

# SITE INFORMATION

## Report Type: Closure Report

### General Site Information:

<b>Site:</b>	Empire Federal SWD #3			
<b>Company:</b>	COG Operating LLC			
<b>Section, Township and Range:</b>	Unit K	Sec 10	T17S	R29E
<b>Lease Number:</b>	API-30-015-37831			
<b>County:</b>	Eddy County			
<b>GPS:</b>	32.84720° N		104.06456° W	
<b>Surface Owner:</b>	Federa			
<b>Mineral Owner:</b>				
<b>Directions:</b>	West Concho hills at the intersection of Hwy 82 and CR 214 (Barnival Draw), travel north on CR 214 for 1.4 miles, turn right and travel 0.1 miles, turn left and travel 0.3 miles to site.			

Release Data:	1st Spill	2nd Spill	3rd Spill	4th Spill
<b>Date Released:</b>	11/25/2012	12/12/2012	12/14/2012	12/18/2012
<b>Type Release:</b>	Produced Water	Produced Water	Produced Water	Produced Water
<b>Source of Contamination:</b>	Load Line	Load Line	Load Line	Load Line
<b>Fluid Released:</b>	25 bbls	15 bbls	15 bbls	15 bbls
<b>Fluids Recovered:</b>	20 bbls	12 bbls	12 bbls	12 bbls

### Official Communication:

<b>Name:</b>	Robert McNeill	Ike Tavarez
<b>Company:</b>	COG Operating, LLC	Tetra Tech
<b>Address:</b>	One Concho Center 600 W. Illinois Ave.	1910 N. Big Spring
<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>	rmcneill@concho.com	ike.tavarez@tetrattech.com

### Ranking Criteria:

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	10
>100 ft.	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

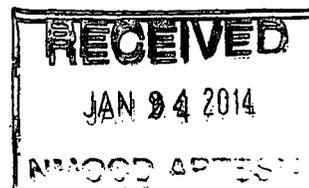
  

Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0

<b>Total Ranking Score:</b>	10
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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	1,000





TETRA TECH

August 30, 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., Empire Federal SWD #3 Releases, Unit K, Section 10, 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 four (4) spills from the Empire Federal SWD #3 located in Unit K, Section 10, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.84720°, W 104.06456°. The site location is shown on Figures 1 and 2.

### **Background**

1<sup>st</sup> Spill  
11/25/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 25, 2012, and released approximately twenty five (25) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twenty (20) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad affecting an area 40' X 40' around the well head. The initial C-141 form is enclosed in Appendix A.

2<sup>nd</sup> Spill  
12/12/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 12, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the



pad. The initial C-141 form is enclosed in Appendix A.

3<sup>rd</sup> Spill  
12/14/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 14, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad. The initial C-141 form is enclosed in Appendix A.

4<sup>th</sup> Spill  
12/18/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 18, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad. The initial C-141 form is enclosed in Appendix A.

### **Groundwater**

No water wells were listed within Section 10. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 75' to 100' below surface. The groundwater data is shown in Appendix B.

### **Regulatory**

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

### **Soil Assessment and Analytical Results**

On January 23, 2013, Tetra Tech personnel inspected and sampled the spill area. Five (5) auger holes (AH-1 through AH-5) 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 and BTEX. A shallow chloride impact was detected in the areas of AH-1, AH-2 and AH-4, with concentrations at 0-1' of 4,910 mg/kg, 10,700 mg/kg and 3,990 mg/kg, respectively. The deeper samples significantly declined with depth at 1-1.5' below surface and were all vertically defined. The areas of AH-3 and AH-5 showed a deeper impact to the soils. Auger hole (AH-3) detected elevated chlorides from surface to 3.0' below surface and declined to 624 mg/kg at 4.0' below surface. However, AH-5 was not vertically defined, with a bottom auger hole sample of 2,360 mg/kg at 3-3.5' below surface.

#### Site Remediation and Conclusion

On June 19, 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. In order to remove the chloride impacts, the excavation depths ranged from 1.0' to 5.0' below surface. Once excavated, Tetra Tech collected confirmation samples from the excavation sidewalls and bottoms. The sampling results are shown in Table 1.

Referring to Table 1, the confirmation samples did not show any elevated remaining chlorides in the soils, except for the areas of AH-1 and AH-2 (south sidewalls) showed chlorides of 2,810 mg/kg and 5,120 mg/kg, respectively. These areas were not excavated due to facility or lines in the area. In addition, AH-1 (north sidewall) did show a chloride concentrations slightly above are target level of 1,000 mg/kg.

Approximately 490 cubic yards<sup>3</sup> of soil were removed and transported to R360 facility for proper disposal. Once approved by the BLM, the site was then backfilled with clean material to surface grade.

Based on the remediation activities performed at this location, COG requests closure for this site. The C-141's (Finals) are 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  
Jeff Robertson - BLM

# Figures

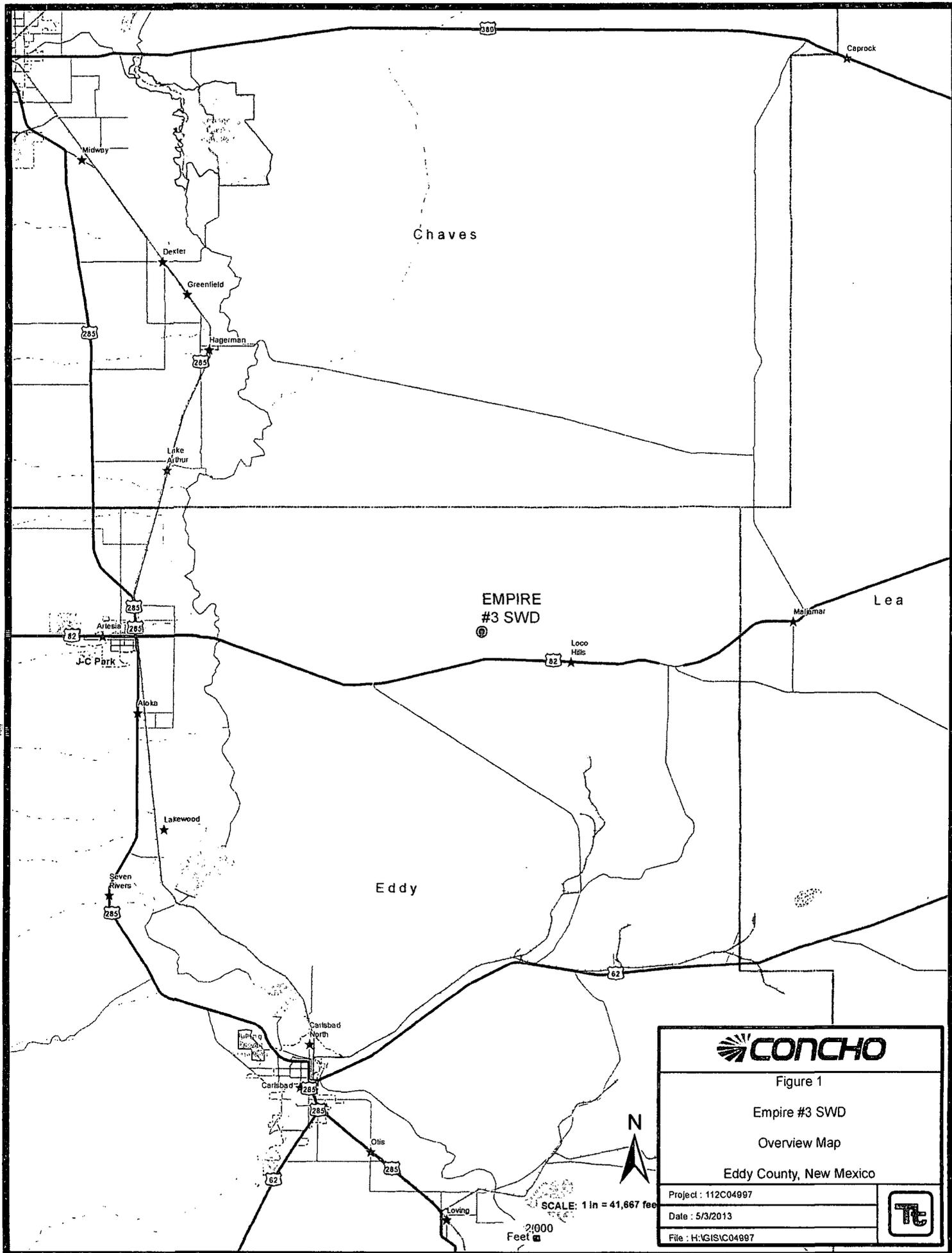


Figure 1

Empire #3 SWD

Overview Map

Eddy County, New Mexico

Project : 112C04997

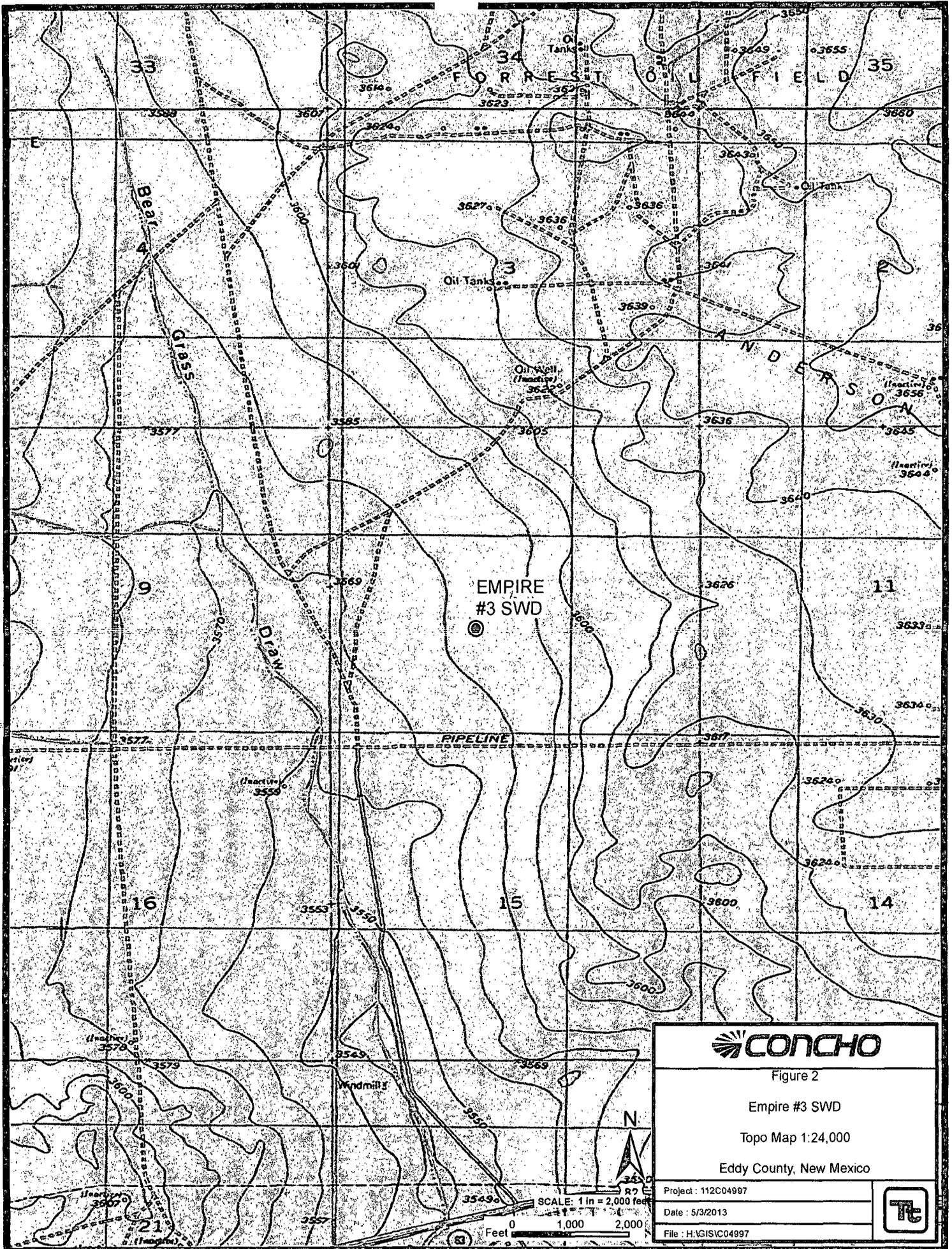
Date : 5/3/2013

File : H:\GIS\C04997



SCALE: 1 in = 41,667 feet

2,000 Feet



PASTURE

PAD

HIGH VOLTAGE ELEC. BOXES

ELEC. POLE

TRANSFORMER

ELEC. POLE

ELEC. POLE

PASTURE

PASTURE

**EXPLANATION**

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA



SCALE: 1 IN = 46 FEET



Figure 3

Empire #3 SWD

Spill Assessment Map

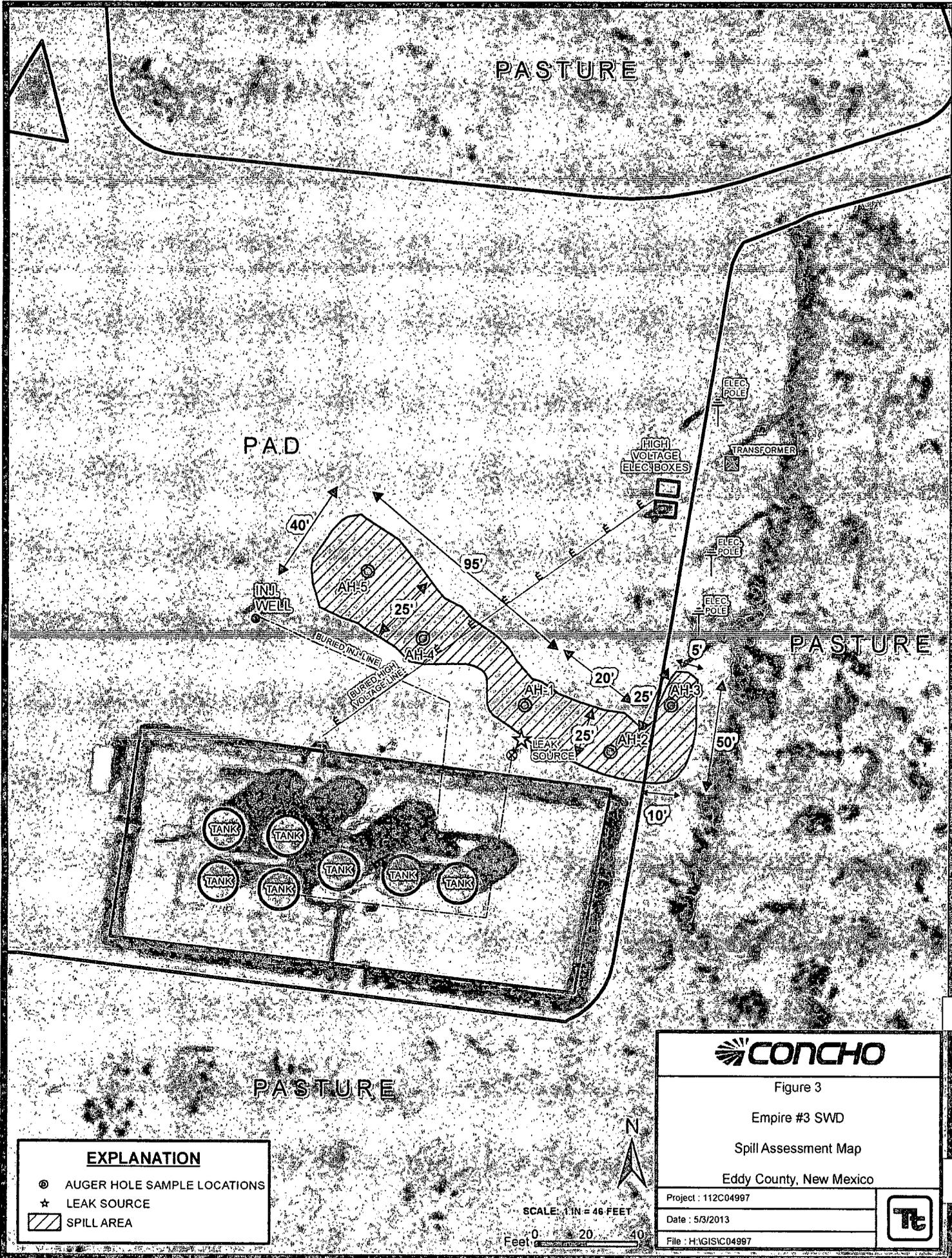
Eddy County, New Mexico

Project : 112C04997

Date : 5/3/2013

File : H:\GIS\IC04997





PASTURE

P.A.D.

HIGH VOLTAGE ELEC. BOXES

TRANSFORMER

ELEC. POLE

ELEC. POLE

ELEC. POLE

PASTURE

PASTURE

**EXPLANATION**

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA



Figure 3

Empire #3 SWD

Spill Assessment Map

Eddy County, New Mexico

Project : 112C04997
Date : 5/3/2013
File : H:\GIS\C04997



SCALE: 1 IN = 40 FEET



PASTURE

PAD

HIGH VOLTAGE  
ELEC. BOXES

ELEC. POLE  
TRANSFORMER

PASTURE

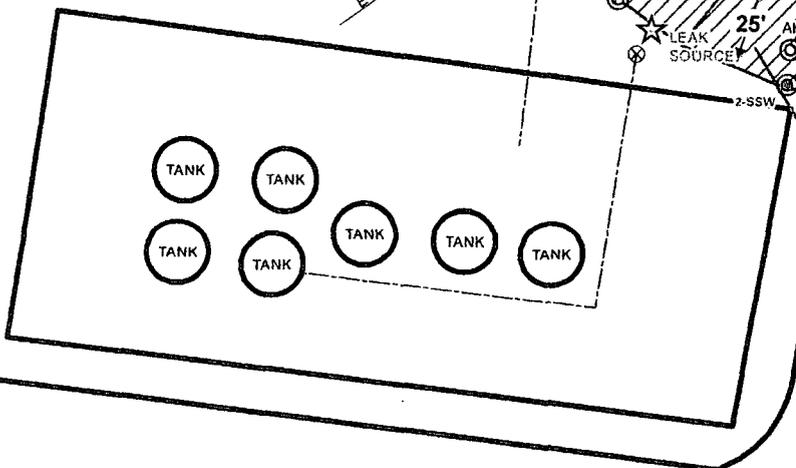
INJ. WELL

5' DEEP

1' DEEP

4' DEEP

2' DEEP



PASTURE

**EXPLANATION**

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊠ TRENCH LOCATION
- ☆ LEAK SOURCE
- ⊙ CONFIRMATION SAMPLE LOCATIONS
- ▨ EXCAVATION AREAS



SCALE: 1 IN = 46 FEET



Figure 4

Empire #3 SWD

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112C04997

Date : 5/3/2013

File : H:\GIS\C04997



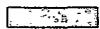
# Tables



**Table 1**  
**COG Operating LLC.**  
**Empire Federal Salt Water Disposal #3**  
**Eddy 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-4	1/23/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,990
	"	1-1.5	X		-	-	-	-	-	-	-	-	795
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
CS-4 NSW	6/25/2013	1	X		-	-	-	-	-	-	-	-	765
CS-4 SSW	"	1	X		-	-	-	-	-	-	-	-	1,070
CS-4 Bottom Hole	"	1	X		-	-	-	-	-	-	-	-	479
AH-5	1/23/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,990
	"	1-1.5		X									5,520
	"	2-2.5		X									4,090
	"	3-3.5		X									2,360
T-1	6/25/2013	0		X									3,740
	"	2		X									7,580
	"	4		X									1,370
	"	6	X		-	-	-	-	-	-	-	-	<20.0
	"	8	X		-	-	-	-	-	-	-	-	<20.0
	"	10	X		-	-	-	-	-	-	-	-	<20.0
	"	12	X		-	-	-	-	-	-	-	-	55.3
CS-5 NSW	6/25/2013	5	X		-	-	-	-	-	-	-	-	<20.0
CS-5 SSW	"	5	X		-	-	-	-	-	-	-	-	104
CS-5 WSW	"	5	X		-	-	-	-	-	-	-	-	168
CS-5 Bottom Hole	"	5	X		-	-	-	-	-	-	-	-	158

( - ) Not Analyzed

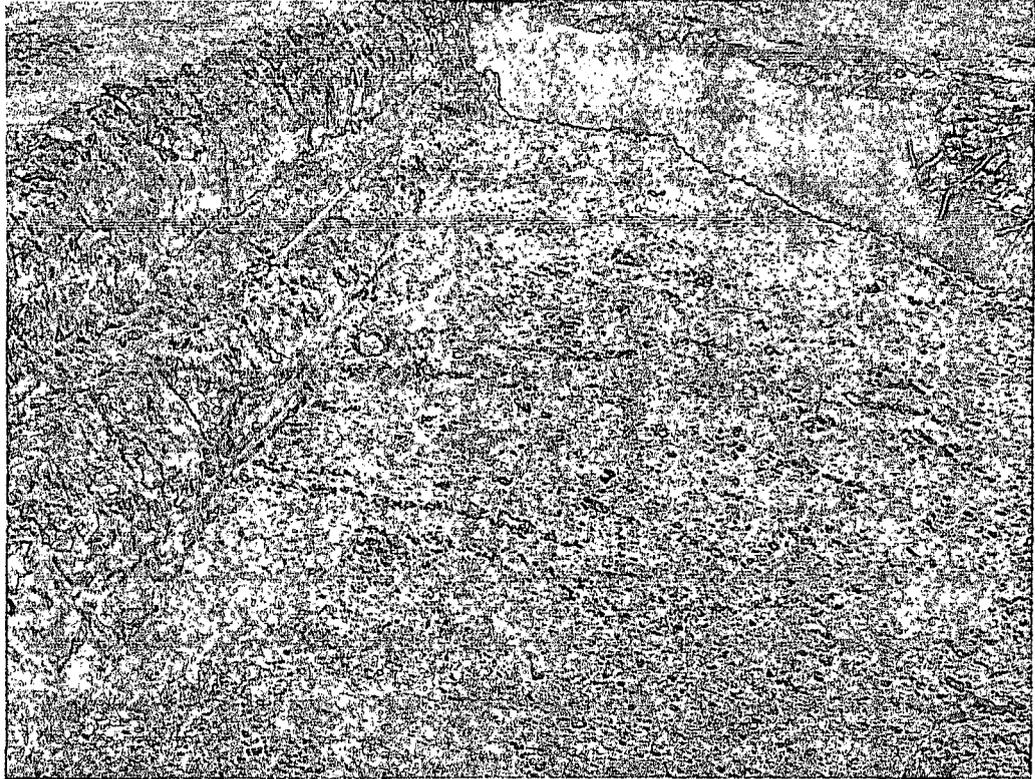
 Excavated Depths

Photos

COG Operating LLC  
Empire Federal SWD #3  
Eddy County, New Mexico



TETRA TECH

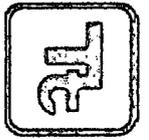


View West – Area of AH-5.



Area of Trench-1 in AH-5.

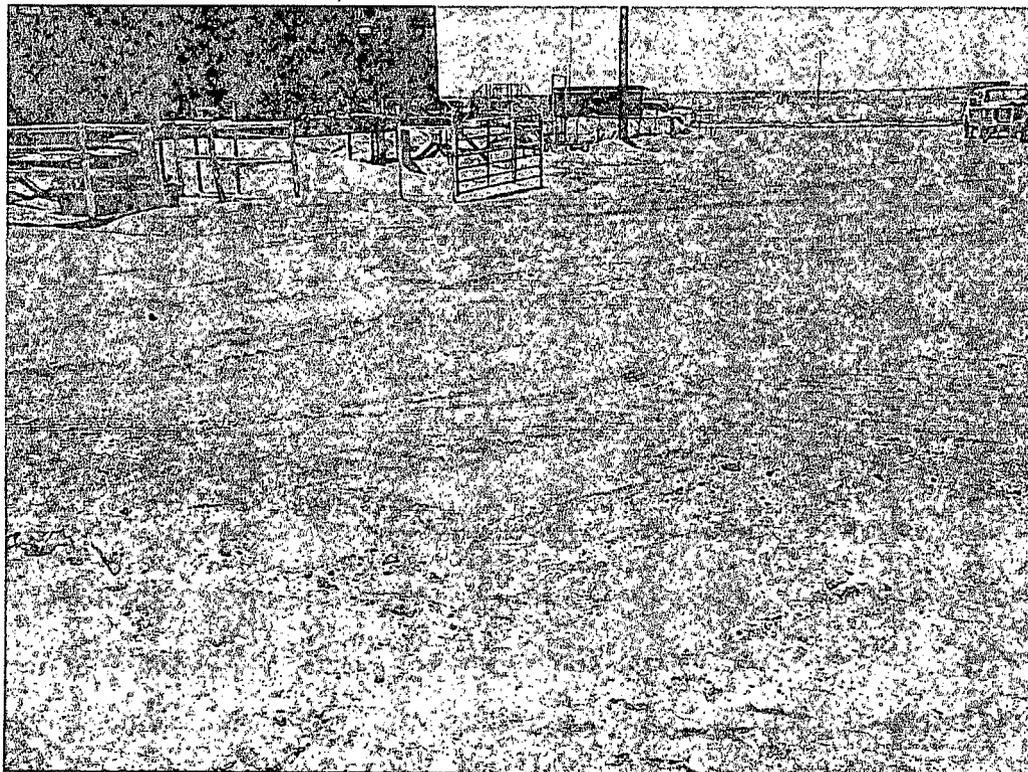
COG Operating LLC  
Empire Federal SWD #3  
Eddy County, New Mexico



TETRA TECH



View Southeast- Backfill



View West - Backfill

# 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	Empire Federal SWD #3	Facility Type	SWD
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-37831	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude 32.84736 Longitude 104.06480

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	25bbls	Volume Recovered	20bbls
Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	11/25/2012	Date and Hour of Discovery	11/25/2012 12:30 p.m.
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher-OCD		
By Whom?	Michelle Mullins	Date and Hour	11/26/2012 4:27 p.m.		
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.\*

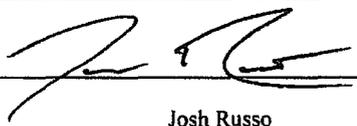
Describe Cause of Problem and Remedial Action Taken.\*

The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

Describe Area Affected and Cleanup Action Taken.\*

Initially 25bbls of produced water were released from the ball valve at the load line and we were able to recover 20bbls with a vacuum truck. The entire release remained on the pad location and measured an area of 40' x 40' around the wellhead. The location has been scraped and contaminated caliche has been hauled to disposal. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a 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.

Signature:		<b>OIL CONSERVATION DIVISION</b>	
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:	
Date:	12/06/2012	Phone:	432-212-2399
			Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary

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Energy Minerals and Natural Resources

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Revised October 10, 2003

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Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831
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K	10	17S	29E					Eddy

Latitude N32.84736° Longitude W104.06480°

**NATURE OF RELEASE**

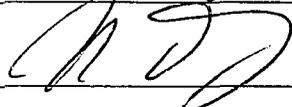
Type of Release: Produced Water	Volume of Release 25 bbls	Volume Recovered 20 bbls
Source of Release: Ball Valve on trucking load line.	Date and Hour of Occurrence 11/25/2012	Date and Hour of Discovery 11/25/2012 4:27 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? Michelle Mullins	Date and Hour 11/26/2012 4:27 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*

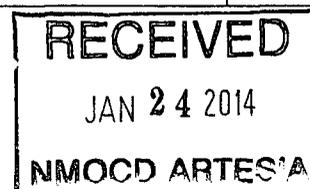
Describe Cause of Problem and Remedial Action Taken.\*  
The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

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: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@tetrattech.com	Conditions of Approval:	
Date: 8/30/13 Phone: (432) 682-4559	Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary



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Latitude 32.84736 Longitude 104.06480

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	15bbls	Volume Recovered	12bbls
Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	12/12/2012	Date and Hour of Discovery	12/12/2012 7:00 a.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.\*  
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Describe Area Affected and Cleanup Action Taken.\*  
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Signature:		<b>OIL CONSERVATION DIVISION</b>	
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 <input type="checkbox"/>
Date:	12/27/2012	Phone:	432-212-2399

\* Attach Additional Sheets If Necessary

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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	Empire Federal SWD #3	Facility Type	SWD
Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831	

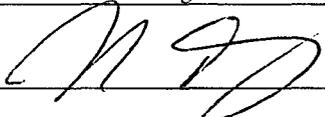
**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

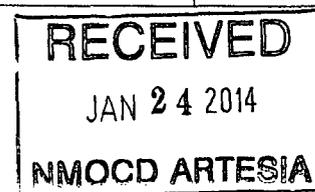
Latitude N32.84736° Longitude W104.06480°

**NATURE OF RELEASE**

Type of Release: Produced Water	Volume of Release 15 bbls	Volume Recovered 12 bbls
Source of Release: Ball Valve on trucking load line.	Date and Hour of Occurrence 12/12/2012	Date and Hour of Discovery 12/12/2012 7:00 a.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? Michelle Mullins	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.		
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: 	<b>OIL CONSERVATION DIVISION</b>	
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 <input type="checkbox"/>
Date: 8/30/13 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	Empire Federal SWD #3	Facility Type	SWD
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-37831	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude 32.84736 Longitude 104.06480

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	15bbbls	Volume Recovered	12bbbls
Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	12/14/2012	Date and Hour of Discovery	12/14/2012 7:00 a.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.\*

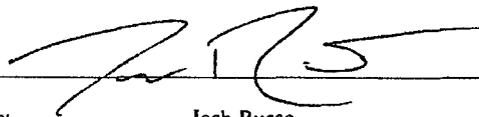
Describe Cause of Problem and Remedial Action Taken.\*

The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

Describe Area Affected and Cleanup Action Taken.\*

Initially 15bbbls of produced water were released from the ball valve at the load line and we were able to recover 12bbbls with a vacuum truck. The location has been scraped and contaminated caliche has been hauled to disposal. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a 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.

Signature:		<b>OIL CONSERVATION DIVISION</b>	
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:	
Date:	12/27/2012	Phone:	432-212-2399
		Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

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**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	Empire Federal SWD #3	Facility Type	SWD

Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831
------------------------	---------------	------------------------------

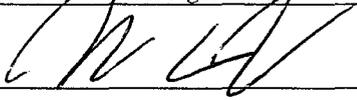
**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

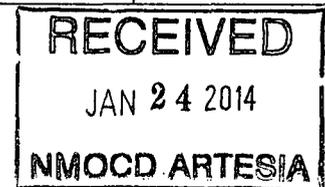
Latitude N32.84736° Longitude W104.06480°

**NATURE OF RELEASE**

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Source of Release: Ball Valve on trucking load line.	Date and Hour of Occurrence 12/14/2012	Date and Hour of Discovery 12/14/2012 7:00 a.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? Michelle Mullins	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	
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Signature: 	<b>OIL CONSERVATION DIVISION</b>	
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 <input type="checkbox"/>
Date: 8-30-13 Phone: (432) 682-4559		

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Facility Name	Empire Federal SWD #3	Facility Type	SWD

Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-015-37831
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Latitude 32.84736 Longitude 104.06480

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Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	12/18/2012	Date and Hour of Discovery	12/18/2012 7:00 a.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.
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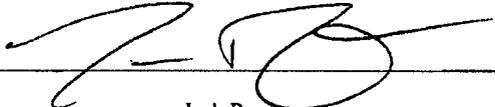
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Signature:		<b>OIL CONSERVATION DIVISION</b>	
Printed Name:	Josh Russo	Approved by District Supervisor:	
Title:	Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address:	jrusso@concho.com	Conditions of Approval:	
Date:	12/27/2012	Phone:	432-212-2399
			Attached <input type="checkbox"/>

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**OPERATOR**

Initial Report  Final Report

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Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831
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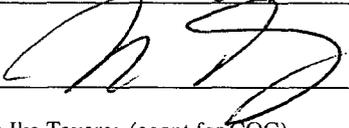
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By Whom? Michelle Mullins	Date and Hour	
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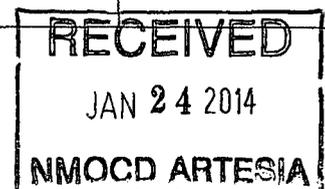
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Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike Tavarez@tetrattech.com	Conditions of Approval:	
Date: 8-30-13 Phone: (432) 682-4559	Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary



## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG-Empire Federal SWD #3**  
**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	14 220	13
19	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	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	23	24
30	29 210	28	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	49	8	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
49	29	28	27	26	25
31	32	33	34	35	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

(Corrected Report)

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

Report Date: February 11, 2013

Work Order: 13012803



Project Location: Eddy Co., NM  
 Project Name: COG/Empire Fed SWD #3  
 Project Number: 112C04997

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
319460	AH-1 0-1'	soil	2013-01-23	00:00	2013-01-25
319461	AH-1 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319462	AH-1 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319463	AH-1 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319464	AH-1 4-4.5'	soil	2013-01-23	00:00	2013-01-25
319466	AH-2 0-1'	soil	2013-01-23	00:00	2013-01-25
319467	AH-2 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319468	AH-2 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319469	AH-2 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319471	AH-3 0-1'	soil	2013-01-23	00:00	2013-01-25
319472	AH-3 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319473	AH-3 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319474	AH-3 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319475	AH-3 4-4.5'	soil	2013-01-23	00:00	2013-01-25
319476	AH-3 5-5.5'	soil	2013-01-23	00:00	2013-01-25
319477	AH-3 6-6.5'	soil	2013-01-23	00:00	2013-01-25
319479	AH-4 0-1'	soil	2013-01-23	00:00	2013-01-25
319480	AH-4 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319481	AH-4 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319483	AH-5 0-1'	soil	2013-01-23	00:00	2013-01-25
319484	AH-5 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319485	AH-5 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319486	AH-5 3-3.5'	soil	2013-01-23	00:00	2013-01-25

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
319460 - AH-1 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319466 - AH-2 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319471 - AH-3 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319479 - AH-4 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319483 - AH-5 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs

Sample: 319460 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4910	mg/Kg	4

Sample: 319461 - AH-1 1-1.5'

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

Sample: 319462 - AH-1 2-2.5'

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

Sample: 319463 - AH-1 3-3.5'

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

Sample: 319464 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		36.8	mg/Kg	4

Sample: 319466 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		10700	mg/Kg	4

Sample: 319467 - AH-2 1-1.5'

---

Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4

---

**Sample: 319468 - AH-2 2-2.5'**

Param	Flag	Result	Units	RL
Chloride		152	mg/Kg	4

---

**Sample: 319469 - AH-2 3-3.5'**

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

---

**Sample: 319471 - AH-3 0-1'**

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4

---

**Sample: 319472 - AH-3 1-1.5'**

Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4

---

**Sample: 319473 - AH-3 2-2.5'**

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4

---

**Sample: 319474 - AH-3 3-3.5'**

Param	Flag	Result	Units	RL
Chloride		5450	mg/Kg	4

---

**Sample: 319475 - AH-3 4-4.5'**

Param	Flag	Result	Units	RL
Chloride		624	mg/Kg	4

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**Sample: 319476 - AH-3 5-5.5'**

Param	Flag	Result	Units	RL
Chloride		213	mg/Kg	4

**Sample: 319477 - AH-3 6-6.5'**

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

**Sample: 319479 - AH-4 0-1'**

Param	Flag	Result	Units	RL
Chloride		3990	mg/Kg	4

**Sample: 319480 - AH-4 1-1.5'**

Param	Flag	Result	Units	RL
Chloride		795	mg/Kg	4

**Sample: 319481 - AH-4 2-2.5'**

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

**Sample: 319483 - AH-5 0-1'**

Param	Flag	Result	Units	RL
Chloride		7990	mg/Kg	4

**Sample: 319484 - AH-5 1-1.5'**

Param	Flag	Result	Units	RL
Chloride		5520	mg/Kg	4

**Sample: 319485 - AH-5 2-2.5'**

Param	Flag	Result	Units	RL
Chloride		4090	mg/Kg	4

**Sample: 319486 - AH-5 3-3.5'**

Param	Flag	Result	Units	RL
Chloride		<b>2360</b>	mg/Kg	4

## Summary Report

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

Report Date: July 5, 2013

Work Order: 13062644



Project Location: Eddy Co., NM  
Project Name: COG/Empire Fed. SWD #3  
Project Number: 112C04997

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
333411	CS 1 (AH-3) 3' NSW	soil	2013-06-25	00:00	2013-06-26
333412	CS 1 (AH-3) 3' ESW	soil	2013-06-25	00:00	2013-06-26
333413	CS 1 (AH-3) 3' SSW	soil	2013-06-25	00:00	2013-06-26
333414	CS 1 (AH-3) 4' BH	soil	2013-06-25	00:00	2013-06-26
333415	CS 2 (AH-2) 2' NSW	soil	2013-06-25	00:00	2013-06-26
333416	CS 2 (AH-2) 2' SSW	soil	2013-06-25	00:00	2013-06-26
333417	CS 2 (AH-2) 2' BH	soil	2013-06-25	00:00	2013-06-26
333418	CS 3 (AH-1) 1' NSW	soil	2013-06-25	00:00	2013-06-26
333419	CS 3 (AH-1) 1' SSW	soil	2013-06-25	00:00	2013-06-26
333420	CS 3 (AH-1) 1' BH	soil	2013-06-25	00:00	2013-06-26
333421	CS 4 (AH-4) 1' NSW	soil	2013-06-25	00:00	2013-06-26
333422	CS 4 (AH-4) 1' SSW	soil	2013-06-25	00:00	2013-06-26
333423	CS 4 (AH-4) 1' BH	soil	2013-06-25	00:00	2013-06-26
333424	CS 5 (AH-5) NSW	soil	2013-06-25	00:00	2013-06-26
333425	CS 5 (AH-5) SSW	soil	2013-06-25	00:00	2013-06-26
333426	CS 5 (AH-5) WSW	soil	2013-06-25	00:00	2013-06-26
333427	CS 5 (AH-5) BH	soil	2013-06-25	00:00	2013-06-26
333428	T1 (AH-5) 0'	soil	2013-06-25	00:00	2013-06-26
333429	T1 (AH-5) 2'	soil	2013-06-25	00:00	2013-06-26
333430	T1 (AH-5) 4'	soil	2013-06-25	00:00	2013-06-26
333431	T1 (AH-5) 6'	soil	2013-06-25	00:00	2013-06-26
333432	T1 (AH-5) 8'	soil	2013-06-25	00:00	2013-06-26
333433	T1 (AH-5) 10'	soil	2013-06-25	00:00	2013-06-26
333434	T1 (AH-5) 12'	soil	2013-06-25	00:00	2013-06-26
333435	CS 1 (AH-3) 4' NSW	soil	2013-06-25	00:00	2013-06-26

### Sample: 333411 - CS 1 (AH-3) 3' NSW

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296  
*This is only a summary. Please, refer to the complete report package for quality control data.*

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Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4

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**Sample: 333412 - CS 1 (AH-3) 3' ESW**

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

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**Sample: 333413 - CS 1 (AH-3) 3' SSW**

Param	Flag	Result	Units	RL
Chloride		404	mg/Kg	4

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**Sample: 333414 - CS 1 (AH-3) 4' BH**

Param	Flag	Result	Units	RL
Chloride		537	mg/Kg	4

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**Sample: 333415 - CS 2 (AH-2) 2' NSW**

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

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**Sample: 333416 - CS 2 (AH-2) 2' SSW**

Param	Flag	Result	Units	RL
Chloride		5120	mg/Kg	4

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**Sample: 333417 - CS 2 (AH-2) 2' BH**

Param	Flag	Result	Units	RL
Chloride		202	mg/Kg	4

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**Sample: 333418 - CS 3 (AH-1) 1' NSW**

Param	Flag	Result	Units	RL
Chloride		1670	mg/Kg	4

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**Sample: 333419 - CS 3 (AH-1) 1' SSW**

Param	Flag	Result	Units	RL
Chloride		2810	mg/Kg	4

**Sample: 333420 - CS 3 (AH-1) 1' BH**

Param	Flag	Result	Units	RL
Chloride		49.4	mg/Kg	4

**Sample: 333421 - CS 4 (AH-4) 1' NSW**

Param	Flag	Result	Units	RL
Chloride		765	mg/Kg	4

**Sample: 333422 - CS 4 (AH-4) 1' SSW**

Param	Flag	Result	Units	RL
Chloride		1070	mg/Kg	4

**Sample: 333423 - CS 4 (AH-4) 1' BH**

Param	Flag	Result	Units	RL
Chloride		479	mg/Kg	4

**Sample: 333424 - CS 5 (AH-5) NSW**

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

**Sample: 333425 - CS 5 (AH-5) SSW**

Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4

**Sample: 333426 - CS 5 (AH-5) WSW**

Param	Flag	Result	Units	RL
Chloride		168	mg/Kg	4

**Sample: 333427 - CS 5 (AH-5) BH**

Param	Flag	Result	Units	RL
Chloride		158	mg/Kg	4

**Sample: 333428 - T1 (AH-5) 0'**

Param	Flag	Result	Units	RL
Chloride		3740	mg/Kg	4

**Sample: 333429 - T1 (AH-5) 2'**

Param	Flag	Result	Units	RL
Chloride		7580	mg/Kg	4

**Sample: 333430 - T1 (AH-5) 4'**

Param	Flag	Result	Units	RL
Chloride		1370	mg/Kg	4

**Sample: 333431 - T1 (AH-5) 6'**

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

**Sample: 333432 - T1 (AH-5) 8'**

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

**Sample: 333433 - T1 (AH-5) 10'**

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

**Sample: 333434 - T1 (AH-5) 12'**

Param	Flag	Result	Units	RL
Chloride		55.3	mg/Kg	4

**Sample: 333435 - CS 1 (AH-3) 4' NSW**

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