

**SITE INFORMATION**

2RP-610

**Report Type: Work Plan**

**General Site Information**

<b>Site:</b>	Electra Federal #5 Tank Battery		
<b>Company:</b>	COG Operating LLC		
<b>Section, Township and Range</b>	Unit D - Section 15 - Township 17S - Range 30E		
<b>Lease Number:</b>	30-015-34211		
<b>County:</b>	Eddy County		
<b>GPS:</b>	32.83989° N	103.96511° W	
<b>Surface Owner:</b>	Federal		
<b>Mineral Owner:</b>			
<b>Directions:</b>	From the intersection of Hwy 82 and CR-217 in Loco Hills, travel north on CR-217 1.7 mi, turn right and travel 1.0 mi, turn right and travel 0.2 mi to location on left.		

**Release Data**

<b>Date Released:</b>	2/9/2011
<b>Type Release:</b>	Produced Water
<b>Source of Contamination:</b>	Flowline failure
<b>Fluid Released:</b>	8 bbls
<b>Fluids Recovered:</b>	6 bbls

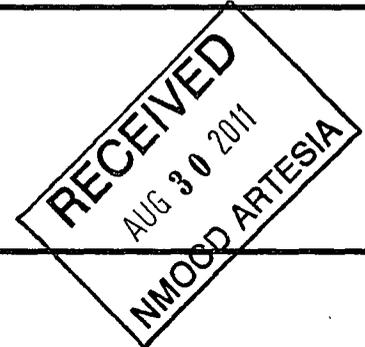
**Official Communication:**

<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**

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

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





**TETRA TECH**

July 25, 2011

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

**Re: Work Plan for the COG Operating LLC., Electra Federal #5 Tank Battery, Unit D, Section 15, Township 17 South, Range 30 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 Electra Federal #5 Tank Battery, Unit D, Section 15, Township 17 South, Range 30 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.83989°, W 103.96511°. 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 9, 2011, and released approximately eight (8) barrels of produced water due to freezing temperatures splitting a flow line. To alleviate the problem, COG personnel replaced the damaged flow line. Six (6) barrels of standing fluids were recovered. The spill initiated from a flow line in the pasture area south of the tank battery and migrated north approximately 150'. The spill affected an area approximately 10 x 150'. The initial C-141 form is enclosed in Appendix A.

### **Groundwater**

No water wells were listed within Section 15. According to the NMOCD Eddy County groundwater map, the average depth to groundwater in this area is greater than 300' 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.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 March 4, 2011, Tetra Tech personnel inspected and sampled the spill area. A total of four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Select 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for TPH and BTEX, with the exception of AH-2. Auger hole (AH-2) showed a TPH of 8,140 mg/kg and a total BTEX of 217.18 mg/kg at 0-1' and declined below the RRAL at 1-1.5' below surface.

A shallow chloride impact was detected in the auger holes. In the areas of AH-1, AH-2 and AH-3, the chloride concentrations declined below the reporting limit at 4.0', 5.0' and 1.0', respectively. Auger hole (AH-4) showed a chloride concentrations of 2,450 mg/kg at 0-1' and declined to <200 at 1-1.5', but the deeper sample showed an increasing chloride concentration of 1,000 mg/kg at 3-3.5' below surface.

## **Work Plan**

COG proposes to removal of impacted material as highlighted (green) in Table 1 and shown in Figure 4. The areas of AH-1 and AH-2 will be excavated to a depth of approximately 4.0' to 5.0' below surface. In addition,



**TETRA TECH**

auger holes (AH-3 and AH-4) will be excavated 1.0' to remove the chloride impacted soils. Once excavated to the appropriate depths, the area of AH-4 will be trenched with a backhoe to define chloride impact encountered at 3.0' below surface. Once completed, the excavations will be backfilled with clean soil. Upon completion a final report will be submitted to the NMOCD.

The goal of the remediation is to establish surface growth and to reduce the environmental liabilities for the protection of the groundwater. Based on site formation, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

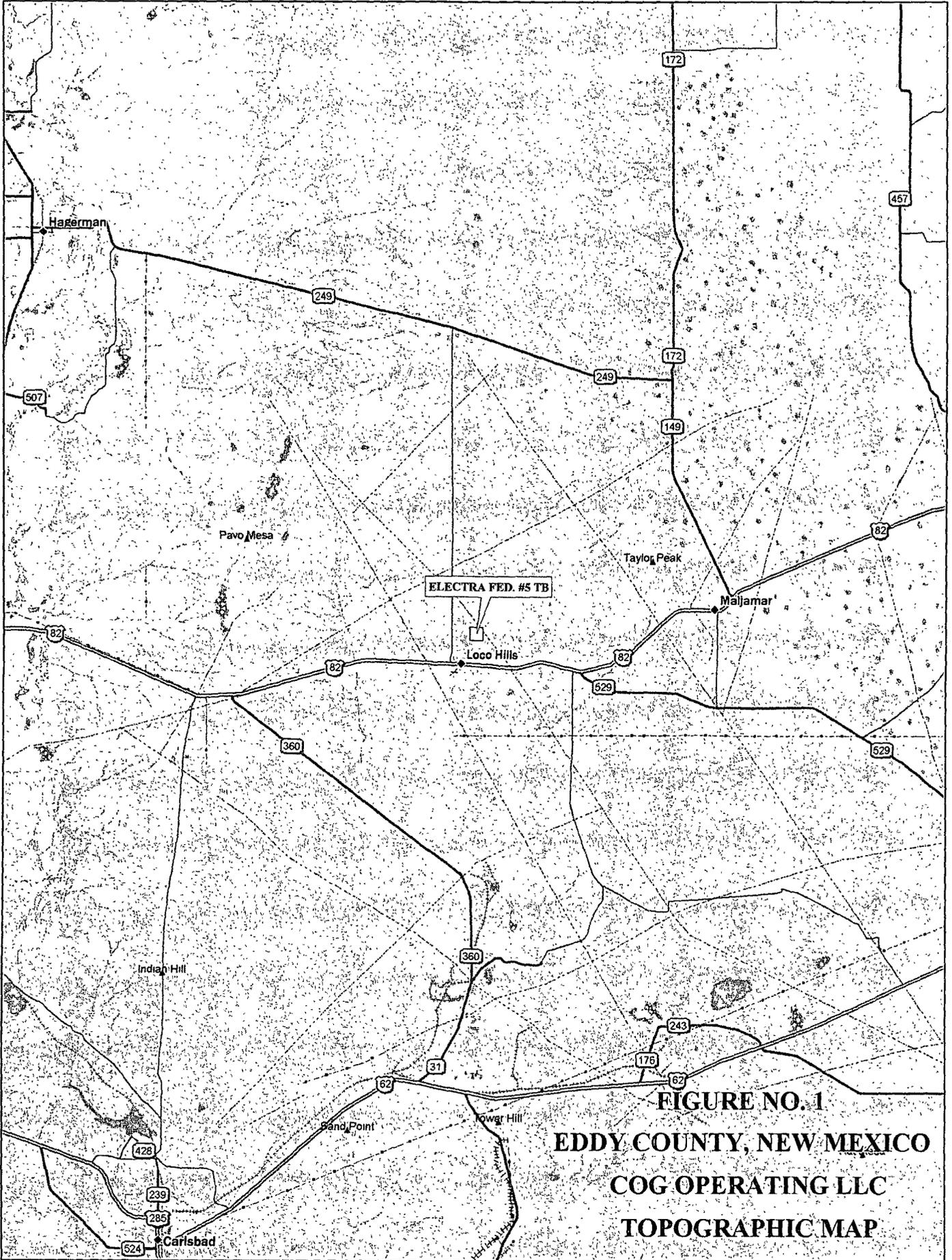
If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,  
TETRA TECH

Ike Tavarez, PPG  
Sr. Project Manager

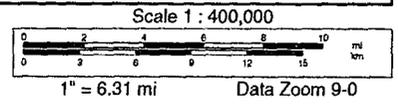
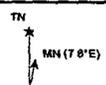
cc: Pat Ellis – COG  
cc: Terry Gregston – BLM  
cc: Jim Amos – BLM

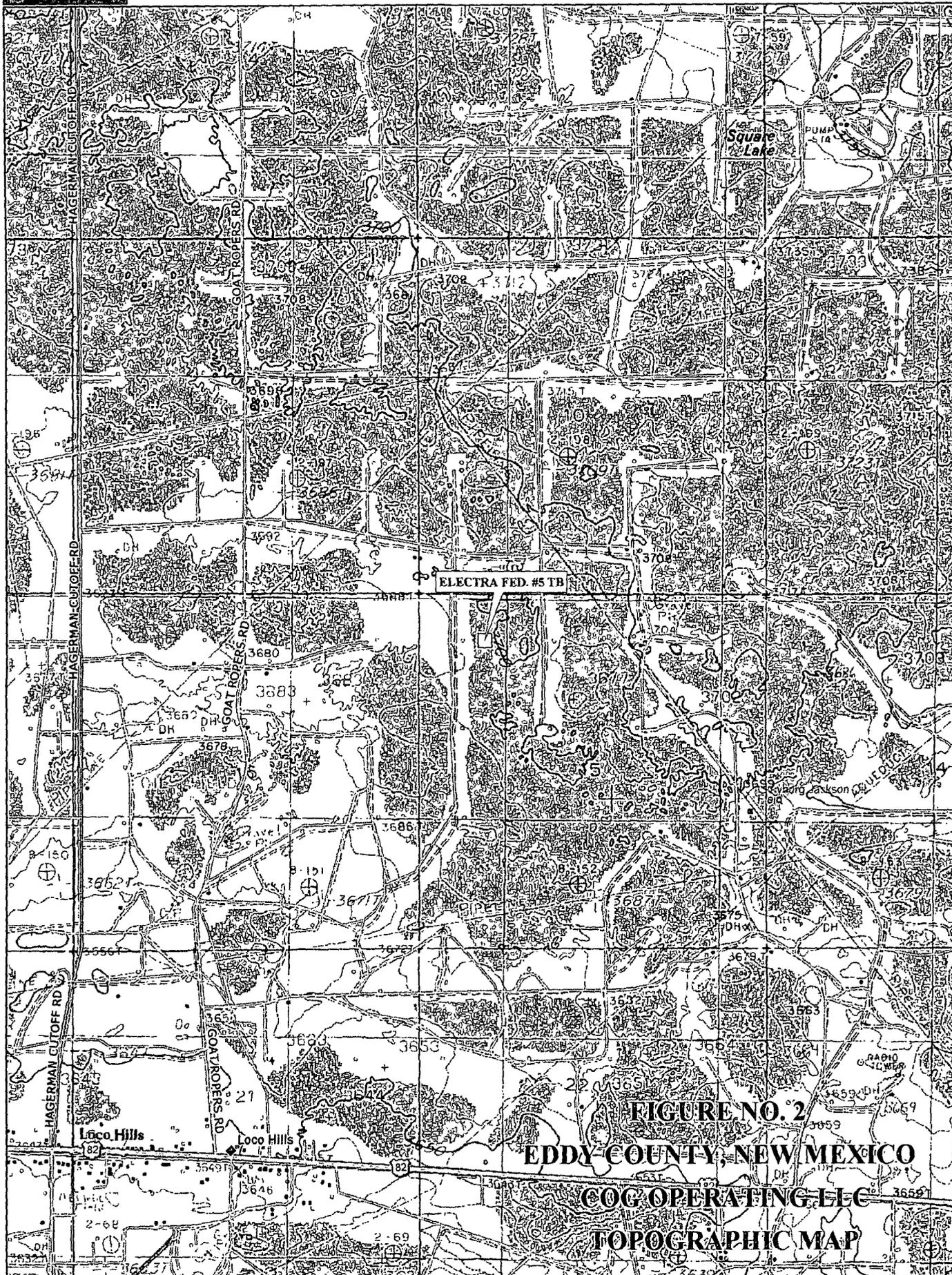
## Figures



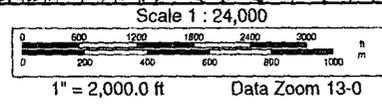
**FIGURE NO. 1**  
**EDDY COUNTY, NEW MEXICO**  
**COG OPERATING LLC**  
**TOPOGRAPHIC MAP**

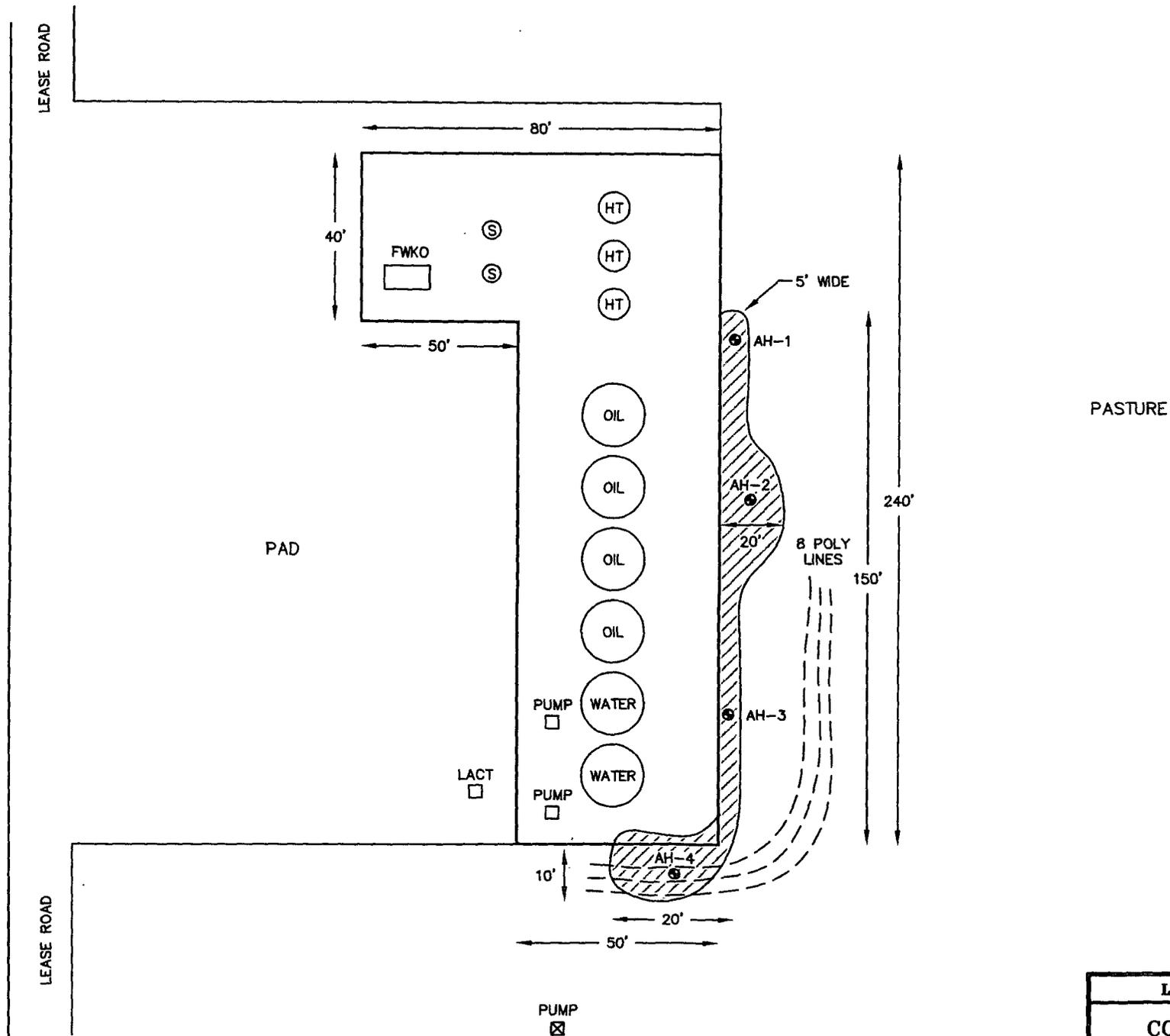
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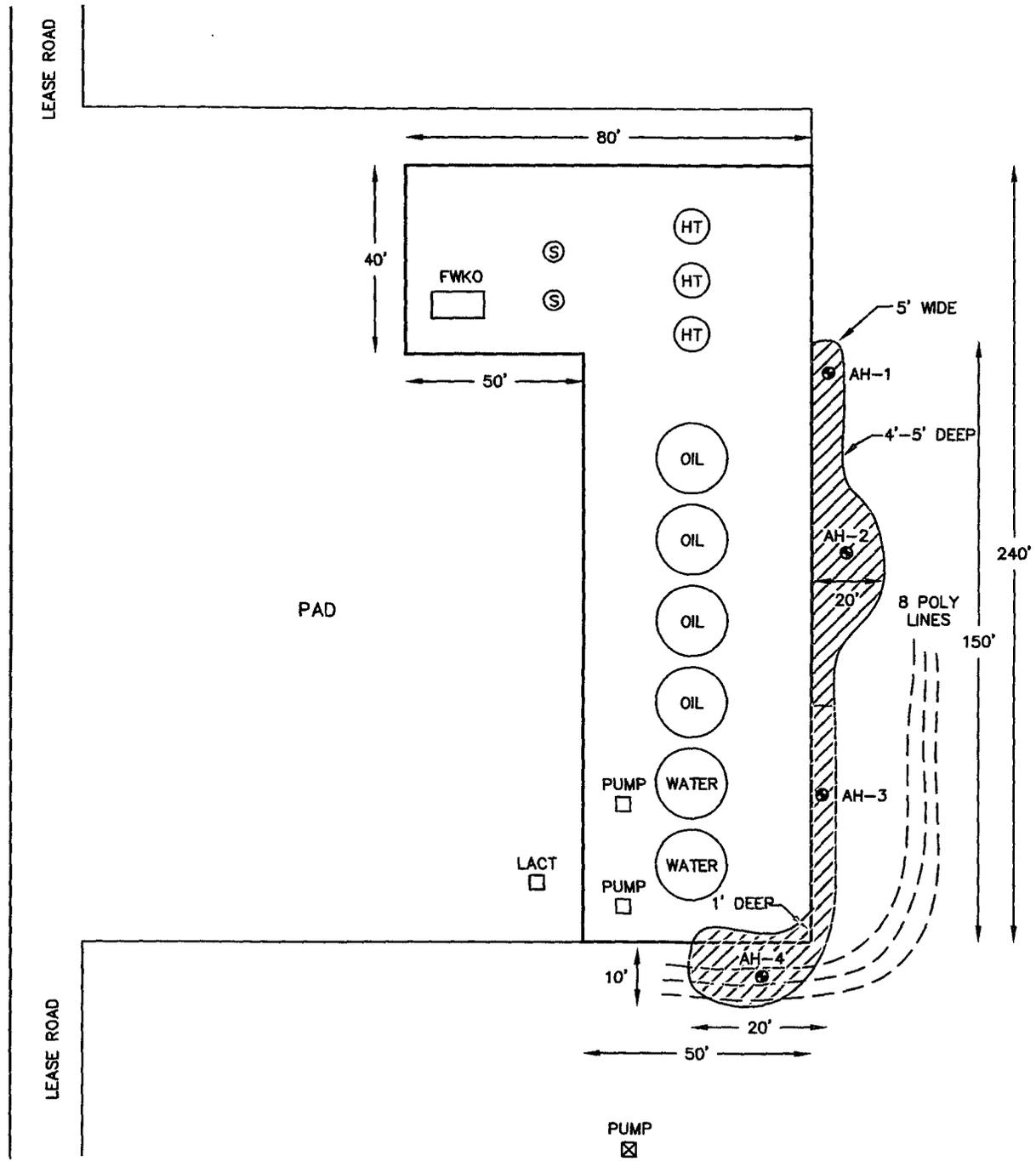


☒ SPILL AREA  
● AUGER HOLE SAMPLE LOCATIONS

DATE:  
7/28/2011  
DWN. BY:  
IM  
FILE:  
HA/CDD/640025  
ELECTRA FED #5 TB

NOT TO SCALE

FIGURE NO. 3
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
ELECTRA FED #5 TB
TETRA TECH, INC. MIDLAND, TEXAS



▨ PROPOSED EXCAVATION AREA  
⊙ AUGER HOLE SAMPLE LOCATIONS

DATE: 7/28/2011  
DWN. BY: IM  
FILE: H:\COG\PROJECTS\ELECTRA FED #5 TB

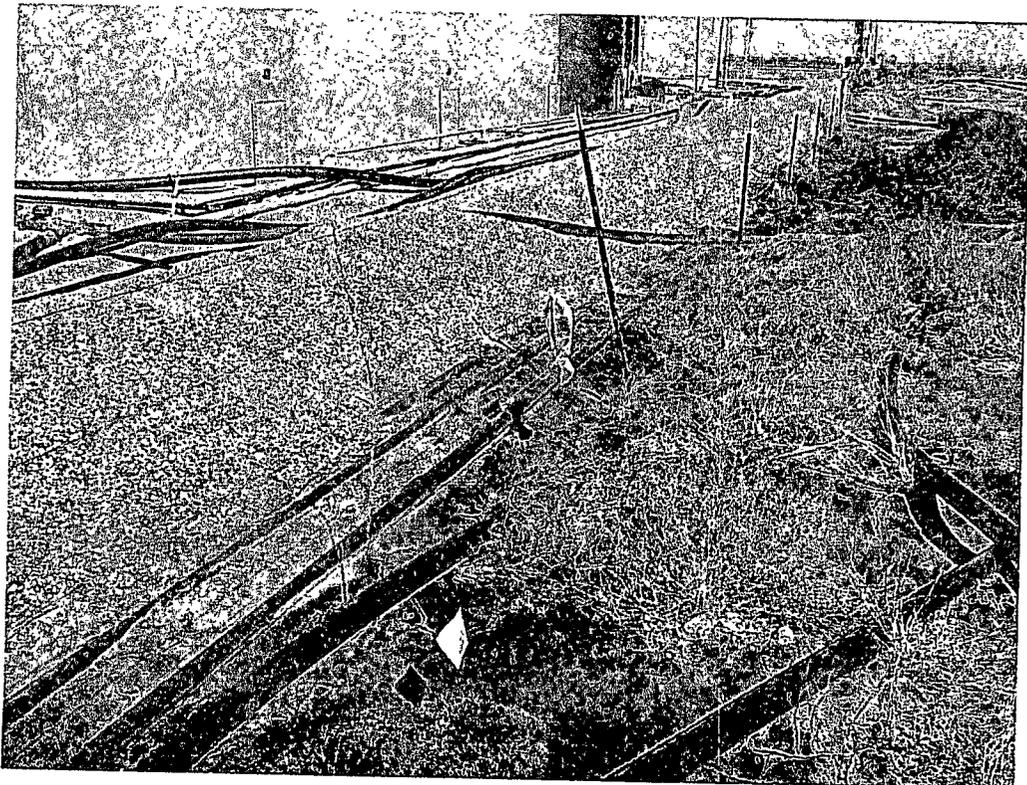
NOT TO SCALE

FIGURE NO. 4
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
ELECTRA FED #5 TB
TETRA TECH, INC. MIDLAND, TEXAS

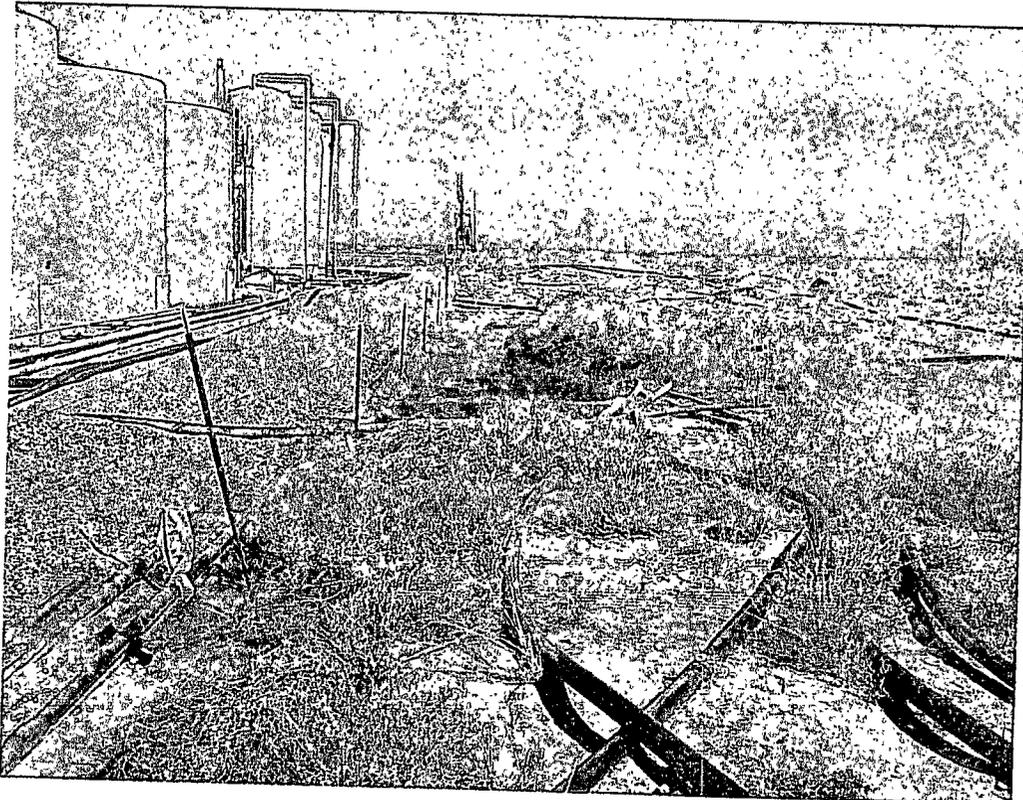
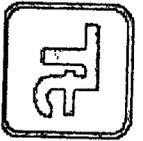
Photos



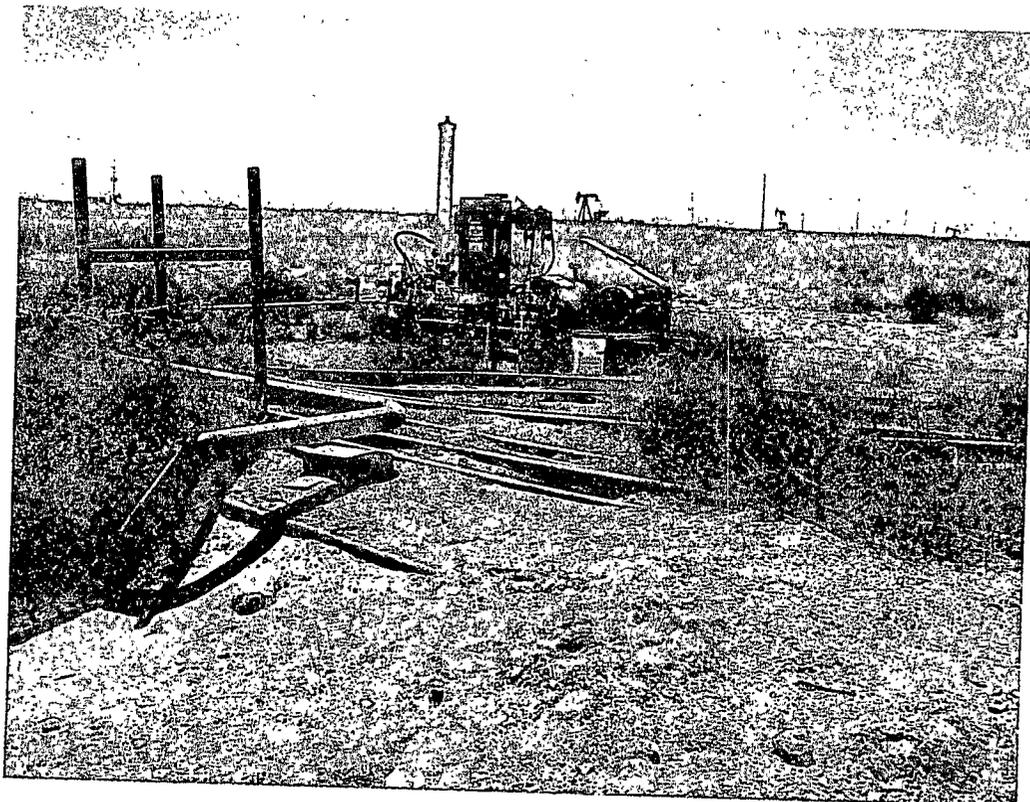
View north – Back of tank battery near AH-2



View north – Back of tank battery near AH-3



View north – Back of tank battery near AH-3



Pumping unit near AH-4

## Tables

**Table 1**  
**COG Operating LLC.**  
**ELECTRA FEDERAL #5**  
**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)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-1	3/4/2011	0-1'	X		53.0	163	216.0	0.136	0.186	0.178	0.492	6,020
	"	1-1.5'	X		-	-	-	-	-	-	-	4,770
	"	2-2.5'	X		-	-	-	-	-	-	-	1,710
	"	3-3.5'	X		-	-	-	-	-	-	-	1,710
	"	4-4.5'	X		-	-	-	-	-	-	-	<200
	"	5-5.5'	X		-	-	-	-	-	-	-	214
AH-2	3/4/2011	0-1'	X		3,260	4,880	8,140	5.38	63.0	59.6	89.2	8,740
	"	1-1.5'	X		<2.00	<50.0	<50.0	<0.0200	0.161	<0.0200	<0.0200	3,030
	"	2-2.5'	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	2,820
	"	3-3.5'	X		-	-	-	-	-	-	-	291
	"	4-4.5'	X		-	-	-	-	-	-	-	2,520
	"	5-5.5'	X		-	-	-	-	-	-	-	<200
	"	6-6.5'	X		-	-	-	-	-	-	-	<200
AH-3	3/4/2011	0-1'	X		478	180	658	<0.0200	4.35	8.52	12.8	2,490
	"	1-1.5'	X		-	-	-	-	-	-	-	<200
	"	2-2.5'	X		-	-	-	-	-	-	-	461
AH-4	3/4/2011	0-1'	X		54.2	245	299.2	<0.0200	0.152	0.228	0.548	2,450
	"	1-1.5'	X		-	-	-	-	-	-	-	<200
	"	2-2.5'	X		-	-	-	-	-	-	-	<200
	"	3-3.5'	X		-	-	-	-	-	-	-	1,000

(-- ) Not Analyzed

Proposed Excavation Depths

# 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-14  
Revised October 10, 2007

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	Electra Federal #5	Facility Type	Flowline
Surface Owner	Federal	Mineral Owner	
			Lease No. (API#) 30-015-34211

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	15	17S	30E					Eddy

Latitude 32 50.373 Longitude 103 57.919

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	8bbls	Volume Recovered	6bbls
Source of Release	Flowline	Date and Hour of Occurrence	02/09/2011	Date and Hour of Discovery	02/09/2011 10:00 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.			

**RECEIVED**  
AUG 30 2011  
NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.\*

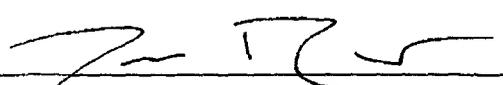
Describe Cause of Problem and Remedial Action Taken.\*

Due to freezing temperatures the flowline split and released fluid. We replaced the split joint of pipe and returned the line into service.

Describe Area Affected and Cleanup Action Taken.\*

Initially 8bbls was released from the flowline and we were able to recover 6bbls with a vacuum truck. The release occurred just outside the berm wall of the facility on the south side between the water pumps and booster pump, and traveled approximately 4' x 30' on the location and into the pasture area. 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 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: HSE Coordinator		Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com		Conditions of Approval:	
Date: 02/21/2011 Phone: 432-212-2399		Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG - Electra Federal #5**  
**Eddy County, New Mexico**

**16 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
<b>110</b>	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

**16 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

**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	<b>210</b>	28	27	26
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	<b>SITE</b>	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	15	14	13
19	20	21	22	23	24
30	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	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

**18 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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Site Location - Electra Federal #5 Site

# Appendix C

## Summary Report

Victoria Inman  
Tetra Tech  
1910 N. Big Spring Street  
Midland, TX 79705

Report Date: March 17, 2011

Work Order: 11030725



Project Location: Eddy County, NM  
Project Name: COG/Electra Federal #5  
Project Number: 114-6400825

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
259766	AH-1 0-1'	soil	2011-03-04	00:00	2011-03-04
259767	AH-1 1-1.5'	soil	2011-03-04	00:00	2011-03-04
259768	AH-1 2-2.5'	soil	2011-03-04	00:00	2011-03-04
259769	AH-1 3-3.5'	soil	2011-03-04	00:00	2011-03-04
259770	AH-1 4-4.5'	soil	2011-03-04	00:00	2011-03-04
259771	AH-1 5-5.5'	soil	2011-03-04	00:00	2011-03-04
259772	AH-2 0-1'	soil	2011-03-04	00:00	2011-03-04
259773	AH-2 1-1.5'	soil	2011-03-04	00:00	2011-03-04
259774	AH-2 2-2.5'	soil	2011-03-04	00:00	2011-03-04
259775	AH-2 3-3.5'	soil	2011-03-04	00:00	2011-03-04
259776	AH-2 4-4.5'	soil	2011-03-04	00:00	2011-03-04
259777	AH-2 5-5.5'	soil	2011-03-04	00:00	2011-03-04
259778	AH-2 6-6.5'	soil	2011-03-04	00:00	2011-03-04
259779	AH-3 0-1'	soil	2011-03-04	00:00	2011-03-04
259780	AH-3 1-1.5'	soil	2011-03-04	00:00	2011-03-04
259781	AH-3 2-2.5'	soil	2011-03-04	00:00	2011-03-04
259782	AH-4 0-1'	soil	2011-03-04	00:00	2011-03-04
259783	AH-4 1-1.5'	soil	2011-03-04	00:00	2011-03-04
259784	AH-4 2-2.5'	soil	2011-03-04	00:00	2011-03-04
259785	AH-4 3-3.5'	soil	2011-03-04	00:00	2011-03-04

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)		
259766 - AH-1 0-1'	0.136	0.186	0.178	0.492	163	53.0
259772 - AH-2 0-1'	5.38	63.0	59.6	89.2	4880	3260
259773 - AH-2 1-1.5'	<0.0200	0.161	<0.0200	<0.0200	<50.0	<2.00
259774 - AH-2 2-2.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
259779 - AH-3 0-1'	<0.0200	4.35	8.52	12.8	180	478

continued ...

... continued

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)		
259782 - AH-4 0-1'	<0.0200	0.152	0.228	0.548	245	54.2

Sample: 259766 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		6020	mg/Kg	4.00

Sample: 259767 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4770	mg/Kg	4.00

Sample: 259768 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1710	mg/Kg	4.00

Sample: 259769 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1710	mg/Kg	4.00

Sample: 259770 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 259771 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		214	mg/Kg	4.00

Sample: 259772 - AH-2 0-1'

continued ...

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sample 259772 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		8740	mg/Kg	4.00

Sample: 259773 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3030	mg/Kg	4.00

Sample: 259774 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2820	mg/Kg	4.00

Sample: 259775 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		291	mg/Kg	4.00

Sample: 259776 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		2520	mg/Kg	4.00

Sample: 259777 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 259778 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 259779 - AH-3 0-1'

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Param	Flag	Result	Units	RL
Chloride		2490	mg/Kg	4.00

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**Sample: 259780 - AH-3 1-1.5'**

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Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

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**Sample: 259781 - AH-3 2-2.5'**

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Param	Flag	Result	Units	RL
Chloride		461	mg/Kg	4.00

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**Sample: 259782 - AH-4 0-1'**

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Param	Flag	Result	Units	RL
Chloride		2450	mg/Kg	4.00

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**Sample: 259783 - AH-4 1-1.5'**

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Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

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**Sample: 259784 - AH-4 2-2.5'**

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Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

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**Sample: 259785 - AH-4 3-3.5'**

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Param	Flag	Result	Units	RL
Chloride		1000	mg/Kg	4.00

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