initial C-141
Appendix B – Groundwater Data
Appendix C – Laboratory Report

Cc: Robert McNeill – COG
Cc: Mike Burton - BLM

FIGURES

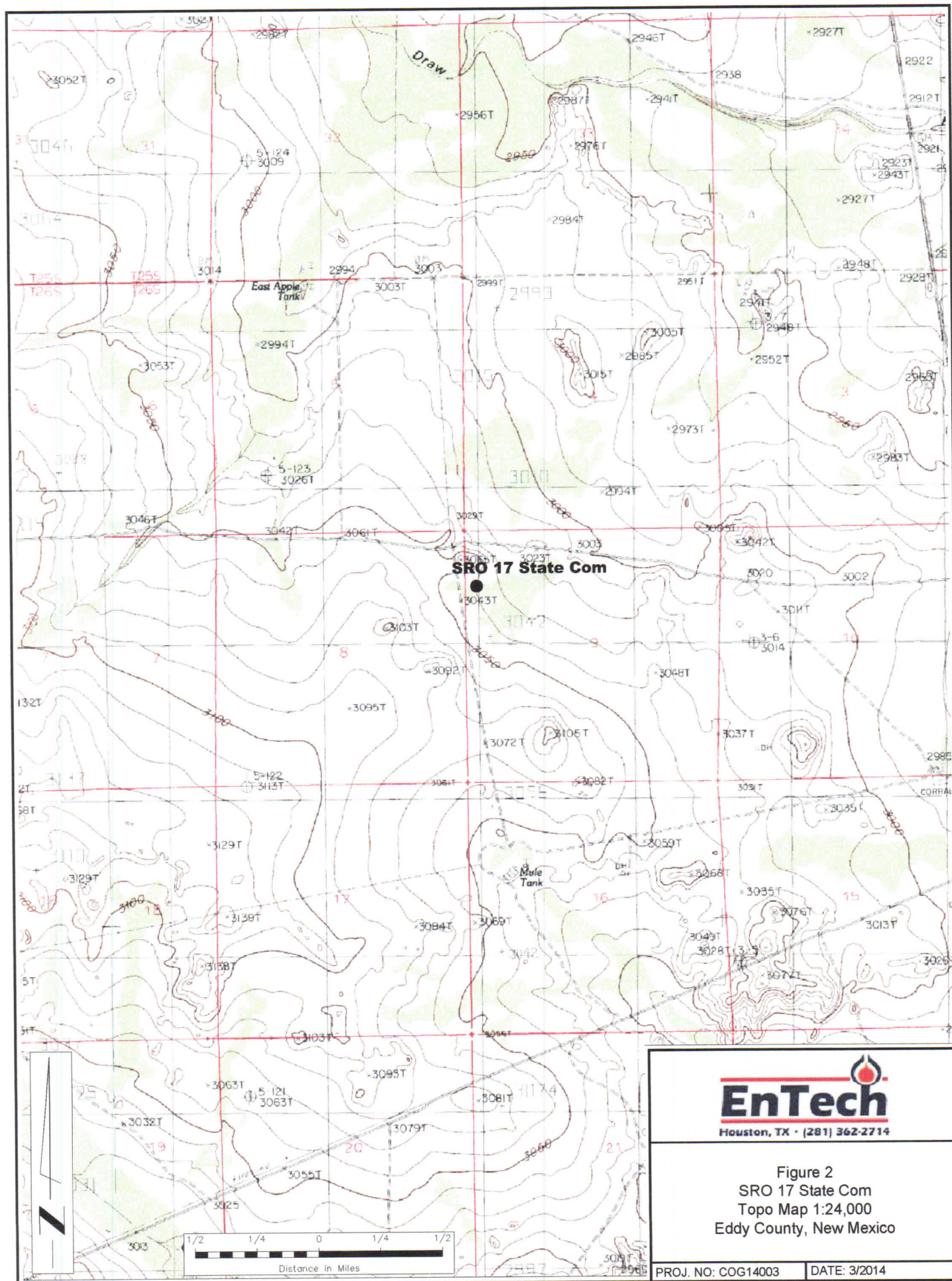


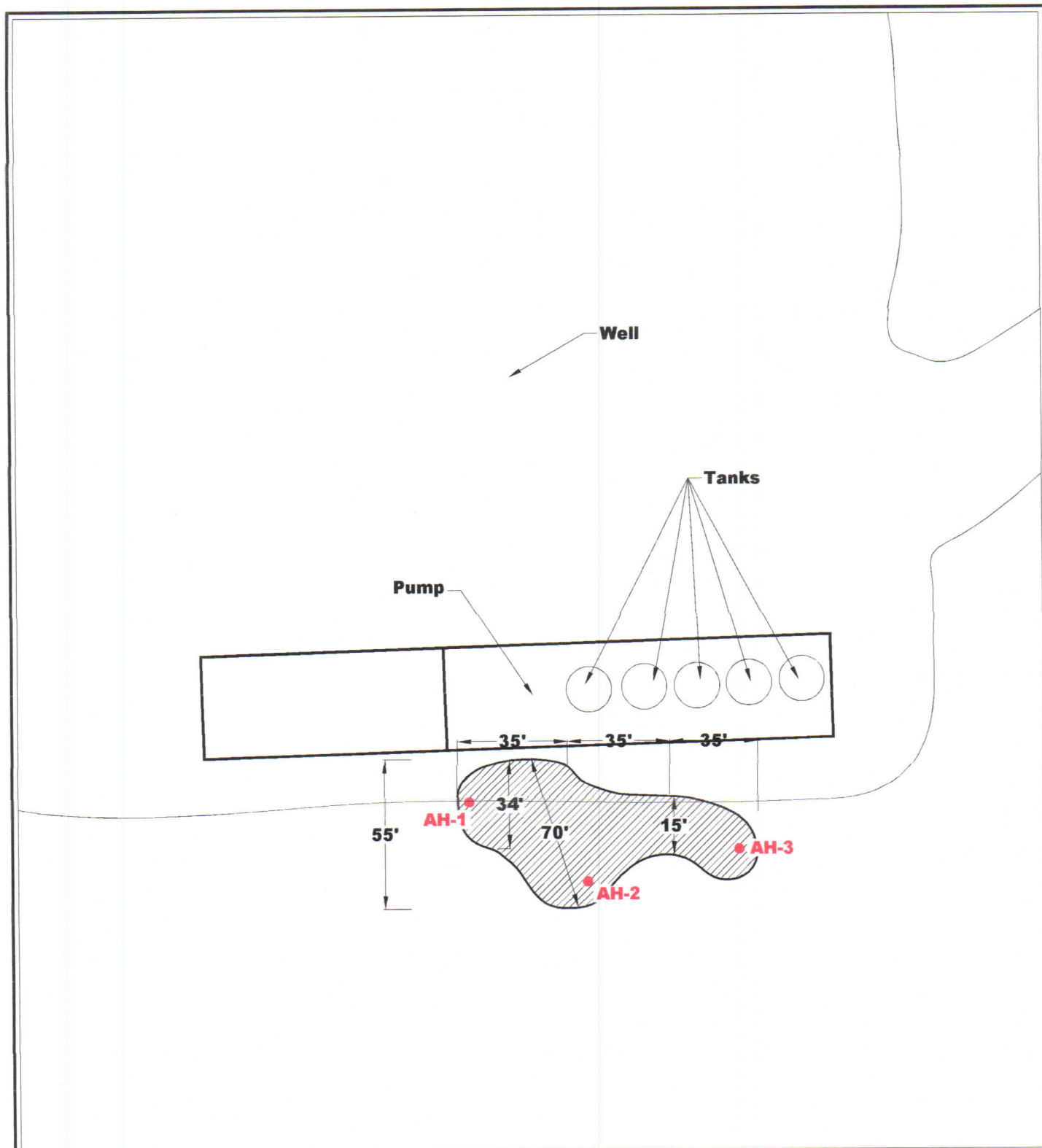
EnTech
Houston, TX • (281) 362-2714

Figure 1
SRO 17 State Com
Overview Map
Eddy County, New Mexico

PROJ. NO: COG14003

DATE: 3/2014





LEGEND:

- - AUGER HOLE SAMPLE LOCATION
- ▨ - SPILL AREA

0 25 50
SCALE: 1 IN = 50 FEET



Figure 3
SRO 17 State Corn
Spill Assessment Map
Eddy County, New Mexico

PROJ. NO: COG14003

DATE: 3/2014



LEGEND:

- - AUGER HOLE SAMPLE LOCATION
- SPILL AREA

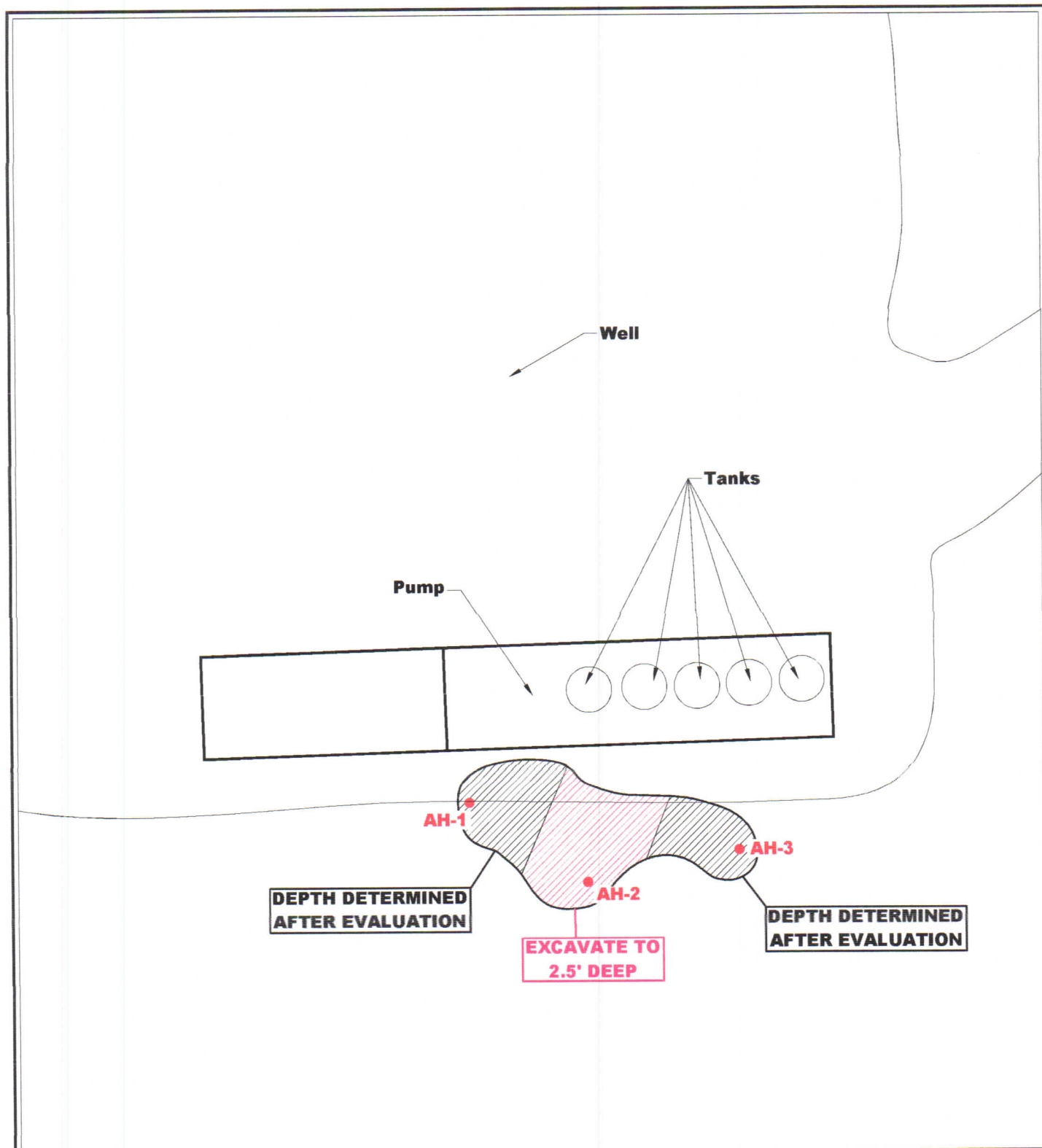
0 25 50
SCALE: 1 IN = 50 FEET

EnTech
Houston, TX • (281) 362-2714

Figure 3
SRO 17 State Com
Spill Assessment Map
Eddy County, New Mexico

PROJ. NO: COG14003

DATE: 3/2014



LEGEND:

- - AUGER HOLE SAMPLE LOCATION
- ▨ - PROPOSED EXCAVATION AREA
- ▨ -0-1' PROPOSED EXCAVATED AREA (BLUE)
- ▨ -1-2' PROPOSED EXCAVATED AREA (GREEN)
- ▨ -2-3' PROPOSED EXCAVATED AREA (PURPLE)
- ▨ ->3' PROPOSED EXCAVATED AREA (RED)

0 25 50
SCALE: 1 IN = 50 FEET



Figure 4
SRO 17 State Com
Proposed Excavation Areas & Depths Map
Eddy County, New Mexico

PROJ. NO: COG14003

DATE: 3/2014

TABLES

**Table 1. COG Operating LLC.
(Site Name) EDIE County, NM**

TABLE 1. Concho SRO 17 State Comm Magala, NM

TABLE 1. CONTIGUOUS AND DISCRETE CONTAMINANT MONITORING DATA																
Sample ID Number	Sample Date	Sample Depth (feet)	BEB Depth (feet)	Soil Status		SW 846-8021B					SW 846-8021B					Chlorides (mg/kg)
						Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	Total TPH (mg/kg)			
														NMOCD Remediation Criteria		
				In-situ	Removed	10 mg/kg			50 mg/kg			5000 mg/kg				
AH-1	02/20/14	0-1'				<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0			18800		
AH-1	02/20/14	1.5												9320		
AH-1	02/20/14	2.5												3190		
AH-1	02/20/14	3.5												3290		
AH-1	02/20/14	4.5												1720		
AH-2	02/20/14	0-1'				<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0			13000		
AH-2	02/20/14	1.5												4280		
AH-2	02/20/14	2.5												387		
AH-2	02/20/14	3.5												188		
AH-2	02/20/14	4.5												2720		
AH-3	02/20/14	0-1'				<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0			11500		
AH-3	02/20/14	1.5												13900		
AH-3	02/20/14	2.5												14900		
AH-3	02/20/14	3.5												5100		

NMOCD: New Mexico Oil Conservation Division

Exceedences of NMOCD Remediation Criteria are shown in **bold**

Green Highlight indicate areas to be excavated

T Indicates total depth of excavation will be determined in the field

PHOTOS

COG Operating LLC
SRO 17 State Com
Eddy County, New Mexico



View looking East at area where failure occurred



View looking East

COG Operating LLC
SRO 17 State Com
Eddy County, New Mexico



View looking Southeast

APPENDIX A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1000 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Robert McNeill
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	SRO 17 State Com	Facility Type	Tank Battery
Surface Owner	State	Mineral Owner	Lease No. (API#) 30-015-38257

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	09	26S	28E					Eddy

Latitude 32.06168 Longitude 104.09991

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Produced water	15bbls	14bbls
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Poly line Y connection	01-21-2014	01-21-2014 1:00pm
Was Immediate Notice Given?	If YES, To Whom?	
☐ Yes ☒ No ☒ Not Required		
By Whom?	Date and Hour	
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.	
☐ Yes ☒ No		

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The connection on the Y failed due to moving the line a week earlier.

Describe Area Affected and Cleanup Action Taken.*

Initially 15bbls of produced water were released. We were able to recover 14bbls of produced water with a vacuum truck. All free fluids have been recovered. 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.

OIL CONSERVATION DIVISION

Signature: 	Approved by District Supervisor:		
Printed Name: Robert Grubbs Jr.			
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:	
E-mail Address: rgrubbs@concho.com	Conditions of Approval:		Attached ☐
Date: 02-03-2014	Phone: 432-661-6601		

* Attach Additional Sheets If Necessary

APPENDIX B



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01668			ED	3	3	12	26S	28E		589957	3546554*	250	100	150
C 02160			ED	4	1	2	14	26S	28E	589243	3546044*	300	120	180
C 02160 S			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S2			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S3			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S4			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S5			ED	1	1	1	14	26S	28E	588225	3546237*	300	120	180
C 02160 S6			ED	3	3	1	14	26S	28E	588232	3545635*	300	120	180
C 02160 S7			ED	3	3	1	22	26S	28E	586638	3543998*	300	120	180
C 02160 S8			ED	2	3	3	12	26S	28E	590056	3546653*	200	120	80
C 02160 S9			ED	3	3	2	02	26S	28E	589020	3548868*	300	120	180
C 02477		CUB	ED	1	1	03	26S	28E		586687	3549347*	150		
C 02478		CUB	ED	2	1	05	26S	28E		583848	3549325*	100		
C 02479		CUB	ED	4	4	10	26S	28E		587909	3546534*	200		
C 02480		CUB	ED	4	4	10	26S	28E		587909	3546534*	150		
C 02481		CUB	ED	1	1	14	26S	28E		588326	3546138*	200		
C 02894		C	ED	2	2	3	12	26S	28E	590458	3547061*	240		
C 02924		C	ED	1	3	2	11	26S	28E	589032	3547451*			

Average Depth to Water: **118 feet**

Minimum Depth: **100 feet**

Maximum Depth: **120 feet**

Record Count: 18

PLSS Search:

Township: 26S

Range: 28E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

APPENDIX C

Summary Report

Darrell Moore
EnTech Consulting-The Woodlands
21 Waterway Avenue
Suite 300
The Woodlands, TX 77380

Report Date: March 3, 2014

Work Order: 14022128



Project Location: Magala, NM
Project Name: 17 SRO State Comm

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
355525	AH 1 0-1'	soil	2014-02-20	13:30	2014-02-21
355526	AH 1 1.5	soil	2014-02-20	13:35	2014-02-21
355527	AH 1 2.5	soil	2014-02-20	13:40	2014-02-21
355528	AH 1 3.5	soil	2014-02-20	13:45	2014-02-21
355529	AH 1 4.5	soil	2014-02-20	13:50	2014-02-21
355530	AH 2 0-1'	soil	2014-02-20	13:55	2014-02-21
355531	AH 2 1.5	soil	2014-02-20	14:00	2014-02-21
355532	AH 2 2.5	soil	2014-02-20	14:05	2014-02-21
355533	AH 2 3.5	soil	2014-02-20	14:10	2014-02-21
355534	AH 2 4.5	soil	2014-02-20	14:15	2014-02-21
355535	AH 3 0-1'	soil	2014-02-20	14:20	2014-02-21
355536	AH 3 1.5	soil	2014-02-20	14:25	2014-02-21
355537	AH 3 2.5	soil	2014-02-20	14:30	2014-02-21
355538	AH 3 3.5	soil	2014-02-20	14:35	2014-02-21

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
355525 - AH 1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
355530 - AH 2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
355535 - AH 3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

Sample: 355525 - AH 1 0-1'

Param	Flag	Result	Units	RL
Chloride		18800	mg/Kg	4

Sample: 355526 - AH 1 1.5

Param	Flag	Result	Units	RL
Chloride		9320	mg/Kg	4

Sample: 355527 - AH 1 2.5

Param	Flag	Result	Units	RL
Chloride		3190	mg/Kg	4

Sample: 355528 - AH 1 3.5

Param	Flag	Result	Units	RL
Chloride		3290	mg/Kg	4

Sample: 355529 - AH 1 4.5

Param	Flag	Result	Units	RL
Chloride		1720	mg/Kg	4

Sample: 355530 - AH 2 0-1'

Param	Flag	Result	Units	RL
Chloride		13000	mg/Kg	4

Sample: 355531 - AH 2 1.5

Param	Flag	Result	Units	RL
Chloride		4280	mg/Kg	4

Sample: 355532 - AH 2 2.5

Param	Flag	Result	Units	RL
Chloride		387	mg/Kg	4

Sample: 355533 - AH 2 3.5

Param	Flag	Result	Units	RL
Chloride		188	mg/Kg	4

Sample: 355534 - AH 2 4.5

Param	Flag	Result	Units	RL
Chloride		2720	mg/Kg	4

Sample: 355535 - AH 3 0-1'

Param	Flag	Result	Units	RL
Chloride		11500	mg/Kg	4

Sample: 355536 - AH 3 1.5

Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4

Sample: 355537 - AH 3 2.5

Param	Flag	Result	Units	RL
Chloride		14900	mg/Kg	4

Sample: 355538 - AH 3 3.5

Param	Flag	Result	Units	RL
Chloride		5100	mg/Kg	4

TraceAnalysis, Inc.

email: lab@traceanalysis.com

5701 Aberdeen Ave, Ste 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944

BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Company Name:	EnTech Consulting	Phone #:	432.266.8375
Address:	21 Waterway Ave #300 The Woodlands Tx 77390	Fax #:	281.362.2704
Contact Person:	Darrell Moore	E-mail:	darrell.moore@entech service .com
Invoice to:	Concho Attn: Robert Grubbs		
Project #:		Project Name:	17 SRO State Comm
Project Location: (include state)	Magalia NM.		
Sampler Signature:	SHANE DILLER Shane A. Diller		

Concho Attn: Robert Grubbs

Project Name:

17 SBO State Comm

Sampler
Signature:

S. HANE DILLER
LA DILLER

Magala NM.

[illegible]

ANALYSIS REQUEST

(Circle or Specify Method No.)

[illegible]

REMARKS: If TPH/BTEX are in exceedence
Please run next sample in line.

LAB USE ONLY

Received by:	Company:	Date:	Time:	INST
--------------	----------	-------	-------	------

Component	Date	Time
Component		

received by: _____
company: _____
date: _____
INSI _____
OBS _____
%

Reinquished by: _____ Date: _____
Company: _____ Title: _____
1402

COR _____

Ed Dill Entel 2-21-14

Received for	Company	Date	Time	INST

Time	Date	Place	Remarks
10.00	10.00	10.00	10.00

Received by: _____
Company: _____
Date: _____
INS: _____
OBS: _____

Relinquished by: _____
Company: _____
Date: _____
I Me: _____

COR — 30

_____ Date: _____ Time: _____ INST: _____

100

Received by: _____
Company: _____
Date: _____
Inst: _____

Relinquished by: _____ Date: _____ Time: _____
Company: _____

0
0
0

CUR _____

1

100

Submission of samples constitutes agreement to Terms and Conditions

ORIGINAL COPY