SITE INFORMATION

Report Type: Work Plan

General Site Information:						
Site:	**Diamondback State Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit G**	**Sec. 28**	**T-17-S**	**R-29-E**		
Lease Number:	**API-30-015-33203 Diamondback StateWell #001**					
County:	**Eddy County**					
GPS:	**32.80691° N**			**104.07777° W**		
Surface Owner:	State					
Mineral Owner:						
Directions:	From Hwy 82 and CR-212 (West of Loco Hills 5.3 miles) travel south on CR-212 0.3 mi, turn right 0.1 mi, turn left 0.4 miles to location					

Release Data:	
Date Released:	4/25/2012
Type Release:	Oil
Source of Contamination:	Load line over pressured and ruptured
Fluid Released:	39 bbls
Fluids Recovered:	35 bbls

Official Communication:			
Name:	Pat Ellis		Ike Taravez
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
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

June 27, 2012

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, New Mexico 88210

Re: Assessment and Work Plan for the COG Operating LLC., Diamondback State Tank Battery, Section 28, 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 Diamondback State Tank Battery located in Section 28, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80691°, W 104.07777°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on April 25, 2012. The spill released approximately thirty-nine (39) barrels of oil from an over-pressured load line. COG was able to recover approximately 35 barrels of oil with a vacuum truck. To alleviate the problem, COG repaired the line and installed a pressure vent. The impacted area measured approximately 15'x 80'. The entire spill area was contained within the facility firewalls. The spill area is shown on Figures 3. The initial Form C-141 is enclosed in Appendix A.

Groundwater

No water wells were reported in Section 28. According to the NMOCD groundwater map, the average depth to groundwater is approximately 175' 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 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

On May 30, 2012, Tetra Tech personnel inspected and sampled the spill area. A total of three (3) auger holes (AH-1 through AH-3) were installed using a stainless steel hand auger to assess the impacted area. 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.

Analytical Results

Referring to Table 1, all of the auger holes samples showed TPH, benzene and total BTEX exceeding the RRAL at 0-1' and 1-1.5' below surface. The deeper samples at 2-2.5' declined below the RRAL and were vertically defined. Elevated chloride concentrations were detected in the areas of AH-1 (0-1') of 2,600 mg/kg and AH-2 (0-1') 1,880 mg/kg, but significantly declined at 1-1.5' to 457 mg/kg and 311 mg/kg, respectively. The area of AH-3 did not show a chloride impact the soils.

Work Plan

COG proposes to remove the impacted material as highlighted (green) in Table 1. To remove the impacted soil above the RRAL, the spill area will be excavated to a depth of approximately 2.0' below surface. Once excavated to the appropriate depths, the excavation will be backfilled with clean soil. The excavated soil will be hauled to proper disposal.

Due to the location of the spill, the proposed excavation depths or deeper excavation may not be achieved due to wall cave ins, limited access,

oil and gas equipment, electrical, structures or lines which 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. If the impacted soil is not accessible, the soil will be deferred until the abandonment of the facility.

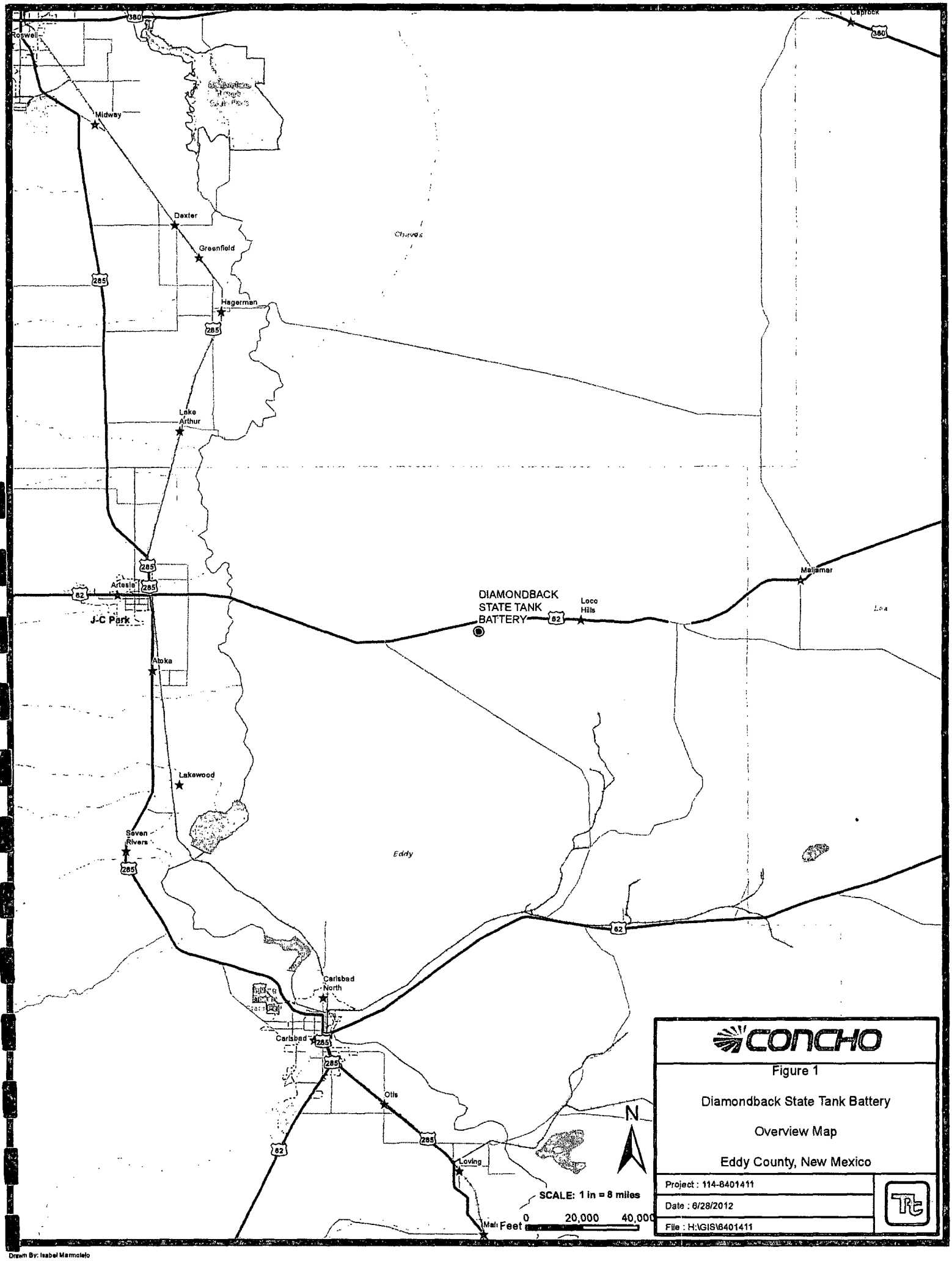
Upon completion, a final report will be submitted to the NMOCD. If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

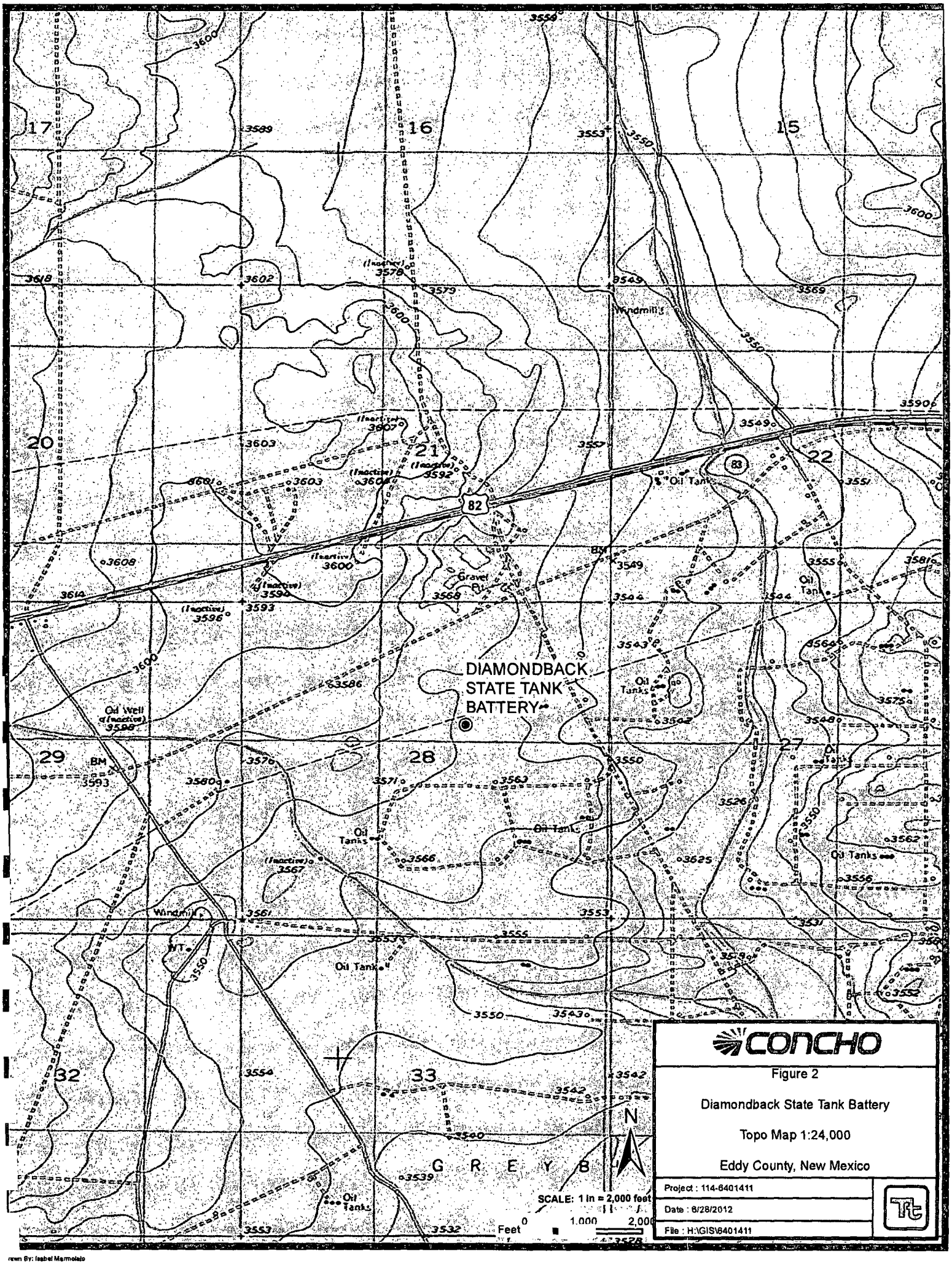
Ike Tavarez
Senior Project Manager

cc: Pat Ellis – COG
cc: Terry Gregston - BLM

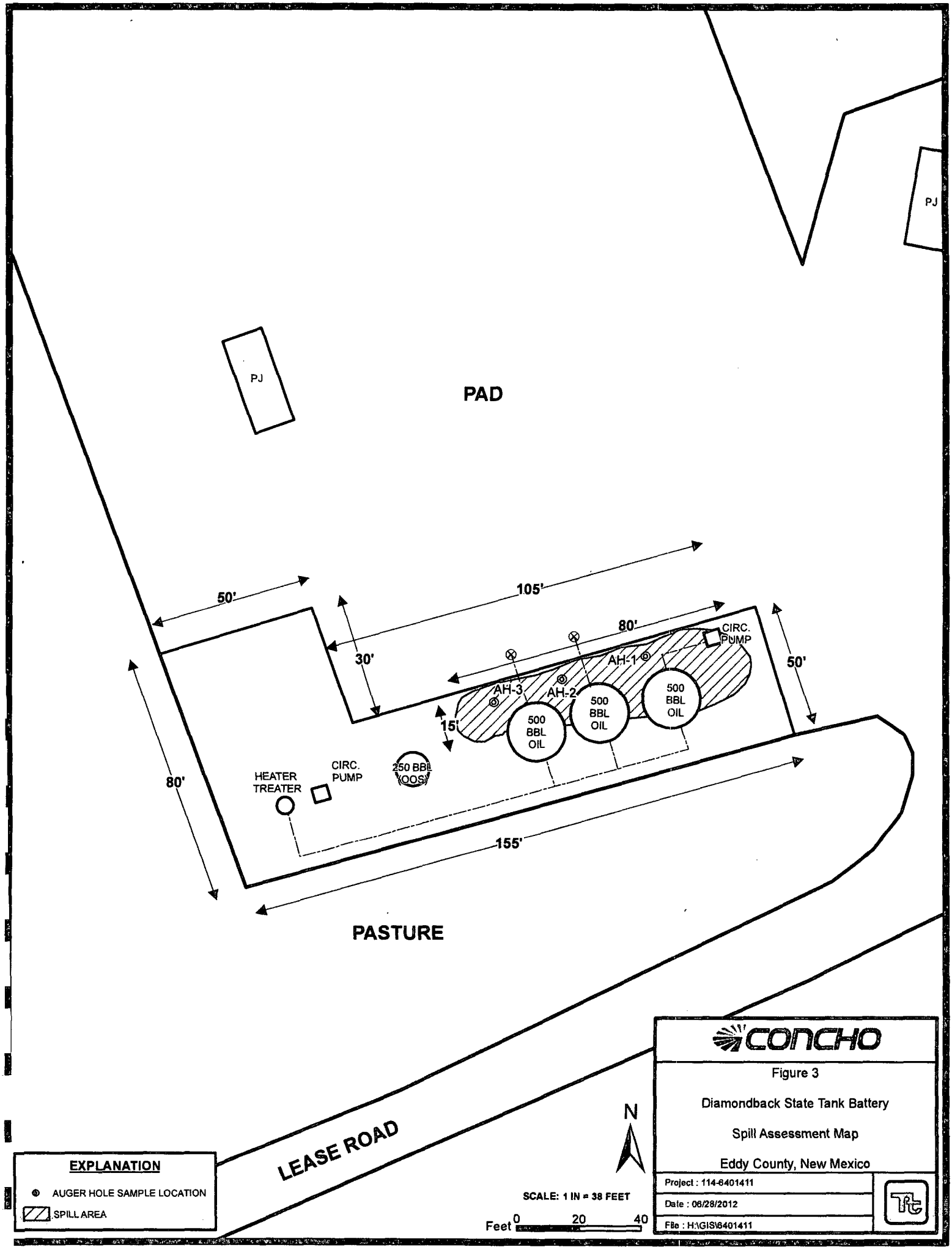
Figures



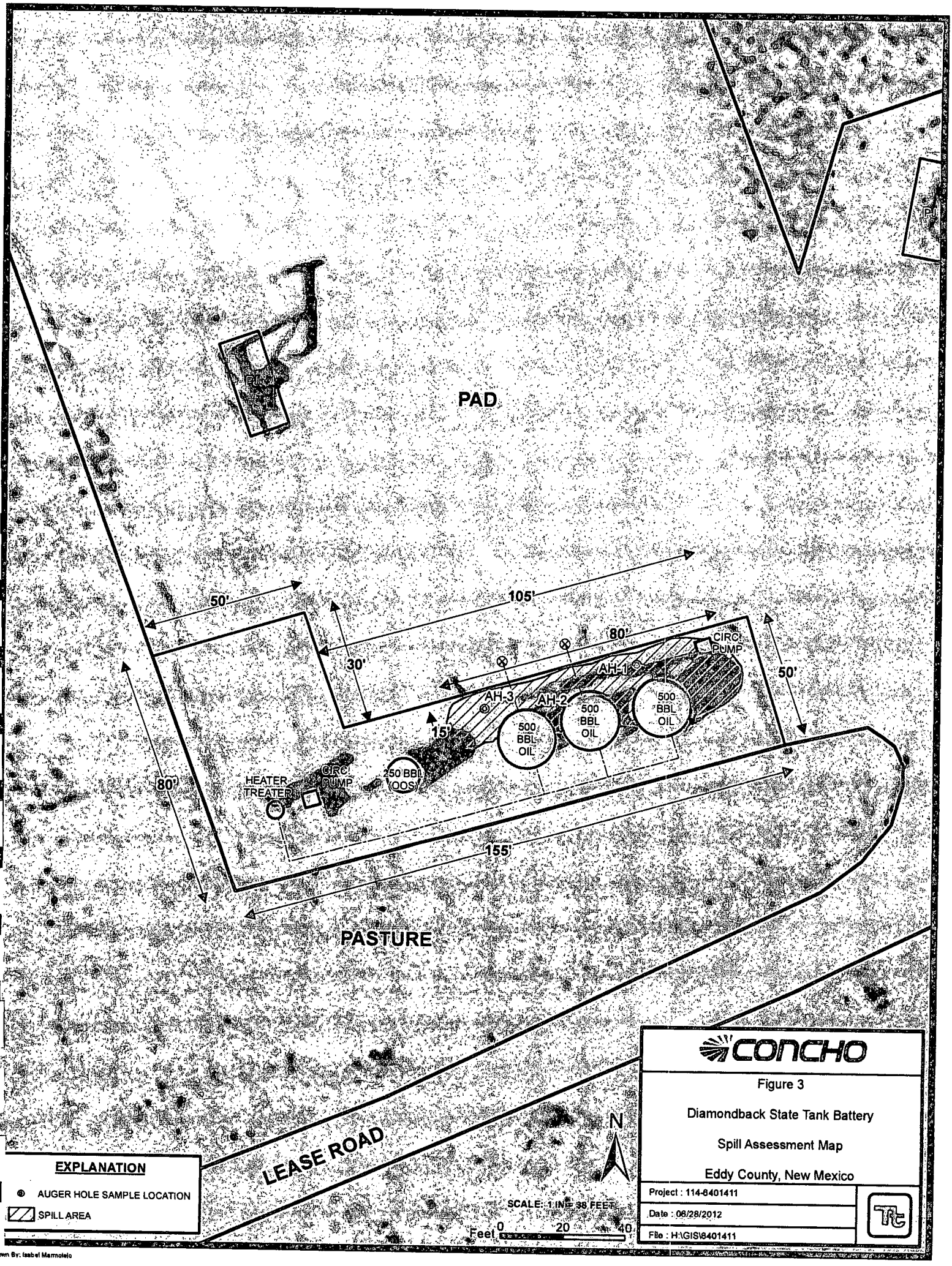
Drawn By: Isabel Marmolejo

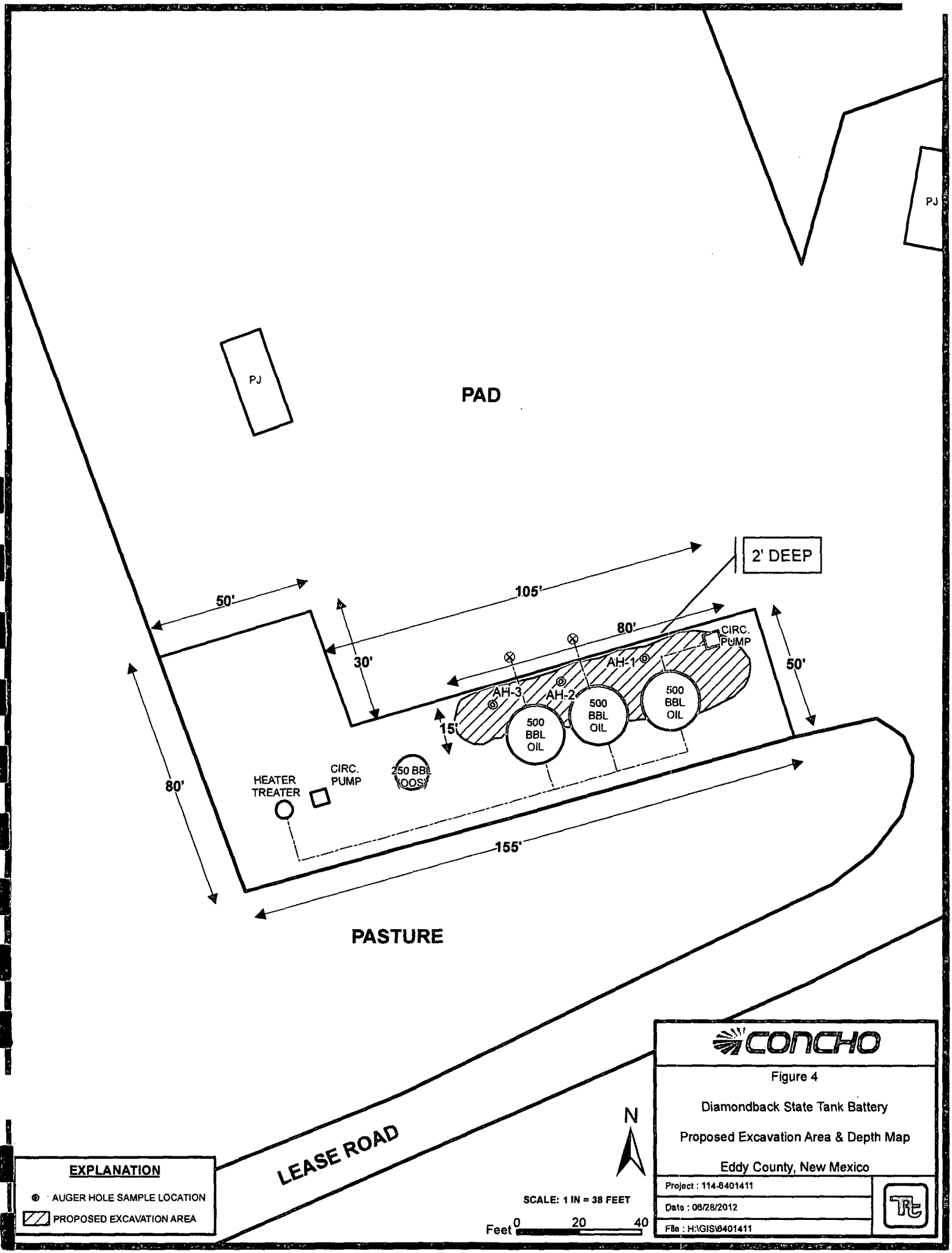


Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo


PAD
PAD
50'
105'
80'
30'
50'
15'
80'
155'
AH-1
AH-2
AH-3
CIRC. PUMP
500 BBL OIL
500 BBL OIL
500 BBL OIL
HEATER TREATER
CIRC. PUMP
250 BBL (OOS)
PASTURE
LEASE ROAD
N
EXPLANATION
AUGER HOLE SAMPLE LOCATION
SPILL AREA
SCALE: 1 IN = 38 FEET
Feet 0 20 40
CONCHO
Figure 3
Diamondback State Tank Battery
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401411
Date : 06/28/2012
File : H:\GIS\6401411
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Diamondback State 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	5/30/2012	0-1	X		8,990	9,650	18,640	139	515	165	798	1,617	2,600
	"	1-1.5	X		5,070	6,240	11,310	23.1	131	40.4	184	379	457
	"	2-2.5	X		<100	<50.0	<100	<1.00	<1.00	<1.00	<1.00	<1.00	194
AH-2	5/30/2012	0-1	X		10,100	8,960	19,060	37.8	187	62.9	301	589	1,880
	"	1-1.5	X		5,360	4,780	10,140	13.8	99.8	43.7	193	350	311
	"	2-2.5	X		<100	<50.0	<100	<1.00	<1.00	<1.00	<1.00	<1.00	151
AH-3	5/30/2012	0-1	X		4,030	7,090	11,120	16.3	110	47.2	229	403	72.9
	"	1-1.5	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	141
	"	2-2.5	X		-	-	-	-	-	-	-	-	77.7

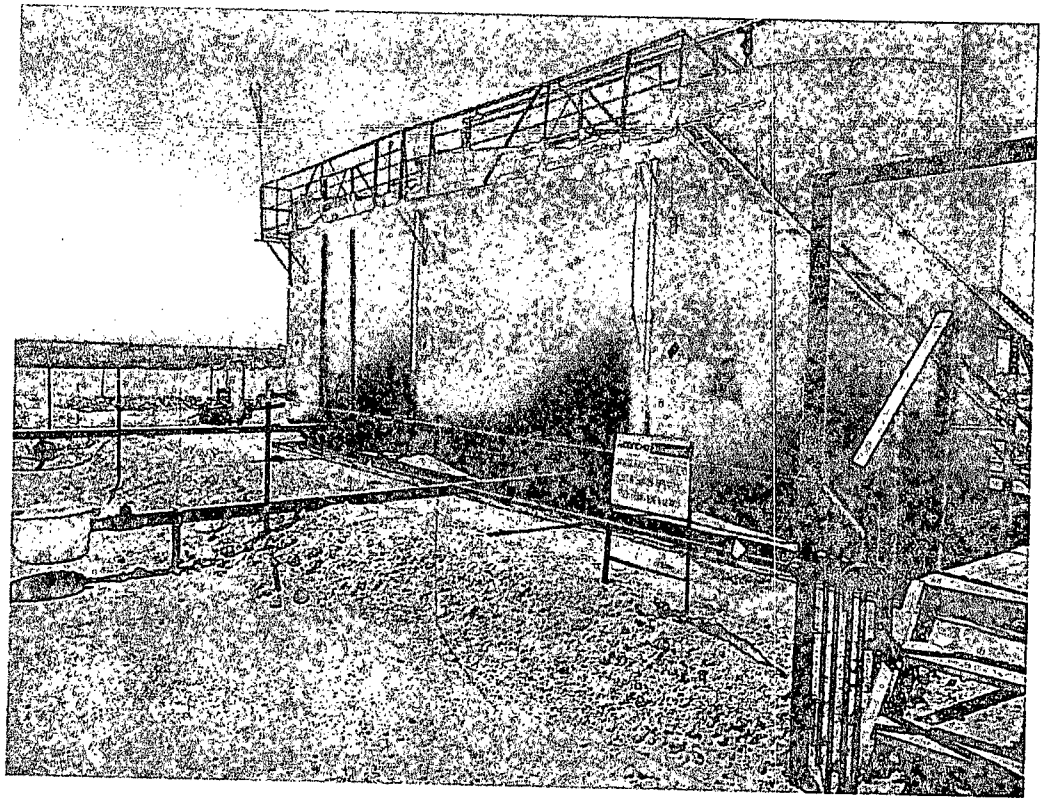
(--) Not Analyzed

Proposed Excavation Depths

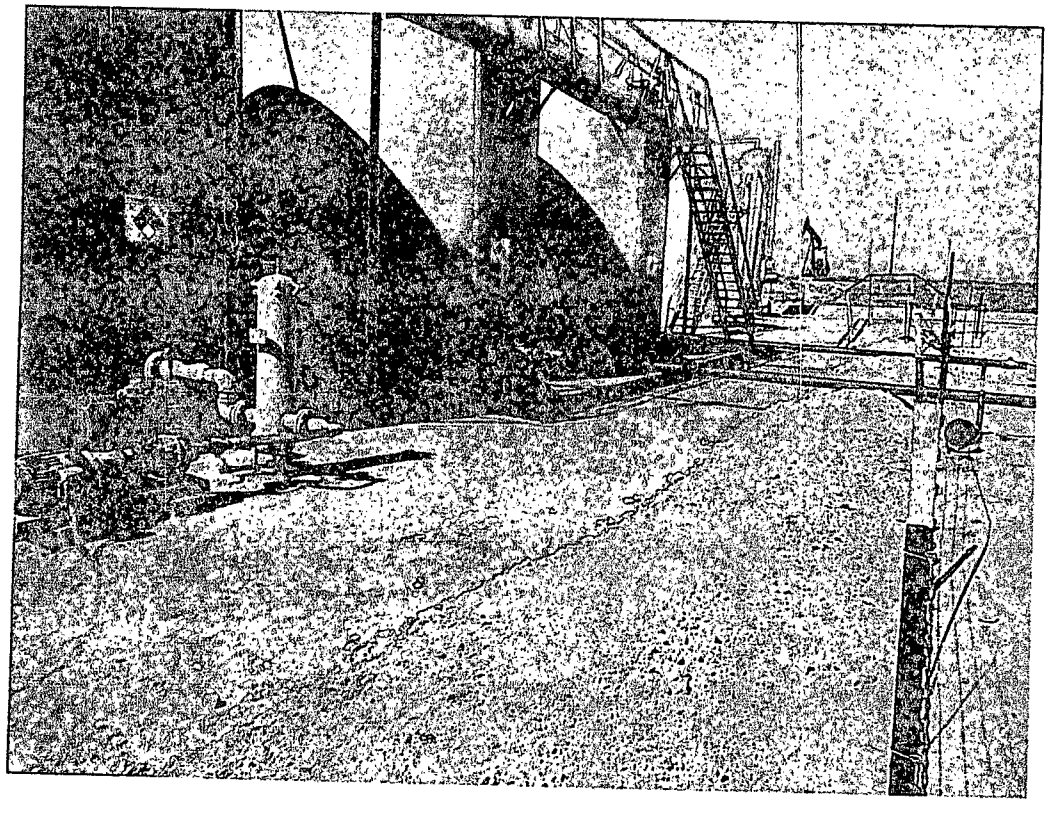
Photos

COG Operating LLC
Diamondback State Tank Battery
Eddy County, New Mexico

TETRA TECH



View south east – Near AH-3



View south west – Near AH-1

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	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Diamondback State Tank Battery	Facility Type	Tank Battery

Surface Owner	Mineral Owner	Lease No. (API#) 30-015-33203 Diamondback State #001 well
State		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	28	17S	29E					Eddy

Latitude 32 48.699 **Longitude** 104 04.646

NATURE OF RELEASE

Type of Release Oil	Volume of Release 39bbls	Volume Recovered 35bbls
Source of Release Load line	Date and Hour of Occurrence 04/25/2012	Date and Hour of Discovery 04/25/2012 10:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins	Date and Hour 04/26/2012 6:29 a.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.*

An increase in pressure inside the load line caused the line to split releasing fluid onto the ground inside the bermed tank battery. A pressure vent has been added to the load line to prevent the buildup of pressure inside the load line in the future.

Describe Area Affected and Cleanup Action Taken.*

Initially 39bbls of oil was released from the split load line inside the Diamondback State Tank Battery. We were able to recover 35bbls with a vacuum truck. The entire release was contained inside the bermed walls of the facility. The defective load line has been repaired. All released free fluids have been removed from the facility. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: Josh Russo	Approved by District Supervisor:
Title: HSE Coordinator	Approval Date: / Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval: / Attached ☐
Date: 05/03/2012 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

GW = 175'

Gail 528-9853

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Diamondback State 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	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	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 **53**	35	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	23	24
30	29	28 SITE	27	26	25
31	32	33	34	35	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	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 **65**	36

18 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	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
Site Location - Diamondback State Tank Battery

Appendix C

Summary Report

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

Report Date: June 11, 2012

Work Order: 12060446

Project Location: Eddy Co., NM
Project Name: COG/Diamondback State Tank Battery
Project Number: 114-6401411

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
299873	AH-1 0-1'	soil	2012-05-30	00:00	2012-06-04
299874	AH-1 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299875	AH-1 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299876	AH-2 0-1'	soil	2012-05-30	00:00	2012-06-04
299877	AH-2 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299878	AH-2 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299879	AH-3 0-1'	soil	2012-05-30	00:00	2012-06-04
299880	AH-3 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299881	AH-3 2-2.5'	soil	2012-05-30	00:00	2012-06-04

	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)
299873 - AH-1 0-1'	**139**	**515** Je	**165**	**798** Je	**9650**	**8990**
299874 - AH-1 1-1.5'	**23.1**	**131**	**40.4**	**184**	**6240**	**5070**
299875 - AH-1 2-2.5'	<1.00	<1.00	<1.00	<1.00	<50.0	<100
299876 - AH-2 0-1'	**37.8**	**187**	**62.9**	**301**	**8960**	**10100**
299877 - AH-2 1-1.5'	**13.8**	**99.8**	**43.7**	**193**	**4780**	**5360**
299878 - AH-2 2-2.5'	<1.00	<1.00	<1.00	<1.00	<50.0	<100
299879 - AH-3 0-1'	**16.3**	**110**	**47.2**	**229**	**7090**	**4030**
299880 - AH-3 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 299873 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**2600**	mg/Kg	4

Sample: 299874 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**457**	mg/Kg	4

Sample: 299875 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**194**	mg/Kg	4

Sample: 299876 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**1880**	mg/Kg	4

Sample: 299877 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**311**	mg/Kg	4

Sample: 299878 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**151**	mg/Kg	4

Sample: 299879 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**72.9**	mg/Kg	4

Sample: 299880 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**141**	mg/Kg	4

Sample: 299881 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**77.7**	mg/Kg	4