SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	F.M. Robinson #1 Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit E	Sec 27	T17S	R29E		
Lease Number:	API-30-015-22037					
County:	Eddy County					
GPS:	32.80775° N			104.06894° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	In Loco Hills at the intersection of CR 217 and Hwy 82. Travel west on Hwy 82 for 5.1 miles, turn left (south) on CR 212 and travel 0.7 mile, turn left (east) and travel 0.1 mile to the site.					

Release Data:	
Date Released:	1/31/2013
Type Release:	Oil and Produced Water
Source of Contamination:	Produced Water Tank
Fluid Released:	210 bbls
Fluids Recovered:	205 bbls

Official Communication:			
Name:	Robert McNeill		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
	600 W. Illinois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		(432) 682-3946
Email:	Rmcneill@conch.com		ike.tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	*Ranking Score*	*Site Data*
<50 ft	20	
50-99 ft	10	
>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

TETRA TECH

October 15, 2013

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

Re: Closure Request for the COG Operating LLC., F.M. Robinson #1 Tank Battery, Unit E, Section 27, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the F.M. Robinson #1 Tank Battery located in Unit E, Section 27, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80775°, W 104.06894°. 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 31, 2013, and released approximately two hundred and ten (210) barrels of produced fluid from a produced water tank overflow. To alleviate the problem, COG personnel restored power to the facility. Two hundred and five (205) barrels of standing fluids were recovered. The spill initiated inside the lined facility and breached the firewalls affecting an area approximately 70' X 120' and 25' x 25' on the pad. The release migrate east off the pad into the pasture affecting an area approximately 10' x 50', 50' x 70', 10' x 35' and 15' x 15'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 27. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 125' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

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 13, 2013, Tetra Tech personnel inspected and sampled the spill area. Twelve (12) auger holes (AH-1 through AH-12) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, none of the auger hole samples exceeded the TPH RRAL. Auger hole (AH-12) exceeded the RRAL for total BTEX at 0-1', but declined below the RRAL of 24.7 mg/kg.

Chloride concentrations were detected in majority of the auger holes. Auger holes (AH-8 and AH-11) did not show a significant chloride impact to the areas. A shallow chloride impact (0-1') was detected in the areas of AH-2, AH-3, AH-4 and AH-10, which declined at 1-1.5' below surface. A deeper impact was encountered in the areas of AH-1 and AH-5, but declined with depth at 3-3.5' to 82.5 mg/kg and 589 mg/kg, respectively. The area of AH-1 did show a chloride spike at 8-8.5' and 9-9.5'. The remaining areas of were not vertically defined showing bottom auger hole samples of 5,220 mg/kg (AH-6), 2,500 mg/kg (AH-7) and 3,830 mg/kg (AH-9) at 7.0' below surface.

On April 30, 2013, Tetra Tech supervised the installation of four (4) soil borings (SB-1 through SB-4) using an air rotary drilling rig to define the chloride extents in the areas of AH-1, AH-6, AH-7 and AH-9. The soil borings were installed to approximate depths of 40.0' to 50.0' below surface. The soil boring locations are shown on Figure 3. Copies of the laboratory analysis chain-of-custody documentation are included in Appendix C. The soil boring results are summarized in Table 1.

Referring to Table 1, SB-1 (AH-1) was installed to define the chloride spike detected at 8.0' to 9.0' below surface. Soil boring (SB-1) showed a spike of 9-10' and declined to 150 mg/kg at 14-15' below surface. SB-2 (AH-6) did detect elevated chlorides from surface to a depth of approximately 30.0' below surface, which significantly declined to 1,300 mg/kg at 39-40' and 356 mg/kg at 49-50' below surface. Soil borings SB-3 (AH-7) and SB-4 (AH-9) showed vertical delineation and declined below 1,000 mg/kg chlorides at 24-25' below surface.

Proposed Work Plan

COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. In the areas of AH-2, AH-3, AH-4, AH-5, AH-10 and AH-12 will be excavated to a depth of approximately 1.0' below surface. The area of AH-1 (SB-1) will be excavated to a depth of 2.0' to 3.0' below surface. Due to the proximity of the facility, lines and tanks, the area of AH-6 (SB-2) on the pad will be excavated to an approximate depth of 3.0' to 4.0' and capped either clay or 40 mil liner for safety concerns.

In the areas of AH-7 (SB-3) and AH-9 (SB-4), the proposed excavation will range from 4.0' to 5.0' below surface. A COG water line is located in the area of AH-9 and performing deeper excavation is a safety concern excavating near the active line. Once excavated to the appropriate depth, the areas will be capped with a 40 mil liner at 4.0' below surface. The material will be hauled off for proper disposal and the excavation will be backfilled with clean soil to surface grade.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

Site Remediation and Conclusion

On May 7, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4. Approximately 640 cubic yards^3 of soil were removed and transported to R360 facility for proper disposal.

In order to remove the majority of the elevated chloride concentrations, the excavation depths ranged from 1.0' to 5.0' below surface. Due to the proximity of the water tank and equipment, limited excavation was performed in the area of AH-6 (depth of 1.5') due to safety concerns. Auger hole (AH-6) was capped with clay material and a 40 mil liner was installed in the areas of AH-7 and AH-9 to cap the remaining impact soil.

TETRA TECH

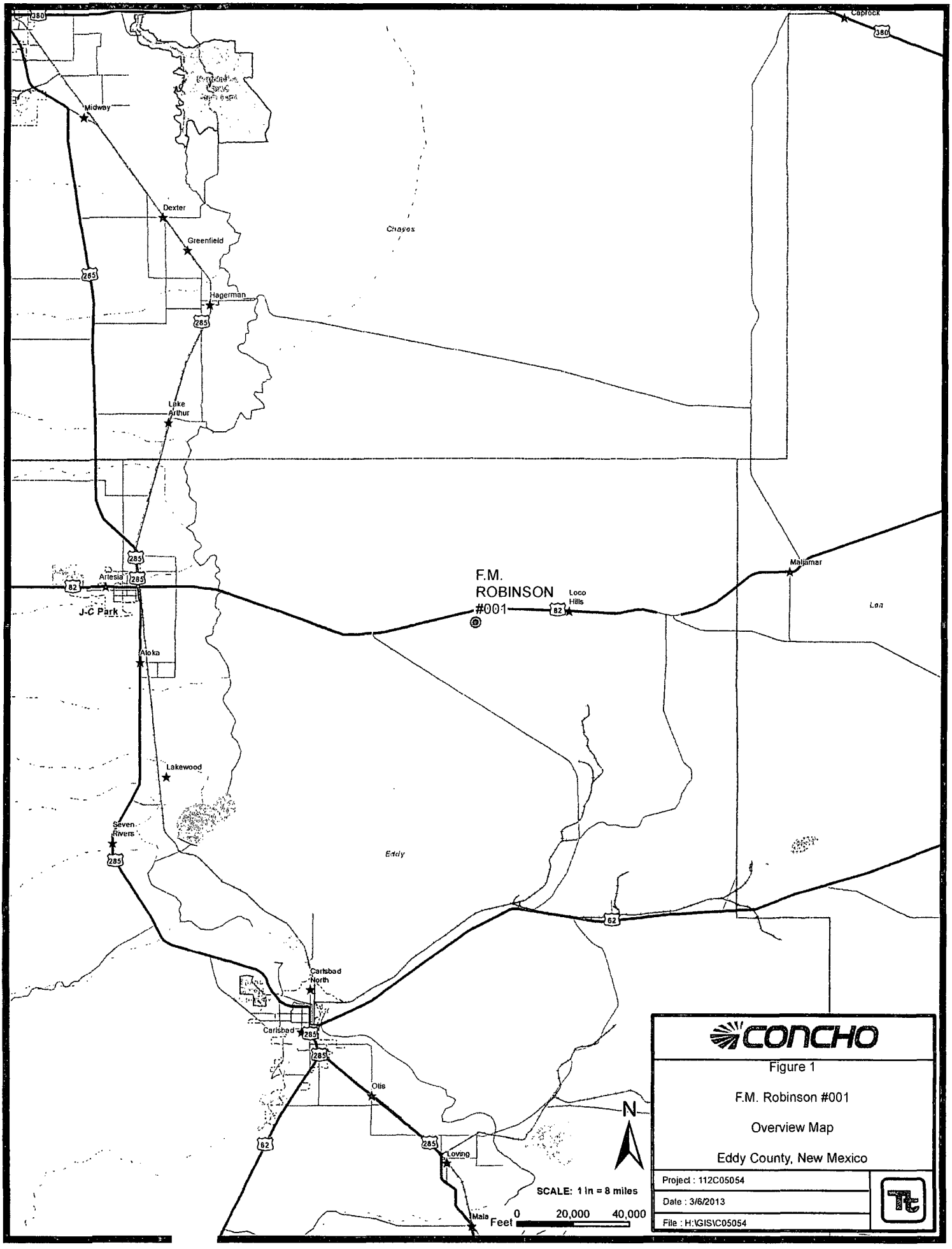
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

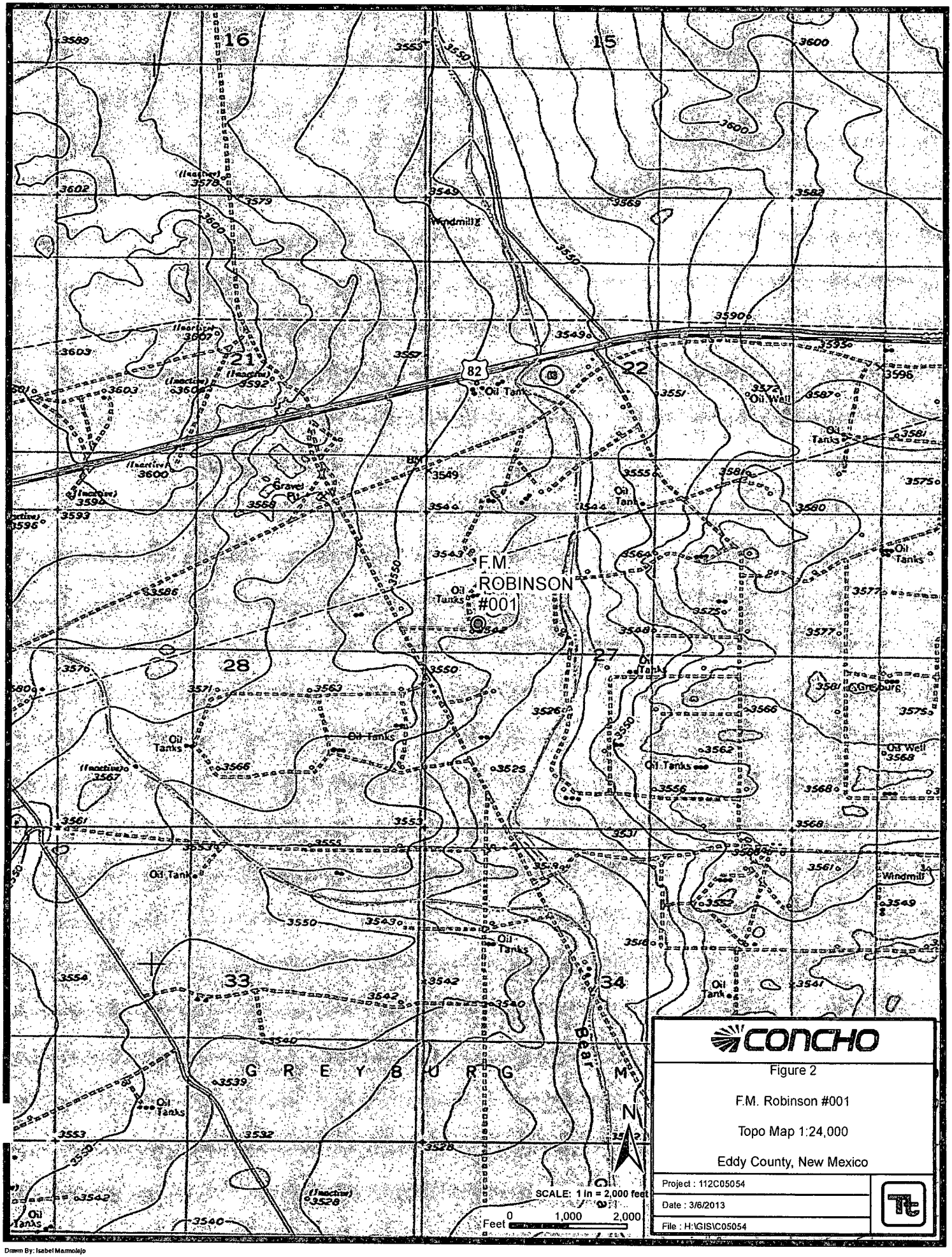
Ike Tavarez, PG
Project Manager

cc: Robert McNeill – COG

Figures



Drawn By: Isabel Marmolejo



CONCHO

Figure 2

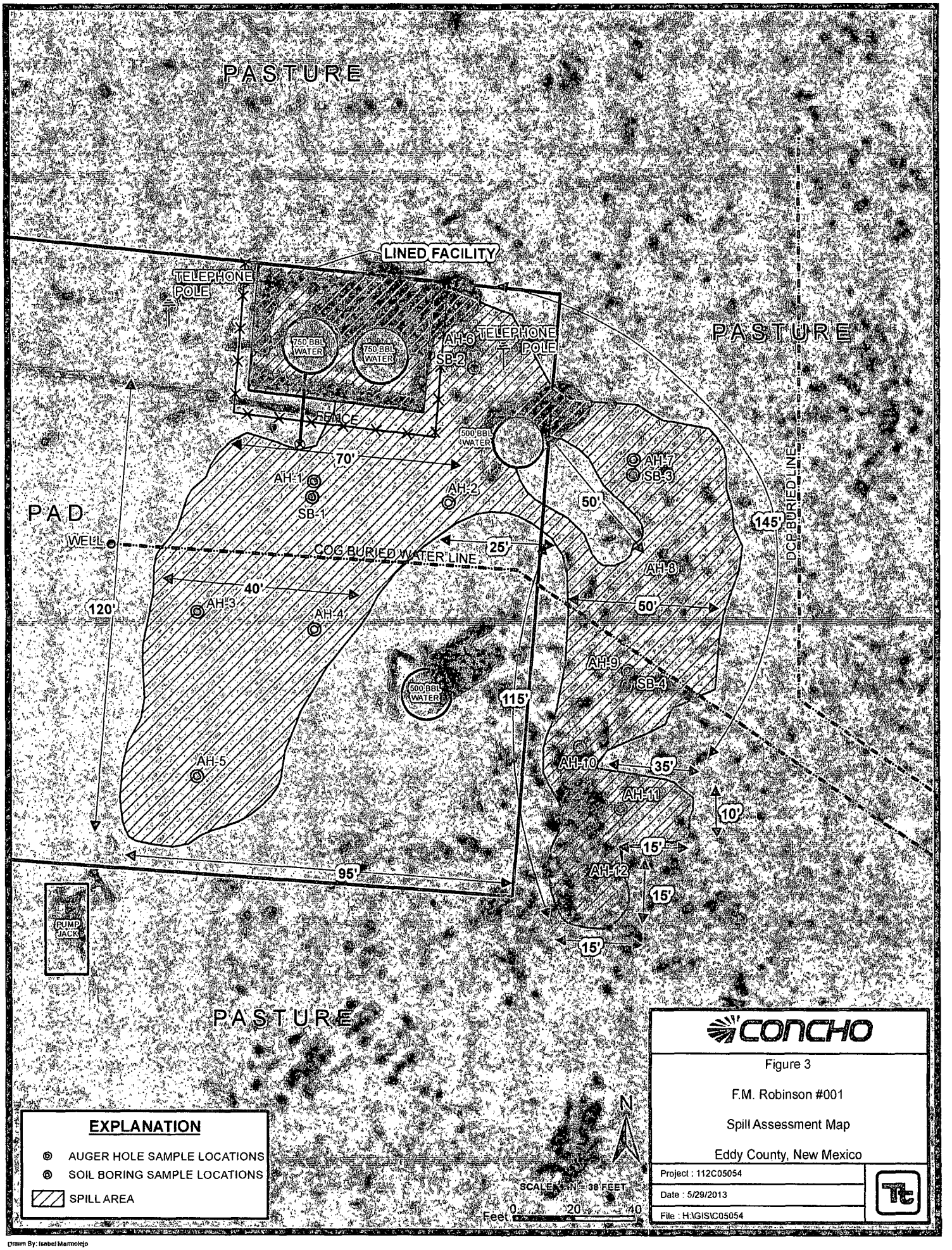
F.M. Robinson #001

Topo Map 1:24,000

Eddy County, New Mexico

Project : 112C05054	
Date : 3/6/2013	
File : H:\GIS\C05054	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SOIL BORING SAMPLE LOCATIONS
- SPILL AREA

CONCHO

Figure 3

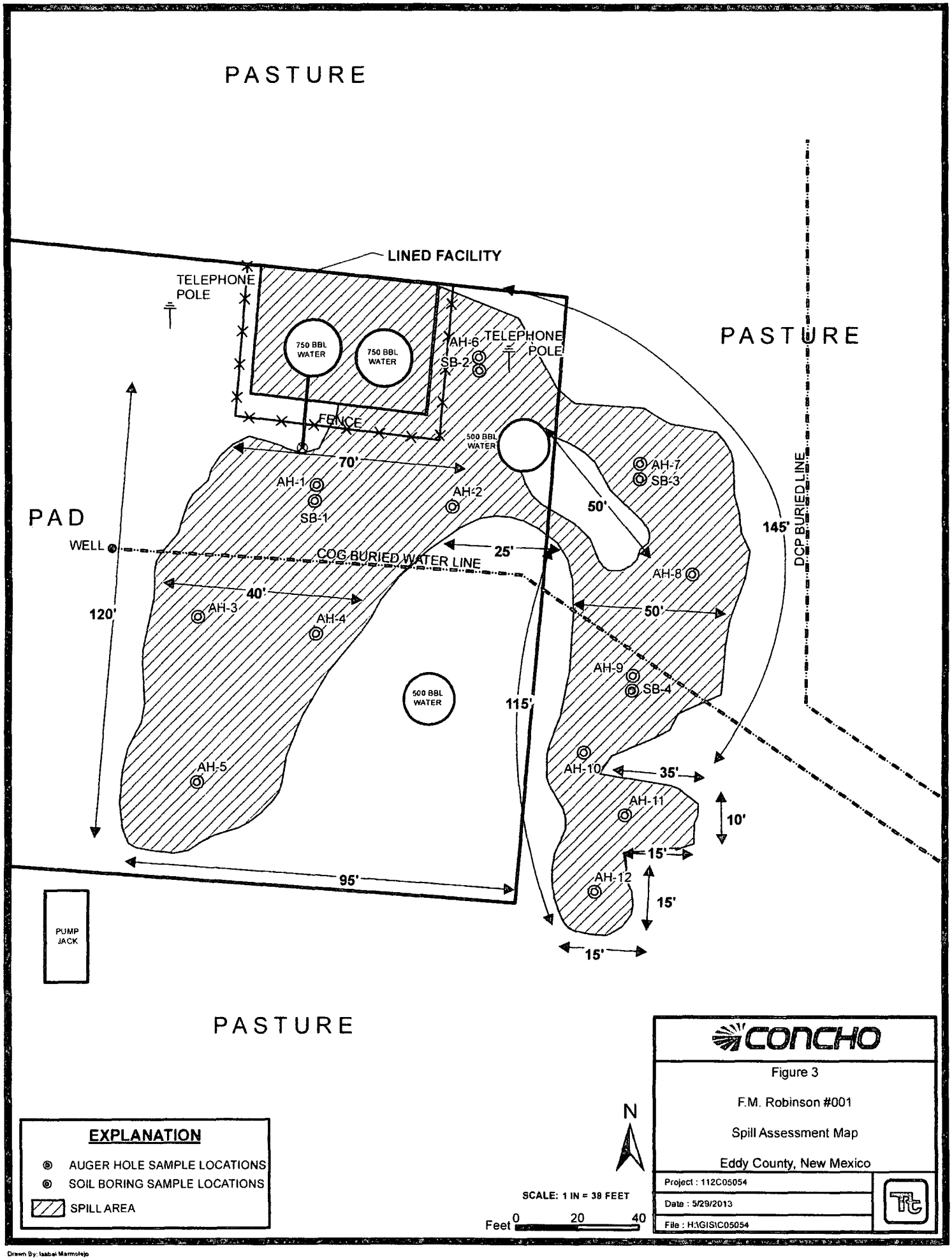
F.M. Robinson #001

Spill Assessment Map

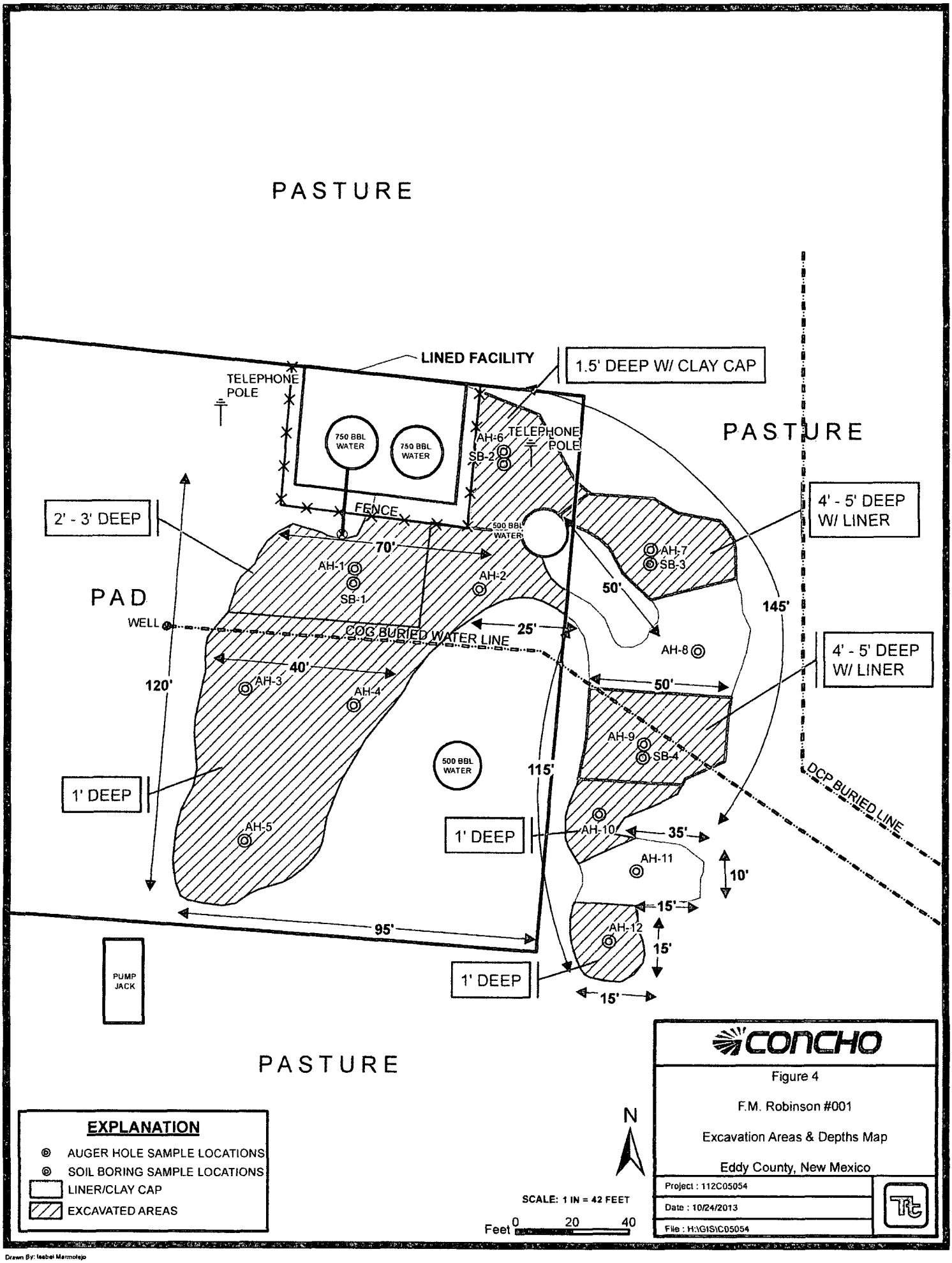
Eddy County, New Mexico

Project : 112C05054	
Date : 5/29/2013	
File : H:\GIS\C05054	

Drawn By: Isabel Mamolejo



Drawn By: Isabel Marmolejo


PASTURE
LINED FACILITY
1.5' DEEP W/ CLAY CAP
TELEPHONE POLE
750 BBL WATER
750 BBL WATER
AH-6
SB-2
TELEPHONE POLE
PASTURE
FENCE
500 BBL WATER
2' - 3' DEEP
4' - 5' DEEP W/ LINER
70'
AH-1
SB-1
AH-2
AH-7
SB-3
50'
145'
PAD
WELL
COG BURIED WATER LINE
25'
AH-8
4' - 5' DEEP W/ LINER
40'
120'
AH-3
AH-4
50'
AH-9
SB-4
500 BBL WATER
115'
DCP BURIED LINE
1' DEEP
AH-5
1' DEEP
AH-10
35'
AH-11
10'
15'
95'
AH-12
15'
PUMP JACK
1' DEEP
15'
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SOIL BORING SAMPLE LOCATIONS
LINER/CLAY CAP
EXCAVATED AREAS
N
SCALE: 1 IN = 42 FEET
Feet 0 20 40
CONCHO
Figure 4
F.M. Robinson #001
Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 112C05054
Date : 10/24/2013
File : H:\GIS\C05054
Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	2/13/2013	0-1		X	5.46	<50.0	5.46	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,650
	"	1-1.5		X	-	-	-	-	-	-	-	-	3,770
	"	2-2.5		X	-	-	-	-	-	-	-	-	2,250
	"	3-3.5	X		-	-	-	-	-	-	-	-	82.6
	"	4-4.5	X		-	-	-	-	-	-	-	-	82.6
	"	5-5.5	X		-	-	-	-	-	-	-	-	48.6
	"	6-6.5	X		-	-	-	-	-	-	-	-	287
	"	7-7.5	X		-	-	-	-	-	-	-	-	845
	"	8-8.5	X		-	-	-	-	-	-	-	-	1,660
	"	9-9.5	X		-	-	-	-	-	-	-	-	1,700
SB-1	4/29/2013	0-1		X	-	-	-	-	-	-	-	-	1,640
	"	2-3		X	-	-	-	-	-	-	-	-	3,470
	"	4-5	X		-	-	-	-	-	-	-	-	726
	"	6-7	X		-	-	-	-	-	-	-	-	792
	"	9-10	X		-	-	-	-	-	-	-	-	1,030
	"	14-15	X		-	-	-	-	-	-	-	-	150
	"	19-20	X		-	-	-	-	-	-	-	-	170
	"	24-25	X		-	-	-	-	-	-	-	-	184
AH-2	2/13/2013	0-1		X	71.8	453	525	<0.0400	<0.0400	<0.0400	0.256	0.256	1,260
	"	1-1.5	X		-	-	-	-	-	-	-	-	379
	"	2-2.5	X		-	-	-	-	-	-	-	-	818
	"	3-3.5	X		-	-	-	-	-	-	-	-	639
	"	4-4.5	X		-	-	-	-	-	-	-	-	459
	"	5-5.5	X		-	-	-	-	-	-	-	-	409
	"	6-6.5	X		-	-	-	-	-	-	-	-	245
	"	7-7.5	X		-	-	-	-	-	-	-	-	463
	"	8-8.5	X		-	-	-	-	-	-	-	-	399
	"	9-9.5	X		-	-	-	-	-	-	-	-	302

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-3	2/13/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,800
	"	1-1.5	X		-	-	-	-	-	-	-	-	524
	"	2-2.5	X		-	-	-	-	-	-	-	-	519
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,030
	"	4-4.5	X		-	-	-	-	-	-	-	-	1,040
	"	5-5.5	X		-	-	-	-	-	-	-	-	1,020
	"	6-6.5	X		-	-	-	-	-	-	-	-	520
	"	7-7.5	X		-	-	-	-	-	-	-	-	303
	"	8-8.5	X		-	-	-	-	-	-	-	-	243
	"	9-9.5	X		-	-	-	-	-	-	-	-	263
AH-4	2/13/2013	0-1		X	<80.0	2,800	2,800	<0.400	<0.400	<0.400	<0.400	<0.400	1,530
	"	1-1.5	X		-	-	-	-	-	-	-	-	450
	"	2-2.5	X		-	-	-	-	-	-	-	-	692
	"	3-3.5	X		-	-	-	-	-	-	-	-	477
	"	4-4.5	X		-	-	-	-	-	-	-	-	391
	"	5-5.5	X		-	-	-	-	-	-	-	-	66.0
	"	6-6.5	X		-	-	-	-	-	-	-	-	335
	"	7-7.5	X		-	-	-	-	-	-	-	-	173
AH-5	2/13/2013	0-1		X	8.95	133	142	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,880
	"	1-1.5	X		-	-	-	-	-	-	-	-	543
	"	2-2.5	X		-	-	-	-	-	-	-	-	3,800
	"	3-3.5	X		-	-	-	-	-	-	-	-	589
	"	4-4.5	X		-	-	-	-	-	-	-	-	497
	"	5-5.5	X		-	-	-	-	-	-	-	-	452
	"	6-6.5	X		-	-	-	-	-	-	-	-	221
	"	7-7.5	X		-	-	-	-	-	-	-	-	126

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-6	2/13/2013	0-1		X	98.7	953	1,052	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	50.2
Clay Cap	"	1-1.5		X	-	-	-	-	-	-	-	-	201
	"	2-2.5	X		-	-	-	-	-	-	-	-	306
	"	3-3.5	X		-	-	-	-	-	-	-	-	467
	"	4-4.5	X		-	-	-	-	-	-	-	-	2,890
	"	5-5.5	X		-	-	-	-	-	-	-	-	4,570
	"	6-6.5	X		-	-	-	-	-	-	-	-	4,180
	"	7-7.5	X		-	-	-	-	-	-	-	-	5,220
SB-2	4/30/2013	0-1		X	-	-	-	-	-	-	-	-	3,380
	"	2-3	X		-	-	-	-	-	-	-	-	1,050
	"	4-5	X		-	-	-	-	-	-	-	-	2,120
	"	6-7	X		-	-	-	-	-	-	-	-	5,140
	"	9-10	X		-	-	-	-	-	-	-	-	6,360
	"	14-15	X		-	-	-	-	-	-	-	-	5,220
	"	19-20	X		-	-	-	-	-	-	-	-	4,900
	"	24-25	X		-	-	-	-	-	-	-	-	6,880
	"	29-30	X		-	-	-	-	-	-	-	-	8,320
	"	39-40	X		-	-	-	-	-	-	-	-	1,300
	"	49-50	X		-	-	-	-	-	-	-	-	356

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-7	2/13/2013	0-1		X	<20.0	90.7	90.7	<0.100	<0.100	<0.100	<0.100	<0.100	963
	"	1-1.5		X	-	-	-	-	-	-	-	-	1,330
	"	2-2.5		X	-	-	-	-	-	-	-	-	2,580
	"	3-3.5		X	-	-	-	-	-	-	-	-	4,010
	"	4-4.5		X	-	-	-	-	-	-	-	-	5,940
	"	5-5.5	X		-	-	-	-	-	-	-	-	6,160
	"	6-6.5	X		-	-	-	-	-	-	-	-	3,160
	"	7-7.5	X		-	-	-	-	-	-	-	-	3,340
	"	7.5-8	X		-	-	-	-	-	-	-	-	2,500
SB-3	4/30/2013	0-1		X	-	-	-	-	-	-	-	-	681
	"	2-3		X	-	-	-	-	-	-	-	-	844
	"	4-5		X	-	-	-	-	-	-	-	-	2,240
	"	6-7	X		-	-	-	-	-	-	-	-	5,400
	"	9-10	X		-	-	-	-	-	-	-	-	3,410
	"	14-15	X		-	-	-	-	-	-	-	-	3,010
	"	19-20	X		-	-	-	-	-	-	-	-	1,850
	"	24-25	X		-	-	-	-	-	-	-	-	869
	"	29-30	X		-	-	-	-	-	-	-	-	790
	"	39-40	X		-	-	-	-	-	-	-	-	339
	"	49-50	X		-	-	-	-	-	-	-	-	<20.0
AH-8	2/13/2013	0-1	X		<200	4,310	4,310	<1.00	<1.00	<1.00	<1.00	<1.00	90.9
	"	1-1.5	X		-	-	-	-	-	-	-	-	263
	"	2-2.5	X		-	-	-	-	-	-	-	-	177
	"	3-3.5	X		-	-	-	-	-	-	-	-	273
	"	4-4.5	X		-	-	-	-	-	-	-	-	409

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-9	2/13/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	419
	"	1-1.5		X	-	-	-	-	-	-	-	-	586
	"	2-2.5		X	-	-	-	-	-	-	-	-	1,490
	"	3-3.5		X	-	-	-	-	-	-	-	-	1,490
	"	4-4.5		X	-	-	-	-	-	-	-	-	2,520
	"	5-5.5	X		-	-	-	-	-	-	-	-	1,730
	"	6-6.5	X		-	-	-	-	-	-	-	-	4,110
	"	7-7.5	X		-	-	-	-	-	-	-	-	3,830
SB-4	4/30/2013	0-1		X	-	-	-	-	-	-	-	-	618
	"	2-3		X	-	-	-	-	-	-	-	-	707
	"	4-5		X	-	-	-	-	-	-	-	-	1,540
	"	6-7	X		-	-	-	-	-	-	-	-	3,730
	"	9-10	X		-	-	-	-	-	-	-	-	2,560
	"	14-15	X		-	-	-	-	-	-	-	-	2,860
	"	19-20	X		-	-	-	-	-	-	-	-	1,530
	"	24-25	X		-	-	-	-	-	-	-	-	873
	"	29-30	X		-	-	-	-	-	-	-	-	397
	"	39-40	X		-	-	-	-	-	-	-	-	357

Table 1
COG Operating LLC.
F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-10	2/13/2013	0-1		X	626	964	1,590	<0.400	5.76	1.16	21.9	39.3	1,830
	"	1-1.5	X		-	-	-	-	-	-	-	-	271
	"	2-2.5	X		-	-	-	-	-	-	-	-	227
	"	3-3.5	X		-	-	-	-	-	-	-	-	367
	"	4-4.5	X		-	-	-	-	-	-	-	-	991
	"	5-5.5	X		-	-	-	-	-	-	-	-	648
	"	6-6.5	X		-	-	-	-	-	-	-	-	474
	"	7-7.5	X		-	-	-	-	-	-	-	-	303
	"	8-8.5	X		-	-	-	-	-	-	-	-	323
	"	9-9.5	X		-	-	-	-	-	-	-	-	499
AH-11	2/13/2013	0-1	X		4.91	76.4	81.3	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	34.2
	"	1-1.5	X		-	-	-	-	-	-	-	-	196
	"	2-2.5	X		-	-	-	-	-	-	-	-	48.9
	"	3-3.5	X		-	-	-	-	-	-	-	-	53.8
AH-12	2/13/2013	0-1		X	1,800	1,290	3,090	3.93	52.9	47.5	77.5	**182**	103
	"	1-1.5	X		-	-	-	<0.100	2.26	8.28	14.2	24.7	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	127
	"	4-4.5	X		-	-	-	-	-	-	-	-	468

(-) Not Analyzed

Excavation Depths

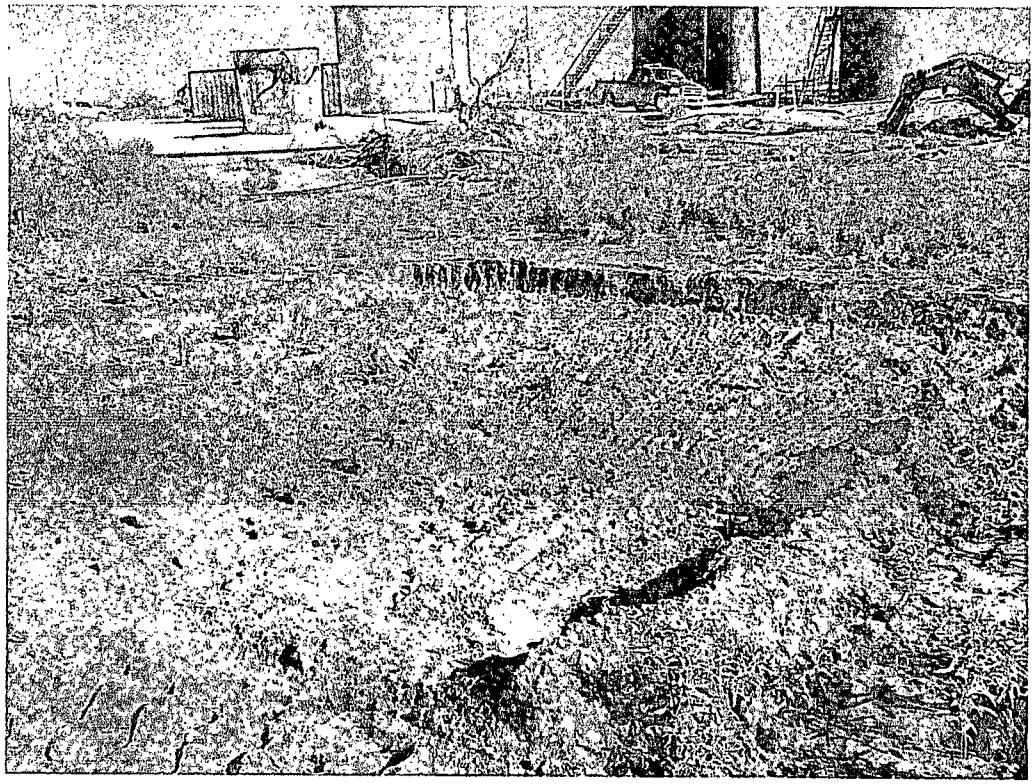
Liner or Clay Installation

Photos

COG Operating LLC
F.M. Robinson Tank Battery
Eddy County, New Mexico

TETRA TECH

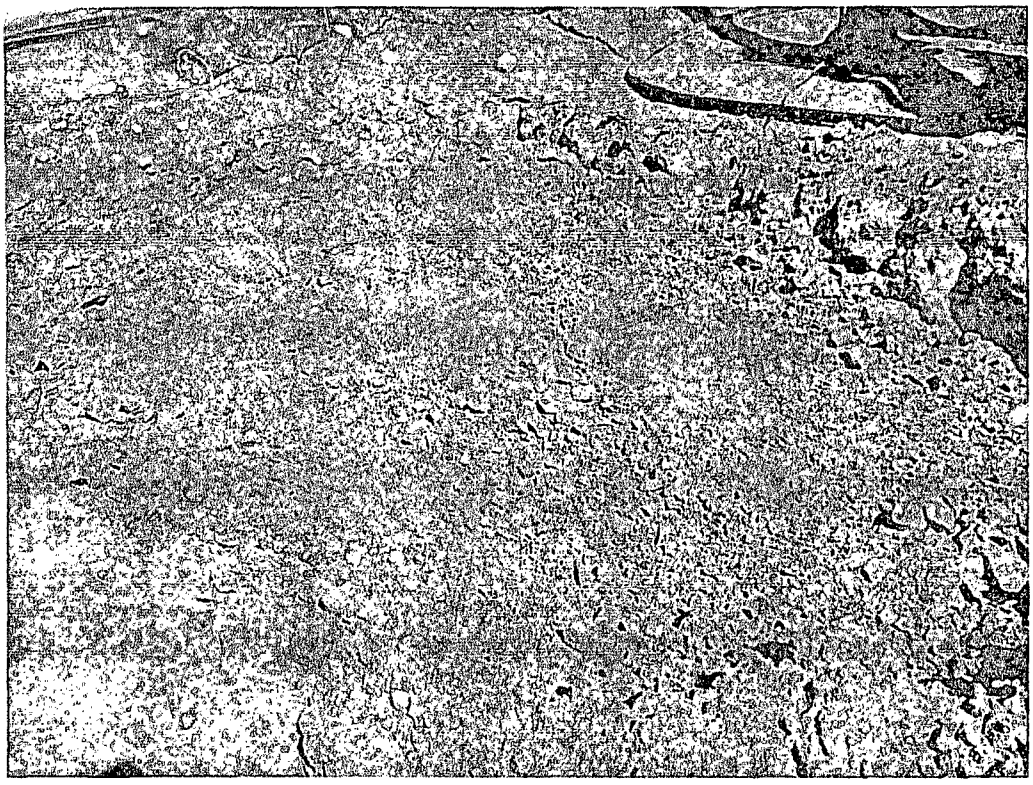
View Northeast – Area of AH-9



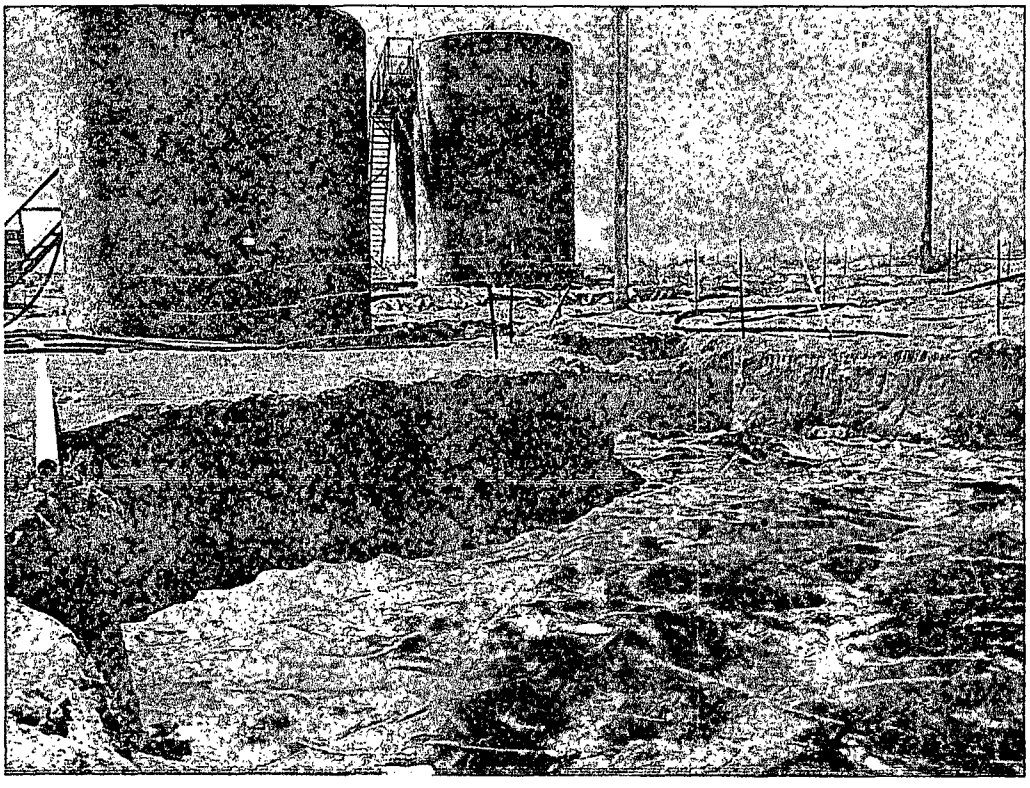
View Northeast – Area of AH-12

COG Operating LLC
F.M. Robinson Tank Battery
Eddy County, New Mexico

TETRA TECH



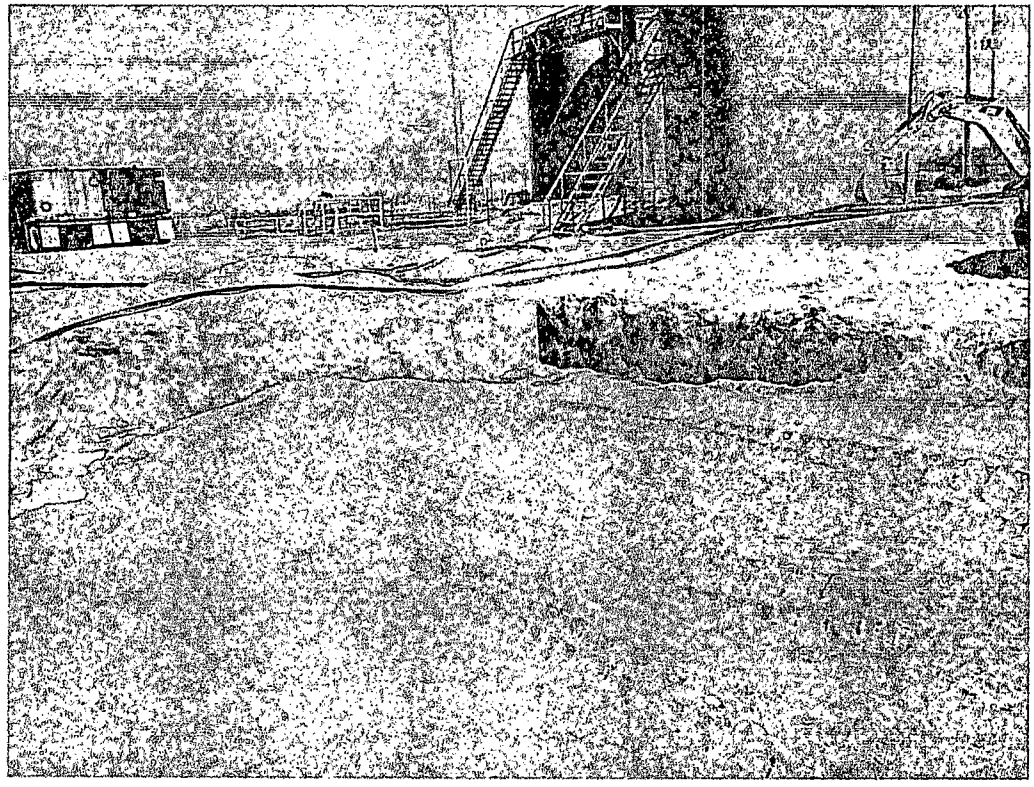
View South – Clay cap in area of AH-6



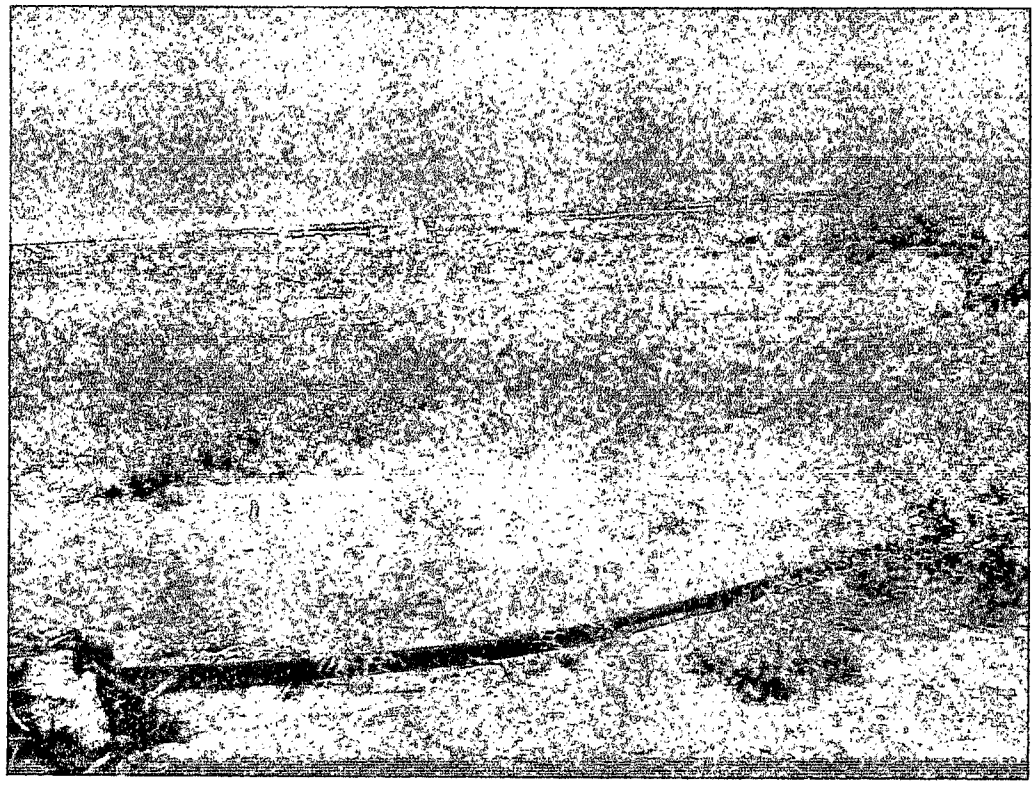
View Northeast – Liner installed in area of AH-7

COG Operating LLC
F.M. Robinson Tank Battery
Eddy County, New Mexico

TETRA TECH



View Northeast – Backfill of AH-7



View Northwest – Backfill of AH-10 and AH-12

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
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised 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	**Pat Ellis**
Address	**600 West Illinois Avenue, Midland, TX 79701**	Telephone No.	**(432) 230-0077**
Facility Name	F.M. Robinson #001	Facility Type	Tank Battery

Surface Owner: State	Mineral Owner	Lease No. (API#)30-015-22037

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	27	17S	29E					Eddy

Latitude N32.8077° **Longitude** W104.0690°

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 30 bbls oil 180 bbls produced water	Volume Recovered 29 bbls oil 176 bbls produced water
	Date and Hour of Occurrence 1/31/2013	Date and Hour of Discovery 1/31/2013 1:30 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom? Michelle Mullins	Date and Hour 2/1/2013 8:20 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A power outage occurred causing the high level alarm to fail, allowing the water tank to overflow at the facility. Power to the facility has been restored.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spill extents. Soil that exceeded the RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike Tavarez@tetratech.com	Conditions of Approval:	Attached ☐
Date: 10-25-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised 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	Pat Ellis
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	F.M ROBINSON #001	Facility Type	TANK BATTERY

Surface Owner STATE	Mineral Owner	Lease No. (API#) 30-015-22037

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	27	17S	29E					EDDY

Latitude 32.8077 **Longitude** 104.0690

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 30bbls oil 180bbls produced water	Volume Recovered 29bbls 176bbls produced water
Source of Release Produced water tank	Date and Hour of Occurrence 01/31/2013	Date and Hour of Discovery 01/31/2013 1:30p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins	Date and Hour 02/1/2013 8:20a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A power outage occurred causing the high level alarm to fail, allowing the water tank to overflow at the facility. Power has been restored to the facility.

Describe Area Affected and Cleanup Action Taken.*

Initially 210bbls of produced fluid were released into the lined facility. We were able to recover 205bbls of fluid with a vacuum truck. The majority of the release remained inside the facility walls; some of the fluid overflowed the dike walls and flowed into the adjacent pasture area. All free fluid has been recovered. Tetra Tech will sample the spill site area in the pasture to delineate any possible contamination from the release and we will present a 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: Josh Russo	Approved by District Supervisor:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@concho.com	Conditions of Approval:	Attached ☐
Date: 02/11/2013 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-F.M. Robinson #1 Tank Battery
Eddy County, New Mexico

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 **61**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **79**	23	24
30	29	28	27	26	25
31	32	33	34	35 **258**	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27 SITE	26	25
31	32	33	34	35 153	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 28 East

6	5	4 **108**	3	2	1
7 **49**	8 **69**	9	10	11	12
18	17	16	15	14	13
19	20	21 **226**	22	23	24
49	29	28	27	26	25
31	32	33	34	35 **65**	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: May 15, 2013

Work Order: 13050940

Project Location: Eddy Co., NM
Project Name: COG/F. M. Robinson #1 SWD
Project Number: 112C05054

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
328677	SB-1 @ AH-1 0-1'	soil	2013-04-29	00:00	2013-05-09
328678	SB-1 @ AH-1 2-3'	soil	2013-04-29	00:00	2013-05-09
328679	SB-1 @ AH-1 4-5'	soil	2013-04-29	00:00	2013-05-09
328680	SB-1 @ AH-1 6-7'	soil	2013-04-29	00:00	2013-05-09
328681	SB-1 @ AH-1 9-10'	soil	2013-04-29	00:00	2013-05-09
328682	SB-1 @ AH-1 14-15'	soil	2013-04-29	00:00	2013-05-09
328683	SB-1 @ AH-1 19-20'	soil	2013-04-29	00:00	2013-05-09
328684	SB-1 @ AH-1 24-25'	soil	2013-04-29	00:00	2013-05-09
328685	SB-2 @ AH-6 0-1'	soil	2013-04-30	00:00	2013-05-09
328686	SB-2 @ AH-6 2-3'	soil	2013-04-30	00:00	2013-05-09
328687	SB-2 @ AH-6 4-5'	soil	2013-04-30	00:00	2013-05-09
328688	SB-2 @ AH-6 6-7'	soil	2013-04-30	00:00	2013-05-09
328689	SB-2 @ AH-6 9-10'	soil	2013-04-30	00:00	2013-05-09
328690	SB-2 @ AH-6 14-15'	soil	2013-04-30	00:00	2013-05-09
328691	SB-2 @ AH-6 19-20'	soil	2013-04-30	00:00	2013-05-09
328692	SB-2 @ AH-6 24-25'	soil	2013-04-30	00:00	2013-05-09
328693	SB-2 @ AH-6 29-30'	soil	2013-04-30	00:00	2013-05-09
328694	SB-2 @ AH-6 39-40'	soil	2013-04-30	00:00	2013-05-09
328695	SB-2 @ AH-6 49-50'	soil	2013-04-30	00:00	2013-05-09
328697	SB-3 @ AH-7 0-1'	soil	2013-04-30	00:00	2013-05-09
328698	SB-3 @ AH-7 2-3'	soil	2013-04-30	00:00	2013-05-09
328699	SB-3 @ AH-7 4-5'	soil	2013-04-30	00:00	2013-05-09
328700	SB-3 @ AH-7 6-7'	soil	2013-04-30	00:00	2013-05-09
328701	SB-3 @ AH-7 9-10'	soil	2013-04-30	00:00	2013-05-09
328702	SB-3 @ AH-7 14-15'	soil	2013-04-30	00:00	2013-05-09
328703	SB-3 @ AH-7 19-20'	soil	2013-04-30	00:00	2013-05-09
328704	SB-3 @ AH-7 24-25'	soil	2013-04-30	00:00	2013-05-09
328705	SB-3 @ AH-7 29-30'	soil	2013-04-30	00:00	2013-05-09
328706	SB-3 @ AH-7 39-40'	soil	2013-04-30	00:00	2013-05-09
328707	SB-3 @ AH-7 49-50'	soil	2013-04-30	00:00	2013-05-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
328708	SB-4 @ AH-9 0-1'	soil	2013-04-30	00:00	2013-05-09
328709	SB-4 @ AH-9 2-3'	soil	2013-04-30	00:00	2013-05-09
328710	SB-4 @ AH-9 4-5'	soil	2013-04-30	00:00	2013-05-09
328711	SB-4 @ AH-9 6-7'	soil	2013-04-30	00:00	2013-05-09
328712	SB-4 @ AH-9 9-10'	soil	2013-04-30	00:00	2013-05-09
328713	SB-4 @ AH-9 14-15'	soil	2013-04-30	00:00	2013-05-09
328714	SB-4 @ AH-9 19-20'	soil	2013-04-30	00:00	2013-05-09
328715	SB-4 @ AH-9 24-25'	soil	2013-04-30	00:00	2013-05-09
328716	SB-4 @ AH-9 29-30'	soil	2013-04-30	00:00	2013-05-09
328717	SB-4 @ AH-9 39-40'	soil	2013-04-30	00:00	2013-05-09

Sample: 328677 - SB-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**1640**	mg/Kg	4

Sample: 328678 - SB-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**3470**	mg/Kg	4

Sample: 328679 - SB-1 @ AH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		**726**	mg/Kg	4

Sample: 328680 - SB-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**792**	mg/Kg	4

Sample: 328681 - SB-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**1030**	mg/Kg	4

Sample: 328682 - SB-1 @ AH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		**150**	mg/Kg	4

Sample: 328683 - SB-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		**170**	mg/Kg	4

Sample: 328684 - SB-1 @ AH-1 24-25'

Param	Flag	Result	Units	RL
Chloride		**184**	mg/Kg	4

Sample: 328685 - SB-2 @ AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**3380**	mg/Kg	4

Sample: 328686 - SB-2 @ AH-6 2-3'

Param	Flag	Result	Units	RL
Chloride		**1050**	mg/Kg	4

Sample: 328687 - SB-2 @ AH-6 4-5'

Param	Flag	Result	Units	RL
Chloride		**2120**	mg/Kg	4

Sample: 328688 - SB-2 @ AH-6 6-7'

Param	Flag	Result	Units	RL
Chloride		**5140**	mg/Kg	4

Sample: 328689 - SB-2 @ AH-6 9-10'

Param	Flag	Result	Units	RL
Chloride		**6360**	mg/Kg	4

Sample: 328690 - SB-2 @ AH-6 14-15'

Param	Flag	Result	Units	RL
Chloride		**5220**	mg/Kg	4

Sample: 328691 - SB-2 @ AH-6 19-20'

Param	Flag	Result	Units	RL
Chloride		**4900**	mg/Kg	4

Sample: 328692 - SB-2 @ AH-6 24-25'

Param	Flag	Result	Units	RL
Chloride		**6880**	mg/Kg	4

Sample: 328693 - SB-2 @ AH-6 29-30'

Param	Flag	Result	Units	RL
Chloride		**8320**	mg/Kg	4

Sample: 328694 - SB-2 @ AH-6 39-40'

Param	Flag	Result	Units	RL
Chloride		**1300**	mg/Kg	4

Sample: 328695 - SB-2 @ AH-6 49-50'

Param	Flag	Result	Units	RL
Chloride		**356**	mg/Kg	4

Sample: 328697 - SB-3 @ AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**681**	mg/Kg	4

Sample: 328698 - SB-3 @ AH-7 2-3'

Param	Flag	Result	Units	RL
Chloride		**844**	mg/Kg	4

Sample: 328699 - SB-3 @ AH-7 4-5'

Param	Flag	Result	Units	RL
Chloride		**2240**	mg/Kg	4

Sample: 328700 - SB-3 @ AH-7 6-7'

Param	Flag	Result	Units	RL
Chloride		**5400**	mg/Kg	4

Sample: 328701 - SB-3 @ AH-7 9-10'

Param	Flag	Result	Units	RL
Chloride		**3410**	mg/Kg	4

Sample: 328702 - SB-3 @ AH-7 14-15'

Param	Flag	Result	Units	RL
Chloride		**3010**	mg/Kg	4

Sample: 328703 - SB-3 @ AH-7 19-20'

Param	Flag	Result	Units	RL
Chloride		**1850**	mg/Kg	4

Sample: 328704 - SB-3 @ AH-7 24-25'

Param	Flag	Result	Units	RL
Chloride		**869**	mg/Kg	4

Sample: 328705 - SB-3 @ AH-7 29-30'

Param	Flag	Result	Units	RL
Chloride		**790**	mg/Kg	4

Sample: 328706 - SB-3 @ AH-7 39-40'

Param	Flag	Result	Units	RL
Chloride		**339**	mg/Kg	4

Sample: 328707 - SB-3 @ AH-7 49-50'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 328708 - SB-4 @ AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		**618**	mg/Kg	4

Sample: 328709 - SB-4 @ AH-9 2-3'

Param	Flag	Result	Units	RL
Chloride		**707**	mg/Kg	4

Sample: 328710 - SB-4 @ AH-9 4-5'

Param	Flag	Result	Units	RL
Chloride		**1540**	mg/Kg	4

Sample: 328711 - SB-4 @ AH-9 6-7'

Param	Flag	Result	Units	RL
Chloride		**3730**	mg/Kg	4

Sample: 328712 - SB-4 @ AH-9 9-10'

Param	Flag	Result	Units	RL
Chloride		**2560**	mg/Kg	4

Sample: 328713 - SB-4 @ AH-9 14-15'

Param	Flag	Result	Units	RL
Chloride		**2860**	mg/Kg	4

Sample: 328714 - SB-4 @ AH-9 19-20'

Param	Flag	Result	Units	RL
Chloride		**1530**	mg/Kg	4

Sample: 328715 - SB-4 @ AH-9 24-25'

Param	Flag	Result	Units	RL
Chloride		**873**	mg/Kg	4

Sample: 328716 - SB-4 @ AH-9 29-30'

Param	Flag	Result	Units	RL
Chloride		**397**	mg/Kg	4

Sample: 328717 - SB-4 @ AH-9 39-40'

Param	Flag	Result	Units	RL
Chloride		**357**	mg/Kg	4

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: February 25, 2013

Work Order: 13021530

Project Location: Eddy Co., NM
Project Name: COG/F. M. Robinson #1 SWD
Project Number: 112C05054

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
321292	AH-1 0-1'	soil	2013-02-13	00:00	2013-02-15
321293	AH-1 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321294	AH-1 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321295	AH-1 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321296	AH-1 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321297	AH-1 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321298	AH-1 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321299	AH-1 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321300	AH-1 8-8.5'	soil	2013-02-13	00:00	2013-02-15
321301	AH-1 9-9.5'	soil	2013-02-13	00:00	2013-02-15
321302	AH-2 0-1'	soil	2013-02-13	00:00	2013-02-15
321303	AH-2 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321304	AH-2 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321305	AH-2 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321306	AH-2 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321307	AH-2 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321308	AH-2 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321309	AH-3 0-1'	soil	2013-02-13	00:00	2013-02-15
321310	AH-3 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321311	AH-3 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321312	AH-3 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321313	AH-3 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321314	AH-3 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321315	AH-3 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321316	AH-3 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321317	AH-3 8-8.5'	soil	2013-02-13	00:00	2013-02-15
321318	AH-3 9-9.5'	soil	2013-02-13	00:00	2013-02-15
321319	AH-4 0-1'	soil	2013-02-13	00:00	2013-02-15
321320	AH-4 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321321	AH-4 2-2.5'	soil	2013-02-13	00:00	2013-02-15

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
321322	AH-4 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321323	AH-4 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321324	AH-4 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321325	AH-4 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321326	AH-4 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321327	AH-5 0-1'	soil	2013-02-13	00:00	2013-02-15
321328	AH-5 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321329	AH-5 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321330	AH-5 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321331	AH-5 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321332	AH-5 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321333	AH-5 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321334	AH-5 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321335	AH-6 0-1'	soil	2013-02-13	00:00	2013-02-15
321336	AH-6 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321337	AH-6 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321338	AH-6 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321339	AH-6 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321340	AH-6 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321341	AH-6 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321342	AH-6 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321343	AH-7 0-1'	soil	2013-02-13	00:00	2013-02-15
321344	AH-7 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321345	AH-7 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321346	AH-7 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321347	AH-7 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321348	AH-7 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321349	AH-7 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321350	AH-7 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321351	AH-7 7.5-8'	soil	2013-02-13	00:00	2013-02-15
321352	AH-8 0-1'	soil	2013-02-13	00:00	2013-02-15
321353	AH-8 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321354	AH-8 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321355	AH-8 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321356	AH-8 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321357	AH-9 0-1'	soil	2013-02-13	00:00	2013-02-15
321358	AH-9 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321359	AH-9 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321360	AH-9 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321361	AH-9 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321362	AH-9 5-5.5'	soil	2013-02-13	00:00	2013-02-15
321363	AH-9 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321364	AH-9 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321365	AH-10 0-1'	soil	2013-02-13	00:00	2013-02-15
321366	AH-10 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321367	AH-10 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321368	AH-10 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321369	AH-10 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321370	AH-10 5-5.5'	soil	2013-02-13	00:00	2013-02-15

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
321371	AH-10 6-6.5'	soil	2013-02-13	00:00	2013-02-15
321372	AH-10 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321373	AH-10 8-8.5'	soil	2013-02-13	00:00	2013-02-15
321374	AH-10 9-9.5'	soil	2013-02-13	00:00	2013-02-15
321375	AH-11 0-1'	soil	2013-02-13	00:00	2013-02-15
321376	AH-11 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321377	AH-11 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321378	AH-11 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321379	AH-12 0-1'	soil	2013-02-13	00:00	2013-02-15
321380	AH-12 1-1.5'	soil	2013-02-13	00:00	2013-02-15
321381	AH-12 2-2.5'	soil	2013-02-13	00:00	2013-02-15
321382	AH-12 3-3.5'	soil	2013-02-13	00:00	2013-02-15
321383	AH-12 4-4.5'	soil	2013-02-13	00:00	2013-02-15
321384	AH-2 7-7.5'	soil	2013-02-13	00:00	2013-02-15
321385	AH-2 8-8.5'	soil	2013-02-13	00:00	2013-02-15
321386	AH-2 9-9.5'	soil	2013-02-13	00:00	2013-02-15

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
321292 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**5.46** Qs
321302 - AH-2 0-1'	<0.0400 [1]	<0.0400	<0.0400	**0.256**	**453**	**71.8** Qs
321309 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
321319 - AH-4 0-1'	<0.400 [2]	<0.400	<0.400	<0.400	**2800**	<80.0
321327 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**133**	**8.95**
321335 - AH-6 0-1'	<0.0400 [3]	<0.0400	<0.0400	<0.0400	**953**	**98.7**
321343 - AH-7 0-1'	<0.100 [4]	<0.100	<0.100	<0.100	**90.7**	<20.0 [5]
321352 - AH-8 0-1'	<1.00 [6]	<1.00	<1.00	<1.00	**4310**	<200
321357 - AH-9 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
321365 - AH-10 0-1'	<0.400 [7]	**5.76**	**11.6**	**21.9**	**964** Qs	**626**
321375 - AH-11 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**76.4** Qs	**4.91**
321379 - AH-12 0-1'	**3.93**	**52.9**	**47.5**	**77.5**	**1290** Qs	**1800**
321380 - AH-12 1-1.5'	<0.100 [8] Qs	**2.26** Qs	**8.28** Qs	**14.2** Qs		

Sample: 321292 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**6650**	mg/Kg	4

Sample: 321293 - AH-1 1-1.5'

[1]Dilution due to hydrocarbons.
[2]Dilution due to surfactant.
[3]Dilution due to hydrocarbons.
[4]Dilution due to surfactant.
[5]Dilution due to surfactant.
[6]Dilution due to surfactants.
[7]Dilution due to hydrocarbons.
[8]Dilution due to hydrocarbons.

Param	Flag	Result	Units	RL
Chloride		**3770**	mg/Kg	4

Sample: 321294 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2250**	mg/Kg	4

Sample: 321295 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**82.6**	mg/Kg	4

Sample: 321296 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**82.6**	mg/Kg	4

Sample: 321297 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**48.6**	mg/Kg	4

Sample: 321298 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**287**	mg/Kg	4

Sample: 321299 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**845**	mg/Kg	4

Sample: 321300 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**1660**	mg/Kg	4

Sample: 321301 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**1700**	mg/Kg	4

Sample: 321302 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**1260**	mg/Kg	4

Sample: 321303 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**379**	mg/Kg	4

Sample: 321304 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**818**	mg/Kg	4

Sample: 321305 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**639**	mg/Kg	4

Sample: 321306 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**459**	mg/Kg	4

Sample: 321307 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**409**	mg/Kg	4

Sample: 321308 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**245**	mg/Kg	4

Sample: 321309 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**1800**	mg/Kg	4

Sample: 321310 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**524**	mg/Kg	4

Sample: 321311 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**519**	mg/Kg	4

Sample: 321312 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1030**	mg/Kg	4

Sample: 321313 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1040**	mg/Kg	4

Sample: 321314 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1020**	mg/Kg	4

Sample: 321315 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**520**	mg/Kg	4

Sample: 321316 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**303**	mg/Kg	4

Sample: 321317 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**243**	mg/Kg	4

Sample: 321318 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**263**	mg/Kg	4

Sample: 321319 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**1530**	mg/Kg	4

Sample: 321320 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**450**	mg/Kg	4

Sample: 321321 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**692**	mg/Kg	4

Sample: 321322 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**477**	mg/Kg	4

Sample: 321323 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**391**	mg/Kg	4

Sample: 321324 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**66.0**	mg/Kg	4

Sample: 321325 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**335**	mg/Kg	4

Sample: 321326 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**173**	mg/Kg	4

Sample: 321327 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**3880**	mg/Kg	4

Sample: 321328 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**543**	mg/Kg	4

Sample: 321329 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**3800**	mg/Kg	4

Sample: 321330 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**589**	mg/Kg	4

Sample: 321331 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**497**	mg/Kg	4

Sample: 321332 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**452**	mg/Kg	4

Sample: 321333 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**221**	mg/Kg	4

Sample: 321334 - AH-5 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**126**	mg/Kg	4

Sample: 321335 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**50.2**	mg/Kg	4

Sample: 321336 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**201**	mg/Kg	4

Sample: 321337 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**306**	mg/Kg	4

Sample: 321338 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**467**	mg/Kg	4

Sample: 321339 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2890**	mg/Kg	4

Sample: 321340 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**4570**	mg/Kg	4

Sample: 321341 - AH-6 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**4180**	mg/Kg	4

Sample: 321342 - AH-6 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**5220**	mg/Kg	4

Sample: 321343 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**963**	mg/Kg	4

Sample: 321344 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1330**	mg/Kg	4

Sample: 321345 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2580**	mg/Kg	4

Sample: 321346 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**4010**	mg/Kg	4

Sample: 321347 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**5940**	mg/Kg	4

Sample: 321348 - AH-7 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**6160**	mg/Kg	4

Sample: 321349 - AH-7 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**3160**	mg/Kg	4

Sample: 321350 - AH-7 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**3340**	mg/Kg	4

Sample: 321351 - AH-7 7.5-8'

Param	Flag	Result	Units	RL
Chloride		**2500**	mg/Kg	4

Sample: 321352 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**90.9**	mg/Kg	4

Sample: 321353 - AH-8 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**263**	mg/Kg	4

Sample: 321354 - AH-8 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**177**	mg/Kg	4

Sample: 321355 - AH-8 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**273**	mg/Kg	4

Sample: 321356 - AH-8 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**409**	mg/Kg	4

Sample: 321357 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		**419**	mg/Kg	4

Sample: 321358 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**586**	mg/Kg	4

Sample: 321359 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 321360 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 321361 - AH-9 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2520**	mg/Kg	4

Sample: 321362 - AH-9 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1730**	mg/Kg	4

Sample: 321363 - AH-9 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**4110**	mg/Kg	4

Sample: 321364 - AH-9 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**3830**	mg/Kg	4

Sample: 321365 - AH-10 0-1'

Param	Flag	Result	Units	RL
Chloride		**1830**	mg/Kg	4

Sample: 321366 - AH-10 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**271**	mg/Kg	4

Sample: 321367 - AH-10 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**227**	mg/Kg	4

Sample: 321368 - AH-10 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**367**	mg/Kg	4

Sample: 321369 - AH-10 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**991**	mg/Kg	4

Sample: 321370 - AH-10 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**648**	mg/Kg	4

Sample: 321371 - AH-10 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**474**	mg/Kg	4

Sample: 321372 - AH-10 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**303**	mg/Kg	4

Sample: 321373 - AH-10 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**323**	mg/Kg	4

Sample: 321374 - AH-10 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**499**	mg/Kg	4

Sample: 321375 - AH-11 0-1'

Param	Flag	Result	Units	RL
Chloride		**34.2**	mg/Kg	4

Sample: 321376 - AH-11 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**196**	mg/Kg	4

Sample: 321377 - AH-11 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**48.9**	mg/Kg	4

Sample: 321378 - AH-11 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**53.8**	mg/Kg	4

Sample: 321379 - AH-12 0-1'

Param	Flag	Result	Units	RL
Chloride		**103**	mg/Kg	4

Sample: 321380 - AH-12 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 321381 - AH-12 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 321382 - AH-12 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**127**	mg/Kg	4

Sample: 321383 - AH-12 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**468**	mg/Kg	4

Sample: 321384 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**463**	mg/Kg	4

Sample: 321385 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**399**	mg/Kg	4

Sample: 321386 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**302**	mg/Kg	4