SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	**Choctaw State #1 Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit A**	**Sec 16**	**T17S**	**R31E**		
Lease Number:	**API-30-015-24011**					
County:	**Eddy County**					
GPS:	**32.83886° N**			**103.86983° W**		
Surface Owner:	**State**					
Mineral Owner:						
Directions:	West of Maljamar at the intersection of Hwy 82 and CR 223, travel north on CR 223 for 0.8 miles, stay the the right and travel 0.4 miles, turn right (east) and travel 0.1 mile, turn left (north) and travel 0.2 miles staying to the right. Continue straight and travel 0.2 miles, turn left (west) and travel to the site.					

Release Data:

Date Released:	2/26/2013
Type Release:	Oil and Produced Water
Source of Contamination:	Love-Joy coupling on the water transfer pump
Fluid Released:	25 bbls
Fluids Recovered:	23 bbls

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AUG 23 2013
NMOCD ARTESIA

Official Communication:

Name:	Pat Ellis		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:	pellis@conchoresources.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

July 17, 2013

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

Re: Closure Report for the COG Operating LLC., Choctaw State #1 Tank Battery, Unit A, Section 16, Township 17 South, Range 31 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 Choctaw State #1 Tank Battery located in Unit A, Section 16, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.83886°, W 103.86983°. 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 February 26, 2013, and released approximately twenty five (25) barrels of produced fluid from a broken coupling on the water transfer pump. To alleviate the problem, COG personnel replaced the coupling. Twenty-three (23) barrels of standing fluids were recovered. The spill initiated inside the tank battery affecting an area 15' X 65, breached the firewall onto the pad measuring 10' x 50' and migrated into the pasture affecting an area approximately 25' x 50', 20' x 30' and 10' x 20'. The inital C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 16. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 250' 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 March 20, 2013, Tetra Tech personnel inspected and sampled the spill area. Seven (7) auger holes (AH-1 through AH-7) 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 samples exceeded the RRAL for TPH. The area of AH-2 did show a total BTEX above the RRAL of 90.6 mg/kg, but declined below the RRAL at 1'-1.5' below surface.

Elevated chloride concentrations were detected in all auger holes. The auger holes (AH-1 and AH-2), installed inside the tank battery, were installed to a total depth of 9-9.5' below surface. Both areas did show a shallow impact (1.0' to 2.0') to the subsurface soils. However, the deeper samples showed chloride spikes at depth of 8.0' to 9.0' below surface, which appear to be historical. The area on the pad (AH-3) showed a chloride of 3,400 mg/kg at 0-1 and declined <20.0 mg/kg at 1-1.5' below surface. The remaining areas (AH-4. AH-5, AH-6 and AH-7) showed a deeper impact and vertically defined at depths ranging from 2.0' to 5.0' below surface.

On May 1, 2013, Tetra Tech supervised the installation of two (2) soil borings (SB-1 and SB-2) using an air rotary drilling rig to assess the soils. The soil bores were installed in the areas of AH-1 and AH-2 to define the vertical extents. Copies of the laboratory analysis chain-of-custody documentation are included in Appendix C. The soil boring results are summarized in Table 1 and shown on Figure 3.

Referring to Table 1, SB-1 (AH-1) showed a deeper impact to the soils with chlorides concentrations declining with depth to 371 mg/kg at 24-25' below surface. The chloride concentrations detected were not present in the area of AH-1, which

appears to be a chloride hotspot inside the dike. In addition, the area of SB-2 (AH-2) was vertically define declining to <20.0 mg/kg at 24-25' below surface.

Closure Activities

On July 1, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. In order to remove the hydrocarbons and chloride impacts, the excavation depths ranged from 1.0' to 5.0' below surface. The impacted areas within the tank battery were excavated to 2.0'-3.0' due to the proximity of lines and tanks in the area. A clay cap was them added in these areas (AH-1 and AH-2) to cap the remaining chloride impacts. The pad and pasture areas were excavated as approved in the work plan and removed the remaining impacted areas. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4. Approximately 375 cubic yards^3 of soil were removed and transported to R360 facility for proper disposal. The site was then backfilled with clean material to surface grade, ripped and seeded.

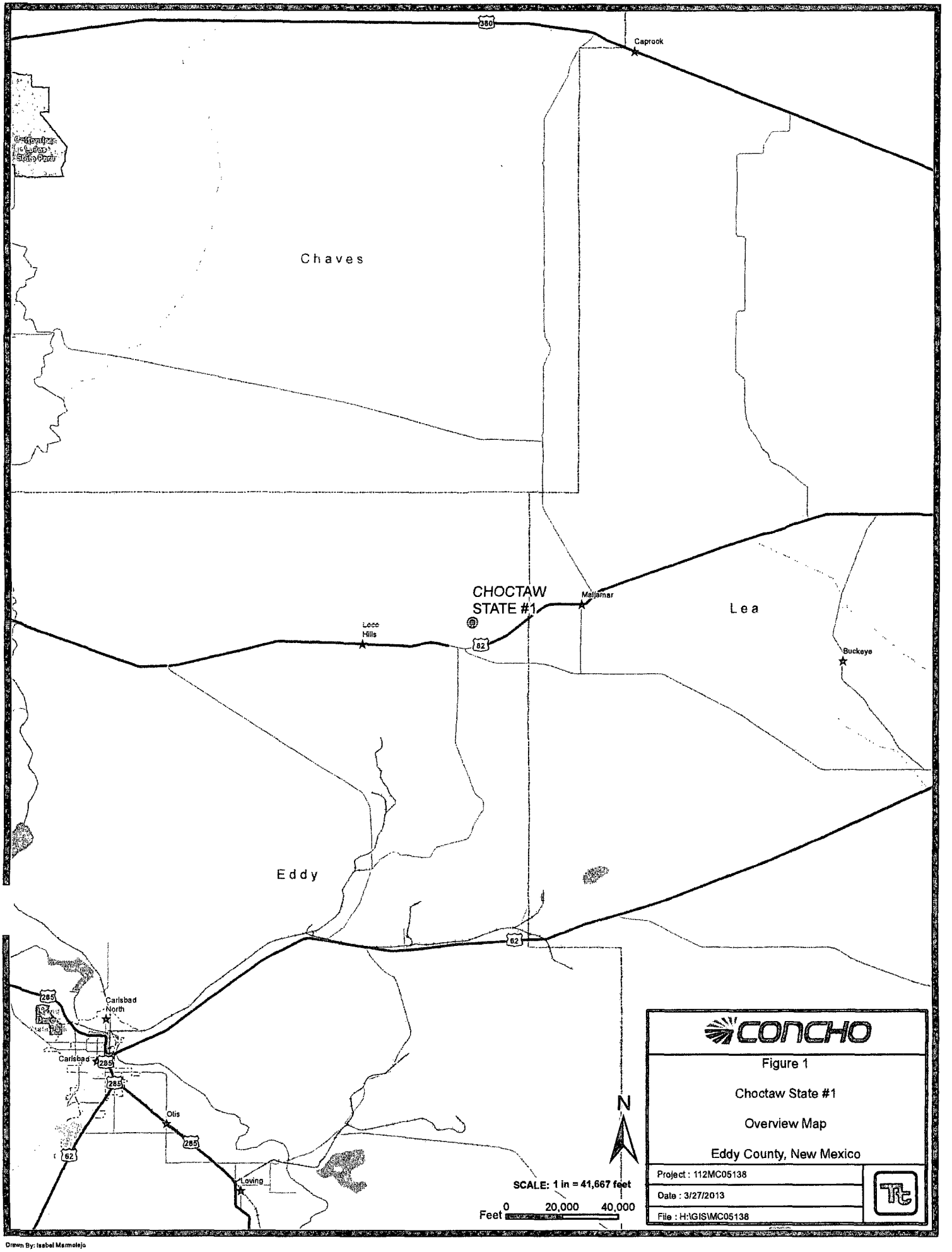
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

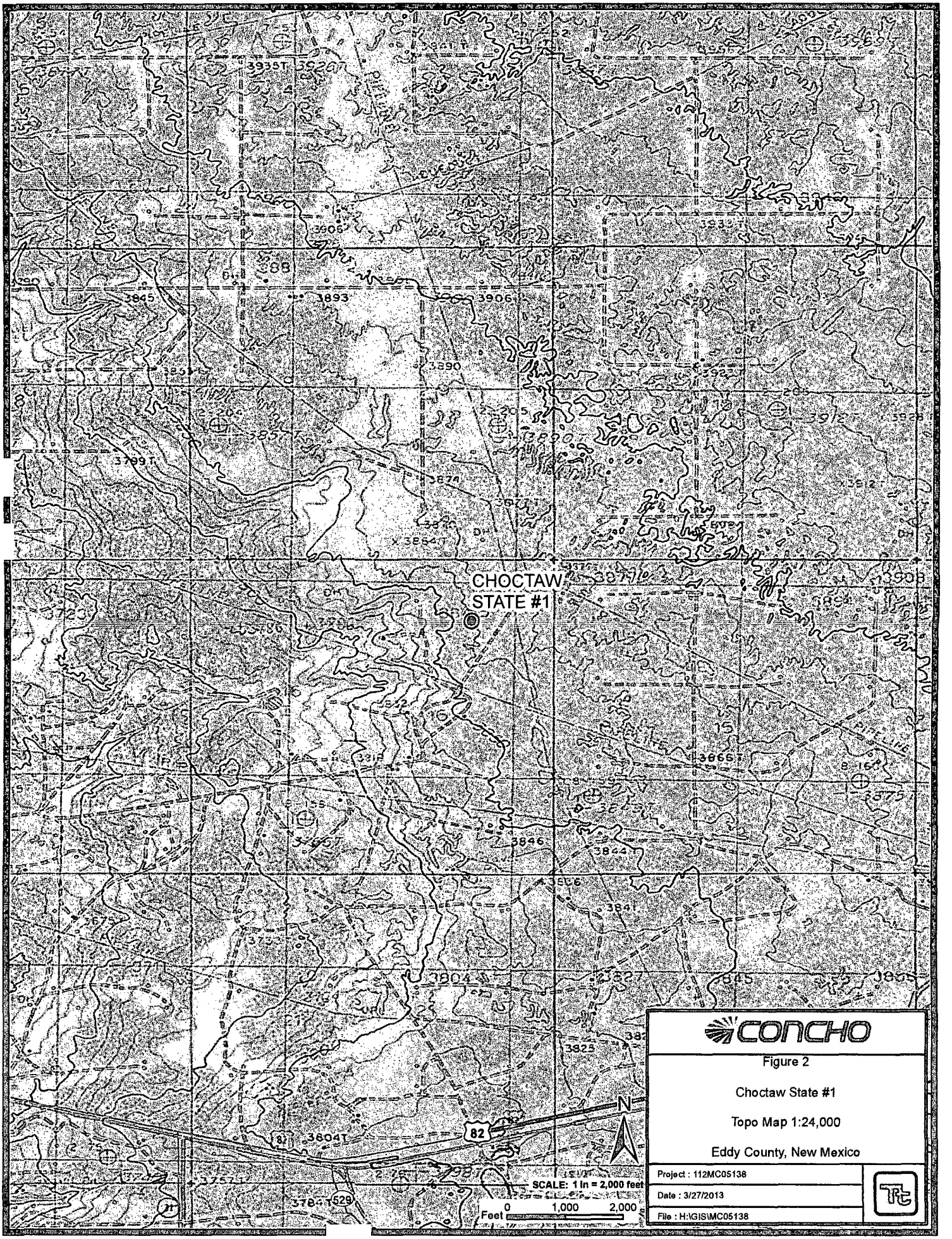
Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG

Figures



Drawn By: Isabel Marmolejo



CONCHO

Figure 2

Choctaw State #1

Topo Map 1:24,000

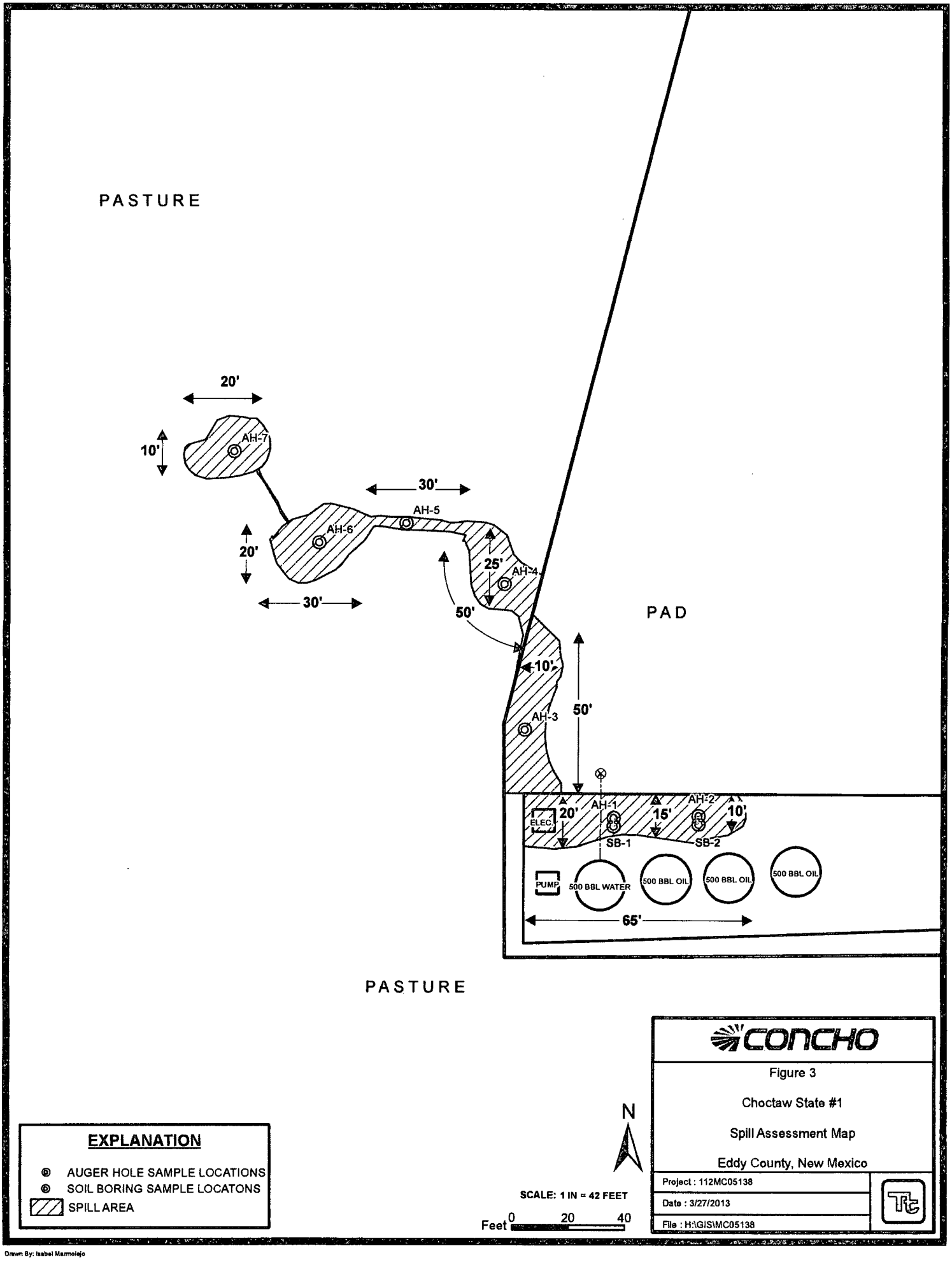
Eddy County, New Mexico

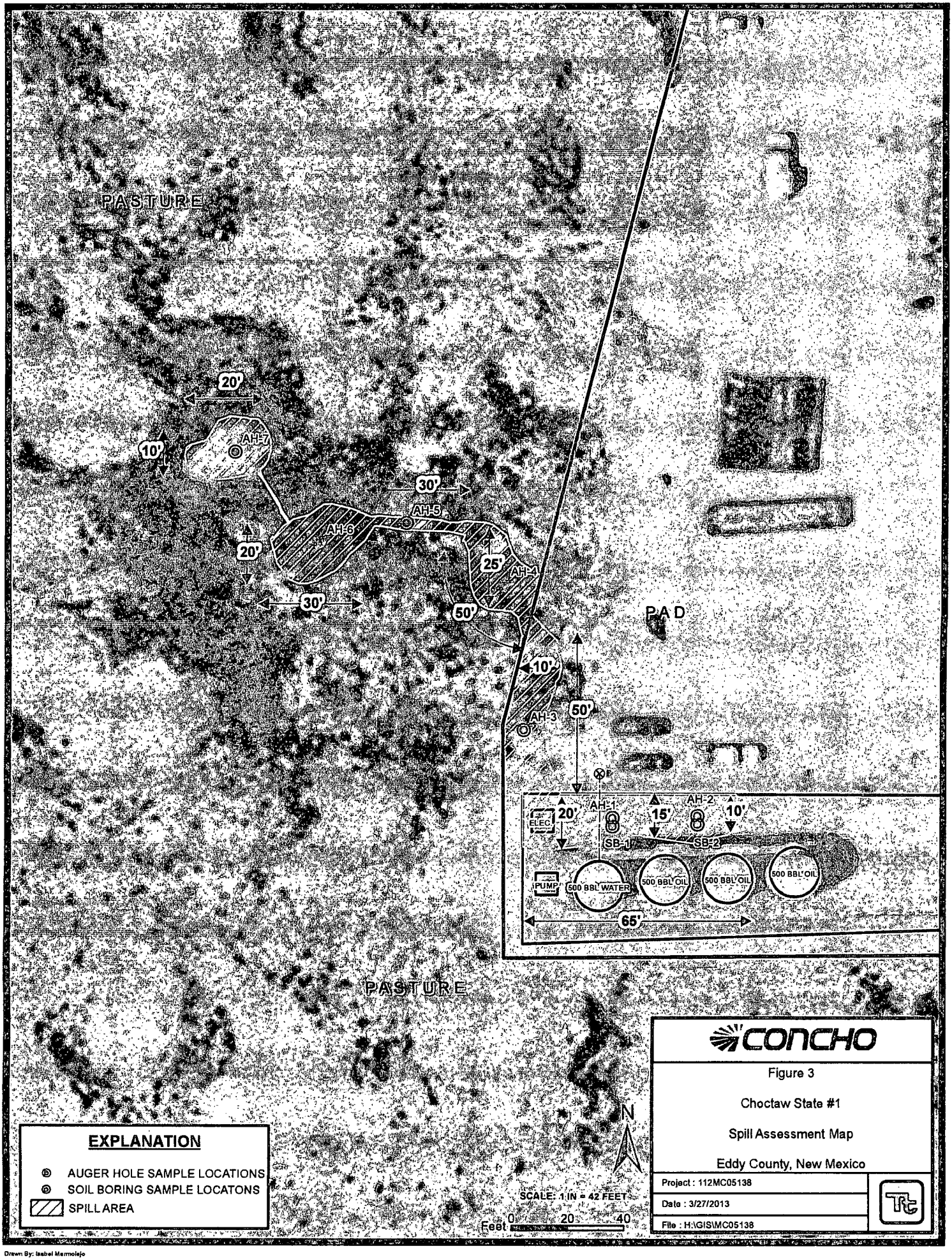
Project : 112MC05138

Date : 3/27/2013

File : H:\GIS\MC05138

Drawn By: Isabel Marmolejo


PASTURE
20'
10'
AH-7
30'
AH-5
AH-6
20'
25'
AH-4
30'
50'
PAD
10'
AH-3
50'
ELEC
20'
AH-1
15'
AH-2
10'
SB-1
SB-2
PUMP
500 BBL WATER
500 BBL OIL
500 BBL OIL
500 BBL OIL
65'
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SOIL BORING SAMPLE LOCATONS
SPILL AREA
N
SCALE: 1 IN = 42 FEET
Feet 0 20 40
CONCHO
Figure 3
Choctaw State #1
Spill Assessment Map
Eddy County, New Mexico
Project : 112MC05138
Date : 3/27/2013
File : H:\GIS\MC05138
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo

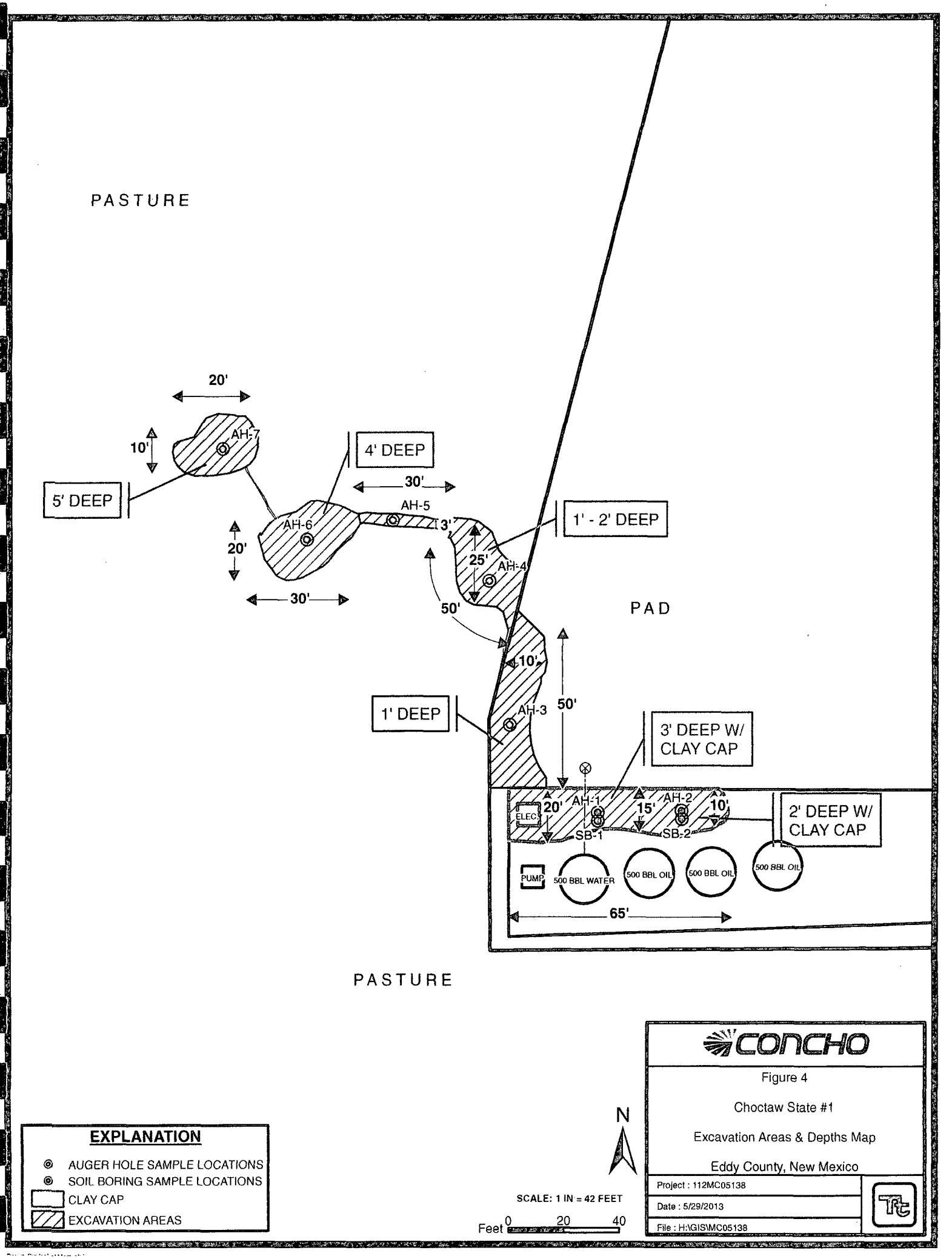

PASTURE
20'
10'
AH-7
5' DEEP
4' DEEP
30'
AH-5
AH-6
3'
1' - 2' DEEP
20'
25'
AH-4
30'
50'
PAD
10'
1' DEEP
AH-3
50'
3' DEEP W/
CLAY CAP
ELEC
20'
AH-1
15'
AH-2
10'
2' DEEP W/
CLAY CAP
SB-1
SB-2
PUMP
500 BBL WATER
500 BBL OIL
500 BBL OIL
500 BBL OIL
65'
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SOIL BORING SAMPLE LOCATIONS
CLAY CAP
EXCAVATION AREAS
N
SCALE: 1 IN = 42 FEET
Feet 0 20 40
CONCHO
Figure 4
Choctaw State #1
Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 112MC05138
Date : 5/29/2013
File : H:\GIS\MC05138

Table 1
COG Operating LLC.
Choctaw State #1
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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	3/20/2013	0-1	0.5		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	11,000
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	1,250
	"	2-2.5	"		X	-	-	-	-	-	-	-	-	356
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	247
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	54.4
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	84.1
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	7-7.5	"	X		-	-	-	-	-	-	-	-	297
	"	8-8.5	"	X		-	-	-	-	-	-	-	-	1,100
	"	9-9.5	"	X		-	-	-	-	-	-	-	-	4,320
SB-1	5/1/2013	0-1			X	-	-	-	-	-	-	-	-	16,300
	"	2-3			X	-	-	-	-	-	-	-	-	6,870
	"	4-5		X		-	-	-	-	-	-	-	-	1,900
	"	6-7		X		-	-	-	-	-	-	-	-	2,000
	"	9-10		X		-	-	-	-	-	-	-	-	2,110
	"	14-15		X		-	-	-	-	-	-	-	-	1,680
	"	19-20		X		-	-	-	-	-	-	-	-	1,140
	"	24-25		X		-	-	-	-	-	-	-	-	371
	"	29-30		X		-	-	-	-	-	-	-	-	628
	"	39-40		X		-	-	-	-	-	-	-	-	519
	"	49-50		X		-	-	-	-	-	-	-	-	340
	"	59-60		X		-	-	-	-	-	-	-	-	220
	"	69-70		X		-	-	-	-	-	-	-	-	230
	"	79-80		X		-	-	-	-	-	-	-	-	405

Table 1
COG Operating LLC.
Choctaw State #1
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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-2	3/20/2013	0-1	0.5		X	1,390	667	2,057	<0.400	16.6	33.5	40.5	90.6	3,270
	"	1-1.5	"		X	-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	894
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	7-7.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	8-8.5	"	X		-	-	-	-	-	-	-	-	427
	"	9-9.5	"	X		-	-	-	-	-	-	-	-	1,780
SB-2	5/1/2013	0-1			X	-	-	-	-	-	-	-	-	9,820
	"	2-3		X		-	-	-	-	-	-	-	-	6,060
	"	4-5		X		-	-	-	-	-	-	-	-	170
	"	6-7		X		-	-	-	-	-	-	-	-	50.0
	"	9-10		X		-	-	-	-	-	-	-	-	1,010
	"	14-15		X		-	-	-	-	-	-	-	-	855
	"	19-20		X		-	-	-	-	-	-	-	-	772
	"	24-25		X		-	-	-	-	-	-	-	-	<20.0
	"	29-30		X		-	-	-	-	-	-	-	-	130

Table 1
COG Operating LLC.
Choctaw State #1
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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	3/20/2013	0-1	0		X	80.4	249	329	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,400
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	30.1
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	150
	"	7-7.5	"	X		-	-	-	-	-	-	-	-	411
	"	8-8.5	"	X		-	-	-	-	-	-	-	-	551
	"	9-9.5	"	X		-	-	-	-	-	-	-	-	822
AH-4	3/20/2013	0-1	0		X	6.58	54.3	60.9	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,380
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	3,740
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	936
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<20.0
AH-5	3/20/2013	0-1	0.5		X	<4.00	76.4	76.4	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,730
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	1,010
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<20.0

Table 1
COG Operating LLC.
Choctaw State #1
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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	3/20/2013	0-1	1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,900
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	4,080
	"	2-2.5	"		X	-	-	-	-	-	-	-	-	7,410
	"	3-3.5	"		X	-	-	-	-	-	-	-	-	11,800
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	1,030
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	<20.0
AH-7	3/20/2013	0-1	1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,710
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	10,000
	"	2-2.5	"		X	-	-	-	-	-	-	-	-	14,400
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	552
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<20.0

(-) Not Analyzed

(BEB) Below Excavation Bottom

Excavation Depths

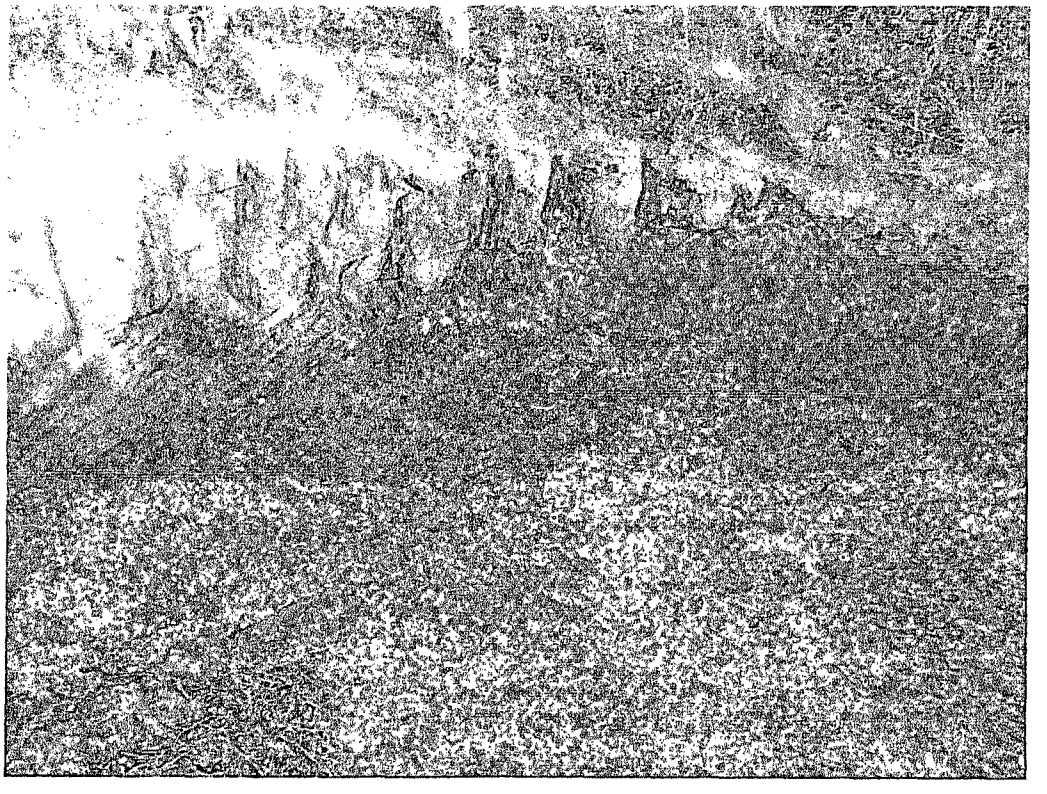
Clay Liner

Photos

COG Operating LLC
Choctaw State #1
Eddy County, New Mexico

TETRA TECH

View West– Excavated area of AH-1 and AH-2.

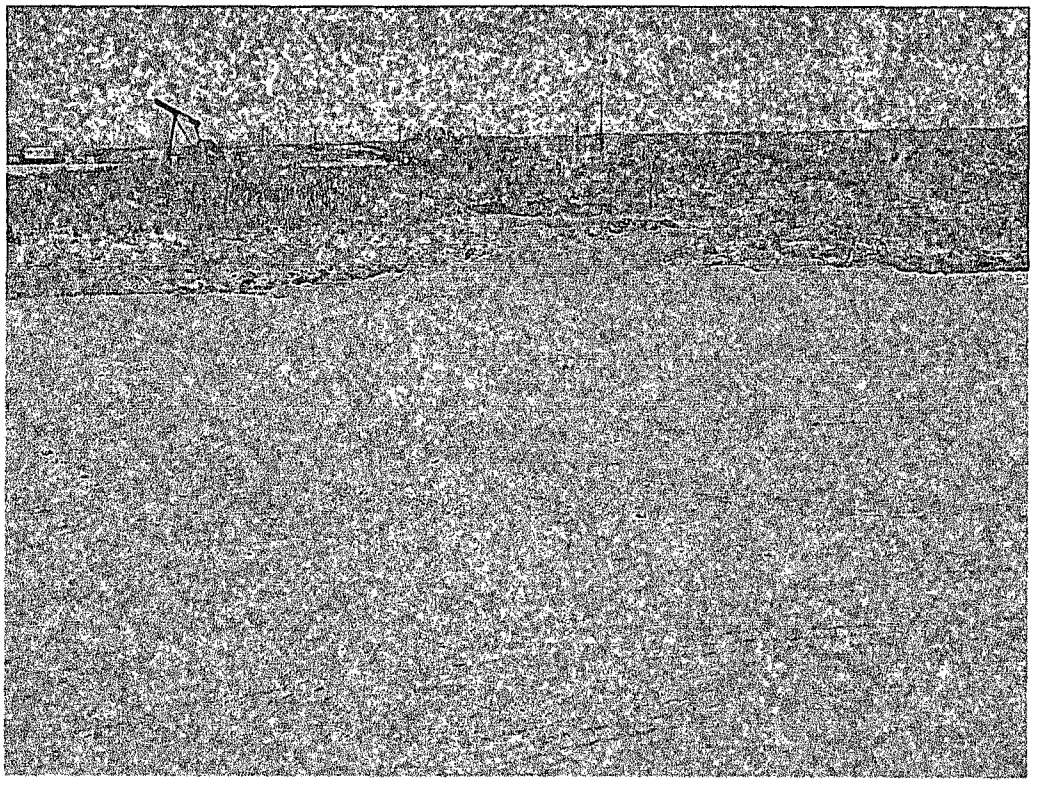


View West – Excavated area of AH-7

COG Operating LLC
Choctaw State #1
Eddy County, New Mexico

TETRA TECH

View West – Clay backfill of AH-1 and AH-2.



View West – Backfill on Pad.

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

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AUG 23 2013
NMOCD ARTESIA

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 W. Illinois Avenue, Midland, TX 79701**	Telephone No.	**(432) 230-0077**
Facility Name	**Choctaw State #001**	Facility Type	**Tank Battery**

Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-~~32815~~ 24011

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	16	17S	31E					Eddy

Latitude N 32.51975° **Longitude** W 104.37667°

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 5 bbls Oil 20 bbls Produced Water	Volume Recovered 5 bbls Oil 18 bbls Produced Water
Source of Release: Love-joy coupling on water transfer pump.	Date and Hour of Occurrence 02/26/2013	Date and Hour of Discovery 02/26/2013 5:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Mike Bratcher—OCD**	
By Whom? Michelle Mullins	Date and Hour 02/26/2013 10:02 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.*

The Love-joy coupling broke on the water transfer pump. The coupling has been replaced.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded 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	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 7-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

2RP-1581

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	CHOCTAW STATE #001	Facility Type	TANK BATTERY

Surface Owner STATE	Mineral Owner	Lease No. (API#) 30-015-24011

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	16	17S	31E					EDDY

Latitude 32.83909 **Longitude** 103.86941

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 5bbls Oil 20bbls Produced water	Volume Recovered 5bbls Oil 18bbls Produced water
Source of Release Love-joy coupling on water transfer pump	Date and Hour of Occurrence 02-26-2013	Date and Hour of Discovery 02-26-2013 5:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher - NMOCD	
By Whom? Michelle Mullins	Date and Hour 02-27-2013 10:02am	
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.*

The Love-joy coupling broke on the water transfer pump. We have replaced the Love-joy coupling.

Describe Area Affected and Cleanup Action Taken.*

Initially 5bbls of Oil and 20bbls of produced water were released from a cracked Love-joy coupling on the water transfer pump. We were able to recover 5bbls of Oil and 18bbls of produced water with a vacuum truck. The the release was contained inside the tank battery and the location. All free fluid has been recovered. Tetra Tech will sample the spill and 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: 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: 03-08-2013 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Choctaw State #1
Eddy County, New Mexico

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

16 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

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

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 SITE	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36

17 South 32 East

6	5	4 **82** Maljamar	3 **775**	2 **60**	1 **225**
7	8	9	10	11 **70** **88**	12 **120**
18	17	16	15	14	13
19	20	21	22	23	24
30 180 dry	29	28	27	26	25
31 Brown	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

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460** **82**	8	9	10	11	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31	32	33	34 **117**	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 14, 2013

Work Order: 13050939

Project Location: Eddy Co., NM
Project Name: COG/Choctaw State #1
Project Number: 112MC05138

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
328654	SB-1 @ AH-1 0-1'	soil	2013-05-01	00:00	2013-05-09
328655	SB-1 @ AH-1 2-3'	soil	2013-05-01	00:00	2013-05-09
328656	SB-1 @ AH-1 4-5'	soil	2013-05-01	00:00	2013-05-09
328657	SB-1 @ AH-1 6-7'	soil	2013-05-01	00:00	2013-05-09
328658	SB-1 @ AH-1 9-10'	soil	2013-05-01	00:00	2013-05-09
328659	SB-1 @ AH-1 14-15'	soil	2013-05-01	00:00	2013-05-09
328660	SB-1 @ AH-1 19-20'	soil	2013-05-01	00:00	2013-05-09
328661	SB-1 @ AH-1 24-25'	soil	2013-05-01	00:00	2013-05-09
328662	SB-1 @ AH-1 29-30'	soil	2013-05-01	00:00	2013-05-09
328663	SB-1 @ AH-1 39-40'	soil	2013-05-01	00:00	2013-05-09
328664	SB-1 @ AH-1 49-50'	soil	2013-05-01	00:00	2013-05-09
328665	SB-1 @ AH-1 59-60'	soil	2013-05-01	00:00	2013-05-09
328666	SB-1 @ AH-1 69-70'	soil	2013-05-01	00:00	2013-05-09
328667	SB-1 @ AH-1 79-80'	soil	2013-05-01	00:00	2013-05-09
328668	SB-2 @ AH-2 0-1'	soil	2013-05-01	00:00	2013-05-09
328669	SB-2 @ AH-2 2-3'	soil	2013-05-01	00:00	2013-05-09
328670	SB-2 @ AH-2 4-5'	soil	2013-05-01	00:00	2013-05-09
328671	SB-2 @ AH-2 6-7'	soil	2013-05-01	00:00	2013-05-09
328672	SB-2 @ AH-2 9-10'	soil	2013-05-01	00:00	2013-05-09
328673	SB-2 @ AH-2 14-15'	soil	2013-05-01	00:00	2013-05-09
328674	SB-2 @ AH-2 19-20'	soil	2013-05-01	00:00	2013-05-09
328675	SB-2 @ AH-2 24-25'	soil	2013-05-01	00:00	2013-05-09
328676	SB-2 @ AH-2 29-30'	soil	2013-05-01	00:00	2013-05-09

Sample: 328654 - SB-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**16300**	mg/Kg	4

Sample: 328655 - SB-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**6870**	mg/Kg	4

Sample: 328656 - SB-1 @ AH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		**1900**	mg/Kg	4

Sample: 328657 - SB-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**2000**	mg/Kg	4

Sample: 328658 - SB-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**2110**	mg/Kg	4

Sample: 328659 - SB-1 @ AH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		**1680**	mg/Kg	4

Sample: 328660 - SB-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		**1140**	mg/Kg	4

Sample: 328661 - SB-1 @ AH-1 24-25'

Param	Flag	Result	Units	RL
Chloride		**371**	mg/Kg	4

Sample: 328662 - SB-1 @ AH-1 29-30'

Param	Flag	Result	Units	RL
Chloride		**628**	mg/Kg	4

Sample: 328663 - SB-1 @ AH-1 39-40'

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

Sample: 328664 - SB-1 @ AH-1 49-50'

Param	Flag	Result	Units	RL
Chloride		**340**	mg/Kg	4

Sample: 328665 - SB-1 @ AH-1 59-60'

Param	Flag	Result	Units	RL
Chloride		**220**	mg/Kg	4

Sample: 328666 - SB-1 @ AH-1 69-70'

Param	Flag	Result	Units	RL
Chloride		**230**	mg/Kg	4

Sample: 328667 - SB-1 @ AH-1 79-80'

Param	Flag	Result	Units	RL
Chloride		**405**	mg/Kg	4

Sample: 328668 - SB-2 @ AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**9820**	mg/Kg	4

Sample: 328669 - SB-2 @ AH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		**6060**	mg/Kg	4

Sample: 328670 - SB-2 @ AH-2 4-5'

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

Sample: 328671 - SB-2 @ AH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		**50.0**	mg/Kg	4

Sample: 328672 - SB-2 @ AH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		**1010**	mg/Kg	4

Sample: 328673 - SB-2 @ AH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		**855**	mg/Kg	4

Sample: 328674 - SB-2 @ AH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		**772**	mg/Kg	4

Sample: 328675 - SB-2 @ AH-2 24-25'

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

Sample: 328676 - SB-2 @ AH-2 29-30'

Param	Flag	Result	Units	RL
Chloride		**130**	mg/Kg	4

Summary Report

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

Report Date: April 2, 2013

Work Order: 13032139

Project Location: Eddy Co., NM
Project Name: COG/Choctaw State #1
Project Number: 112MC05138

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
324195	AH-1 0-1' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324196	AH-1 1-1.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324197	AH-1 2-2.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324198	AH-1 3-3.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324199	AH-1 4-4.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324200	AH-1 5-5.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324201	AH-1 6-6.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324202	AH-1 7-7.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324203	AH-1 8-8.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324204	AH-1 9-9.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324205	AH-2 0-1' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324206	AH-2 1-1.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324207	AH-2 2-2.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324208	AH-2 3-3.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324209	AH-2 4-4.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324210	AH-2 5-5.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324211	AH-2 6-6.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324212	AH-2 7-7.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324213	AH-2 8-8.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324214	AH-2 9-9.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324215	AH-3 0-1'	soil	2013-03-20	00:00	2013-03-21
324216	AH-3 1-1.5'	soil	2013-03-20	00:00	2013-03-21
324217	AH-3 2-2.5'	soil	2013-03-20	00:00	2013-03-21
324218	AH-3 3-3.5'	soil	2013-03-20	00:00	2013-03-21
324219	AH-3 4-4.5'	soil	2013-03-20	00:00	2013-03-21
324220	AH-3 5-5.5'	soil	2013-03-20	00:00	2013-03-21
324221	AH-3 6-6.5'	soil	2013-03-20	00:00	2013-03-21
324222	AH-3 7-7.5'	soil	2013-03-20	00:00	2013-03-21
324223	AH-3 8-8.5'	soil	2013-03-20	00:00	2013-03-21
324224	AH-3 9-9.5'	soil	2013-03-20	00:00	2013-03-21

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
324225	AH-4 0-1'	soil	2013-03-20	00:00	2013-03-21
324226	AH-4 1-1.5'	soil	2013-03-20	00:00	2013-03-21
324227	AH-4 2-2.5'	soil	2013-03-20	00:00	2013-03-21
324228	AH-4 3-3.5'	soil	2013-03-20	00:00	2013-03-21
324229	AH-4 4-4.5'	soil	2013-03-20	00:00	2013-03-21
324230	AH-5 0-1' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324231	AH-5 1-1.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324232	AH-5 2-2.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324233	AH-5 3-3.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324234	AH-5 4-4.5' 0.5' BEB	soil	2013-03-20	00:00	2013-03-21
324235	AH-6 0-1' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324236	AH-6 1-1.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324237	AH-6 2-2.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324238	AH-6 3-3.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324239	AH-6 4-4.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324240	AH-6 5-5.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324241	AH-6 6-6.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324242	AH-7 0-1' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324243	AH-7 1-1.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324244	AH-7 2-2.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324245	AH-7 3-3.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21
324246	AH-7 4-4.5' 1' BEB	soil	2013-03-20	00:00	2013-03-21

	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)
324195 - AH-1 0-1' 0.5' BEB	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
324205 - AH-2 0-1' 0.5' BEB	<0.400 [1]	**16.6**	**33.5**	**40.5**	**667**	**1390** Qs
324206 - AH-2 1-1.5' 0.5' BEB	<0.0200	<0.0200	<0.0200	<0.0200		
324215 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**249**	**80.4** Qs
324225 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**54.3**	**6.58** Qs
324230 - AH-5 0-1' 0.5' BEB	<0.0200	<0.0200	<0.0200	<0.0200	**76.4**	<4.00 Qs
324235 - AH-6 0-1' 1' BEB	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
324242 - AH-7 0-1' 1' BEB	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs

Sample: 324195 - AH-1 0-1' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4

Sample: 324196 - AH-1 1-1.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**1250**	mg/Kg	4

[1] Dilution due to hydrocarbons.

Sample: 324197 - AH-1 2-2.5' 0.5' BEB

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

Sample: 324198 - AH-1 3-3.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**247**	mg/Kg	4

Sample: 324199 - AH-1 4-4.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**54.4**	mg/Kg	4

Sample: 324200 - AH-1 5-5.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**84.1**	mg/Kg	4

Sample: 324201 - AH-1 6-6.5' 0.5' BEB

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

Sample: 324202 - AH-1 7-7.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**297**	mg/Kg	4

Sample: 324203 - AH-1 8-8.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**1100**	mg/Kg	4

Sample: 324204 - AH-1 9-9.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4320**	mg/Kg	4

Sample: 324205 - AH-2 0-1' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**3270**	mg/Kg	4

Sample: 324206 - AH-2 1-1.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**894**	mg/Kg	4

Sample: 324207 - AH-2 2-2.5' 0.5' BEB

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

Sample: 324208 - AH-2 3-3.5' 0.5' BEB

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

Sample: 324209 - AH-2 4-4.5' 0.5' BEB

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

Sample: 324210 - AH-2 5-5.5' 0.5' BEB

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

Sample: 324211 - AH-2 6-6.5' 0.5' BEB

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

Sample: 324212 - AH-2 7-7.5' 0.5' BEB

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

Sample: 324213 - AH-2 8-8.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**427**	mg/Kg	4

Sample: 324214 - AH-2 9-9.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**1780**	mg/Kg	4

Sample: 324215 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**3400**	mg/Kg	4

Sample: 324216 - AH-3 1-1.5'

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

Sample: 324217 - AH-3 2-2.5'

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

Sample: 324218 - AH-3 3-3.5'

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

Sample: 324219 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**30.1**	mg/Kg	4

Sample: 324220 - AH-3 5-5.5'

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

Sample: 324221 - AH-3 6-6.5'

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

Sample: 324222 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**411**	mg/Kg	4

Sample: 324223 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**551**	mg/Kg	4

Sample: 324224 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**822**	mg/Kg	4

Sample: 324225 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**2380**	mg/Kg	4

Sample: 324226 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**3740**	mg/Kg	4

Sample: 324227 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**936**	mg/Kg	4

Sample: 324228 - AH-4 3-3.5'

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

Sample: 324229 - AH-4 4-4.5'

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

Sample: 324230 - AH-5 0-1' 0.5' BEB

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

Sample: 324231 - AH-5 1-1.5' 0.5' BEB

Param	Flag	Result	Units	RL
Chloride		**1010**	mg/Kg	4

Sample: 324232 - AH-5 2-2.5' 0.5' BEB

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

Sample: 324233 - AH-5 3-3.5' 0.5' BEB

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

Sample: 324234 - AH-5 4-4.5' 0.5' BEB

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

Sample: 324235 - AH-6 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3900**	mg/Kg	4

Sample: 324236 - AH-6 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**4080**	mg/Kg	4

Sample: 324237 - AH-6 2-2.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**7410**	mg/Kg	4

Sample: 324238 - AH-6 3-3.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**11800**	mg/Kg	4

Sample: 324239 - AH-6 4-4.5' 1' BEB

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

Sample: 324240 - AH-6 5-5.5' 1' BEB

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

Sample: 324241 - AH-6 6-6.5' 1' BEB

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

Sample: 324242 - AH-7 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3710**	mg/Kg	4

Sample: 324243 - AH-7 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**10000**	mg/Kg	4

Sample: 324244 - AH-7 2-2.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**14400**	mg/Kg	4

Sample: 324245 - AH-7 3-3.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**552**	mg/Kg	4

Sample: 324246 - AH-7 4-4.5' 1' BEB

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