Bratcher, Mike, EMNRD

From: Tavarez, Ike [Ike.Tavarez@tetratech.com]
Sent: Tuesday, October 12, 2010 8:54 AM
To: Bratcher, Mike, EMNRD; Terry Gregston (terry_gregston@nm.blm.gov)
Cc: Pat Ellis; Joshua Russo
Subject: COG - RJU Injection Line - Work Plan
Attachments: COG - RJU Injection Line Work Plan .pdf

COG Operating
RJU Injection Line Leak
Section 34, T17S, R29E, Unit A
32 47.701 104 03.233

Mike and Terry,

Please find enclosed the Work Plan for the RJU injection Line located in Eddy County, New Mexico. On September 1, 2010, Tetra Tech met with Mike Bratcher to discuss the data and proposed excavation depths. Once approved, Tetra Tech will schedule the remediation. Please call me if you have any questions concerning the work plan, thanks

Ike Tavarez, PG Senior Project Manager

Main [illegible] | Fax [illegible] | Cell [illegible]

Ike.Tavarez@tetratech.com

Tetra Tech | Complex Solved, Clear Solutions

1910 [illegible] Spring | Midland, TX 79705 | www.tetratech.com

TETRA TECH

October 4, 2010

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

Re: Work Plan for the COG Operating LLC., RJU Injection Trunk Line, Unit A, Section 34, Township 17 South, Range 29 East, Eddy County, New Mexico. (API 30-015-03765)

Mr. Bratcher:

Tetra Tech Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess the spill from the RJU injection trunk line site located in Unit A, Section 34 Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32 47.701°, W 104 03.233°. 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 April 15, 2010. Approximately 190 barrels of produced water was released from a faulty pipe on the injection line, which was replaced. Vacuum trucks were utilized to recover 130 barrels of standing fluids. The initial C-141 is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 34. However, an abandoned water well was located in Section 35 and Tetra Tech personnel measured a total depth of 153' (dry). According to the Geology and Groundwater Resources of Eddy County, New Mexico (Report 3), one well is located in Section 22 (Bear Grass Draw) with a depth to water of 79.0' below surface. In addition, a well located in Section 29 was reported at 210 below surface. According to the NMOCD groundwater map the average depth to groundwater in this area is approximately 150' below surface. *The Geology and Groundwater Resources of Eddy County, New Mexico (Report 3)* well report data is included 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.

Soil Assessment and Results

On April 22, 2010, Tetra Tech personnel inspected and sampled the spill area. The spill area measured approximately 40' x 145', which ran along the injection line. A total of five (5) auger holes (AH-1 through AH-5) 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.

Referring to Table 1, none of the samples exceeded the RRAL for TPH and BTEX. Elevated chloride concentrations were detected in all of the auger holes, with no delineation below 250 mg/kg in any of the auger holes. The chloride concentrations in AH-5 did decline at 1-1.5' below surface and increased to 1,470 mg/kg at 5.5-6' below surface.

On June 30, 2010, Tetra Tech personnel supervised the installation of three (3) boreholes (SB-1 through SB-3) utilizing an air rotary rig to define the chloride impact. The soil boring locations are shown on Figure 3. The borings were installed in the vicinity of the previous auger holes. The boreholes were extended to a maximum depth of 30 feet below surface, with samples collected at 2 to 3 foot intervals for the first 10 feet and 5 foot intervals thereafter, and submitted to the laboratory for chloride analysis. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 2.

Referring to Table 2, analytical results indicate the maximum extent of chloride impact greater than 1,000 mg/kg extended down to 15.0' below surface in all three of the borings. All samples had chloride concentrations decreased with depth and appeared defined.

Work Plan

On September 1, 2010, Tetra Tech met with Mike Bratcher (NMOCD) to discuss the data and the proposed excavation depths for the site. The excavation depths were verbally approved by Mr. Bratcher. Based on the data and depth to groundwater, COG

TETRA TECH

proposes to excavate the impacted soil (spill foot print) to a depth of approximately 10.0' below surface. The proposed excavation depths are shown in Table 2. Tetra Tech personnel will supervise the removal of impacted and transported to CRI for proper disposal. The excavated area will then be backfilled with clean soil to grade.

Since the impacted area is in the native sand dunes, the proposed excavation depths may not be reached due to wall cave ins, safety concerns for lines, equipment operators as well, as other onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths are not reached, a 40 mil liner will be installed at depth of 4' to 5' below surface to cap the impacted area.

If you require any additional information or have any questions or comments concerning this report, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, P.G.
Senior Project Manager

cc: Pat Ellis – COG
Terry Gregston - BLM

Table 1
COG Operating LLC.
RJU Inj. Line Leak
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	GRO	DRO	Total					
AH-1	4/22/2010	0-1'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	2,540
		1-1.5'		X		-	-	-	-	-	-	-	7,690
		2-2.5'		X		-	-	-	-	-	-	-	4,750
		3-3.5'		X		-	-	-	-	-	-	-	3,890
		4-4.5'		X		-	-	-	-	-	-	-	5,190
		5-5.5'		X		-	-	-	-	-	-	-	11,900
		5.5-6'		X		-	-	-	-	-	-	-	14,700
AH-2	4/22/2010	0-1'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	6,040
		1-1.5'		X		-	-	-	-	-	-	-	6,800
		2-2.5'		X		-	-	-	-	-	-	-	4,300
		3-3.5'		X		-	-	-	-	-	-	-	3,970
		4-4.5'		X		-	-	-	-	-	-	-	8,870
		4.5-5'		X		-	-	-	-	-	-	-	11,700
AH-3	4/22/2010	0-1'	1' BEB	X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	0.0976	8,200
AH-4	4/22/2010	0-1'	1' BEB	X		<5.00	150	150	<0.0500	<0.0100	<0.0500	<0.0500	5,530
		1-1.5'	1' BEB	X		-	-	-	-	-	-	-	5,080
		2-2.5'	1' BEB	X		-	-	-	-	-	-	-	5,530
		3-3.5'	1' BEB	X		-	-	-	-	-	-	-	5,560
		4-4.5'	1' BEB	X		-	-	-	-	-	-	-	7,450
		4.5-5'	1' BEB	X		-	-	-	-	-	-	-	9,490
AH-5	4/22/2010	0-1'	.5'BEB	X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	2,340
		1-1.5'	.5'BEB	X		-	-	-	-	-	-	-	414
		2-2.5'	.5'BEB	X		-	-	-	-	-	-	-	424
		3-3.5'	.5'BEB	X		-	-	-	-	-	-	-	475
		4-4.5'	.5'BEB	X		-	-	-	-	-	-	-	485
		5-5.5'	.5'BEB	X		-	-	-	-	-	-	-	864
		5.5-6'	.5'BEB	X		-	-	-	-	-	-	-	1,470

BEB Below Excavation Bottom

(--) Not Analyzed

Table 2
COG Operating LLC.
RJU Inj. Line Leak
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	GRO	DRO	Total					
SB-1	8/12/2010	1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	3'		X		-	-	-	-	-	-	-	335
	"	5'		X		-	-	-	-	-	-	-	4,460
	"	7'		X		-	-	-	-	-	-	-	11,200
	"	10'		X		-	-	-	-	-	-	-	10,700
	"	15'		X		-	-	-	-	-	-	-	1,810
	"	20'		X		-	-	-	-	-	-	-	408
	"	25'		X		-	-	-	-	-	-	-	240
	"	30'		X		-	-	-	-	-	-	-	392
SB-2	8/12/2010	1"		X		<2.00	110	110	<0.0200	<0.0200	<0.0200	<0.0200	586
	"	3'		X		-	-	-	-	-	-	-	2,490
	"	5'		X		-	-	-	-	-	-	-	586
	"	7'		X		-	-	-	-	-	-	-	6,810
	"	10'		X		-	-	-	-	-	-	-	1,380
	"	15'		X		-	-	-	-	-	-	-	1,090
	"	20'		X		-	-	-	-	-	-	-	586
	"	25'		X		-	-	-	-	-	-	-	412
	"	30'		X		-	-	-	-	-	-	-	275
SB-3	8/12/2010	1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	1,470
	"	3'		X		-	-	-	-	-	-	-	2,330
	"	5'		X		-	-	-	-	-	-	-	2,930
	"	7'		X		-	-	-	-	-	-	-	9,710
	"	10'		X		-	-	-	-	-	-	-	3,170
	"	15'		X		-	-	-	-	-	-	-	1,250
	"	20'		X		-	-	-	-	-	-	-	903
	"	25'		X		-	-	-	-	-	-	-	228
	"	30'		X		-	-	-	-	-	-	-	<200

(-) Not Analyzed

Proposed Excavation Depths

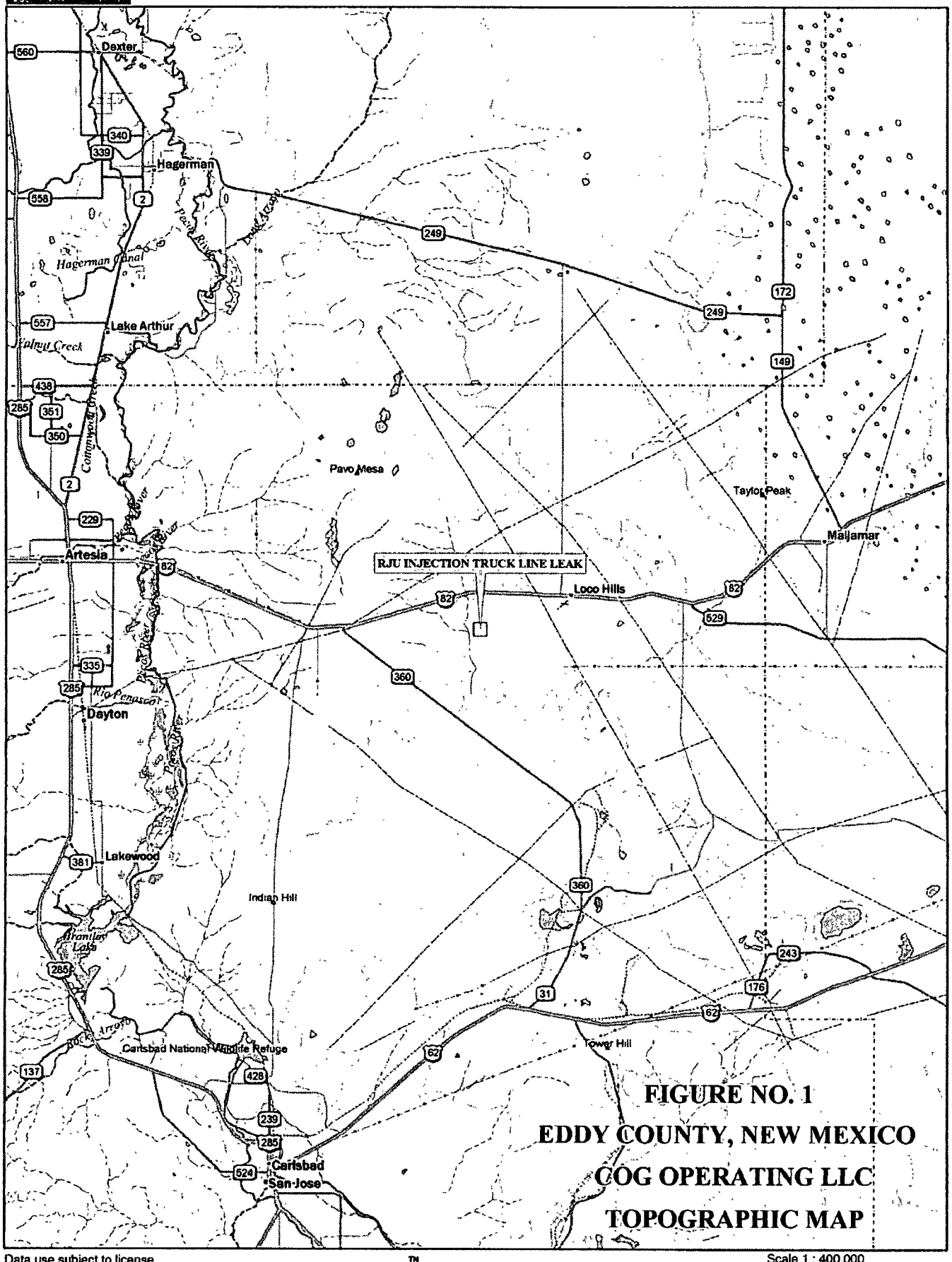


FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

TN
MN (7.9°E)

Scale 1 : 400,000
1" = 6.31 mi
Data Zoom 9-0

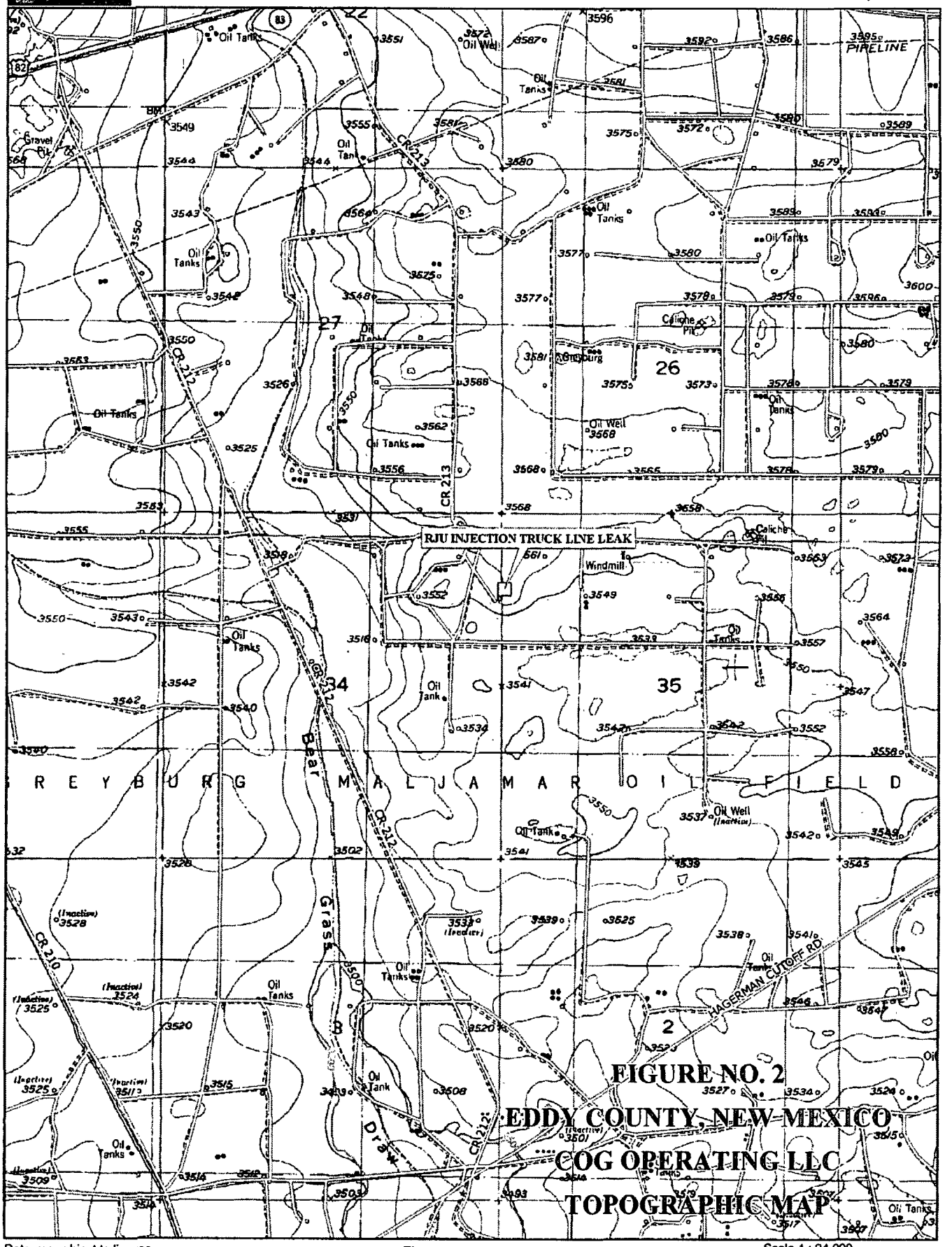


FIGURE NO. 2

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

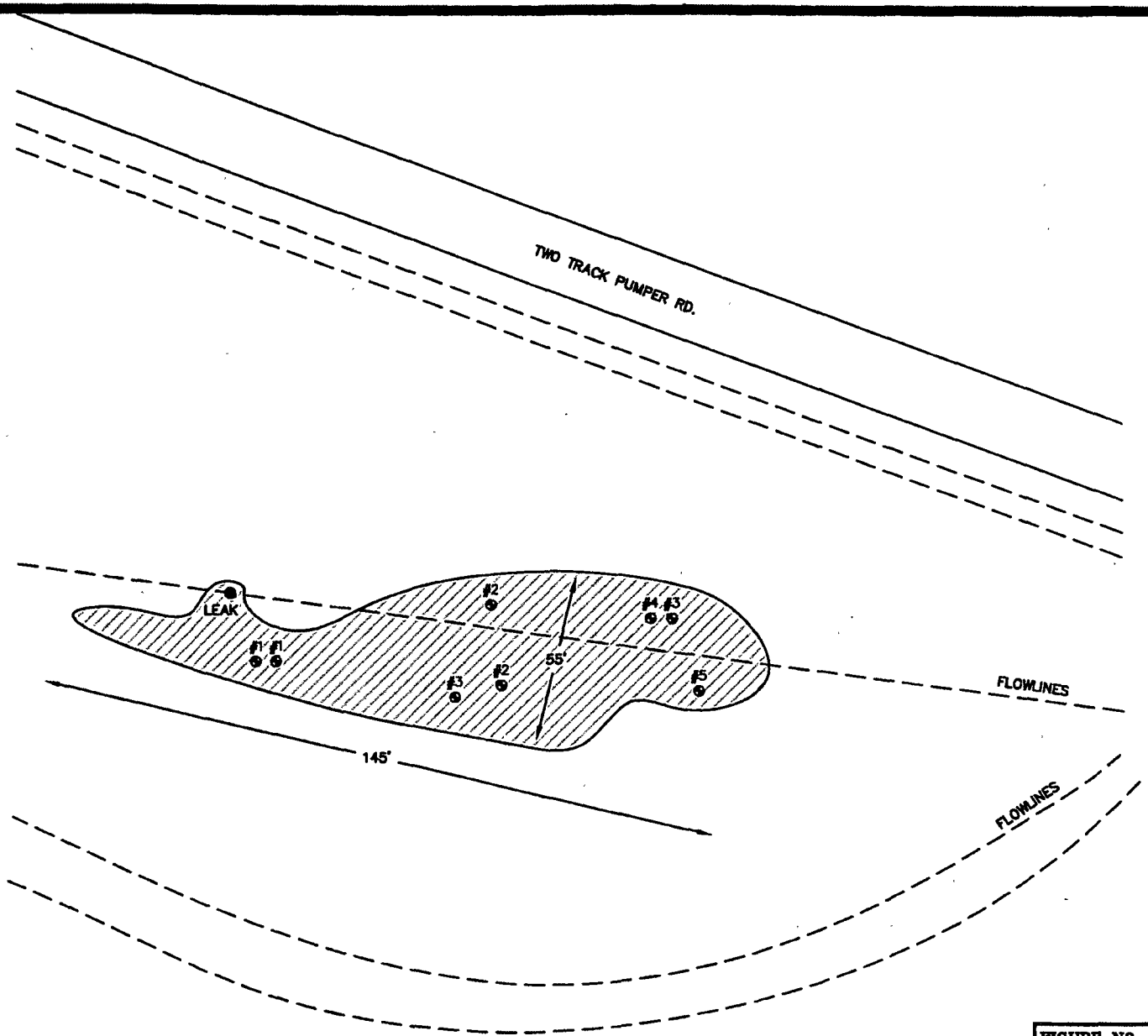
TN

MN (7.9°E)

Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 13-0



SPILL AREA
SAMPLE LOCATIONS
SOIL BORING LOCATIONS

NOT TO SCALE

FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

RJU INJECTION TRUCK LINE LEAK

DATE: 4/21/10
DWN. BY: JJ
FILE: H:\COG\[illegible] RJU FLOWLINE LEAK

TETRA TECH, INC.
MIDLAND, TEXAS

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 Repor

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	RJU INJECTION TRUNK-LINE	Facility Type	Trunk-Line

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-03765

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	34	17S	29E	660	NORTH	654	EAST	EDDY

Latitude 32 47.702 **Longitude** 104 03.251

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 190bbls	Volume Recovered 130bbls
Source of Release 2" Water flood Trunk Line	Date and Hour of Occurrence 04/15/2010	Date and Hour of Discovery 04/15/2010 12:00p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD, Terry Gregston-BLM	
By Whom? Josh Russo	Date and Hour 04/15/2010 9:01 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 leak was caused by a new installation of faulty fiber/poly trunk line. The entire line is being removed and completely replaced.

Describe Area Affected and Cleanup Action Taken.*

190bbls of produced water was initially released and covered an area of 75'x100' next to the line in the pasture. A vacuum truck was immediately called and recovered 130bbls of fluid. One-call protocol will be made and a sundry will be submitted for archeological /wildlife sensitivity clearance prior to soil sampling by Tetra Tech. (The spill site area is located 150 yards west of the following: COG OPERATING LLC, RJU UNIT #124, 660FNL 654 FEL. Sec. 34-T17S-R29E, Eddy Co. NM, API#30-015-03765)

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: 04/20/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

Water Well Data
Average Depth to Groundwater (ft)
COG - RJU Injection Line
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 61	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 110	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

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

17 South 28 East

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

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 80	23	24
30	29 210 208'	28	27 SITE	26	25
31	32	33	34 Site	35 153 (dry)	36

17 South 30 East

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

18 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 65	36

18 South 29 East

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

18 South 30 East

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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Field water level

143 NMOCD Groundwater map well location