Bratcher, Mike, EMNRD

From: Tavarez, Ike [Ike.Tavarez@tetratech.com]
Sent: Friday, February 25, 2011 3:28 PM
To: Bratcher, Mike, EMNRD; Terry Gregston (terry_gregston@nm.blm.gov)
Cc: James_Amos@blm.gov; Pat Ellis; Joshua Russo
Subject: COG - Spruce Fed. #1 Tank Battery - Work Plan Approval Request
Attachments: COG- Spruce Figure 4 and 5 .pdf; COG- Spruce Figures 1, 2, 3.pdf; COG - Spruce Work Plan .pdf

COG Operating
Spruce Federal #1 Tank Battery
Section 25, T17S, R27E, Unit K
Eddy County, New Mexico
32.80240 103.23351

Mike and Terry,

Please find the enclosed attached work plan for your review. Once approved, Tetra Tech will setup the remediation as soon as possible. Call me if you have any questions or comments on the work plan. Thanks

Ike Tavarez, PG | Senior Project Manager

Main: 432.682.4559 | Fax: 432.682.3946 | Cell: 432.425.3873

Ike.Tavarez@tetratech.com

Tetra Tech | Complex World, Clear Solutions™

1910 North Big Spring | Midland, TX 79705 | www.tetratech.com

SITE INFORMATION

Report Type: Work Plan

General Site Information:		
Site:	Spruce Federal #1 Tank Battery (Two Spills)	
Company:	COG Operating LLC	
Section, Township and Range	Unit K - Sec 25 - T17S - R27E	
Lease Number:	NM96836	
County:	Eddy County	
GPS:	32.802409° N	103.233511° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of US Hwy 82 and CR-225 (Hilltop Road), travel south on CR-225 for 0.7 miles, turn left 0.1 miles to location on left.	

Release Data:	Spill #1	Spill #2
Date Released:	1/4/2010	7/20/2010
Type Release:	Produced Water	Produced Water
Source of Contamination:	heater treater leg	storage tank developed hole
Fluid Released:	50 bbls	60 bbls
Fluids Recovered:	0 bbls	4 bbls

Official Communication:			
Name:	Pat Ellis		Ike Tavarez
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) 631-0348
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:	10	

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

TETRA TECH

February 18, 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., Spruce Federal #1 Tank Battery, Section 25, Township 17 South, Range 27 East, Unit K, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess two (2) spills that occurred at the Spruce Federal #1 Tank Battery located in Section 25, Township 17 South, Range 27 East, Unit Letter K, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80248°, W 104.23353°. The site location is shown on Figures 1, 2 and 3.

Background

The Spruce Federal #1 Tank Battery had two separate spills recorded with two individual initial C-141 forms. The separate spills occurred on January 4, 2010 (Spill #1) and July 20, 2010 (Spill #2).

Spill #1

According to the State of New Mexico C-141 Initial Report, the leak was discovered on January 4, 2010. The leak occurred when the water leg

Tetra Tech
Tel Fax

on a heater treater separated and released approximately fifty (50) barrels of produced water. To alleviate the problem, COG personnel replaced the water leg. Zero (0) barrels of standing fluids were recovered. The spill initiated from the heater treater and migrated approximately 250' north of the tank battery, with a width of 1.0' to 5.0'. The initial C-141 form is enclosed in Appendix C.

Spill #2

On July 20, 2010, a hole was discovered at the bottom of a fiberglass tank and released approximately sixty (60) barrels of produced water. Four (4) barrels of standing fluids were recovered. The spill migrated 900' northwest of the tank battery, with a width of 2.0' to 5.0'. The initial C-141 form is enclosed in Appendix C.

Groundwater

No water wells were listed within Section 25. One well is listed in Section 23 with a reported total depth of 220' below surface and water depth of 40.0' below surface. This is believed to be an artesian well. A well located in Section 19, Township 17 South, Range 28 East shows a depth to water at 224' below surface. According to the NMOCD Eddy County groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The well report data are 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 5,000 mg/kg.

TETRA TECH

Soil Assessment and Analytical Results

Spill #1

On April 1, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of eight (8) auger holes (AH-1 through AH-8) 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 B. The sampling results 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. Elevated chloride concentrations were detected in the subsurface soils. Auger holes (AH-1, AH-2, AH-3, AH-4, AH-5 and AH-6) were not vertically defined. The auger hole bottom hole samples ranged from 690 mg/kg (AH-6 at 2.0') to 9,890 mg/kg (AH-4 at 2.0'). Auger holes (AH-7 and AH-8 were vertically defined and showed a shallow impact in the area. The background boring showed a chloride high of 382 mg/kg at 10.0' below surface. In order to define the vertical extents, an air rotary drilling rig was utilized to collect deeper samples.

On May 12, 2010, Tetra Tech personnel supervised and collected samples from the installation of soil borings. A total of six (6) soil borings (SB-1 through SB-6) were installed at the site. Additionally, a background soil boring (SB-BG) was installed approximately 150' east of the spill location in native soil. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The sampling results are summarized in Table 1. The soil bore locations are shown on Figure 4.

Referring to Table 1, all of the elevated chloride concentrations decreased to less than 250 mg/kg with depth.

Spill #2

On August 23, 2010, Tetra Tech personnel supervised the installation of soil borings at the site. A total of twelve (12) soil borings (SB-1 through SB-12) were installed to assess the spill area. 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 B. The results of the sampling are summarized in Table 2. The soil bore locations are shown on Figure 4.

Referring to Table 2, all of the submitted samples were below the RRAL for TPH and BTEX. All of the soil borings declined with depth and were vertically defined. The detectable chloride concentrations ranged from 205 mg/kg (SB-7) to 16,900 mg/kg (SB-1). The deepest impact was encountered in the areas of SB-1, SB-2 and SB-3, with chloride concentrations significantly declining at 5.0' to 7.0' below surface. The remaining soil borings (SB-4 through SB-10) did show shallow impact to the soil at surface (0-1'). Soil borings (SB-11 and SB-12) did not show an impact to the soil.

Work Plan

Spill #1

In order to remove the chloride impacted soil, Tetra Tech proposes to excavate the areas near SB-1 and SB-3 to a depth of approximately 10.0' below surface. Additionally, the areas around SB-2 and SB-4 will be excavated to a depth of 7.0' bgs, SB-5 and SB-6 to a depth of 3.0' below surface and near SB-7 and SB-8 to an approximate depth of 1.5'. The proposed excavation depths are highlighted in Table 1. The excavated soil will be hauled to proper disposal and the excavations backfilled with clean soil. The proposed excavation area and depths are shown on Figure 5.

Spill #2

Based on the results, the TPH, BTEX were below the RRAL. The chloride impact was vertically defined in all of the soil borings. In order to remove the elevated chloride concentrations, Tetra Tech proposes to excavate the areas near SB-1, SB-2 and SB-3 to a depth of 5.0' to 7.0' bgs. The areas of soil borings (SB-4 through SB-10) did show shallow impact to soils and it is proposed to remove approximately 1.0' of surface soil. The proposed excavation depths are highlighted in Table 2. The excavated soil will be hauled to proper disposal and the excavations backfilled with clean soil. The proposed excavated area and depths are shown on Figure 5.

Since the impacted areas of Spill #1 and Spill #2 may have unknown limitations due to geological irregularities, the proposed excavation depths may not be reached due to wall cave ins, safety concerns for lines and equipment, as well as other onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the proposed depths are not reached, a 40 mil liner will be installed at a depth of 4.0' to 5.0' below surface to cap the impacted area.

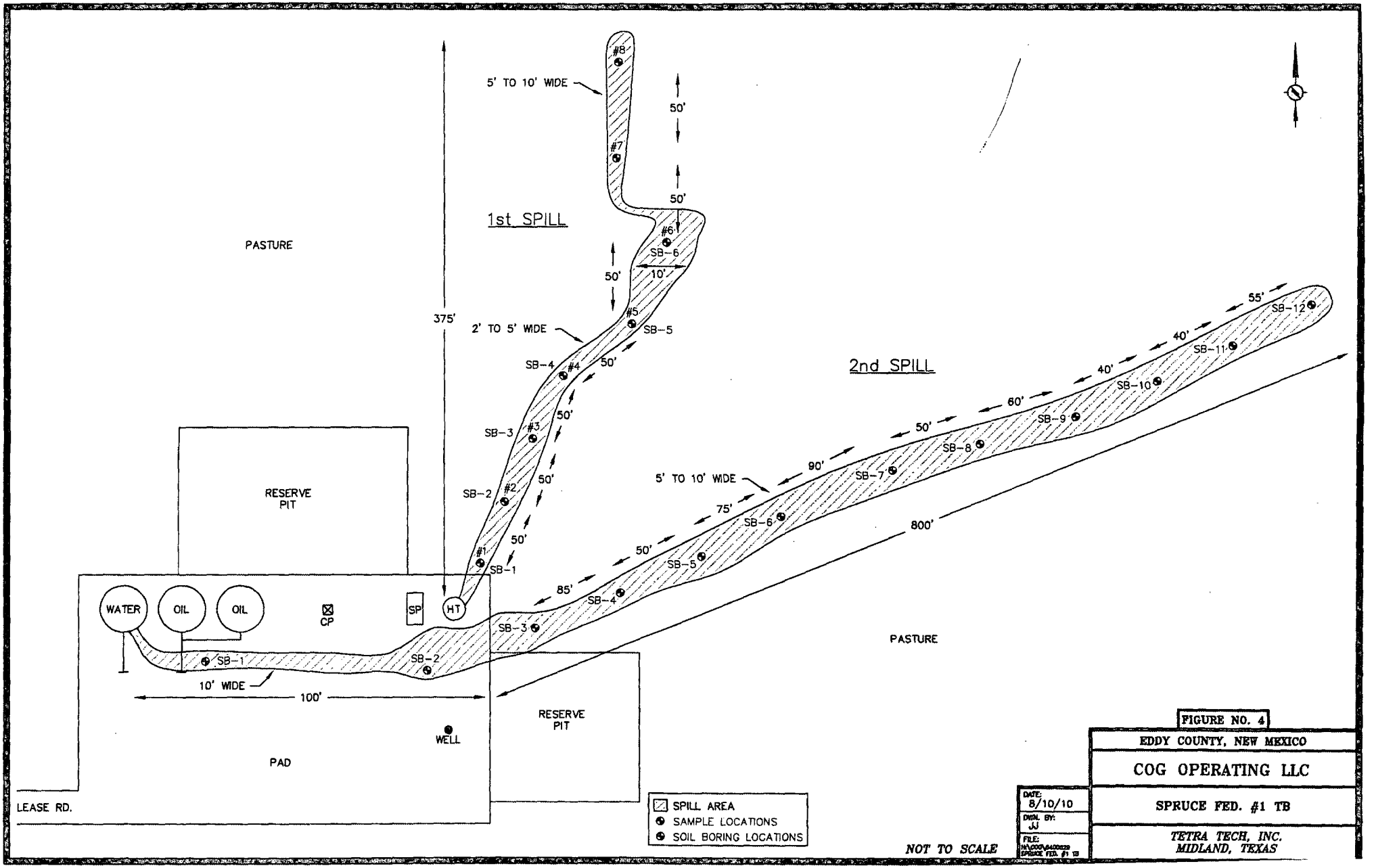
TETRA TECH

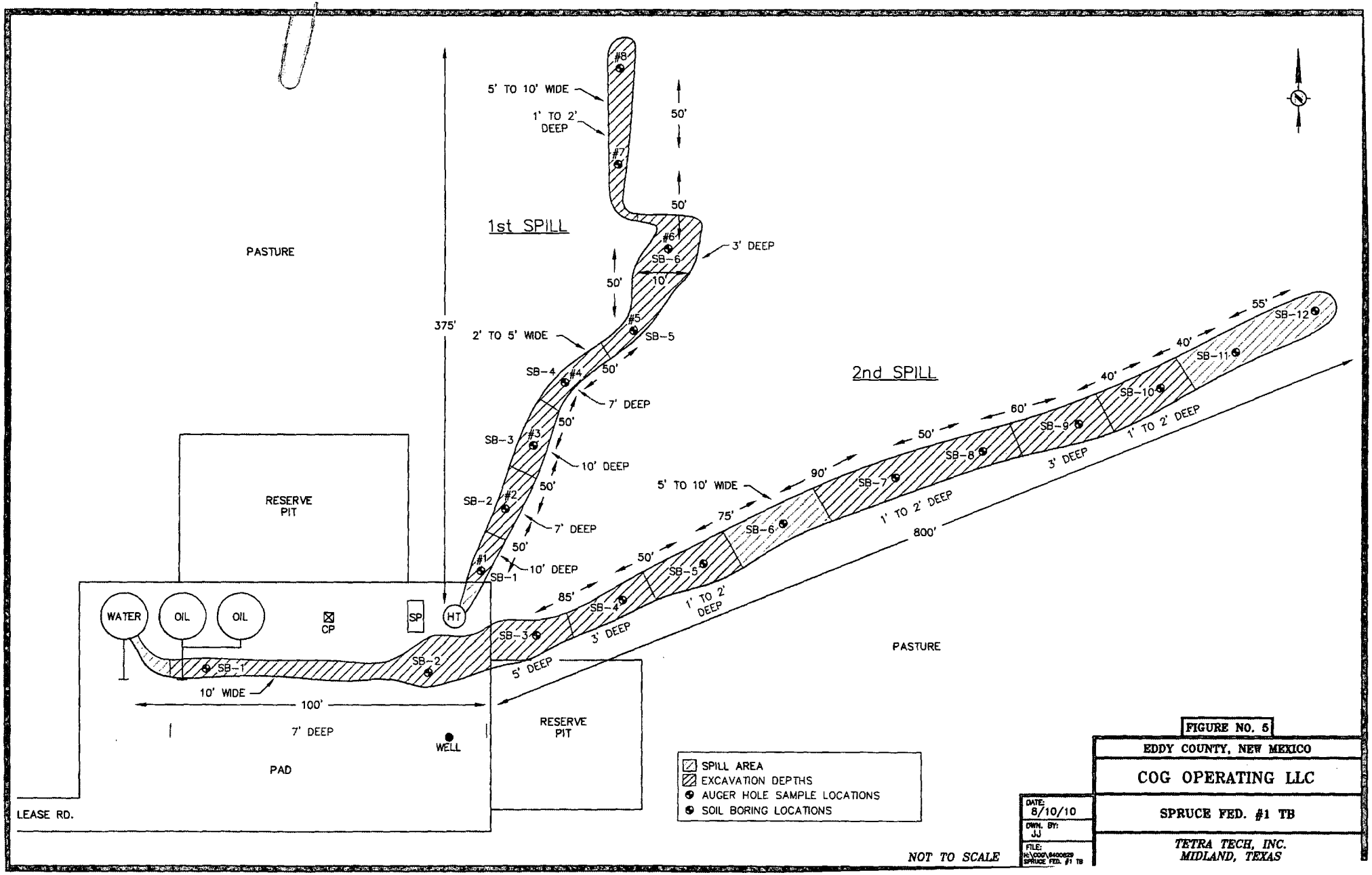
Once the remedial activities are completed, a closure report will be submitted to NMOCD and BLM for review. If you have any questions or comments concerning the assessment or work plan at the site, please call me at (432) 682-4559.

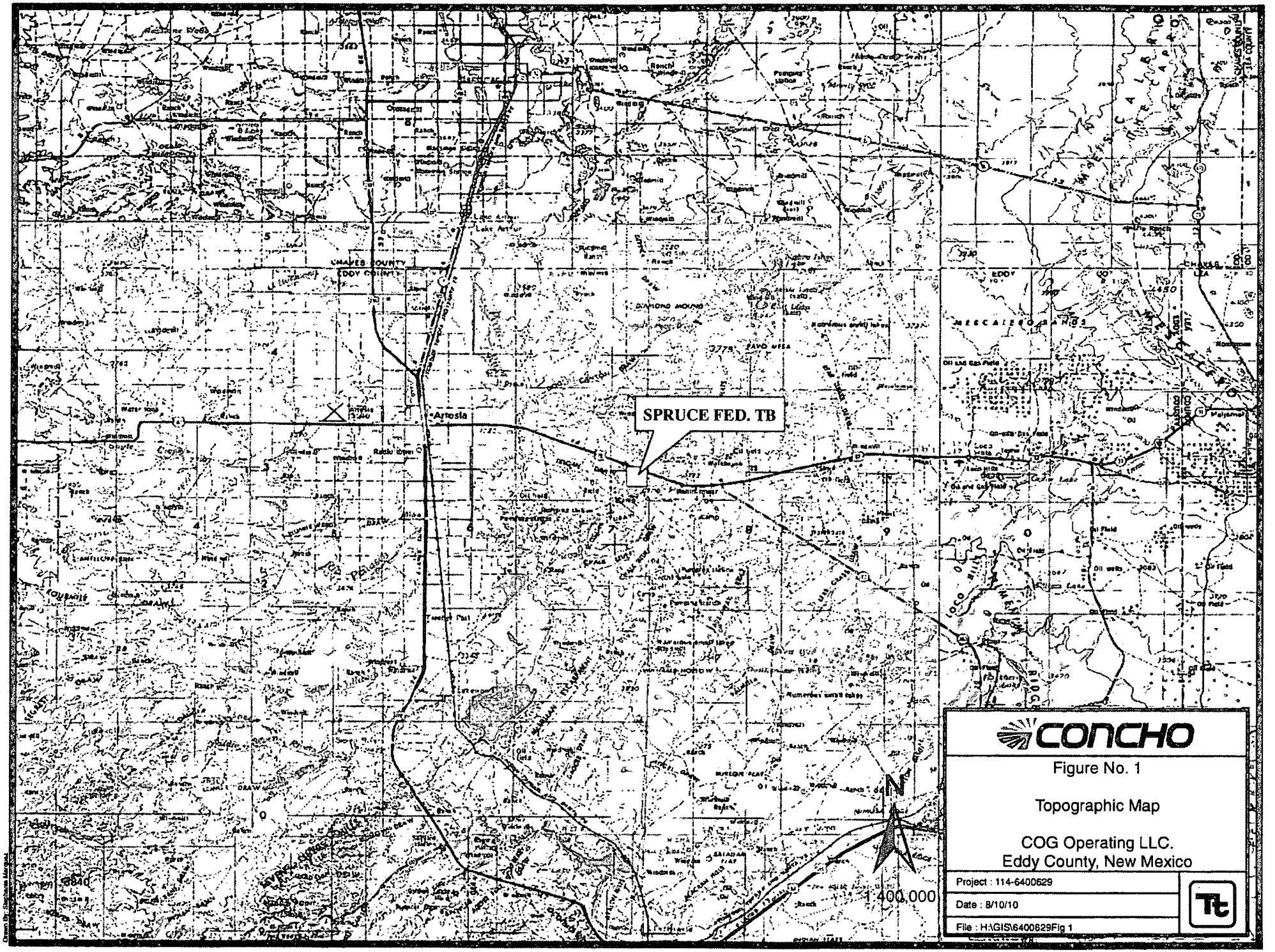
Respectfully submitted,
TETRA TECH

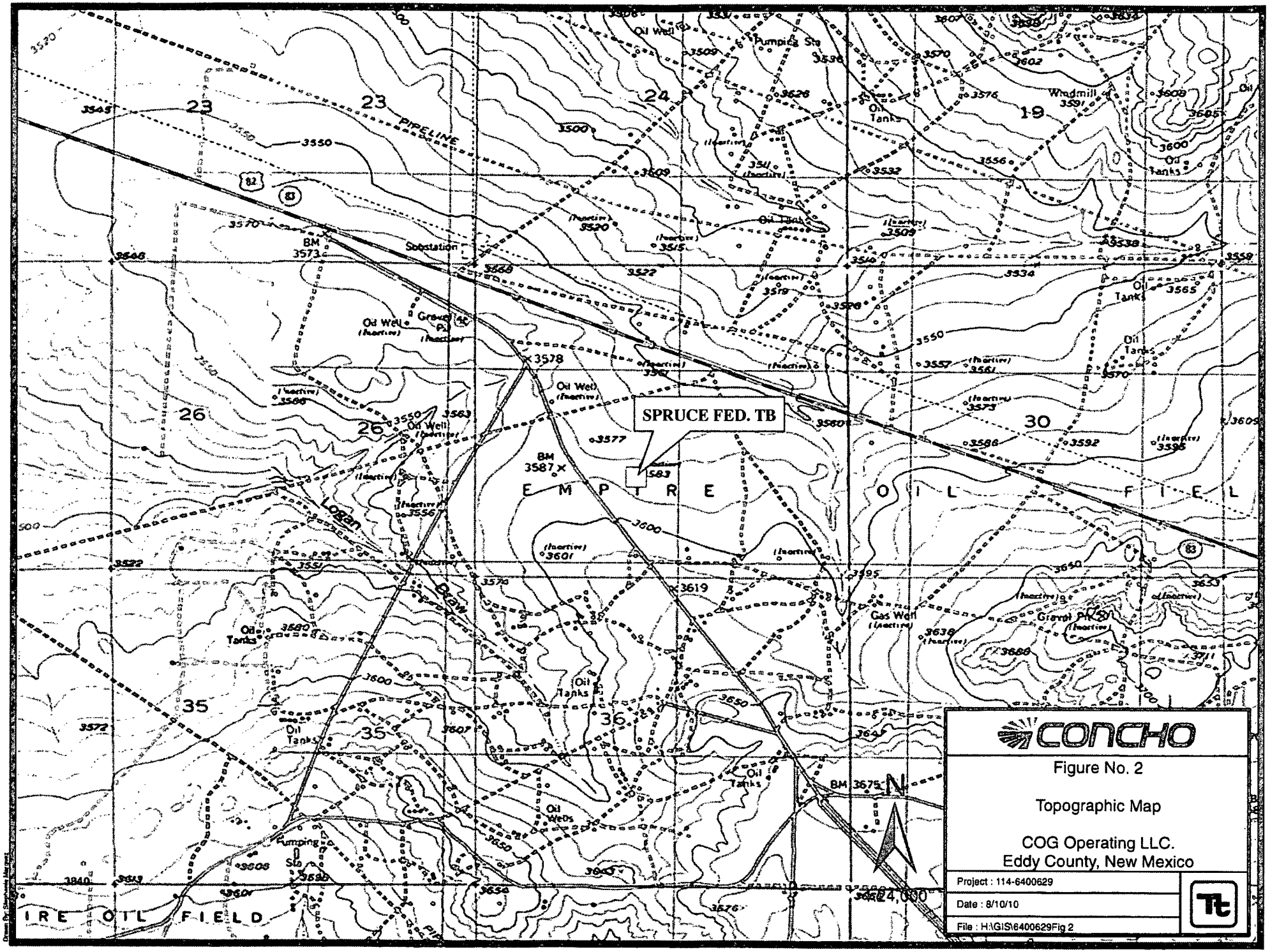
Ike Tavarez
Project Manager

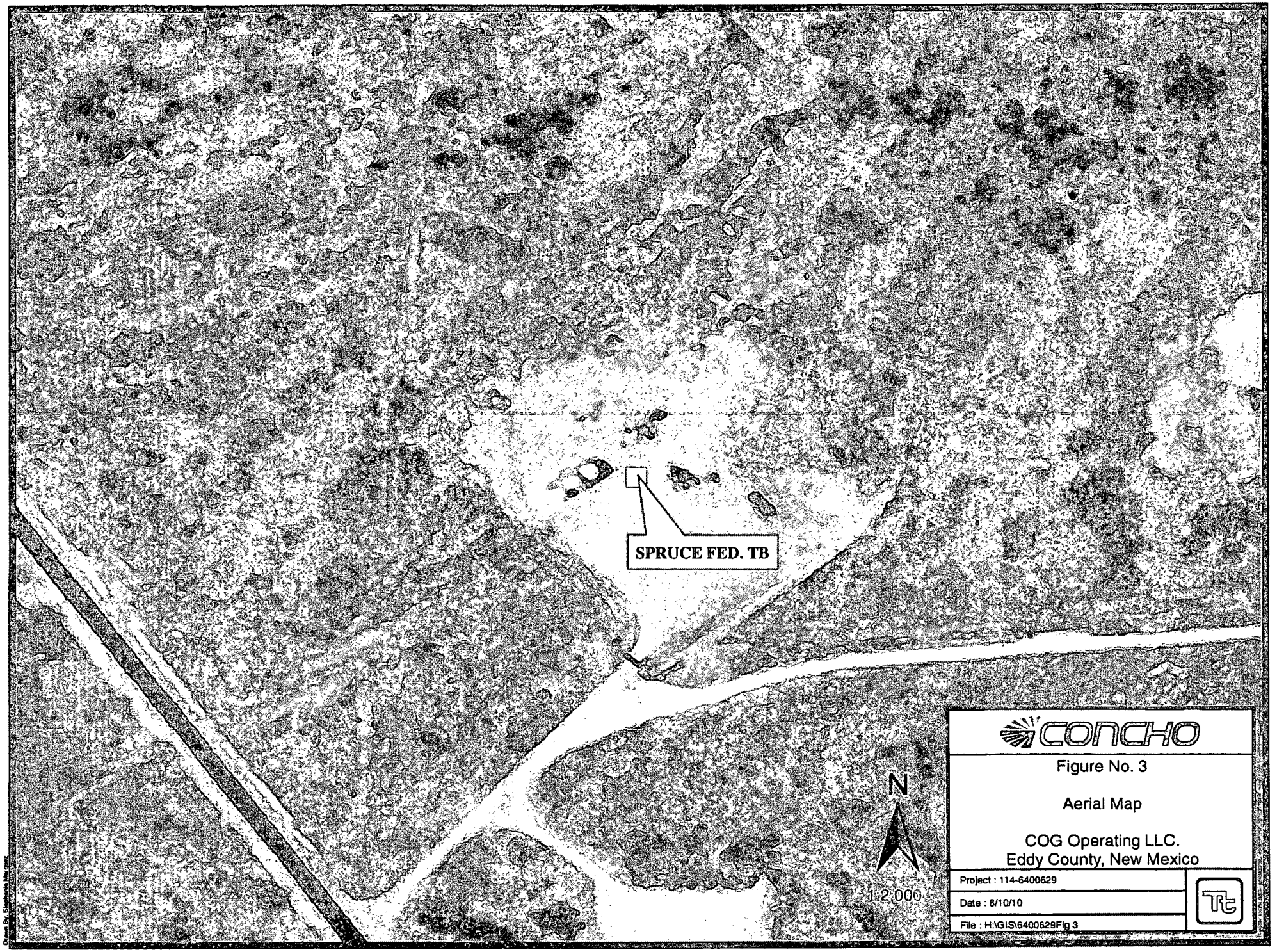
cc: Pat Ellis – COG
cc: Terry Gregston – BLM
cc: Jim Amos – BLM


#8
5' TO 10' WIDE
50'
#7
50'
1st SPILL
#6
SB-6
10'
PASTURE
50'
375'
#5
2' TO 5' WIDE
SB-5
SB-4
#4
50'
2nd SPILL
55'
SB-12
40'
SB-11
40'
SB-10
60'
50'
SB-9
SB-8
90'
SB-3
#3
50'
5' TO 10' WIDE
SB-7
RESERVE PIT
SB-2
#2
50'
75'
SB-6
800'
50'
#1
SB-1
SB-5
85'
SB-4
WATER
OIL
OIL
CP
SP
HT
SB-3
PASTURE
SB-1
SB-2
10' WIDE
100'
RESERVE PIT
WELL
PAD
LEASE RD.
SPILL AREA
SAMPLE LOCATIONS
SOIL BORING LOCATIONS
NOT TO SCALE
DATE: 8/10/10
DSN. BY: JJ
FILE:
FIGURE NO. 4
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
SPRUCE FED. #1 TB
TETRA TECH, INC.
MIDLAND, TEXAS


1st SPILL
2nd SPILL
PASTURE
PASTURE
RESERVE PIT
RESERVE PIT
PAD
LEASE RD.
WELL
WATER
OIL
OIL
CP
SP
HT
375'
5' TO 10' WIDE
1' TO 2' DEEP
2' TO 5' WIDE
10' WIDE
100'
7' DEEP
5' DEEP
3' DEEP
7' DEEP
10' DEEP
7' DEEP
10' DEEP
3' DEEP
1' TO 2' DEEP
1' TO 2' DEEP
1' TO 2' DEEP
#1
#2
#3
#4
#5
#6
#7
#8
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-7
SB-8
SB-9
SB-10
SB-11
SB-12
50'
50'
50'
50'
50'
50'
50'
50'
85'
75'
90'
50'
60'
40'
40'
55'
800'
SPILL AREA
EXCAVATION DEPTHS
AUGER HOLE SAMPLE LOCATIONS
SOIL BORING LOCATIONS
NOT TO SCALE
FIGURE NO. 5
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
SPRUCE FED. #1 TB
TETRA TECH, INC.
MIDLAND, TEXAS
DATE: 8/10/10
DWN. BY: JJ
FILE: H:\COG\5400629 SPRUCE FED. #1 TB


SPRUCE FED. TB
Artesia
CHAVES COUNTY
EDDY COUNTY
EDDY
LEA
1:400,000
CONCHO
Figure No. 1
Topographic Map
COG Operating LLC.
Eddy County, New Mexico
Project : 114-6400629
Date : 8/10/10
File : H:\GIS\6400629Fig 1


SPRUCE FED. TB
CONCHO
Figure No. 2
Topographic Map
COG Operating LLC.
Eddy County, New Mexico
Project : 114-6400629
Date : 8/10/10
File : H:\GIS\6400629Fig 2
N
4,000
IRE OIL FIELD
EMPIRE OIL FIELD
PIPELINE
Logan
Oil Well
Oil Tanks
Gas Well
Gravel Pit
Pumping Sta
Substation
Windmill
BM 3573
BM 3587
BM 3675
23
24
19
26
30
35
36


SPRUCE FED. TB
N
1:2,000
CONCHO
Figure No. 3
Aerial Map
COG Operating LLC.
Eddy County, New Mexico
Project : 114-6400629
Date : 8/10/10
File : H:\GIS\6400629Fig 3

Tables

Table 1
COG Operating LLC.
Spruce Federal #1 TANK BATTERY SPILL (Spill #1)
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-1	4/1/10	0-1'		X		<50.0	<1.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	7,190
		1-1.5'		X		-	-	-	-	-	-	-	5,020
		2-2.5'		X		-	-	-	-	-	-	-	3,630
		3-3.5'		X		-	-	-	-	-	-	-	3,390
		4-4.5'		X		-	-	-	-	-	-	-	2,730
		4.5-5'		X		-	-	-	-	-	-	-	2,040
SB-1	5/12/10	3'		X		-	-	-	-	-	-	-	4,060
		5'		X		-	-	-	-	-	-	-	2,560
		7'		X		-	-	-	-	-	-	-	2,830
		10'		X		-	-	-	-	-	-	-	2,070
		15'		X		-	-	-	-	-	-	-	1,120
		20'		X		-	-	-	-	-	-	-	321
		30'		X		-	-	-	-	-	-	-	<200
AH-2	4/1/10	0-1'		X		<50.0	<1.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	5,280
		1-1.5'		X		-	-	-	-	-	-	-	7,830
		2-2.5'		X		-	-	-	-	-	-	-	4,010
SB-2	5/11/10	1'		X		-	-	-	-	-	-	-	1,670
		3'		X		-	-	-	-	-	-	-	4,900
		5'		X		-	-	-	-	-	-	-	1,920
		7'		X		-	-	-	-	-	-	-	10,200
		10'		X		-	-	-	-	-	-	-	1,210
		15'		X		-	-	-	-	-	-	-	572
		20'		X		-	-	-	-	-	-	-	321
		30'		X		-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC.
Spruce Federal #1 TANK BATTERY SPILL (Spill #1)
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-3	4/1/10	0-1'		X		<50.0	<1.0	<50.0	-	-	-	-	2,750
		1-1.5'		X		-	-	-	-	-	-	-	9,070
		2-2.5'		X		-	-	-	-	-	-	-	4,670
		3-3.5'		X		-	-	-	-	-	-	-	12,400
		4-4.5'		X		-	-	-	-	-	-	-	4,780
SB-3	5/12/10	3'		X		-	-	-	-	-	-	-	8,630
		5'		X		-	-	-	-	-	-	-	7,700
		7'		X		-	-	-	-	-	-	-	6,040
		10'		X		-	-	-	-	-	-	-	2,190
		15'		X		-	-	-	-	-	-	-	2,570
		20'		X		-	-	-	-	-	-	-	<200
		30'		X		-	-	-	-	-	-	-	<200
AH-4	4/1/10	0-1'		X		284	824	1,108	<0.100	0.794	6.53	15.1	2,750
		1-1.5'		X		-	-	-	-	-	-	-	7,330
		2-2.5'		X		-	-	-	-	-	-	-	9,890
SB-4	5/12/10	1'		X		-	-	-	-	-	-	-	2,210
		3'		X		-	-	-	-	-	-	-	8,430
		5'		X		-	-	-	-	-	-	-	7,750
		7'		X		-	-	-	-	-	-	-	1,120
		10'		X		-	-	-	-	-	-	-	<200
		15'		X		-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC.
Spruce Federal #1 TANK BATTERY SPILL (Spill #1)
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-5	4/1/10	0-1'		X		<50.0	<1.00	<50.0	-	-	-	-	12,300
		1-1.5'		X		-	-	-	-	-	-	-	8,380
SB-5	5/13/10	1'		X		-	-	-	-	-	-	-	9,360
		3'		X		-	-	-	-	-	-	-	5,530
		5'		X		-	-	-	-	-	-	-	1,180
		7'		X		-	-	-	-	-	-	-	<200
		10'		X		-	-	-	-	-	-	-	<200
AH-6	4/1/10	0-1'		X		<50.0	<1.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	10,600
		1-1.5'		X		-	-	-	-	-	-	-	1,790
		2-2.5'		X		-	-	-	-	-	-	-	690
SB-6	5/13/10	1'		X		-	-	-	-	-	-	-	12,200
		3'		X		-	-	-	-	-	-	-	1,840
		5'		X		-	-	-	-	-	-	-	546
		7'		X		-	-	-	-	-	-	-	418
		10'		X		-	-	-	-	-	-	-	229

Table 1
COG Operating LLC.
Spruce Federal #1 TANK BATTERY SPILL (Spill #1)
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-7	4/1/10	0-1'		X		<50.0	<1.0	<50.0	-	-	-	-	4,830
		1-1.5'		X		-	-	-	-	-	-	-	1,980
		2-2.5'		X		-	-	-	-	-	-	-	453
AH-8	4/1/10	0-1'		X		<50.0	<1.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	1,410
		1-1.5'		X		-	-	-	-	-	-	-	835
		2-2.5'		X		-	-	-	-	-	-	-	<200
SB-BG	5/12/10	5'		X		-	-	-	-	-	-	-	205
		10'		X		-	-	-	-	-	-	-	382
		15'		X		-	-	-	-	-	-	-	229
		20'		X		-	-	-	-	-	-	-	258
		30'		X		-	-	-	-	-	-	-	258
		40'		X		-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom

\- Not Analyzed

☐ Proposed Excavation Depths

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-1	8/23/2010	0-1'		X		<50.0	<2.00	<50.0	-	-	-	-	10,000
	"	3'		X		-	-	-	-	-	-	-	16,900
	"	5'		X		-	-	-	-	-	-	-	1,580
	"	7'		X		-	-	-	-	-	-	-	1,880
	"	10'		X		-	-	-	-	-	-	-	407
	"	15'		X		-	-	-	-	-	-	-	1,140
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200
SB-2	8/23/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	5,900
	"	3'		X		-	-	-	-	-	-	-	2,420
	"	5'		X		-	-	-	-	-	-	-	3,810
	"	7'		X		-	-	-	-	-	-	-	1,400
	"	10'		X		-	-	-	-	-	-	-	948
	"	15'		X		-	-	-	-	-	-	-	524
	"	20'		X		-	-	-	-	-	-	-	568
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-3	8/23/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	2,250
	"	3'		X		-	-	-	-	-	-	-	3,810
	"	5'		X		-	-	-	-	-	-	-	3,800
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	1,040
	"	15'		X		-	-	-	-	-	-	-	727
	"	20'		X		-	-	-	-	-	-	-	1,070
	"	25'		X		-	-	-	-	-	-	-	671
	"	30'		X		-	-	-	-	-	-	-	378
SB-4	8/23/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	6,320
	"	3'		X		-	-	-	-	-	-	-	5,740
	"	5'		X		-	-	-	-	-	-	-	1,250
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	283
	"	15'		X		-	-	-	-	-	-	-	706
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	225

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-5	8/23/2010	0-1'		X		<50.0	<2.00	<50.0	-	-	-	-	1,710
	"	3'		X		-	-	-	-	-	-	-	635
	"	5'		X		-	-	-	-	-	-	-	565
	"	7'		X		-	-	-	-	-	-	-	225
	"	10'		X		-	-	-	-	-	-	-	205
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200
SB-6	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	494
	"	3'		X		-	-	-	-	-	-	-	383
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	<200
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-7	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	4,510
	"	3'		X		-	-	-	-	-	-	-	235
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	205
	"	15'		X		-	-	-	-	-	-	-	255
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	230
	"	30'		X		-	-	-	-	-	-	-	215
SB-8	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	2,200
	"	3'		X		-	-	-	-	-	-	-	789
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	<200
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200
	"	40'		X		-	-	-	-	-	-	-	<200

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-9	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	-	-	-	-	1,020
	"	3'		X		-	-	-	-	-	-	-	9,150
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	496
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200
SB-10	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	1,060
	"	3'		X		-	-	-	-	-	-	-	<200
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	<200
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200

Table 2
COG Operating LLC.
SPRUCE FEDERAL #1 TANK BATTERY SPILL (Spill #2)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
SB-11	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	-	-	-	-	<200
	"	3'		X		-	-	-	-	-	-	-	<200
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	<200
	"	15'		X		-	-	-	-	-	-	-	<200
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	<200
	"	30'		X		-	-	-	-	-	-	-	<200
SB-12	8/25/2010	0-1'		X		<50.0	<2.00	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	3'		X		-	-	-	-	-	-	-	<200
	"	5'		X		-	-	-	-	-	-	-	<200
	"	7'		X		-	-	-	-	-	-	-	<200
	"	10'		X		-	-	-	-	-	-	-	<200
	"	15'		X		-	-	-	-	-	-	-	<4.00
	"	20'		X		-	-	-	-	-	-	-	<4.00
	"	25'		X		-	-	-	-	-	-	-	<4.00
	"	30'		X		-	-	-	-	-	-	-	<4.00

BEB Below Excavation Bottom
(--) 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-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 Kanicia Carrillo
Address 550 W. Texas, Suite 100 Midland, TX 79701	Telephone No. 432-685-4332
Facility Name – Spruce Federal #1	Facility Type- Battery

Surface Owner Federal	Mineral Owner	Lease No. NM96836

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	25	17S	27E					Eddy

Latitude N32 48.145 **Longitude** W104 14.014

NATURE OF RELEASE

Type of Release- Produced water	Volume of Release-50 bbls	Volume Recovered- 0
Source of Release- Heater treater	Date and Hour of Occurrence- 01/04/10	Date and Hour of Discovery 01/04/10
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher & Terry Gregston	
By Whom? Pat Ellis	Date and Hour 1/05/10 8:25am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
The release occurred when a water leg on a heater treater separated.

Describe Area Affected and Cleanup Action Taken.*
Spill traveled about 150 yards out in the pasture. Will await approval from the BLM to remove 2' of saturated soil in the pasture.
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 your 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 Approved by District Supervisor:	
Printed Name: Kanicia Carrillo		
Title: Regulatory Analyst	Approval Date:	Expiration Date:
E-mail Address: kcarrillo@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 01/12/10 Phone: 432-685-4332		

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

Surface Owner Federal	Mineral Owner	Lease No. NMNM-96836

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	25	17S	27E					Eddy

Latitude 32 48.146 Longitude 104 14.010

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 60bbls	Volume Recovered 4bbls
Source of Release Fiberglass overflow tank	Date and Hour of Occurrence 07/20/2010	Date and Hour of Discovery 07/20/2010 7:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher—OCD Terry Gregston—BLM	
By Whom? Pat Ellis	Date and Hour 07/20/2010 5:49 p.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.*

The fiberglass overflow tank at the facility developed a hole in the bottom of it. The defective tank has been removed and replaced with a new tank.

Describe Area Affected and Cleanup Action Taken.*

Due to the hole in the bottom of the tank, we initially released 60bbls of produced water across the front of the battery and into the pasture. We were able to recover 4bbls of produced water with a vacuum truck. The fluid flowed into several different "fingers" measuring a total length of 825', none of which are greater than 3' wide. (The closest well location to the release is the Spruce Federal #1, Unit K, Sec.25T17S-R27E, 1650' FSL 2310' FWL, 32.802338-104.23276, NMNM-96836). 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.

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: 08/01/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

Appendix B

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

16 South 26 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 27 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 70	26	25
31	32	33	34	35	36

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 61	22	23 SITE	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 26 East

6	5	4	3	2	1
7 Artesia	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 27 East

6	5 30	4	3	2	1
7 14	8	9	10	11 54 50	12
18 86	17 283	16 194	15	14	13
19	20	21	22	23 40	24
30	29	28	27	26	25 SITE
31	32 129	33	34	35	36

17 South 28 East

6	5	4	3	2 27	1
7	8	9	10	11	12
18	17	16	15	14 80	13
19 224	20	21	22 45 79	23	24
30	29	28	27	26	25
31	32	33	34 53	35	36

18 South 26 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 27 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 81	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30 137	29	28	27	26	25
31	32	33	34	35 65	36

New Mexico State Engineers Well Reports
USGS Well Reports
Field water level
New Mexico Water and Infrastructure Data System

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Sub basin	Use	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 01493		IRR	ED		2	1	27	17S	27E	568468	3630529*	876		
RA 01716 S		COM	ED	4	4	3	16	17S	27E	566953	3632420*	1200		
RA 02966		DOM	ED	4	4	4	05	17S	27E	566117	3635707*	80	30	50
RA 03279		DOM	ED		3	2	07	17S	27E	564020	3635011*	250	14	236
RA 03661		PRO	ED	3	2	3	32	17S	27E	565186	3628038*	330	140	190
RA 03664		DOM	CH	3	2	3	32	17S	27E	565186	3628038*	400	100	300
RA 03694		DOM	ED			4	17	17S	27E	565854	3632721*	300	90	210
RA 03816		DOM	CH			4	17	17S	27E	565854	3632721*	945	931	14
RA 04114		DOM	LE	4	4	3	16	17S	27E	566953	3632420*	1042	260	782
RA 04153		DOM	CH	4	4	3	16	17S	27E	566953	3632420*	1220	175	1045
RA 04320		DOM	ED			3	17	17S	27E	565053	3632719*	120	50	70
RA 04554		PRO	ED			1	23	17S	27E	569859	3631947*	220	40	180
RA 04561		PRO	ED		4	2	26	17S	27E	570871	3630142*	250		
RA 04786		DOM	ED	4	3	2	18	17S	27E	564133	3633277*	138	111	27
RA 06531		DOM	ED	4	1	4	17	17S	27E	565747	3632821*	200		
RA 06560		DOM	CH	2	1	2	20	17S	27E	565757	3632217*	133	80	53
RA 06635		DOM	ED	2	2	2	18	17S	27E	564531	3633852*	325	60	265
RA 07774		STK	ED	3	2	1	11	17S	27E	569933	3635251*	100	50	50
RA 07844		EXP	ED	3	4	3	16	17S	27E	566753	3632420*	1300	180	1120
RA 07844 EXPL		EXP	ED		4	3	16	17S	27E	566854	3632521*	1300	180	1120
RA 08823		DOM	ED	1	1	3	17	17S	27E	564745	3633019*	348	60	288

Average Depth to Water: **150 feet**

Minimum Depth: **14 feet**

Maximum Depth: **931 feet**

Record Count: 21

PLSS Search:

17S 27E

*UTM location was derived from PLSS - see Help

New Mexico Office of the State Engineer
Wells with Well Log Information

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (in feet)

POD Number	Sub basin	Use	County	Source	q q q 64 16 4	Sec	Tws	Rng	X	Y	Start Date	Finish Date	Log File Date	Depth Well	Depth Water
RA [illegible] S		COM	ED	Artesian	4 4 3	16	17S	27E	566953	3632420*	07/26/2004	08/03/2004	08/10/2004	1200	
RA 02309		DOM	ED	Shallow	4 4 4	05	17S	27E	566117	3635707*	10/14/1952	10/16/1952	11/04/1952	80	30
RA 03279		DOM	ED		3 2	07	17S	27E	564020	3635011*	08/10/1954	08/24/1954	08/31/1954	250	14
RA 03561		PRO	ED	Shallow	3 2 3	32	17S	27E	565186	3628038*	10/12/1956	10/26/1956	11/26/1956	330	140
RA 03664		DOM	CH	Shallow	3 2 3	32	17S	27E	565186	3628038*	11/01/1956	11/06/1956	12/19/1956	400	100
RA [illegible]694		DOM	ED	Shallow	4	17	17S	27E	565854	3632721*	01/26/1957	02/02/1957	03/21/1957	300	90
RA [illegible]816		DOM	CH	Artesian	4	17	17S	27E	565854	3632721*	01/22/1958	01/22/1958	08/08/1958	945	931
RA [illegible]114		DOM	LE	Artesian	4 4 3	16	17S	27E	566953	3632420*	11/17/1959	01/15/1960	03/03/1960	1042	260
RA [illegible]183		DOM	CH	Artesian	4 4 3	16	17S	27E	566953	3632420*	02/03/1960	03/15/1960	03/22/1960	1220	175
RA 04372		DOM	ED	Artesian	3	17	17S	27E	565053	3632719*	10/25/1960	11/05/1960	10/18/1961	120	50
RA 04374		PRO	ED	Artesian	1	23	17S	27E	569859	3631947*	01/26/1962	02/20/1962	12/12/1962	220	40
RA 04785		DOM	ED	Artesian	4 3 2	18	17S	27E	564133	3633277*	02/27/1963	03/02/1963	03/08/1963	138	111
RA 06250		DOM	CH	Shallow	2 1 2	20	17S	27E	565757	3632217*	08/22/1979	08/24/1979	08/31/1979	133	80
RA 06636		DOM	ED	Shallow	2 2 2	18	17S	27E	564531	3633852*	04/13/1980	04/16/1980	04/21/1980	325	60
RA 07774		STK	ED	Shallow	3 2 1	11	17S	27E	569933	3635251*	12/14/1989	12/20/1989	12/29/1989	100	50
RA [illegible]044		EXP	ED	Shallow	3 4 3	16	17S	27E	566753	3632420*	08/23/1990	09/07/1990	11/08/1990	1300	180
RA [illegible] EXPL		EXP	ED	Artesian	4 3	16	17S	27E	566854	3632521*	08/23/1990	09/07/1990	11/08/1990	1300	180
RA 0[illegible]3		DOM	ED	Shallow	1 1 3	17	17S	27E	564745	3633019*	06/16/1994	09/28/1994	11/03/1994	348	60

location was derived from PLSS - see Help

Appendix C

Summary Report

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

Report Date: April 15, 2010

Work Order: 10040611

Project Location: Eddy County, NM
Project Name: COG/Spruce Federal #1 TB
Project Number: 114-6400433

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
227597	AH-1 0-1'	soil	2010-04-01	00:00	2010-04-05
227598	AH-1 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227599	AH-1 2-2.5'	soil	2010-04-01	00:00	2010-04-05
227600	AH-1 3-3.5'	soil	2010-04-01	00:00	2010-04-05
227601	AH-1 4-4.5'	soil	2010-04-01	00:00	2010-04-05
227602	AH-1 4.5-5'	soil	2010-04-01	00:00	2010-04-05
227603	AH-2 0-1'	soil	2010-04-01	00:00	2010-04-05
227604	AH-2 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227605	AH-2 2-2.5'	soil	2010-04-01	00:00	2010-04-05
227606	AH-3 0-1'	soil	2010-04-01	00:00	2010-04-05
227607	AH-3 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227608	AH-3 2-2.5'	soil	2010-04-01	00:00	2010-04-05
227609	AH-3 3-3.5'	soil	2010-04-01	00:00	2010-04-05
227610	AH-3 4-4.5'	soil	2010-04-01	00:00	2010-04-05
227611	AH-4 0-1'	soil	2010-04-01	00:00	2010-04-05
227612	AH-4 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227613	AH-4 2-2.5'	soil	2010-04-01	00:00	2010-04-05
227614	AH-5 0-1'	soil	2010-04-01	00:00	2010-04-05
227615	AH-5 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227616	AH-6 0-1'	soil	2010-04-01	00:00	2010-04-05
227617	AH-6 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227618	AH-6 2-2.5'	soil	2010-04-01	00:00	2010-04-05
227619	AH-7 0-1'	soil	2010-04-01	00:00	2010-04-05
227620	AH-7 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227621	AH-7 1.5-2'	soil	2010-04-01	00:00	2010-04-05
227622	AH-8 0-1'	soil	2010-04-01	00:00	2010-04-05
227623	AH-8 1-1.5'	soil	2010-04-01	00:00	2010-04-05
227624	AH-8 2-2.5'	soil	2010-04-01	00:00	2010-04-05

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
227597 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227603 - AH-2 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227606 - AH-3 0-1'					<50.0	<1.00
227611 - AH-4 0-1'	<0.100	**0.794**	**6.53**	**15.1**	**284**	**824**
227614 - AH-5 0-1'					<50.0	<1.00
227616 - AH-6 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227619 - AH-7 0-1'					<50.0	<1.00
227622 - AH-8 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00

Sample: 227597 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**7190**	mg/Kg	4.00

Sample: 227598 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5020**	mg/Kg	4.00

Sample: 227599 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**3630**	mg/Kg	4.00

Sample: 227600 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**3390**	mg/Kg	4.00

Sample: 227601 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2730**	mg/Kg	4.00

Sample: 227602 - AH-1 4.5-5'

Param	Flag	Result	Units	RL
Chloride		**2040**	mg/Kg	4.00

Sample: 227603 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5280**	mg/Kg	4.00

Sample: 227604 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**7830**	mg/Kg	4.00

Sample: 227605 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**4010**	mg/Kg	4.00

Sample: 227606 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2750**	mg/Kg	4.00

Sample: 227607 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**9070**	mg/Kg	4.00

Sample: 227608 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**4670**	mg/Kg	4.00

Sample: 227609 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**12400**	mg/Kg	4.00

Sample: 227610 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**4780**	mg/Kg	4.00

Sample: 227611 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**2750**	mg/Kg	4.00

Sample: 227612 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**7330**	mg/Kg	4.00

Sample: 227613 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**9890**	mg/Kg	4.00

Sample: 227614 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**12300**	mg/Kg	4.00

Sample: 227615 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**8380**	mg/Kg	4.00

Sample: 227616 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**10600**	mg/Kg	4.00

Sample: 227617 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1790**	mg/Kg	4.00

Sample: 227618 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**690**	mg/Kg	4.00

Sample: 227619 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**4830**	mg/Kg	4.00

Sample: 227620 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1980**	mg/Kg	4.00

Sample: 227621 - AH-7 1.5-2'

Param	Flag	Result	Units	RL
Chloride		**453**	mg/Kg	4.00

Sample: 227622 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**1410**	mg/Kg	4.00

Sample: 227623 - AH-8 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**835**	mg/Kg	4.00

Sample: 227624 - AH-8 2-2.5'

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

Summary Report

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

Report Date: May 21, 2010

Work Order: 10051413

Project Location: Eddy County, NM
Project Name: COG/Spruce Federal #1 TB
Project Number: 114-6400433

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231673	SB-1 3'	soil	2010-05-12	00:00	2010-05-13
231674	SB-1 5'	soil	2010-05-12	00:00	2010-05-13
231675	SB-1 7'	soil	2010-05-12	00:00	2010-05-13
231676	SB-1 10'	soil	2010-05-12	00:00	2010-05-13
231677	SB-1 15'	soil	2010-05-12	00:00	2010-05-13
231678	SB-1 20'	soil	2010-05-12	00:00	2010-05-13
231679	SB-1 30'	soil	2010-05-12	00:00	2010-05-13
231680	SB-2 1'	soil	2010-05-12	00:00	2010-05-13
231681	SB-2 3'	soil	2010-05-12	00:00	2010-05-13
231682	SB-2 5'	soil	2010-05-12	00:00	2010-05-13
231683	SB-2 7'	soil	2010-05-12	00:00	2010-05-13
231684	SB-2 10'	soil	2010-05-12	00:00	2010-05-13
231685	SB-2 15'	soil	2010-05-12	00:00	2010-05-13
231686	SB-2 20'	soil	2010-05-12	00:00	2010-05-13
231687	SB-2 30'	soil	2010-05-12	00:00	2010-05-13
231688	SB-3 3'	soil	2010-05-12	00:00	2010-05-13
231689	SB-3 5'	soil	2010-05-12	00:00	2010-05-13
231690	SB-3 7'	soil	2010-05-12	00:00	2010-05-13
231691	SB-3 10'	soil	2010-05-12	00:00	2010-05-13
231692	SB-3 15'	soil	2010-05-12	00:00	2010-05-13
231693	SB-3 20'	soil	2010-05-12	00:00	2010-05-13
231694	SB-3 30'	soil	2010-05-12	00:00	2010-05-13
231696	SB-4 1'	soil	2010-05-12	00:00	2010-05-13
231697	SB-4 3'	soil	2010-05-12	00:00	2010-05-13
231698	SB-4 5'	soil	2010-05-12	00:00	2010-05-13
231699	SB-4 7'	soil	2010-05-12	00:00	2010-05-13
231700	SB-4 10'	soil	2010-05-12	00:00	2010-05-13
231701	SB-4 15'	soil	2010-05-12	00:00	2010-05-13
231703	SB-5 1'	soil	2010-05-12	00:00	2010-05-13
231704	SB-5 3'	soil	2010-05-12	00:00	2010-05-13

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231705	SB-5 5'	soil	2010-05-12	00:00	2010-05-13
231706	SB-5 7'	soil	2010-05-12	00:00	2010-05-13
231707	SB-5 10'	soil	2010-05-12	00:00	2010-05-13
231712	SB-6 1'	soil	2010-05-12	00:00	2010-05-13
231713	SB-6 3'	soil	2010-05-12	00:00	2010-05-13
231714	SB-6 5'	soil	2010-05-12	00:00	2010-05-13
231715	SB-6 7'	soil	2010-05-12	00:00	2010-05-13
231716	SB-6 10'	soil	2010-05-12	00:00	2010-05-13
231722	SB-BG 5'	soil	2010-05-12	00:00	2010-05-13
231723	SB-BG 10'	soil	2010-05-12	00:00	2010-05-13
231724	SB-BG 15'	soil	2010-05-12	00:00	2010-05-13
231725	SB-BG 20'	soil	2010-05-12	00:00	2010-05-13
231726	SB-BG 30'	soil	2010-05-12	00:00	2010-05-13
231727	SB-BG 40'	soil	2010-05-12	00:00	2010-05-13

Sample: 231673 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**4060**	mg/Kg	4.00

Sample: 231674 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**2560**	mg/Kg	4.00

Sample: 231675 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**2830**	mg/Kg	4.00

Sample: 231676 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**2070**	mg/Kg	4.00

Sample: 231677 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**1120**	mg/Kg	4.00

Sample: 231678 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		**321**	mg/Kg	4.00

Sample: 231679 - SB-1 30'

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

Sample: 231680 - SB-2 1'

Param	Flag	Result	Units	RL
Chloride		**1670**	mg/Kg	4.00

Sample: 231681 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		**4900**	mg/Kg	4.00

Sample: 231682 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		**1920**	mg/Kg	4.00

Sample: 231683 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		**10200**	mg/Kg	4.00

Sample: 231684 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		**1210**	mg/Kg	4.00

Sample: 231685 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		**572**	mg/Kg	4.00

Sample: 231686 - SB-2 20'

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

Sample: 231687 - SB-2 30'

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

Sample: 231688 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		**8630**	mg/Kg	4.00

Sample: 231689 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		**7700**	mg/Kg	4.00

Sample: 231690 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		**6040**	mg/Kg	4.00

Sample: 231691 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		**2190**	mg/Kg	4.00

Sample: 231692 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		**2570**	mg/Kg	4.00

Sample: 231693 - SB-3 20'

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

Sample: 231694 - SB-3 30'

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

Sample: 231696 - SB-4 1'

Param	Flag	Result	Units	RL
Chloride		**2210**	mg/Kg	4.00

Sample: 231697 - SB-4 3'

Param	Flag	Result	Units	RL
Chloride		**8430**	mg/Kg	4.00

Sample: 231698 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		**7750**	mg/Kg	4.00

Sample: 231699 - SB-4 7'

Param	Flag	Result	Units	RL
Chloride		**1120**	mg/Kg	4.00

Sample: 231700 - SB-4 10'

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

Sample: 231701 - SB-4 15'

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

Sample: 231703 - SB-5 1'

Param	Flag	Result	Units	RL
Chloride		**9360**	mg/Kg	4.00

Sample: 231704 - SB-5 3'

Param	Flag	Result	Units	RL
Chloride		**5530**	mg/Kg	4.00

Sample: 231705 - SB-5 5'

Param	Flag	Result	Units	RL
Chloride		**1180**	mg/Kg	4.00

Sample: 231706 - SB-5 7'

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

Sample: 231707 - SB-5 10'

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

Sample: 231712 - SB-6 1'

Param	Flag	Result	Units	RL
Chloride		**12200**	mg/Kg	4.00

Sample: 231713 - SB-6 3'

Param	Flag	Result	Units	RL
Chloride		**1840**	mg/Kg	4.00

Sample: 231714 - SB-6 5'

Param	Flag	Result	Units	RL
Chloride		**546**	mg/Kg	4.00

Sample: 231715 - SB-6 7'

Param	Flag	Result	Units	RL
Chloride		**418**	mg/Kg	4.00

Sample: 231716 - SB-6 10'

Param	Flag	Result	Units	RL
Chloride		**229**	mg/Kg	4.00

Sample: 231722 - SB-BG 5'

Param	Flag	Result	Units	RL
Chloride		**205**	mg/Kg	4.00

Sample: 231723 - SB-BG 10'

Param	Flag	Result	Units	RL
Chloride		**382**	mg/Kg	4.00

Sample: 231724 - SB-BG 15'

Param	Flag	Result	Units	RL
Chloride		**229**	mg/Kg	4.00

Sample: 231725 - SB-BG 20'

Param	Flag	Result	Units	RL
Chloride		**258**	mg/Kg	4.00

Sample: 231726 - SB-BG 30'

Param	Flag	Result	Units	RL
Chloride		**258**	mg/Kg	4.00

Sample: 231727 - SB-BG 40'

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

Summary Report

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

Report Date: September 2, 2010

Work Order: 10082701

Project Location: Eddy County, NM
Project Name: COG/Spruce Federal TB Spill
Project Number: 114-6400629

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
242685	SB-1 0-1'	soil	2010-08-23	00:00	2010-08-26
242686	SB-1 3'	soil	2010-08-23	00:00	2010-08-26
242687	SB-1 5'	soil	2010-08-23	00:00	2010-08-26
242688	SB-1 7'	soil	2010-08-23	00:00	2010-08-26
242689	SB-1 10'	soil	2010-08-23	00:00	2010-08-26
242690	SB-1 15'	soil	2010-08-23	00:00	2010-08-26
242691	SB-1 20'	soil	2010-08-23	00:00	2010-08-26
242692	SB-1 25'	soil	2010-08-23	00:00	2010-08-26
242693	SB-1 30'	soil	2010-08-23	00:00	2010-08-26
242694	SB-2 0-1'	soil	2010-08-23	00:00	2010-08-26
242695	SB-2 3'	soil	2010-08-23	00:00	2010-08-26
242696	SB-2 5'	soil	2010-08-23	00:00	2010-08-26
242697	SB-2 7'	soil	2010-08-23	00:00	2010-08-26
242698	SB-2 10'	soil	2010-08-23	00:00	2010-08-26
242699	SB-2 15'	soil	2010-08-23	00:00	2010-08-26
242700	SB-2 20'	soil	2010-08-23	00:00	2010-08-26
242701	SB-2 25'	soil	2010-08-23	00:00	2010-08-26
242702	SB-2 30'	soil	2010-08-23	00:00	2010-08-26
242703	SB-3 0-1'	soil	2010-08-23	00:00	2010-08-26
242704	SB-3 3'	soil	2010-08-23	00:00	2010-08-26
242705	SB-3 5'	soil	2010-08-23	00:00	2010-08-26
242706	SB-3 7'	soil	2010-08-23	00:00	2010-08-26
242707	SB-3 10'	soil	2010-08-23	00:00	2010-08-26
242708	SB-3 15'	soil	2010-08-23	00:00	2010-08-26
242709	SB-3 20'	soil	2010-08-23	00:00	2010-08-26
242710	SB-3 25'	soil	2010-08-23	00:00	2010-08-26
242711	SB-3 30'	soil	2010-08-23	00:00	2010-08-26
242712	SB-4 0-1'	soil	2010-08-23	00:00	2010-08-26
242713	SB-4 3'	soil	2010-08-23	00:00	2010-08-26
242714	SB-4 5'	soil	2010-08-23	00:00	2010-08-26

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
242715	SB-4 7'	soil	2010-08-23	00:00	2010-08-26
242716	SB-4 10'	soil	2010-08-23	00:00	2010-08-26
242717	SB-4 15'	soil	2010-08-23	00:00	2010-08-26
242718	SB-4 20'	soil	2010-08-23	00:00	2010-08-26
242719	SB-4 25'	soil	2010-08-23	00:00	2010-08-26
242720	SB-4 30'	soil	2010-08-23	00:00	2010-08-26
242721	SB-5 0-1'	soil	2010-08-23	00:00	2010-08-26
242722	SB-5 3'	soil	2010-08-23	00:00	2010-08-26
242723	SB-5 5'	soil	2010-08-23	00:00	2010-08-26
242724	SB-5 7'	soil	2010-08-23	00:00	2010-08-26
242725	SB-5 10'	soil	2010-08-23	00:00	2010-08-26
242726	SB-5 15'	soil	2010-08-23	00:00	2010-08-26
242727	SB-5 20'	soil	2010-08-23	00:00	2010-08-26
242728	SB-5 25'	soil	2010-08-23	00:00	2010-08-26
242729	SB-5 30'	soil	2010-08-23	00:00	2010-08-26

	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)
242685 - SB-1 0-1'					<50.0	<2.00
242694 - SB-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242703 - SB-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242712 - SB-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242721 - SB-5 0-1'					<50.0	<2.00

Sample: 242685 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**10000**	mg/Kg	4.00

Sample: 242686 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**16900**	mg/Kg	4.00

Sample: 242687 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**1580**	mg/Kg	4.00

Sample: 242688 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**1880**	mg/Kg	4.00

Sample: 242689 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**407**	mg/Kg	4.00

Sample: 242690 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**1140**	mg/Kg	4.00

Sample: 242691 - SB-1 20'

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

Sample: 242692 - SB-1 25'

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

Sample: 242693 - SB-1 30'

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

Sample: 242694 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5900**	mg/Kg	4.00

Sample: 242695 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		**2420**	mg/Kg	4.00

Sample: 242696 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		**3810**	mg/Kg	4.00

Sample: 242697 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		**1400**	mg/Kg	4.00

Sample: 242698 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		**948**	mg/Kg	4.00

Sample: 242699 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		**524**	mg/Kg	4.00

Sample: 242700 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		**568**	mg/Kg	4.00

Sample: 242701 - SB-2 25'

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

Sample: 242702 - SB-2 30'

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

Sample: 242703 - SB-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2250**	mg/Kg	4.00

Sample: 242704 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		**3810**	mg/Kg	4.00

Sample: 242705 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		**3800**	mg/Kg	4.00

Sample: 242706 - SB-3 7'

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

Sample: 242707 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		**1040**	mg/Kg	4.00

Sample: 242708 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		**727**	mg/Kg	4.00

Sample: 242709 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		**1070**	mg/Kg	4.00

Sample: 242710 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		**671**	mg/Kg	4.00

Sample: 242711 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		**378**	mg/Kg	4.00

Sample: 242712 - SB-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**6320**	mg/Kg	4.00

Sample: 242713 - SB-4 3'

Param	Flag	Result	Units	RL
Chloride		**5740**	mg/Kg	4.00

Sample: 242714 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		**1250**	mg/Kg	4.00

Sample: 242715 - SB-4 7'

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

Sample: 242716 - SB-4 10'

Param	Flag	Result	Units	RL
Chloride		**283**	mg/Kg	4.00

Sample: 242717 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		**706**	mg/Kg	4.00

Sample: 242718 - SB-4 20'

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

Sample: 242719 - SB-4 25'

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

Sample: 242720 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		**225**	mg/Kg	4.00

Sample: 242721 - SB-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**1710**	mg/Kg	4.00

Sample: 242722 - SB-5 3'

Param	Flag	Result	Units	RL
Chloride		**635**	mg/Kg	4.00

Sample: 242723 - SB-5 5'

Param	Flag	Result	Units	RL
Chloride		**565**	mg/Kg	4.00

Sample: 242724 - SB-5 7'

Param	Flag	Result	Units	RL
Chloride		**225**	mg/Kg	4.00

Sample: 242725 - SB-5 10'

Param	Flag	Result	Units	RL
Chloride		**205**	mg/Kg	4.00

Sample: 242726 - SB-5 15'

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

Sample: 242727 - SB-5 20'

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

Sample: 242728 - SB-5 25'

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

Sample: 242729 - SB-5 30'

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

Summary Report

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

Report Date: September 2, 2010

Work Order: 10082704

Project Location: Eddy County, NM
Project Name: COG/Spruce Federal TB Spill
Project Number: 114-6400629

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
242746	SB-6 0-1'	soil	2010-08-25	00:00	2010-08-26
242747	SB-6 3'	soil	2010-08-25	00:00	2010-08-26
242748	SB-6 5'	soil	2010-08-25	00:00	2010-08-26
242749	SB-6 7'	soil	2010-08-25	00:00	2010-08-26
242750	SB-6 10'	soil	2010-08-25	00:00	2010-08-26
242751	SB-6 15'	soil	2010-08-25	00:00	2010-08-26
242752	SB-6 20'	soil	2010-08-25	00:00	2010-08-26
242753	SB-6 25'	soil	2010-08-25	00:00	2010-08-26
242754	SB-6 30'	soil	2010-08-25	00:00	2010-08-26
242755	SB-7 0-1'	soil	2010-08-25	00:00	2010-08-26
242756	SB-7 3'	soil	2010-08-25	00:00	2010-08-26
242757	SB-7 5'	soil	2010-08-25	00:00	2010-08-26
242758	SB-7 7'	soil	2010-08-25	00:00	2010-08-26
242759	SB-7 10'	soil	2010-08-25	00:00	2010-08-26
242760	SB-7 15'	soil	2010-08-25	00:00	2010-08-26
242761	SB-7 20'	soil	2010-08-25	00:00	2010-08-26
242762	SB-7 25'	soil	2010-08-25	00:00	2010-08-26
242763	SB-7 30'	soil	2010-08-25	00:00	2010-08-26
242764	SB-8 0-1'	soil	2010-08-25	00:00	2010-08-26
242765	SB-8 3'	soil	2010-08-25	00:00	2010-08-26
242766	SB-8 5'	soil	2010-08-25	00:00	2010-08-26
242767	SB-8 7'	soil	2010-08-25	00:00	2010-08-26
242768	SB-8 10'	soil	2010-08-25	00:00	2010-08-26
242769	SB-8 15'	soil	2010-08-25	00:00	2010-08-26
242770	SB-8 20'	soil	2010-08-25	00:00	2010-08-26
242771	SB-8 25'	soil	2010-08-25	00:00	2010-08-26
242772	SB-8 30'	soil	2010-08-25	00:00	2010-08-26
242773	SB-8 40'	soil	2010-08-25	00:00	2010-08-26
242774	SB-9 0-1'	soil	2010-08-25	00:00	2010-08-26
242775	SB-9 3'	soil	2010-08-25	00:00	2010-08-26

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
242776	SB-9 5'	soil	2010-08-25	00:00	2010-08-26
242777	SB-9 7'	soil	2010-08-25	00:00	2010-08-26
242778	SB-9 10'	soil	2010-08-25	00:00	2010-08-26
242779	SB-9 15'	soil	2010-08-25	00:00	2010-08-26
242780	SB-9 20'	soil	2010-08-25	00:00	2010-08-26
242781	SB-9 25'	soil	2010-08-25	00:00	2010-08-26
242782	SB-9 30'	soil	2010-08-25	00:00	2010-08-26
242783	SB-10 0-1'	soil	2010-08-25	00:00	2010-08-26
242784	SB-10 3'	soil	2010-08-25	00:00	2010-08-26
242785	SB-10 5'	soil	2010-08-25	00:00	2010-08-26
242786	SB-10 7'	soil	2010-08-25	00:00	2010-08-26
242787	SB-10 10'	soil	2010-08-25	00:00	2010-08-26
242788	SB-10 15'	soil	2010-08-25	00:00	2010-08-26
242789	SB-10 20'	soil	2010-08-25	00:00	2010-08-26
242790	SB-10 25'	soil	2010-08-25	00:00	2010-08-26
242791	SB-10 30'	soil	2010-08-25	00:00	2010-08-26
242792	SB-11 0-1'	soil	2010-08-25	00:00	2010-08-26
242793	SB-11 3'	soil	2010-08-25	00:00	2010-08-26
242794	SB-11 5'	soil	2010-08-25	00:00	2010-08-26
242795	SB-11 7'	soil	2010-08-25	00:00	2010-08-26
242796	SB-11 10'	soil	2010-08-25	00:00	2010-08-26
242797	SB-11 15'	soil	2010-08-25	00:00	2010-08-26
242798	SB-11 20'	soil	2010-08-25	00:00	2010-08-26
242799	SB-11 25'	soil	2010-08-25	00:00	2010-08-26
242800	SB-11 30'	soil	2010-08-25	00:00	2010-08-26
242801	SB-12 0-1'	soil	2010-08-25	00:00	2010-08-26
242802	SB-12 3'	soil	2010-08-25	00:00	2010-08-26
242803	SB-12 5'	soil	2010-08-25	00:00	2010-08-26
242804	SB-12 7'	soil	2010-08-25	00:00	2010-08-26
242805	SB-12 10'	soil	2010-08-25	00:00	2010-08-26
242806	SB-12 15'	soil	2010-08-25	00:00	2010-08-26
242807	SB-12 20'	soil	2010-08-25	00:00	2010-08-26
242808	SB-12 25'	soil	2010-08-25	00:00	2010-08-26
242809	SB-12 30'	soil	2010-08-25	00:00	2010-08-26

	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)
242746 - SB-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242755 - SB-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242764 - SB-8 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242774 - SB-9 0-1'					<50.0	<2.00
242783 - SB-10 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
242792 - SB-11 0-1'					<50.0	<2.00
242801 - SB-12 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 242746 - SB-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**494**	mg/Kg	4.00

Sample: 242747 - SB-6 3'

Param	Flag	Result	Units	RL
Chloride		**383**	mg/Kg	4.00

Sample: 242748 - SB-6 5'

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

Sample: 242749 - SB-6 7'

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

Sample: 242750 - SB-6 10'

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

Sample: 242751 - SB-6 15'

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

Sample: 242752 - SB-6 20'

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

Sample: 242753 - SB-6 25'

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

Sample: 242754 - SB-6 30'

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

Sample: 242755 - SB-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**4510**	mg/Kg	4.00

Sample: 242756 - SB-7 3'

Param	Flag	Result	Units	RL
Chloride		**235**	mg/Kg	4.00

Sample: 242757 - SB-7 5'

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

Sample: 242758 - SB-7 7'

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

Sample: 242759 - SB-7 10'

Param	Flag	Result	Units	RL
Chloride		**205**	mg/Kg	4.00

Sample: 242760 - SB-7 15'

Param	Flag	Result	Units	RL
Chloride		**255**	mg/Kg	4.00

Sample: 242761 - SB-7 20'

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

Sample: 242762 - SB-7 25'

Param	Flag	Result	Units	RL
Chloride		**230**	mg/Kg	4.00

Sample: 242763 - SB-7 30'

Param	Flag	Result	Units	RL
Chloride		**215**	mg/Kg	4.00

Sample: 242764 - SB-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**2200**	mg/Kg	4.00

Sample: 242765 - SB-8 3'

Param	Flag	Result	Units	RL
Chloride		**789**	mg/Kg	4.00

Sample: 242766 - SB-8 5'

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

Sample: 242767 - SB-8 7'

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

Sample: 242768 - SB-8 10'

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

Sample: 242769 - SB-8 15'

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

Sample: 242770 - SB-8 20'

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

Sample: 242771 - SB-8 25'

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

Sample: 242772 - SB-8 30'

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

Sample: 242773 - SB-8 40'

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

Sample: 242774 - SB-9 0-1'

Param	Flag	Result	Units	RL
Chloride		**1020**	mg/Kg	4.00

Sample: 242775 - SB-9 3'

Param	Flag	Result	Units	RL
Chloride		**9150**	mg/Kg	4.00

Sample: 242776 - SB-9 5'

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

Sample: 242777 - SB-9 7'

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

Sample: 242778 - SB-9 10'

Param	Flag	Result	Units	RL
Chloride		**496**	mg/Kg	4.00

Sample: 242779 - SB-9 15'

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

Sample: 242780 - SB-9 20'

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

Sample: 242781 - SB-9 25'

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

Sample: 242782 - SB-9 30'

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

Sample: 242783 - SB-10 0-1'

Param	Flag	Result	Units	RL
Chloride		**1060**	mg/Kg	4.00

Sample: 242784 - SB-10 3'

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

Sample: 242785 - SB-10 5'

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

Sample: 242786 - SB-10 7'

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

Sample: 242787 - SB-10 10'

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

Sample: 242788 - SB-10 15'

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

Sample: 242789 - SB-10 20'

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

Sample: 242790 - SB-10 25'

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

Sample: 242791 - SB-10 30'

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

Sample: 242792 - SB-11 0-1'

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

Sample: 242793 - SB-11 3'

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

Sample: 242794 - SB-11 5'

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

Sample: 242795 - SB-11 7'

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

Sample: 242796 - SB-11 10'

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

Sample: 242797 - SB-11 15'

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

Sample: 242798 - SB-11 20'

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

Sample: 242799 - SB-11 25'

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

Sample: 242800 - SB-11 30'

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

Sample: 242801 - SB-12 0-1'

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

Sample: 242802 - SB-12 3'

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

Sample: 242803 - SB-12 5'

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

Sample: 242804 - SB-12 7'

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

Sample: 242805 - SB-12 10'

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

Sample: 242806 - SB-12 15'

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

Sample: 242807 - SB-12 20'

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

Sample: 242808 - SB-12 25'

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

Sample: 242809 - SB-12 30'

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