

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	Prohibition Federal Unit #2 SWD	Facility Type	SWD
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-025-31716	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	11	22S	32E					Lea

Latitude 32 24.253 Longitude 103 38.826

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	20bbbls	Volume Recovered	19bbbls
Source of Release	Produced water tank	Date and Hour of Occurrence	08/14/2012	Date and Hour of Discovery	08/14/2012 3:00 p.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

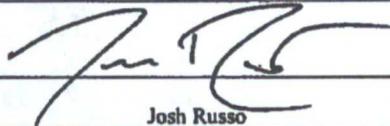
The produced water was entering the facility faster than the equalizer could handle which ultimately caused the release of fluid.

Describe Area Affected and Cleanup Action Taken.\*

Initially 20bbbls were released from the water tank and we were able to recover 19bbbls with a vacuum truck. The released fluid was contained inside the dike walls of the facility. All free fluids have been recovered and the tank has been cleaned. 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/BLM for approval prior to any significant remediation work.

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

**OIL CONSERVATION DIVISION**

Signature:		Approved by District Supervisor:	
Printed Name:	Josh Russo	Approval Date:	Expiration Date:
Title:	HSE Coordinator	Conditions of Approval:	
E-mail Address:	jrusso@conchoresources.com	Attached <input type="checkbox"/>	
Date:	08/22/2012	Phone:	432-212-2399

\* Attach Additional Sheets If Necessary

## SITE INFORMATION

HOBBS OCD

### Report Type: Work Plan

NOV 05 2012

**General Site Information:**

<b>Site:</b>	Prohibition Federal Unit #2 SWD				<b>RECEIVED</b>
<b>Company:</b>	COG Operating LLC				
<b>Section, Township and Range</b>	Unit K	Sec 11	T22S	R32E	
<b>Lease Number:</b>	API-30-025-31716				
<b>County:</b>	Lea County				
<b>GPS:</b>	32.822267° N		104.069467° W		
<b>Surface Owner:</b>	Federal				
<b>Mineral Owner:</b>					
<b>Directions:</b>	East of Loving at the intersection of Hwy 31 and Hwy 128 (Jal Hwy), travel east on Hwy 128 for 17.8 miles, turn left onto Red Rd and travel for 7.32 miles, turn right (Mills Ranch Rd) and travel for 7.1 miles, turn left and travel 1.2 miles to site.				

**Release Data:**

<b>Date Released:</b>	8/14/2012
<b>Type Release:</b>	Produced Water
<b>Source of Contamination:</b>	Produced Water Tank
<b>Fluid Released:</b>	20 bbls
<b>Fluids Recovered:</b>	19 bbls

**Official Communication:**

<b>Name:</b>	Pat Ellis		Ike Tavarez
<b>Company:</b>	COG Operating, LLC		Tetra Tech
<b>Address:</b>	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
<b>P.O. Box</b>			
<b>City:</b>	Midland Texas, 79701		Midland, Texas
<b>Phone number:</b>	(432) 686-3023		(432) 682-4559
<b>Fax:</b>	(432) 684-7137		
<b>Email:</b>	pellis@conchoresources.com		ike.tavarez@tetrattech.com

**Ranking Criteria**

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

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

*approved*  
  
 Environmental Specialist

NMOC - DIST 1  
 12103112



**TETRA TECH**

November 5, 2012

Mr. Geoffrey Leking  
Environmental Engineer Specialist  
Oil Conservation Division, District 1  
1625 North French Drive  
Hobbs, New Mexico 88240

**Re: Work Plan for the COG Operating LLC., Prohibition Federal Unit #2 SWD, Unit K, Section 11, Township 22 South, Range 32 East, Lea County, New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Prohibition Federal Unit #2 SWD, Unit K, Section 11, Township 22 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.40408°, W 103.64719°. 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 August 14, 2012, and released approximately twenty (20) barrels of produced water from the water tank with nineteen (19) barrels of standing fluids recovered. The spill was completely contained inside the firewalls of the tank battery and measured approximately 20' x 85'. The initial C-141 form is enclosed in Appendix A.

### **Groundwater**

No water wells were listed within Section 11. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 350' below surface. The USGS and the New Mexico State Engineers have wells listed in Section 14 at depths to groundwater of 382' and 350', respectively. The average depth to groundwater map is shown in Appendix B.

Tetra Tech

1110 North Big Spring, Midland, TX 79705

Tel 432.682.9519 Fax 432.682.9540 [www.tetrattech.com](http://www.tetrattech.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 September 6, 2012, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) 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, the area of AH-4 showed elevated concentrations above the RRAL for TPH and BTEX at a depth of 0 to 1.0'. The TPH concentration declined below the RRAL at 1.5' below surface, but the total BTEX concentration of 76.7 mg/kg was not vertically defined. Auger holes (AH-1, AH-2 and AH-3) showed elevated chloride concentrations and AH-1 and AH-2 were not vertically defined, with bottom hole samples of 9,550 mg/kg (2-2.5') and 6,360 mg/kg (1-1.5'), respectively. Auger hole (AH-3) did show a significant decline with depth to 617 mg/kg at 2-2.5' below surface.

## Work Plan

COG proposes to excavate the impacted soil to a depth of 2.0' to 3.0' below surface. In the areas of AH-1 and AH-2, backhoe trenches will be installed in order to assess and attempt to vertically define the chloride impact. Based on the field data, the areas will be excavated to the appropriate depths (maximum depth of 3.0'), if accessible. In addition, the area of AH-4 will be excavated to a depth of approximately 2.0' to 3.0' and a bottom hole sample will be collected to confirm the removal of the soil



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above the RRAL for total BTEX. All of the excavated material will be transported offsite for proper disposal. Once final excavation depths are achieved, the site will be backfilled with clean material and brought to grade.

Based on the limited area, deeper excavation at the site may not be practicable due to equipment onsite. If the impacted soils are not defined or defined at deeper depths, the spill area will be excavated and capped with a clay material at 3.0' below surface and backfilled with clean soil.

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 safety 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.

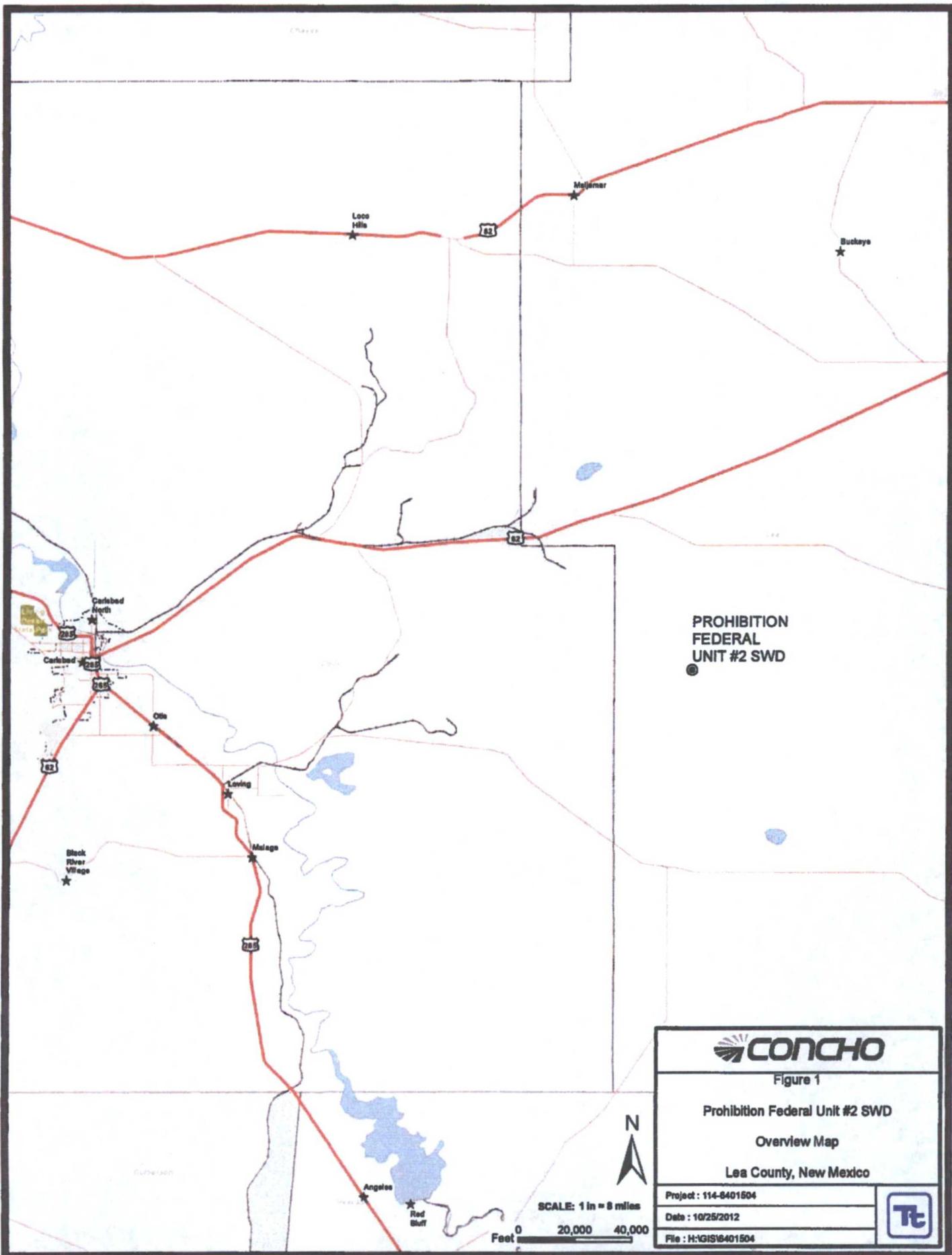
Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,  
TETRA TECH



Mike Tavaraz, PG  
Senior Project Manager

cc: Pat Ellis – COG  
cc: Jim Amos - BLM

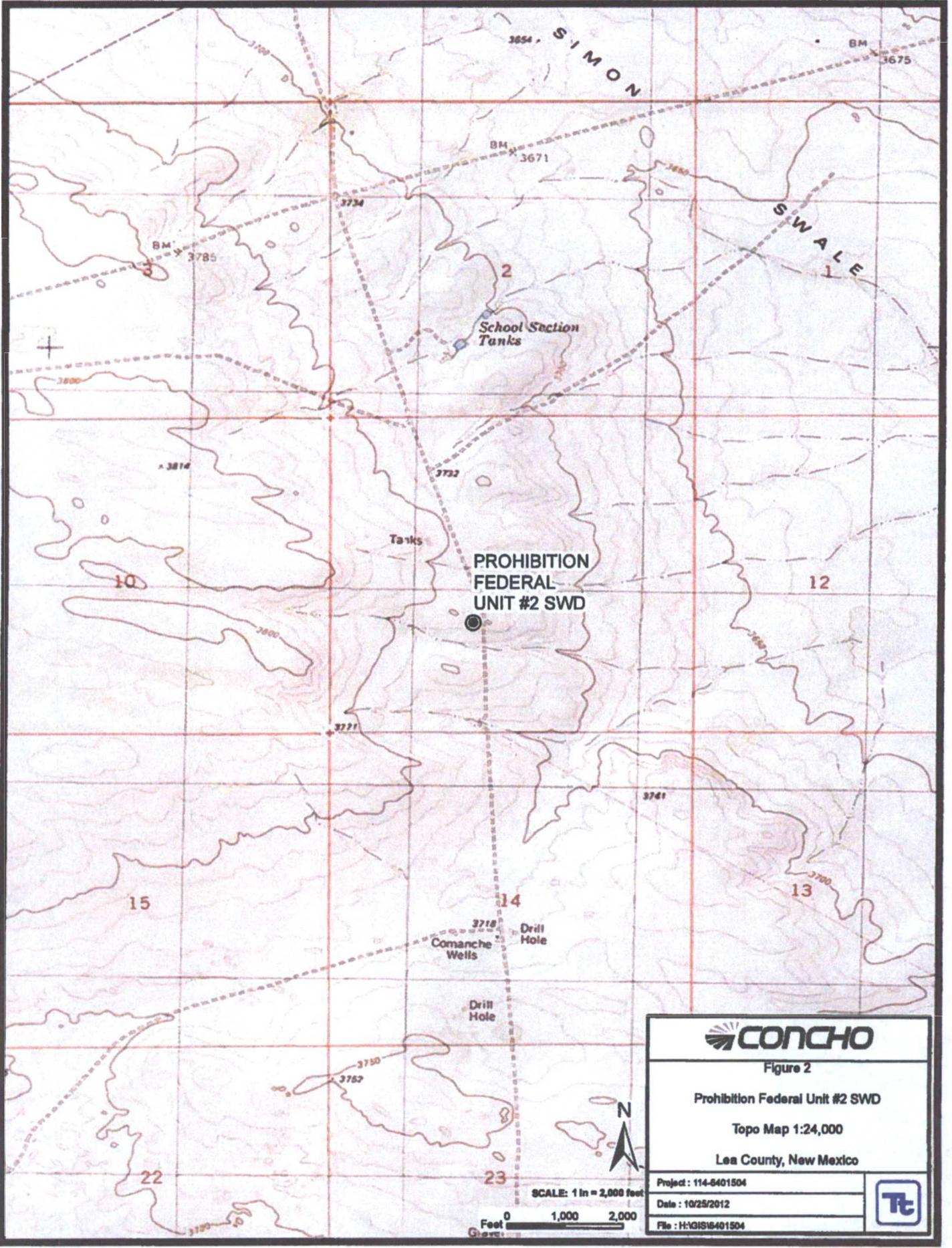


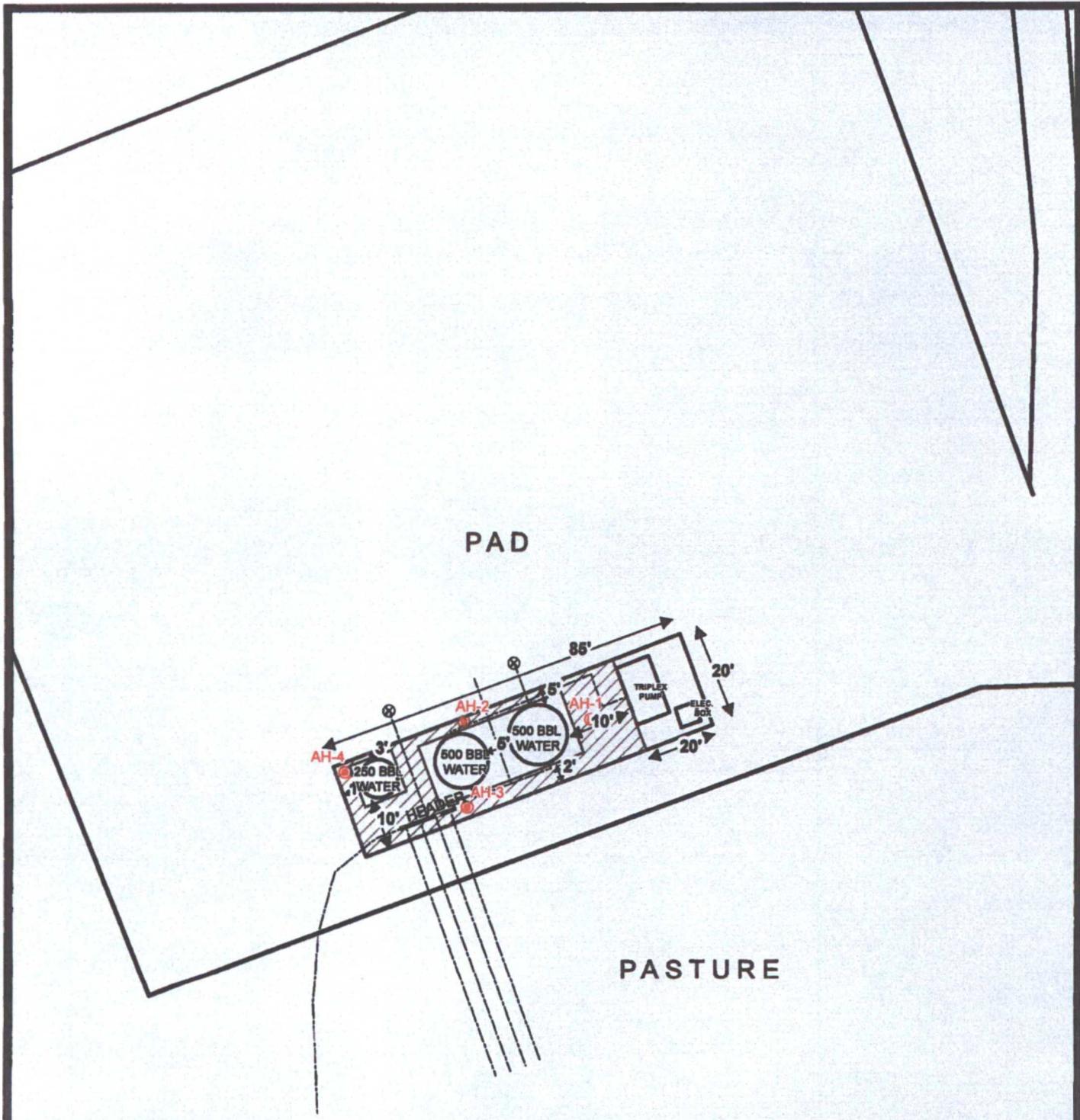
PROHIBITION  
FEDERAL  
UNIT #2 SWD

	
Figure 1 Prohibition Federal Unit #2 SWD Overview Map Lea County, New Mexico	
Project : 114-8401504	
Date : 10/25/2012	
File : H:\GIS\8401504	



SCALE: 1 in = 8 miles  
 Feet 0 20,000 40,000





PAD

PASTURE

**EXPLANATION**

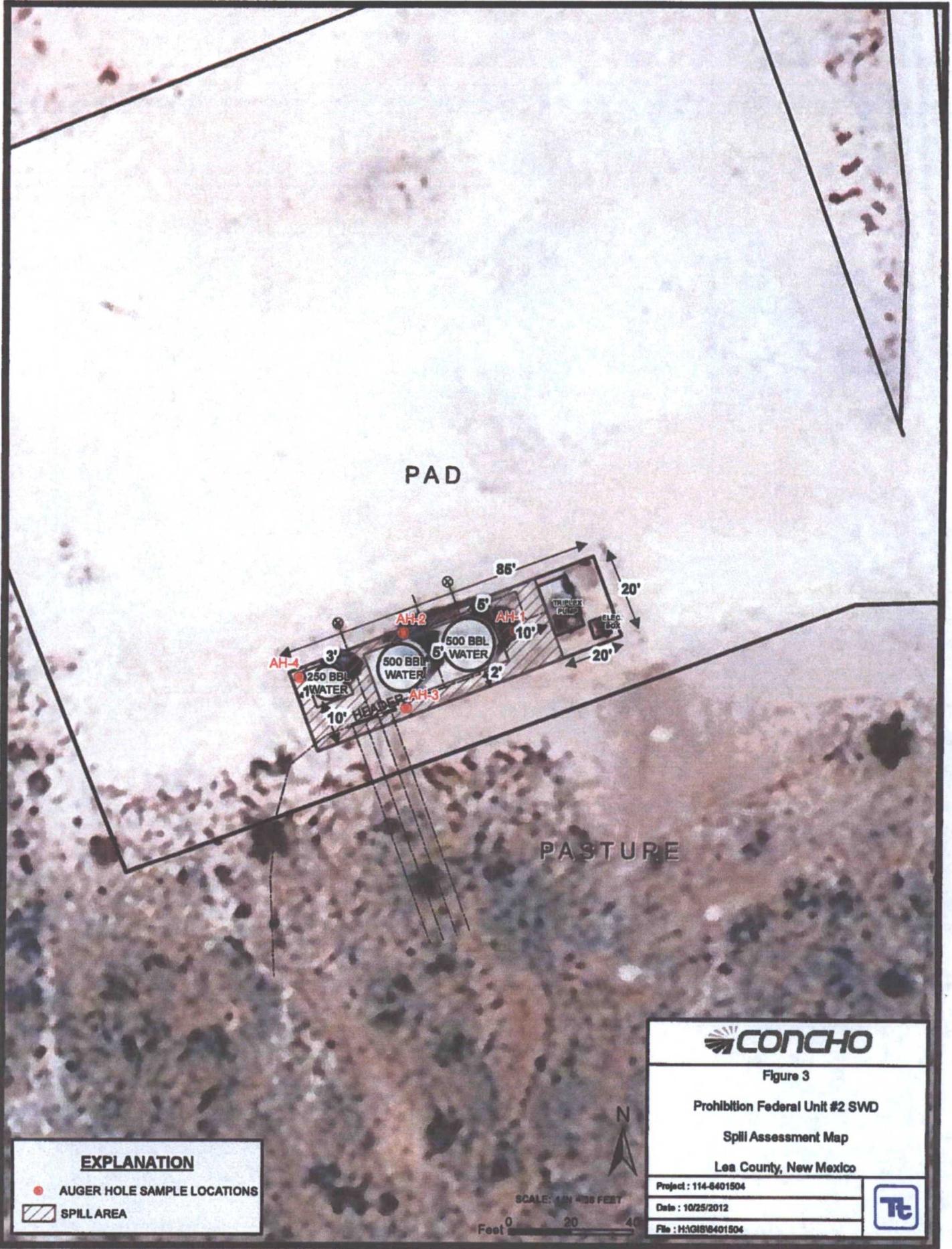
- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA

**CONCHO**

Figure 3  
 Prohibition Federal Unit #2 SWD  
 Spill Assessment Map  
 Lea County, New Mexico

Project: 114-8401504  
 Date: 10/25/2012  
 File: H:\GIS\8401504





PAD

PASTURE

**EXPLANATION**

- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA

**CONCHO**

Figure 3  
 Prohibition Federal Unit #2 SWD  
 Spill Assessment Map  
 Lea County, New Mexico

Project : 114-8401504  
 Date : 10/25/2012  
 File : H:\GIS\16401504

SCALE: 1" = 400 FEET

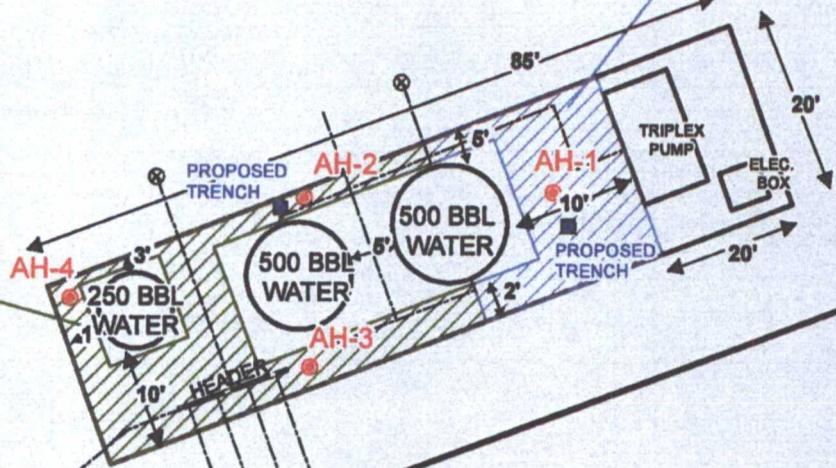
0 20 40  
 Feet

PAD

2.5' - 3' DEEP

1.5' - 2' DEEP

PASTURE



**EXPLANATION**

- AUGER HOLE SAMPLE LOCATIONS
- PROPOSED TRENCH LOCATIONS
- ▨ PROPOSED EXCAVATION AREA



SCALE: 1 IN = 25 FEET

Feet 0 10 20



Figure 4

Prohibition Federal Unit #2 SWD  
 Proposed Excavation Areas & Depths Map  
 Lea County, New Mexico

Project : 114-6401504  
 Date : 10/28/2012  
 File : H:\GIS\6401504



**Table 1**  
**COG Operating LLC.**  
**Prohibition Federal #2 Salt Water Disposal**  
**Lea County, New Mexico**

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	9/6/2012	0-1	X		1,010	<50.0	1,010	<1.00	6.70	3.57	16.4	26.7	19,100
	"	1-1.5	X		-	-	-	-	-	-	-	-	10,900
	"	2-2.5	X		-	-	-	-	-	-	-	-	9,550
AH-2	9/6/2012	0-1	X		1,050	<50.0	1,050	<1.00	4.20	4.22	15.6	24.0	18,000
	"	1-1.5	X		-	-	-	-	-	-	-	-	6,360
AH-3	9/6/2012	0-1	X		22.9	<50.0	22.9	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,340
	"	1-1.5	X		-	-	-	-	-	-	-	-	1,560
	"	2-2.5	X		-	-	-	-	-	-	-	-	617
AH-4	9/6/2012	0-1	X		3,530	2,280	5,810	3.91	44.2	24.0	83.2	155	<20.0
	"	1-1.5	X		360	60.7	421	5.08	24.9	12.4	34.3	76.7	74.1

(-) Not Analyzed

 Proposed Excavation Depths

COG Operating LLC  
Prohibition Federal Unit #2 SWD  
Lea County, New Mexico



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View West – Area of AH-1 and AH-2



View South – Area of AH-4

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG - Prohibition Federal Unit #2 SWD**  
**Lea County, New Mexico**

21 South			31 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
		SITE			

21 South			32 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

21 South			33 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

22 South			31 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

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

22 South			33 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

23 South			31 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

23 South			32 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

23 South			33 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



**USGS Home**  
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## National Water Information System: Web Interface

USGS Water Resources

Data Category:  
Groundwater

Geographic Area:  
United States

[News](#) - updated September 2012

# Groundwater levels for the Nation

## Search Results -- 1 sites found

Search Criteria

<p><b>Agency code = usgs</b>  <b>site_no list =</b>  <ul style="list-style-type: none"> <li>• 322314103384301</li> </ul> <b>Minimum number of levels = 1</b></p>
--

[Save file of selected sites](#) to local disk for future upload

## USGS 322314103384301 22S.32E.14.32322

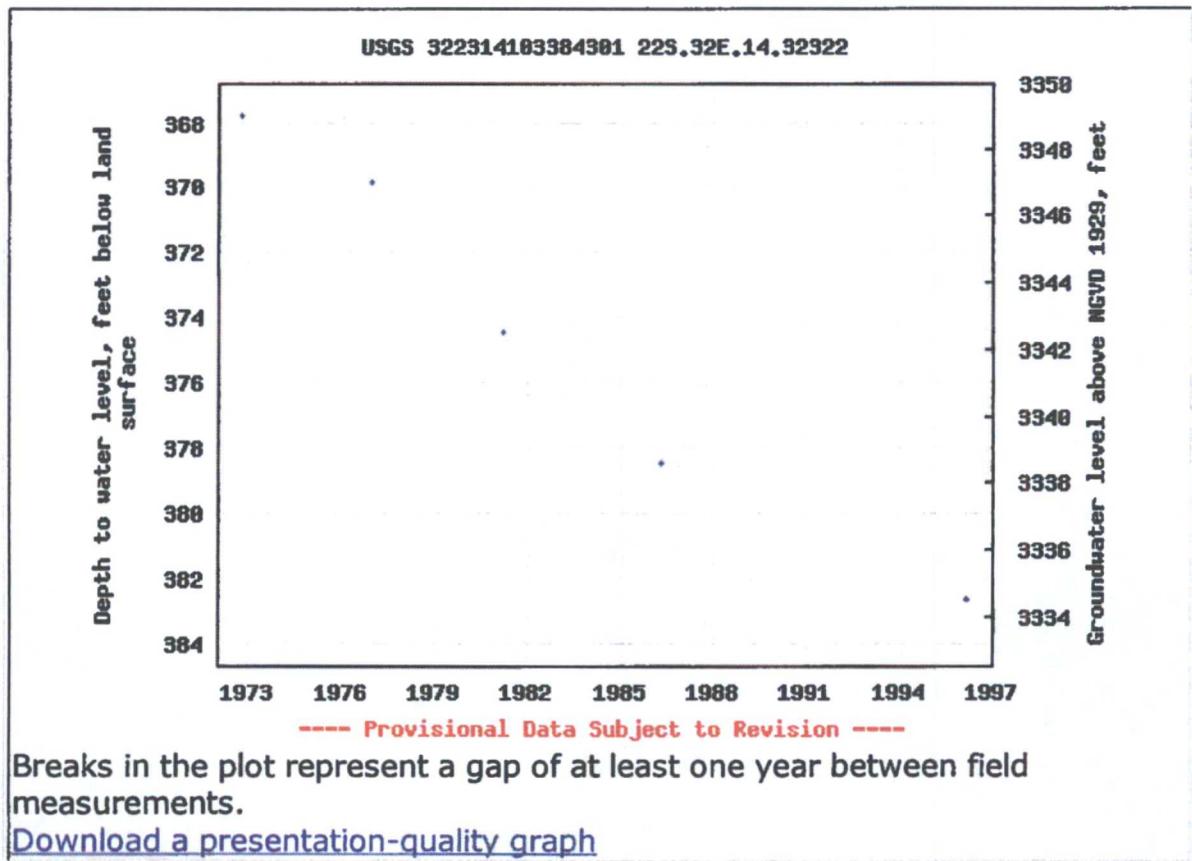
Available data for this site

Groundwater: Field measurements

Lea County, New Mexico  
 Hydrologic Unit Code --  
 Latitude 32°23'23", Longitude 103°38'53" NAD27  
 Land-surface elevation 3,717.00 feet above NGVD29  
 The depth of the well is 435 feet below land surface.  
 This well is completed in the Santa Rosa Sandstone  
 (231SNRS) local aquifer.

### Output formats

- [Table of data](#)
- [Tab-separated data](#)
- [Graph of data](#)
- [Reselect period](#)



[Questions about sites/data?](#)  
[Feedback on this web site](#)  
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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

**Title: Groundwater for USA: Water Levels**

**URL: <http://nwis.waterdata.usgs.gov/nwis/gwlevels?>**



Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2012-10-24 11:05:49 EDT

0.33 0.31 nadww01



## New Mexico Office of the State Engineer Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Code	Subbasin	County	Q Q Q				X	Y	Depth Depth Water				
				64	16	4	Sec			Tws	Rng	Well	Water	Column
<a href="#">C_02096</a>			ED	2	3	14	22S	32E	627204	3584464*	435	360	75	
<a href="#">C_02821</a>	C		LE	2	2	3	14	22S	32E	627303	3584563*	540	340	200
Average Depth to Water:											350 feet			
Minimum Depth:											340 feet			
Maximum Depth:											360 feet			

**Record Count:** 2

**PLSS Search:**

Section(s): 14

Township: 22S

Range: 32E

\*UTM location was derived from PLSS - see Help

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

10/24/12 9:20 AM

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

## Summary Report

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

Report Date: September 26, 2012

Work Order: 12091203



Project Location: NM  
 Project Name: COG/Prohibition Fed. #2 SWD  
 Project Number: 114-6401504

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
308953	AH-1 0-1'	soil	2012-09-06	00:00	2012-09-11
308954	AH-1 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308955	AH-1 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308956	AH-2 0-1'	soil	2012-09-06	00:00	2012-09-11
308957	AH-2 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308958	AH-3 0-1'	soil	2012-09-06	00:00	2012-09-11
308959	AH-3 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308960	AH-3 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308961	AH-4 0-1'	soil	2012-09-06	00:00	2012-09-11
308962	AH-4 1-1.5'	soil	2012-09-06	00:00	2012-09-11

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
308953 - AH-1 0-1'	<1.00 Qs	6.70 Qs	3.57 Qs	16.4 Qs	<50.0	1010
308956 - AH-2 0-1'	<1.00 Qs	4.20 Qs	4.22 Qs	15.6 Qs	<50.0	1050
308958 - AH-3 0-1'	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<50.0	22.9
308961 - AH-4 0-1'	3.91 Qs	44.2 Qs	24.0 Qs	83.2 Qs	2280	3530
308962 - AH-4 1-1.5'	5.08 H	24.9	12.4	34.3	60.7	360 H

Sample: 308953 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		19100	mg/Kg	4

Sample: 308954 - AH-1 1-1.5'

---

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4

---

**Sample: 308955 - AH-1 2-2.5'**

---

Param	Flag	Result	Units	RL
Chloride		9550	mg/Kg	4

---

**Sample: 308956 - AH-2 0-1'**

---

Param	Flag	Result	Units	RL
Chloride		18000	mg/Kg	4

---

**Sample: 308957 - AH-2 1-1.5'**

---

Param	Flag	Result	Units	RL
Chloride		6360	mg/Kg	4

---

**Sample: 308958 - AH-3 0-1'**

---

Param	Flag	Result	Units	RL
Chloride		4340	mg/Kg	4

---

**Sample: 308959 - AH-3 1-1.5'**

---

Param	Flag	Result	Units	RL
Chloride		1560	mg/Kg	4

---

**Sample: 308960 - AH-3 2-2.5'**

---

Param	Flag	Result	Units	RL
Chloride		617	mg/Kg	4

---

**Sample: 308961 - AH-4 0-1'**

---

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

---

Report Date: September 26, 2012

Work Order: 12091203

Page Number: 3 of 3

---

Sample: 308962 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		74.1	mg/Kg	4

---