PJKK1535249287
4042

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 1300 Midland, Texas 79701**	Telephone No. **(432) 230-0077**
Facility Name GC Federal 16	Facility Type **Flowline**

Surface Owner Federal	Mineral Owner	Lease No. API 30-025-39112 NMLC 029405B

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	17-S	32-E					Lea

Latitude N 32 49.140° **Longitude** W 103 48.300°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release **10 bbls**	Volume Recovered **9 bbls**
Source of Release **Flowline**	Date and Hour of Occurrence 3/25/2011	Date and Hour of Discovery **3/25/11 12:00 p.m.**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Increasing pressure inside of the flowline caused it to rupture. The flowline has been repaired and returned into service.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected and collected samples to define the spills extent. Soil with elevated chloride concentrations was removed and hauled to Controlled Recovery, Inc., Hobbs, NM. Once excavated to the appropriate depths, the site was backfilled with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (Agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval:	Attached ☐
Date: 1-26-12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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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	GC Federal 16	Facility Type	Flowline

Surface Owner	Mineral Owner	Lease No. (API#)
Federal		30-025-39112 NMLC-029405B

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	17S	32E					Lea

Latitude 32 49.140 **Longitude** 103 48.300

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 10bbls	Volume Recovered 9bbls
Source of Release Flowline	Date and Hour of Occurrence 03/25/2011	Date and Hour of Discovery 03/25/2011 12:00 p.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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.*

Increasing pressure inside of the flowline caused it to rupture. The flowline has been repaired and returned into service.

Describe Area Affected and Cleanup Action Taken.*

Initially 10bbls of produced water was released from the flowline and we were able to recover 9bbls with a vacuum truck. The release caused a spill area in the pasture measuring 20' x 30'. (The closest well to the spill site area is the GC Federal #14, API# 30-025-39110). 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: 04/01/2011 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

PJXK1535249287

HOBBS OCD

OCT 26 2011

RECEIVED

SITE INFORMATION

Report Type: Work Plan

General Site Information:		
Site:	GC Federal 16 Well Site	
Company:	COG Operating LLC	
Section, Township and Range	Unit O - Section 19 - Township 17S - Range 32E	
Lease Number:	30-025-39112	
County:	Lea County	
GPS:	32.81488° N	103.80471° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Hwy 529 and CR-126, travel north on 126 1.8 miles, turn left 2.3 miles to location on right.	

Release Data:	
Date Released:	3/25/2011
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	10 bbls
Fluids Recovered:	9 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		432-682-4559
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	
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:	0	

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

GW@225'

APPROVED W/ CAVEAT OF TRYING TO EXCAVATE TO 15' @ SB-1

11/21/11

DEC 22 2015

TETRA TECH

October 20, 2011

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

Re: Work Plan for the COG Operating LLC., GC Federal #16 Well Site, Unit O, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the GC Federal #16 Well Site, Unit O, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81488°, W 103.80471°. 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 March 25, 2011, and released approximately ten (10) barrels of produced water, due to a flow line rupturing in the pasture. Nine (9) barrels of standing fluids were recovered from the site. The spill was contained within a low lying area in the adjacent pasture measuring approximately 20' x 50'. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 19. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well (TMW) in Section 30 to a depth of 180' bgs and did not encounter groundwater. According to the

Tetra Tech
1910 North Big Spring Midland TX 79705
Tel 432 682 4559 Fax 432 687 0456 www.tetratech.com

NMOCD groundwater map, the average depth to groundwater in this area is greater than 200' below surface. The average depth to groundwater and well log are shown in Appendix A.

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 April 6, 2011, Tetra Tech personnel inspected and sampled the spill area. One auger hole (AH-1) was 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 location is 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 auger hole, with a bottom hole sample of 13,800 mg/kg at 4-4.5'. Deeper samples were not collected due to the dense caliche formation. Based on the results, the impacted area needed to be vertically defined.

On May 17, 2011, Tetra Tech personnel supervised the installation of two (2) soil bores (SB-1 and SB-2) to a depth of 40.0' below surface. The soil boring results are summarized on Table 1. Referring to Table 1, SB-1 and SB-2 chloride concentrations significantly declined with depth at 20.0', with concentrations of 416 mg/kg and 366 mg/kg, respectively.

TETRA TECH

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1. Based on the groundwater depth, the impacted area will be excavated to a depth of approximately 10.0' below surface. The remaining chloride concentrations significantly decline with depth and the chloride residual does not appear to an environmental concern. Once the excavation depths are reached, the site will be backfilled with clean material back to surface grade.

Based on the site formation, the proposed excavation depth 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 safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the proposed excavation depths are not achieved, the area will be capped with a 40 mil liner at 4.0' below surface and backfilled with clean soil.

Upon completion, a final report will be submitted to the NMOCD and BLM. 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
Project Manager

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

Table 1
COG Operating LLC.
GC Federal # 16 Well
LEA 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	4/6/2011	0-1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	7,740
		1-1.5'		X		-	-	-	-	-	-	-	4,760
		2-2.5'		X		-	-	-	-	-	-	-	7,100
		3-3.5'		X		-	-	-	-	-	-	-	9,790
		4-4.5'		X		-	-	-	-	-	-	-	13,800
SB-1	5/17/2011	0-1'		X		-	-	-	-	-	-	-	4,190
		3'		X		-	-	-	-	-	-	-	11,600
		5'		X		-	-	-	-	-	-	-	25,600
		7'		X		-	-	-	-	-	-	-	8,000
		10'		X		-	-	-	-	-	-	-	13,000
		15'		X		-	-	-	-	-	-	-	4,110
		20'		X		-	-	-	-	-	-	-	416
		25'		X		-	-	-	-	-	-	-	1,590
		30'		X		-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	262
SB-2	5/17/2011	0-1'		X		-	-	-	-	-	-	-	10,100
		3'		X		-	-	-	-	-	-	-	4,760
		5'		X		-	-	-	-	-	-	-	21,100
		7'		X		-	-	-	-	-	-	-	5,570
		10'		X		-	-	-	-	-	-	-	4,010
		15'		X		-	-	-	-	-	-	-	1,210
		20'		X		-	-	-	-	-	-	-	386
		25'		X		-	-	-	-	-	-	-	273
		30'		X		-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom

(-) Not Analyzed

☐ Proposed Excavated Depths

DELORME

Topo USA® 8

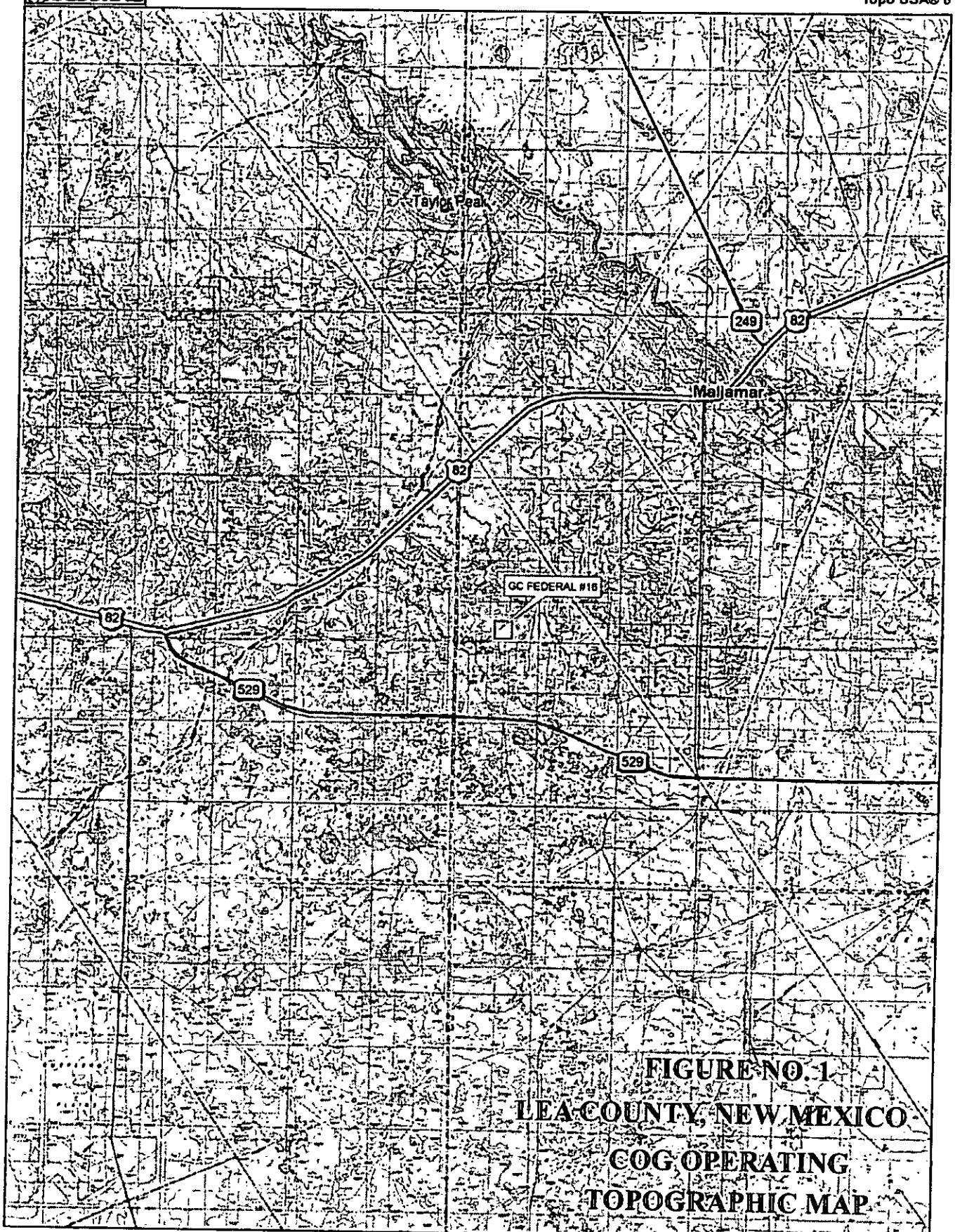


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
COG OPERATING
TOPOGRAPHIC MAP

TN

Scale 1 : 100,000

1" = 1.58 mi

Data Zoom 10-5

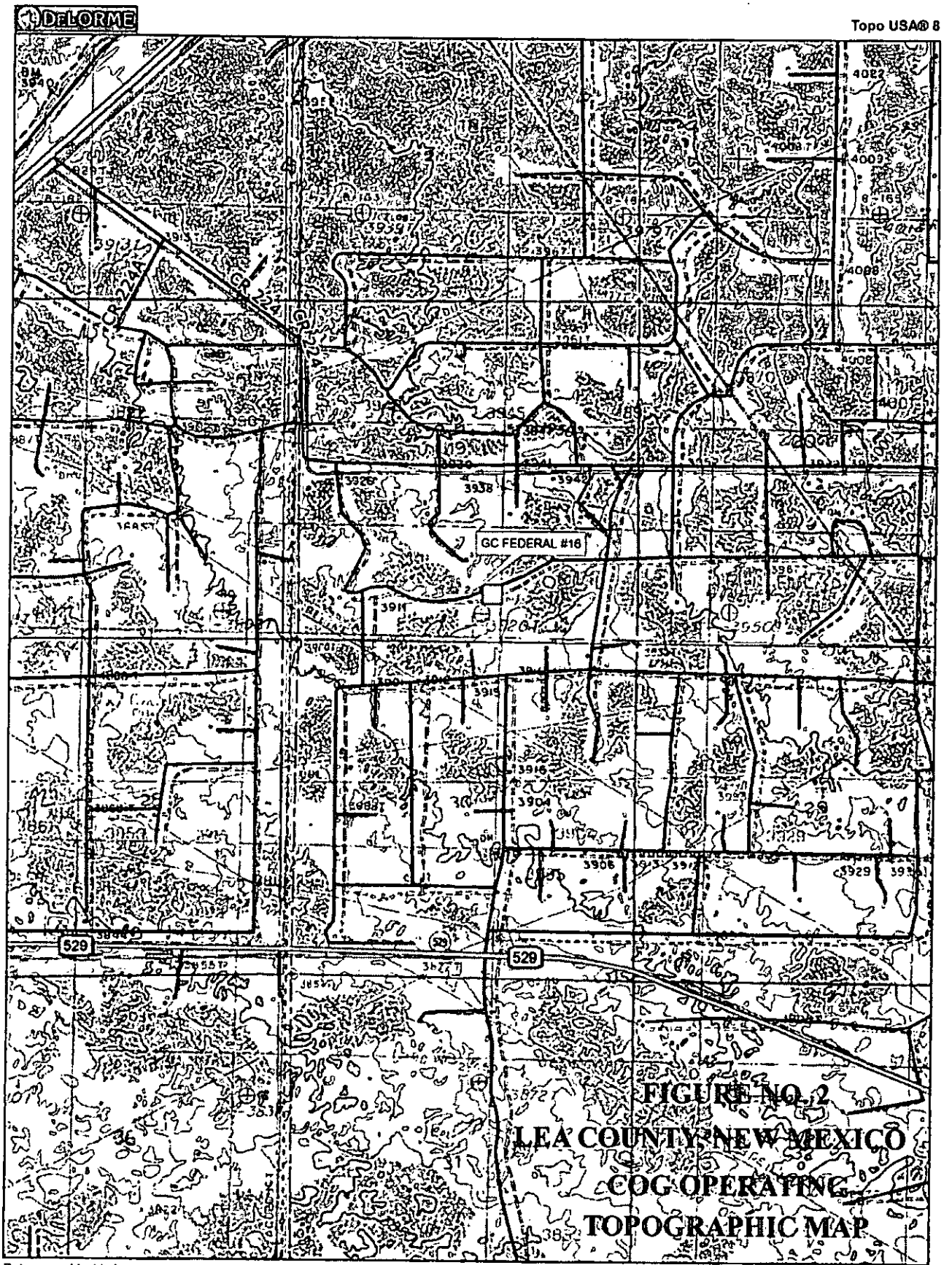


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING

TOPOGRAPHIC MAP

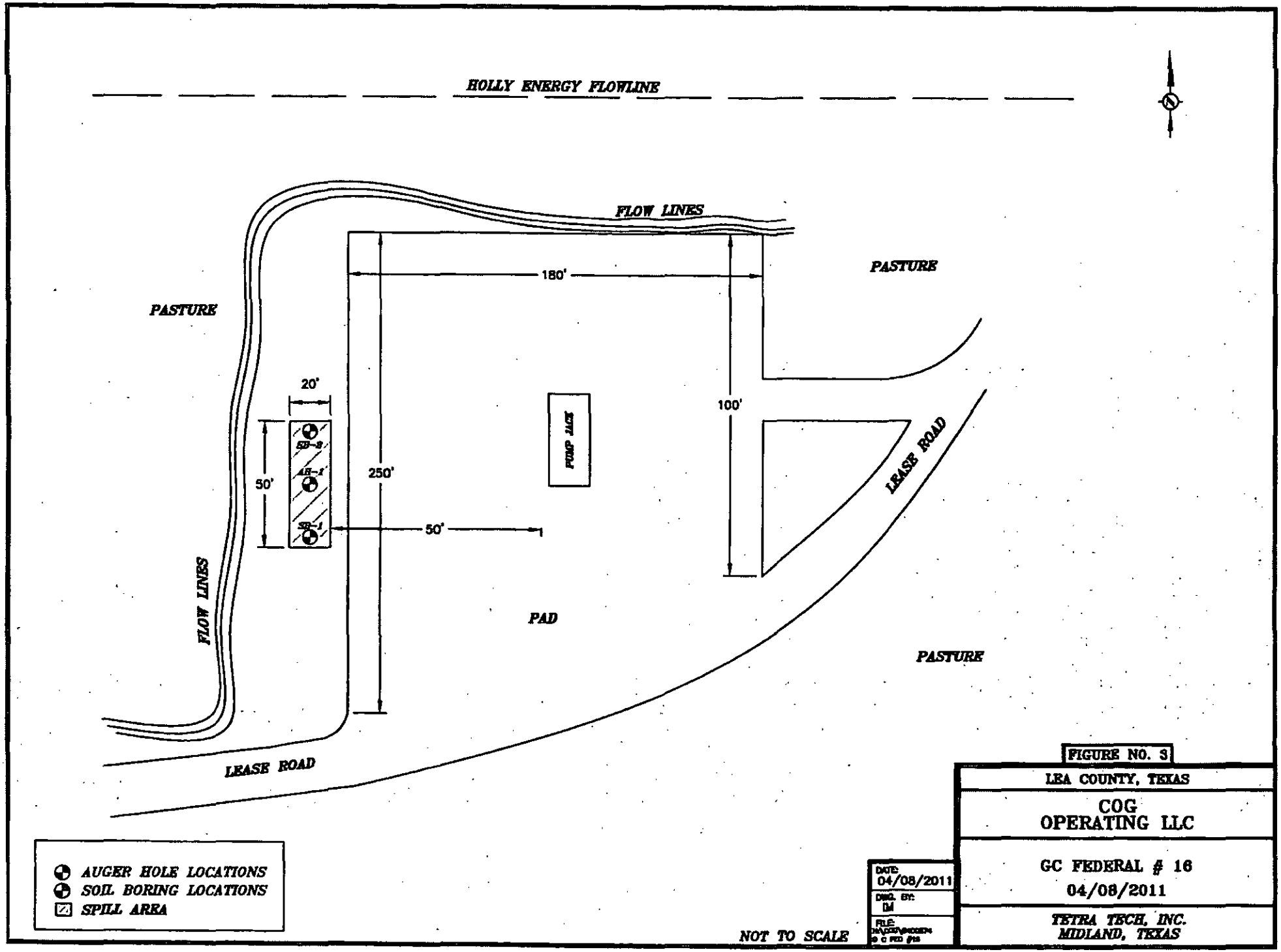


FIGURE NO. 3

LEA COUNTY, TEXAS

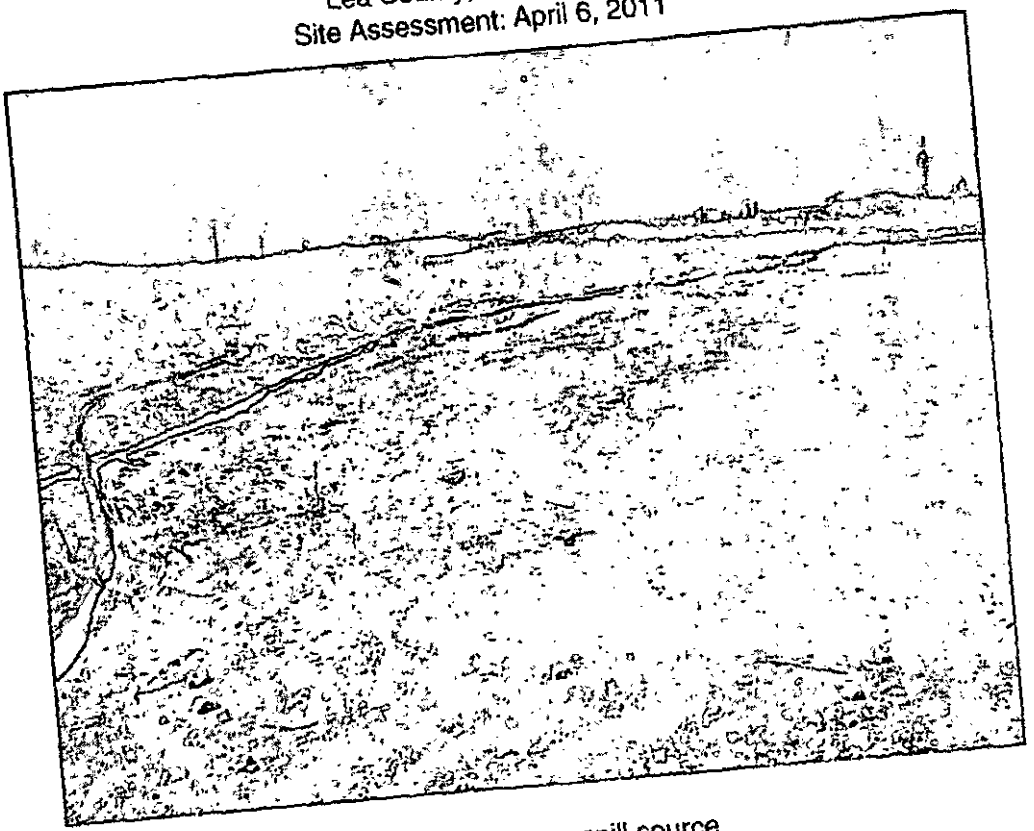
COG OPERATING LLC

GC FEDERAL # 16

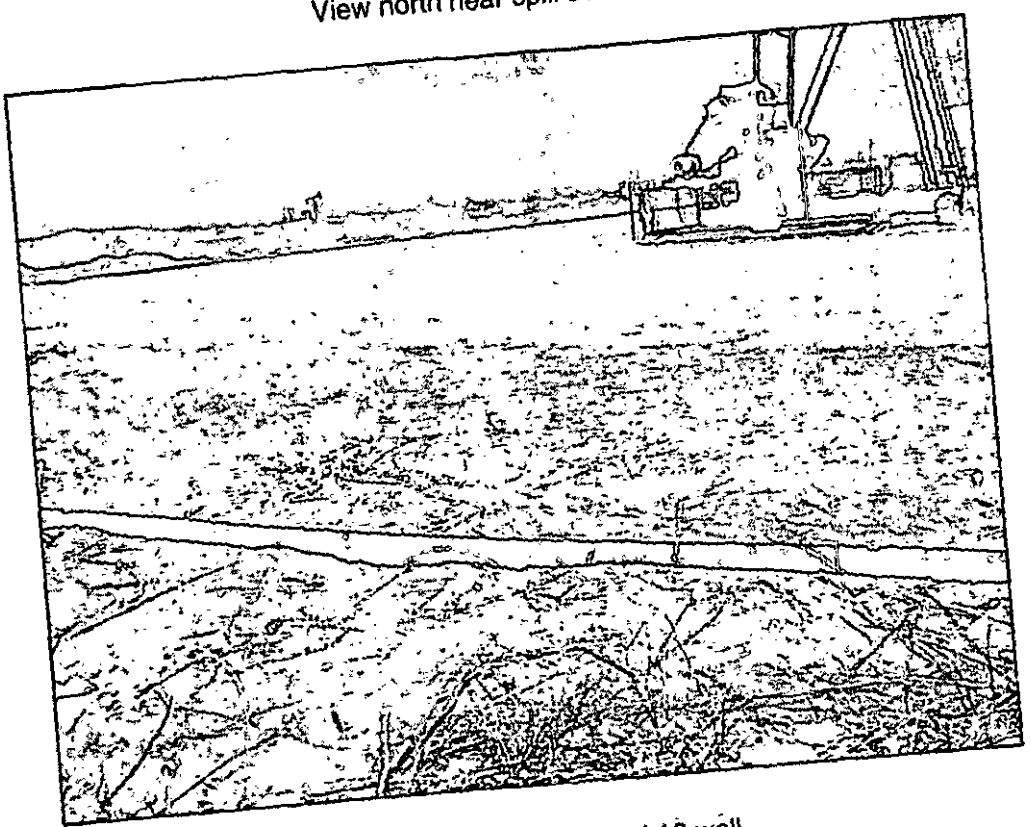
04/08/2011

TETRA TECH, INC.
MIDLAND, TEXAS

COG Operating LLC
GC Federal 16
Lea County, New Mexico
Site Assessment: April 6, 2011



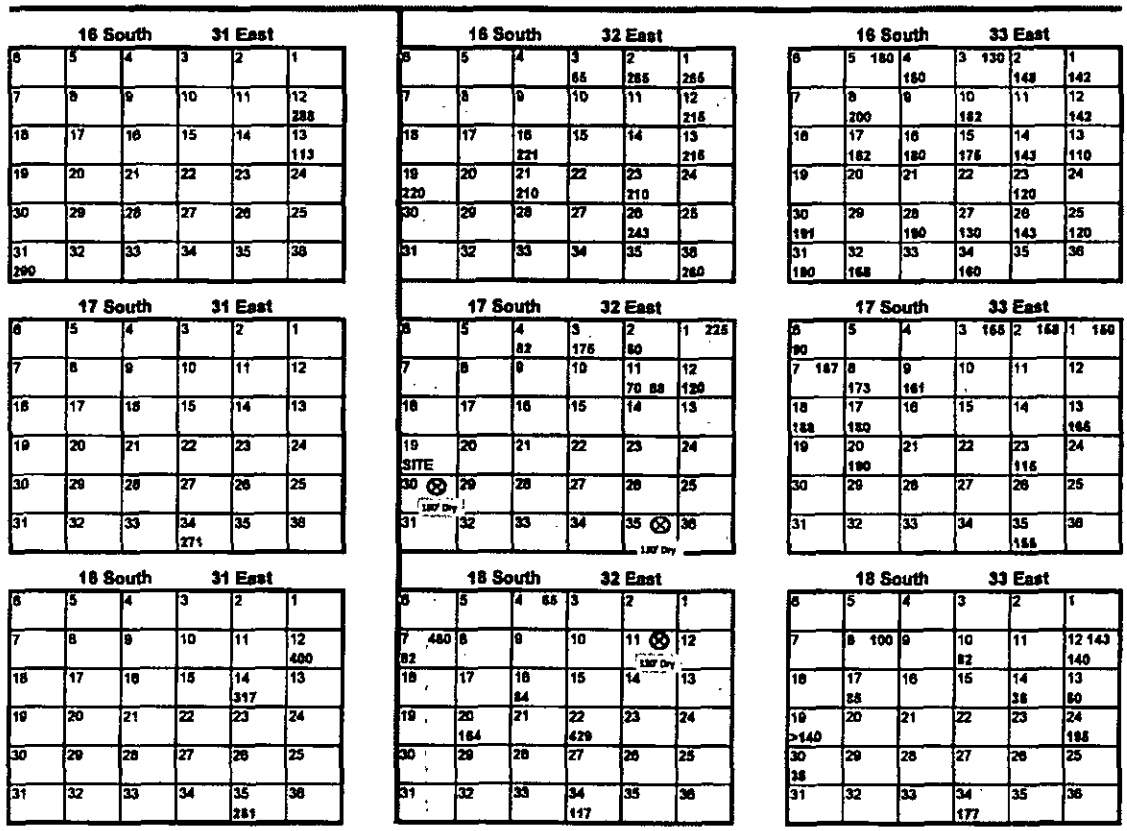
View north near spill source



View east – GC Federal 16 well

TETRA TECH

Water Well Data
Average Depth to Groundwater (ft)
COG - GC Federal #16
Lea County, New Mexico



- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System
- Site - GC Federal #16
- ⊗ Tetra Tech Temporary well

SAMPLE LOG

Boring/Well: TMW-1
Project Number: 114-6400224
Client: COG
Site Location: Pronghorn Section 30
Location: Lea County, New Mexico
Legals: Township 17S Range 32E Section 30
Total Depth 180
Date Installed: 07/14/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Brown fine grain sand
10-11	--	Buff limestone
15-16	--	Tan to buff calcareous sand with chert intermixed.
20-21	--	Tan calcareous sand
25-26	--	Tan fine grain sand
30-31	--	Tan to yellow sandy clay
35-36	--	Reddish clayey sand with gravel
40-41	--	Red gravelly fine grain sand
45-46	--	Red to buff gravelly calcareous sand
50-51	--	Red fine grain sand
55-56	--	Red sandy silt
60-61	--	Red silty clay (dry)
65-66	--	Red coarse grain sandy clay
70-71	--	Red fine grain sand
75-76	--	Red fine grain sand
80-81	--	Red gravelly sand
85-86	--	Red fine grain silty clay with some sand intermixed
90-91	--	Red fine grain silty clay with some sand intermixed
95-96	--	Red fine grain silty clay with some sand intermixed
100-101	--	Red fine grain silty clay with some sand intermixed
105-106	--	Tan red fine grain sand
110-111	--	Tan fine grain sand
115-116	--	Tan fine grain sand
120-121	--	Tan to red fine grain sand
130-131	--	Red clay of high plasticity (Red bed)
140-141	--	Red clay of high plasticity (Red bed)
150-151	--	Red clay of high plasticity (Red bed) intermixed with gravel
160-161	--	Red clay of high plasticity (Red bed) intermixed with gravel
170-171	--	Red clay of high plasticity (Red bed) intermixed with gravel
180-181	--	Red clay of high plasticity (Red bed)

Total Depth 181' **Groundwater was not encountered**

Summary Report

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

Report Date: April 13, 2011

Work Order: 11040723

Project Location: Lea Co., NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
262812	AH-1 0-1	soil	2011-04-06	00:00	2011-04-07
262813	AH-1 1-1.5	soil	2011-04-06	00:00	2011-04-07
262814	AH-1 2-2.5	soil	2011-04-06	00:00	2011-04-07
262815	AH-1 3-3.5	soil	2011-04-06	00:00	2011-04-07
262816	AH-1 4-4.5	soil	2011-04-06	00:00	2011-04-07

	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)
262812 - AH-1 0-1	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 262812 - AH-1 0-1

Param	Flag	Result	Units	RL
Chloride		7740	mg/Kg	4.00

Sample: 262813 - AH-1 1-1.5

Param	Flag	Result	Units	RL
Chloride		4760	mg/Kg	4.00

Sample: 262814 - AH-1 2-2.5

continued ...

sample 262814 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		7100	mg/Kg	4.00

Sample: 262815 - AH-1 3-3.5

Param	Flag	Result	Units	RL
Chloride		9790	mg/Kg	4.00

Sample: 262816 - AH-1 4-4.5

Param	Flag	Result	Units	RL
Chloride		13800	mg/Kg	4.00

Summary Report

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

Report Date: June 1, 2011

Work Order: 11052328

Project Location: Lea Co., NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267057	SB-1 0-1'	soil	2011-05-17	00:00	2011-05-23
267058	SB-1 3'	soil	2011-05-17	00:00	2011-05-23
267059	SB-1 5'	soil	2011-05-17	00:00	2011-05-23
267060	SB-1 7'	soil	2011-05-17	00:00	2011-05-23
267061	SB-1 10'	soil	2011-05-17	00:00	2011-05-23
267062	SB-1 15'	soil	2011-05-17	00:00	2011-05-23
267063	SB-1 20'	soil	2011-05-17	00:00	2011-05-23
267064	SB-1 25'	soil	2011-05-17	00:00	2011-05-23
267065	SB-1 30'	soil	2011-05-17	00:00	2011-05-23
267066	SB-1 40'	soil	2011-05-17	00:00	2011-05-23
267067	SB-2 0-1'	soil	2011-05-17	00:00	2011-05-23
267068	SB-2 3'	soil	2011-05-17	00:00	2011-05-23
267069	SB-2 5'	soil	2011-05-17	00:00	2011-05-23
267070	SB-2 7'	soil	2011-05-17	00:00	2011-05-23
267071	SB-2 10'	soil	2011-05-17	00:00	2011-05-23
267072	SB-2 15'	soil	2011-05-17	00:00	2011-05-23
267073	SB-2 20'	soil	2011-05-17	00:00	2011-05-23
267074	SB-2 25'	soil	2011-05-17	00:00	2011-05-23
267075	SB-2 30'	soil	2011-05-17	00:00	2011-05-23
267076	SB-2 40'	soil	2011-05-17	00:00	2011-05-23

Sample: 267057 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4190	mg/Kg	4

Sample: 267058 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		11600	mg/Kg	4

Sample: 267059 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		25600	mg/Kg	4

Sample: 267060 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		8000	mg/Kg	4

Sample: 267061 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		13000	mg/Kg	4

Sample: 267062 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		4110	mg/Kg	4

Sample: 267063 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		416	mg/Kg	4

Sample: 267064 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		1590	mg/Kg	4

Sample: 267065 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 267066 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		262	mg/Kg	4

Sample: 267067 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		10100	mg/Kg	4

Sample: 267068 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		4760	mg/Kg	4

Sample: 267069 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		21100	mg/Kg	4

Sample: 267070 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		5570	mg/Kg	4

Sample: 267071 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		4010	mg/Kg	4

Sample: 267072 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		1210	mg/Kg	4

Sample: 267073 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		386	mg/Kg	4

Sample: 267074 - SB-2 25'

Param	Flag	Result	Units	RL
Chloride		273	mg/Kg	4

Sample: 267075 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 267076 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

SITE INFORMATION

Report Type: Closure Report

General Site Information:		
Site:	GC Federal 16 Well Site	
Company:	COG Operating LLC	
Section, Township and Range	Unit O - Section 19 - Township 17S - Range 32E	
Lease Number:	30-025-39112	
County:	Lea County	
GPS:	32.81488° N	103.80471° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Hwy 529 and CR-126, travel north on 126 1.8 miles, turn left 2.3 miles to location on right.	

Release Data:	
Date Released:	3/25/2011
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	10 bbls
Fluids Recovered:	9 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		432-682-4559
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	
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:	0	

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

HOBBS OCD

FEB 06 2012

RECEIVED

TETRA TECH

January 26, 2012

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

Re: Closure Report for the COG Operating LLC., GC Federal #16 Well Site, Unit O, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the GC Federal #16 Well Site, Unit O, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81488°, W 103.80471°. 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 March 25, 2011, and released approximately ten (10) barrels of produced water, due to a flow line rupturing in the pasture. Nine (9) barrels of standing fluids were recovered from the site. The spill was contained within a low lying area in the adjacent pasture measuring approximately 20' x 50'. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 19. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well (TMW) in Section 30 to a depth of 180' bgs and did not encounter groundwater. According to the

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

NMOCD groundwater map, the average depth to groundwater in this area is greater than 200' below surface. The average depth to groundwater and well log are shown in Appendix A.

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 April 6, 2011, Tetra Tech personnel inspected and sampled the spill area. One auger hole (AH-1) was 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 location is 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 auger hole, with a bottom hole sample of 13,800 mg/kg at 4-4.5'. Deeper samples were not collected due to the dense caliche formation. Based on the results, the impacted area needed to be vertically defined.

On May 17, 2011, Tetra Tech personnel supervised the installation of two (2) soil bores (SB-1 and SB-2) to a depth of 40.0' below surface. The soil boring results are summarized on Table 1. Referring to Table 1, SB-1 and SB-2 chloride concentrations significantly declined with depth at 20.0', with concentrations of 416 mg/kg and 366 mg/kg, respectively.

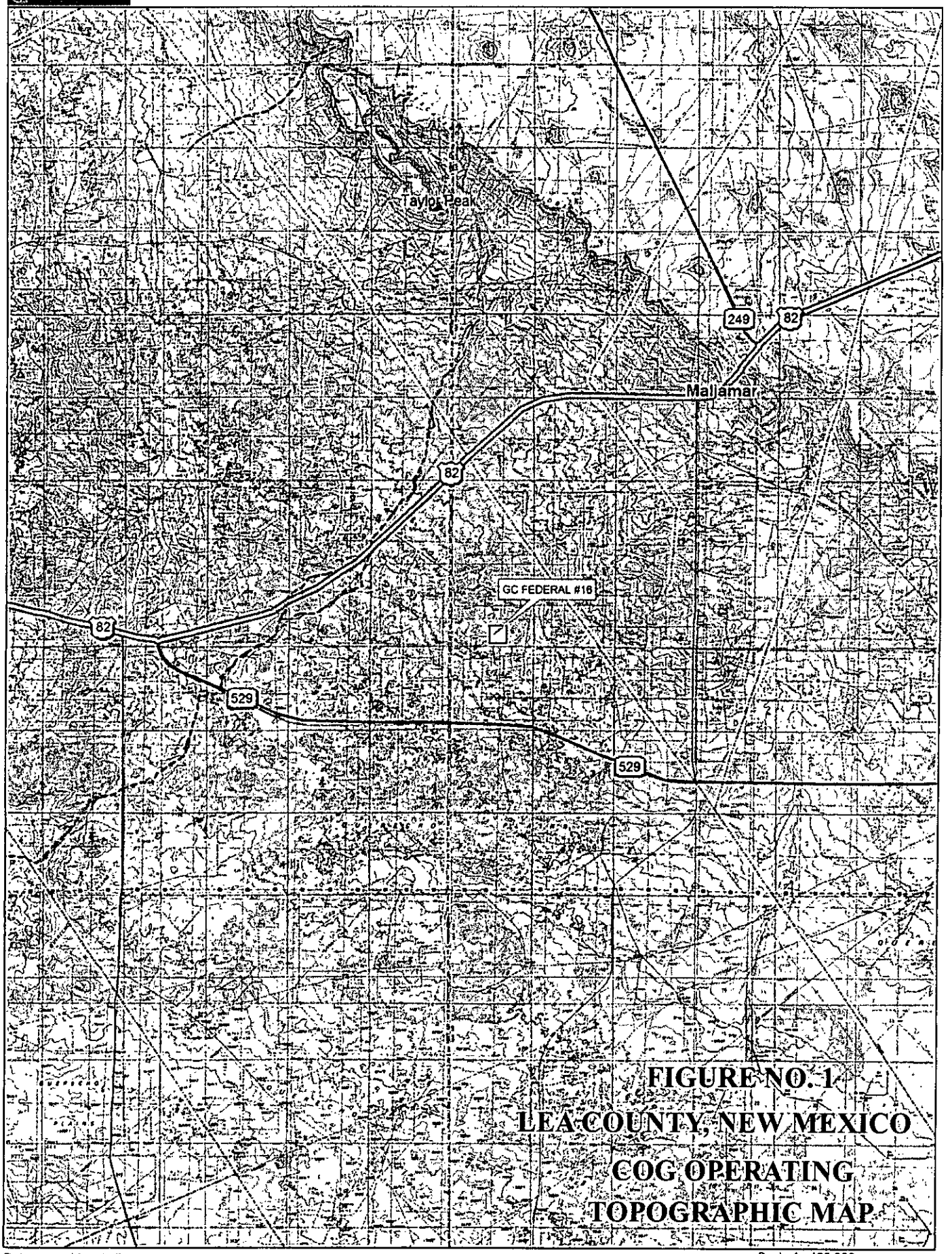


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
COG OPERATING
TOPOGRAPHIC MAP

TN
MN (7.7°E)

Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 10-5

DeLORME

Topo USA® 8

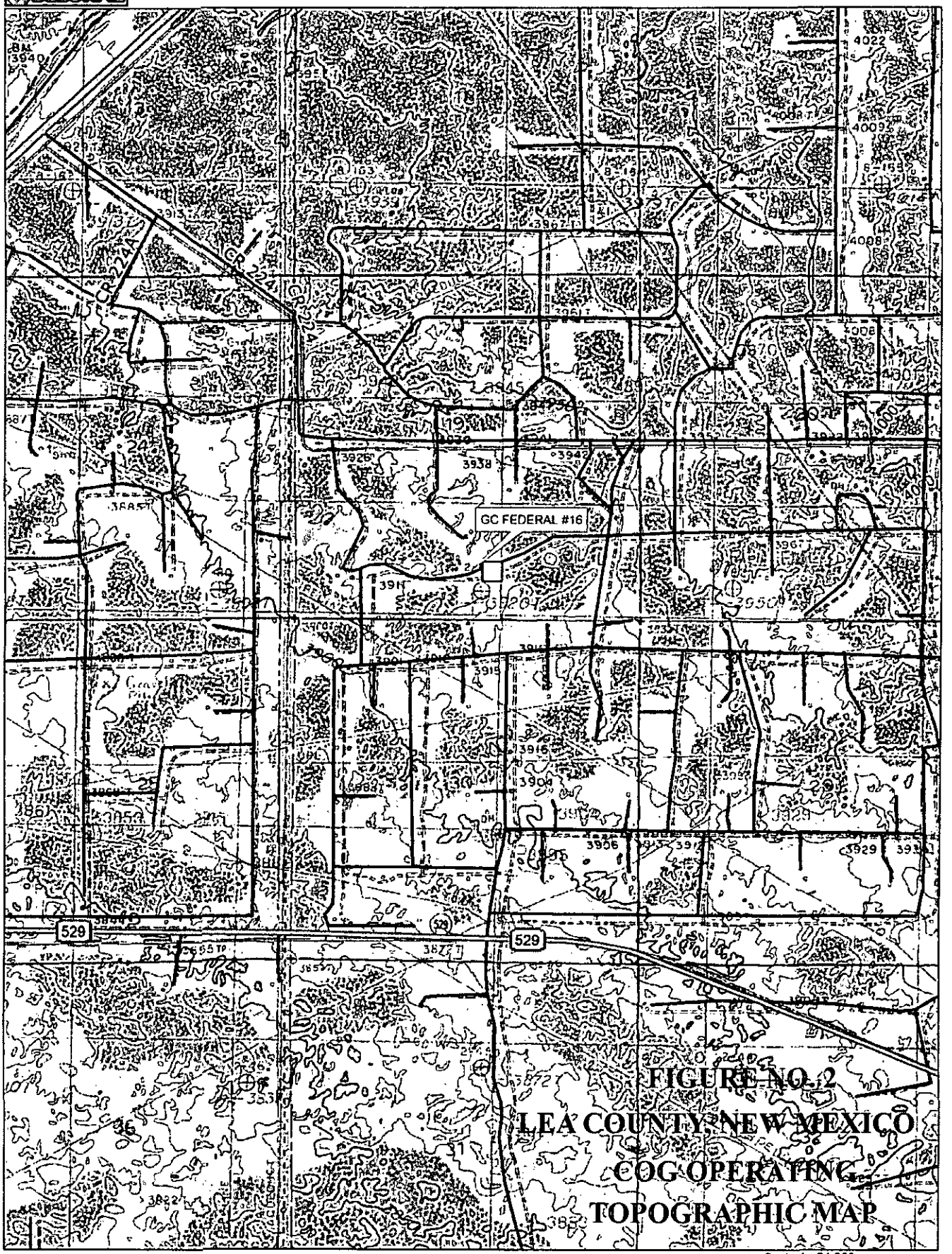


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING

TOPOGRAPHIC MAP

TN

MN (7.7°E)

Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 12-4

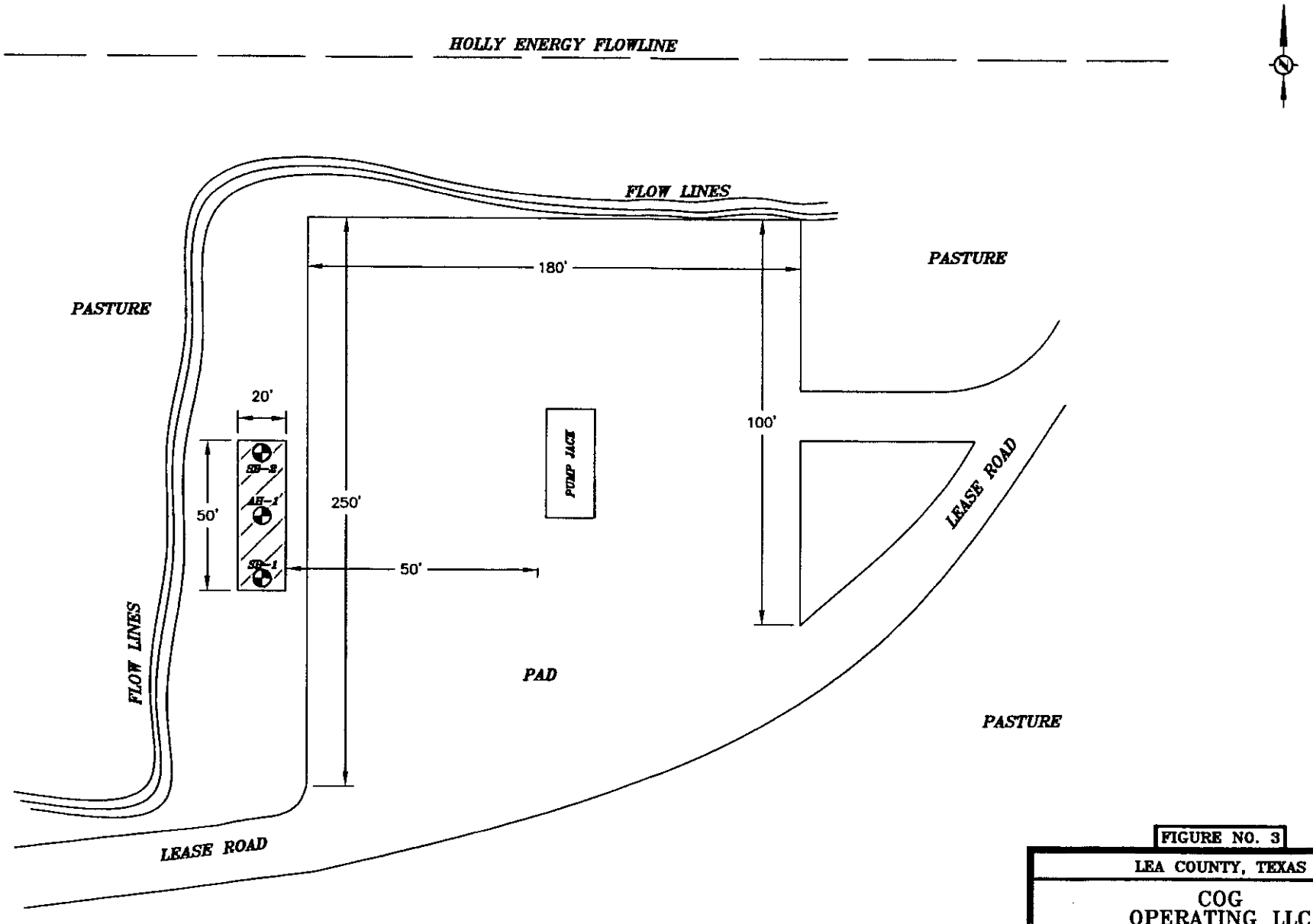


FIGURE NO. 3

LEA COUNTY, TEXAS

COG OPERATING LLC

GC FEDERAL # 16

SPILL ASSESSMENT

DATE: 04/08/2011

DWG. BY: IM

FILE: H:\COG\84000874 G C FED #16

TETRA TECH, INC.
MIDLAND, TEXAS

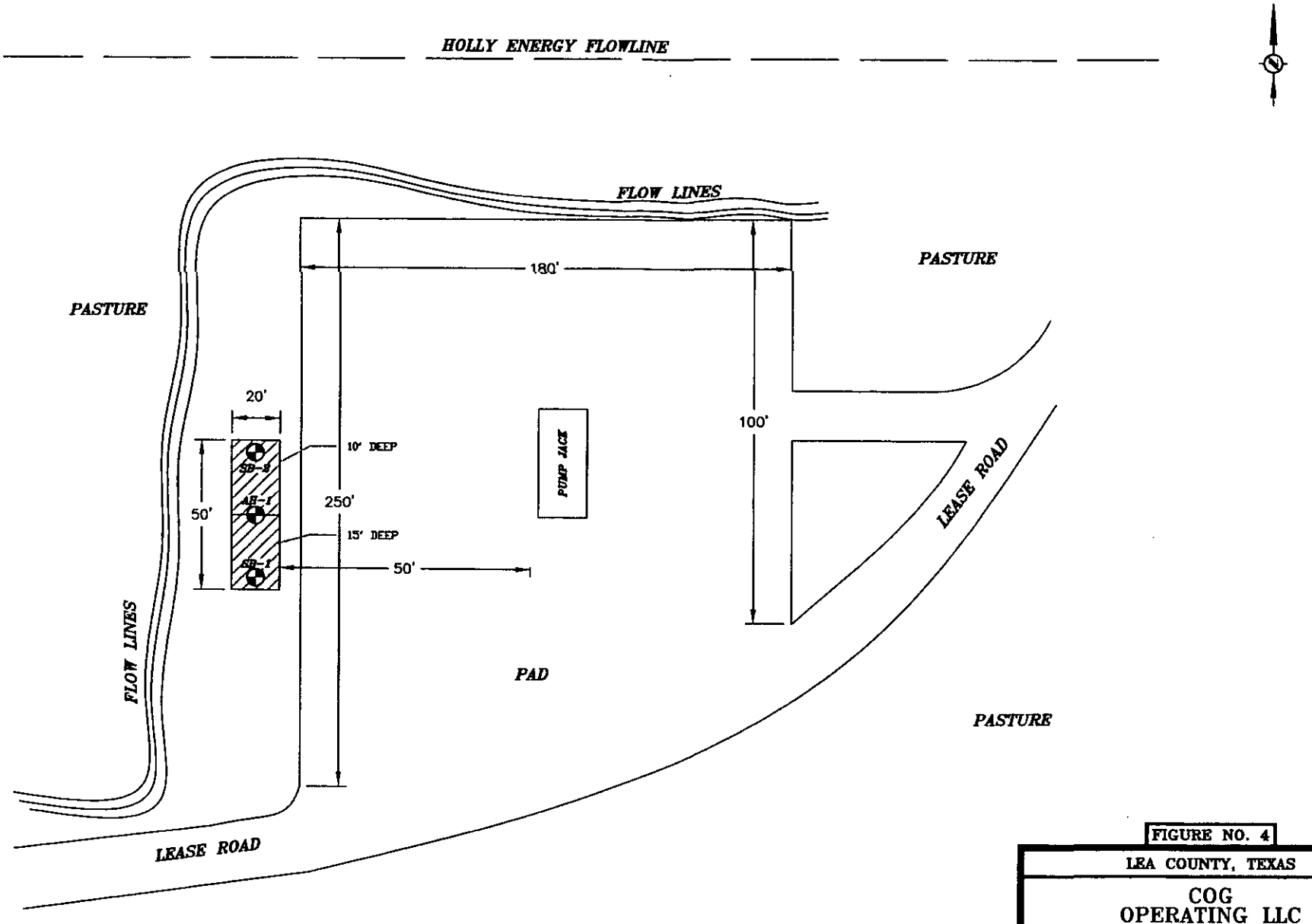


FIGURE NO. 4

LEA COUNTY, TEXAS

COG OPERATING LLC

GC FEDERAL # 16

EXCAVATION AREA & DEPTHS

DATE: 1/24/2012

DWG. BY: IM

FILE: N:\COG\94000874 GC FED #16

TETRA TECH, INC.
MIDLAND, TEXAS

Table 1
COG Operating LLC.
GC Federal # 16 Well
LEA 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	4/6/2011	0-1'			X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	7,740
		1-1.5'			X	-	-	-	-	-	-	-	4,760
		2-2.5'			X	-	-	-	-	-	-	-	7,100
		3-3.5'			X	-	-	-	-	-	-	-	9,790
		4-4.5'			X	-	-	-	-	-	-	-	13,800
SB-1	5/17/2011	0-1'			X	-	-	-	-	-	-	-	4,190
		3'			X	-	-	-	-	-	-	-	11,600
		5'			X	-	-	-	-	-	-	-	25,600
		7'			X	-	-	-	-	-	-	-	8,000
		10'			X	-	-	-	-	-	-	-	13,000
		15'			X	-	-	-	-	-	-	-	4,110
		20'		X		-	-	-	-	-	-	-	416
		25'		X		-	-	-	-	-	-	-	1,590
		30'		X		-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	262
SB-2	5/17/2011	0-1'			X	-	-	-	-	-	-	-	10,100
		3'			X	-	-	-	-	-	-	-	4,760
		5'			X	-	-	-	-	-	-	-	21,100
		7'			X	-	-	-	-	-	-	-	5,570
		10'			X	-	-	-	-	-	-	-	4,010
		15'		X		-	-	-	-	-	-	-	1,210
		20'		X		-	-	-	-	-	-	-	386
		25'		X		-	-	-	-	-	-	-	273
		30'		X		-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom

(--) Not Analyzed

☐ Final Excavated Depths

Water Well Data
Average Depth to Groundwater (ft)
COG - GC Federal #16
Lea County, New Mexico

16 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **280**	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 **271**	35	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

17 South 32 East

6	5	4 **82**	3 **175**	2 **60**	1 **225**
7	8	9	10	11 **70 88**	12 **120**
18	17	16	15	14	13
19 **SITE**	20	21	22	23	24
30 ⊗ (180' Dry)	29	28	27	26	25
31	32	33	34	35 ⊗ (130' Dry)	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460** **82**	8	9	10	11 ⊗ (130' Dry)	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31	32	33	34 **117**	35	36

16 South 33 East

6	5 **150**	4 **160**	3 **130**	2 **148**	1 **142**
7	8 **200**	9	10 **182**	11	12 **142**
18	17 **182**	16 **180**	15 **176**	14 **143**	13 **110**
19	20	21	22	23 **120**	24
30 **191**	29	28 **190**	27 **130**	26 **143**	25 **120**
31 **190**	32 **168**	33	34 **160**	35	36

17 South 33 East

6 **90**	5	4	3 **155**	2 **158**	1 **160**
7 **167**	8 **173**	9 **161**	10	11	12
18 **188**	17 **180**	16	15	14	13 **165**
19	20 **190**	21	22	23 **116**	24
30	29	28	27	26	25
31	32	33	34	35 **155**	36

18 South 33 East

6	5	4	3	2	1
7	8 **100**	9	10 **82**	11	12 **143** **140**
18	17 **85**	16	15	14 **38**	13 **60**
19 **>140**	20	21	22	23	24 **195**
30 **35**	29	28	27	26	25
31	32	33	34 **177**	35	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions In Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System
- Site - GC Federal #16
- ⊗ Tetra Tech Temporary well

SAMPLE LOG

Boring/Well: TMW-1
Project Number: 114-6400224
Client: COG
Site Location: Pronghorn Section 30
Location: Lea County, New Mexico
Legals: Township 17S Range 32E Section 30
Total Depth 180
Date Installed: 07/14/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Brown fine grain sand
10-11	--	Buff limestone
15-16	--	Tan to buff calcareous sand with chert intermixed.
20-21	--	Tan calcareous sand
25-26	--	Tan fine grain sand
30-31	--	Tan to yellow sandy clay
35-36	--	Reddish clayey sand with gravel
40-41	--	Red gravelly fine grain sand
45-46	--	Red to buff gravelly calcareous sand
50-51	--	Red fine grain sand
55-56	--	Red sandy silt
60-61	--	Red silty clay (dry)
65-66	--	Red coarse grain sandy clay
70-71	--	Red fine grain sand
75-76	--	Red fine grain sand
80-81	--	Red gravelly sand
85-86	--	Red fine grain silty clay with some sand intermixed
90-91	--	Red fine grain silty clay with some sand intermixed
95-96	--	Red fine grain silty clay with some sand intermixed
100-101	--	Red fine grain silty clay with some sand intermixed
105-106	--	Tan red fine grain sand
110-111	--	Tan fine grain sand
115-116	--	Tan fine grain sand
120-121	--	Tan to red fine grain sand
130-131	--	Red clay of high plasticity (Red bed)
140-141	--	Red clay of high plasticity (Red bed)
150-151	--	Red clay of high plasticity (Red bed) intermixed with gravel
160-161	--	Red clay of high plasticity (Red bed) intermixed with gravel
170-171	--	Red clay of high plasticity (Red bed) intermixed with gravel
180-181	--	Red clay of high plasticity (Red bed)

Total Depth 181' **Groundwater was not encountered**

Summary Report

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

Report Date: June 1, 2011

Work Order: 11052328

Project Location: Lea Co., NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267057	SB-1 0-1'	soil	2011-05-17	00:00	2011-05-23
267058	SB-1 3'	soil	2011-05-17	00:00	2011-05-23
267059	SB-1 5'	soil	2011-05-17	00:00	2011-05-23
267060	SB-1 7'	soil	2011-05-17	00:00	2011-05-23
267061	SB-1 10'	soil	2011-05-17	00:00	2011-05-23
267062	SB-1 15'	soil	2011-05-17	00:00	2011-05-23
267063	SB-1 20'	soil	2011-05-17	00:00	2011-05-23
267064	SB-1 25'	soil	2011-05-17	00:00	2011-05-23
267065	SB-1 30'	soil	2011-05-17	00:00	2011-05-23
267066	SB-1 40'	soil	2011-05-17	00:00	2011-05-23
267067	SB-2 0-1'	soil	2011-05-17	00:00	2011-05-23
267068	SB-2 3'	soil	2011-05-17	00:00	2011-05-23
267069	SB-2 5'	soil	2011-05-17	00:00	2011-05-23
267070	SB-2 7'	soil	2011-05-17	00:00	2011-05-23
267071	SB-2 10'	soil	2011-05-17	00:00	2011-05-23
267072	SB-2 15'	soil	2011-05-17	00:00	2011-05-23
267073	SB-2 20'	soil	2011-05-17	00:00	2011-05-23
267074	SB-2 25'	soil	2011-05-17	00:00	2011-05-23
267075	SB-2 30'	soil	2011-05-17	00:00	2011-05-23
267076	SB-2 40'	soil	2011-05-17	00:00	2011-05-23

Sample: 267057 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**4190**	mg/Kg	4

Sample: 267058 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**11600**	mg/Kg	4

Sample: 267059 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**25600**	mg/Kg	4

Sample: 267060 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**8000**	mg/Kg	4

Sample: 267061 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**13000**	mg/Kg	4

Sample: 267062 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**4110**	mg/Kg	4

Sample: 267063 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		**416**	mg/Kg	4

Sample: 267064 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		**1590**	mg/Kg	4

Sample: 267065 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 267066 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		**262**	mg/Kg	4

Sample: 267067 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**10100**	mg/Kg	4

Sample: 267068 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		**4760**	mg/Kg	4

Sample: 267069 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		**21100**	mg/Kg	4

Sample: 267070 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		**5570**	mg/Kg	4

Sample: 267071 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		**4010**	mg/Kg	4

Sample: 267072 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		**1210**	mg/Kg	4

Sample: 267073 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		**386**	mg/Kg	4

Sample: 267074 - SB-2 25'

Param	Flag	Result	Units	RL
Chloride		**273**	mg/Kg	4

Sample: 267075 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 267076 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: June 1, 2011

Work Order: 11052328

Project Location: Lea Co., NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267057	SB-1 0-1'	soil	2011-05-17	00:00	2011-05-23
267058	SB-1 3'	soil	2011-05-17	00:00	2011-05-23
267059	SB-1 5'	soil	2011-05-17	00:00	2011-05-23
267060	SB-1 7'	soil	2011-05-17	00:00	2011-05-23
267061	SB-1 10'	soil	2011-05-17	00:00	2011-05-23
267062	SB-1 15'	soil	2011-05-17	00:00	2011-05-23
267063	SB-1 20'	soil	2011-05-17	00:00	2011-05-23
267064	SB-1 25'	soil	2011-05-17	00:00	2011-05-23
267065	SB-1 30'	soil	2011-05-17	00:00	2011-05-23
267066	SB-1 40'	soil	2011-05-17	00:00	2011-05-23
267067	SB-2 0-1'	soil	2011-05-17	00:00	2011-05-23
267068	SB-2 3'	soil	2011-05-17	00:00	2011-05-23
267069	SB-2 5'	soil	2011-05-17	00:00	2011-05-23
267070	SB-2 7'	soil	2011-05-17	00:00	2011-05-23
267071	SB-2 10'	soil	2011-05-17	00:00	2011-05-23
267072	SB-2 15'	soil	2011-05-17	00:00	2011-05-23
267073	SB-2 20'	soil	2011-05-17	00:00	2011-05-23
267074	SB-2 25'	soil	2011-05-17	00:00	2011-05-23

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267075	SB-2 30'	soil	2011-05-17	00:00	2011-05-23
267076	SB-2 40'	soil	2011-05-17	00:00	2011-05-23

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Report Contents

Case Narrative 5

Analytical Report 6
- Sample 267057 (SB-1 0-1') . . . 6
- Sample 267058 (SB-1 3') . . . 6
- Sample 267059 (SB-1 5') . . . 6
- Sample 267060 (SB-1 7') . . . 6
- Sample 267061 (SB-1 10') . . . 7
- Sample 267062 (SB-1 15') . . . 7
- Sample 267063 (SB-1 20') . . . 7
- Sample 267064 (SB-1 25') . . . 8
- Sample 267065 (SB-1 30') . . . 8
- Sample 267066 (SB-1 40') . . . 8
- Sample 267067 (SB-2 0-1') . . . 8
- Sample 267068 (SB-2 3') . . . 9
- Sample 267069 (SB-2 5') . . . 9
- Sample 267070 (SB-2 7') . . . 9
- Sample 267071 (SB-2 10') . . . 10
- Sample 267072 (SB-2 15') . . . 10
- Sample 267073 (SB-2 20') . . . 10
- Sample 267074 (SB-2 25') . . . 10
- Sample 267075 (SB-2 30') . . . 11
- Sample 267076 (SB-2 40') . . . 11

Method Blanks 12
- QC Batch 81787 - Method Blank (1) . . . 12
- QC Batch 81789 - Method Blank (1) . . . 12
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Case Narrative

Samples for project COG/GC Fed. #16 Well were received by TraceAnalysis, Inc. on 2011-05-23 and assigned to work order 11052328. Samples for work order 11052328 were received intact at a temperature of 4.0 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	69419	2011-05-31 at 09:25	81787	2011-06-01 at 12:19
Chloride (Titration)	SM 4500-Cl B	69419	2011-05-31 at 09:25	81789	2011-06-01 at 12:20
Chloride (Titration)	SM 4500-Cl B	69419	2011-05-31 at 09:25	81790	2011-06-01 at 12:21

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11052328 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 267057 - SB-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4190**	mg/Kg	100	4.00

Sample: 267058 - SB-1 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11600**	mg/Kg	100	4.00

Sample: 267059 - SB-1 5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**25600**	mg/Kg	100	4.00

Sample: 267060 - SB-1 7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**8000**	mg/Kg	100	4.00

Sample: 267061 - SB-1 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**13000**	mg/Kg	100	4.00

Sample: 267062 - SB-1 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4110**	mg/Kg	100	4.00

Sample: 267063 - SB-1 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**416**	mg/Kg	50	4.00

Sample: 267064 - SB-1 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1590**	mg/Kg	100	4.00

Sample: 267065 - SB-1 30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			<200	mg/Kg	50	4.00

Sample: 267066 - SB-1 40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**262**	mg/Kg	50	4.00

Sample: 267067 - SB-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**10100**	mg/Kg	100	4.00

Sample: 267068 - SB-2 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4760**	mg/Kg	100	4.00

Sample: 267069 - SB-2 5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**21100**	mg/Kg	100	4.00

Sample: 267070 - SB-2 7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5570**	mg/Kg	100	4.00

Sample: 267071 - SB-2 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4010**	mg/Kg	100	4.00

Sample: 267072 - SB-2 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1210**	mg/Kg	100	4.00

Sample: 267073 - SB-2 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**386**	mg/Kg	50	4.00

Sample: 267074 - SB-2 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**273**	mg/Kg	50	4.00

Sample: 267075 - SB-2 30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			<200	mg/Kg	50	4.00

Sample: 267076 - SB-2 40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	81790	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	Sample Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			<200	mg/Kg	50	4.00

Method Blanks

Method Blank (1) QC Batch: 81787

QC Batch:	81787	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	QC Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 81789

QC Batch:	81789	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	QC Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 81790

QC Batch:	81790	Date Analyzed:	2011-06-01	Analyzed By:	AR
Prep Batch:	69419	QC Preparation:	2011-05-31	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 81787 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.3	mg/Kg	1	100	<3.85	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 81789 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.5	mg/Kg	1	100	<3.85	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	85 - 115	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 81790 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.2	mg/Kg	1	100	<3.85	97	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 267065

QC Batch: 81787 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10300	mg/Kg	100	10000	<385	103	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10600	mg/Kg	100	10000	<385	106	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 267075

QC Batch: 81789 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9920	mg/Kg	100	10000	<385	99	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10100	mg/Kg	100	10000	<385	101	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 267093

QC Batch: 81790 | Date Analyzed: 2011-06-01 | Analyzed By: AR
Prep Batch: 69419 | QC Preparation: 2011-05-31 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12400	mg/Kg	100	10000	2030	104	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			12800	mg/Kg	100	10000	2030 .	108	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 81787 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	97.2	97	85 - 115	2011-06-01

Standard (CCV-1)

QC Batch: 81787 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	103	103	85 - 115	2011-06-01

Standard (ICV-1)

QC Batch: 81789 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2011-06-01

Standard (CCV-1)

QC Batch: 81789 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.6	100	85 - 115	2011-06-01

Standard (ICV-1)

QC Batch: 81790 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.2	99	85 - 115	2011-06-01

Standard (CCV-1)

QC Batch: 81790 | Date Analyzed: 2011-06-01 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-06-01

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

AWO#: 11052328

Analysis Request of Chain of Custody Record

PAGE: OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400874

PROJECT NAME: COG / GC Federal #16 Lea Co., NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
267057	5/17		S		X	SB-1 0-1'	1				X	
058						3'	1				X	
059						5'	1				X	
060						7'	1				X	
061						10'	1				X	
062						15'	1				X	
063						20'	1				X	
064						25'	1				X	
065						30'	1				X	
066						40'	1				X	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/606	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				

RELINQUISHED BY: (Signature) — Date: 5/20/11 Time: 1:30 — RECEIVED BY: (Signature) — Date: 5-23-11 Time: 1152

SAMPLED BY: (Print & Initial) Kim — Date: 5/18/11 Time:

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RECEIVING LABORATORY: TRACE — RECEIVED BY: (Signature)

ADDRESS: CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4°C

REMARKS:

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

xwo #: 1052328

Analysis Request of Chain of Custody Record

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6100874

PROJECT NAME: COG / GC Federal #16

Lea Co., NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
267067	5/17		S		X	SB-2 0-1'	1				X														X			
068						3'	1				X														X			
069						5'	1				X														X			
070						7'	1				X														X			
071						10'	1				X														X			
072						15'	1				X														X			
073						20'	1				X														X			
074						25'	1				X														X			
075						30'	1				X														X			
076						40'	1				X														X			

RELINQUISHED BY: (Signature) — Date: 5/18/11 Time: 1150 — RECEIVED BY: (Signature) — Date: 5/18/11 Time: 1150

SAMPLED BY: (Print & Initial) Kim — Date: 5/18/11 Time:

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

RECEIVING LABORATORY: TRACE — RECEIVED BY: (Signature)

ADDRESS: CITY: MIDLAND STATE: TX ZIP: — CONTACT: PHONE: — DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4°C

REMARKS:

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Summary Report

Tom Franklin
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: April 13, 2011

Work Order: 11040723

Project Location: Lea Co, NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
262812	AH-1 0-1	soil	2011-04-06	00:00	2011-04-07
262813	AH-1 1-1.5	soil	2011-04-06	00:00	2011-04-07
262814	AH-1 2-2.5	soil	2011-04-06	00:00	2011-04-07
262815	AH-1 3-3.5	soil	2011-04-06	00:00	2011-04-07
262816	AH-1 4-4.5	soil	2011-04-06	00:00	2011-04-07

	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)
262812 - AH-1 0-1	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 262812 - AH-1 0-1

Param	Flag	Result	Units	RL
Chloride		**7740**	mg/Kg	4.00

Sample: 262813 - AH-1 1-1.5

Param	Flag	Result	Units	RL
Chloride		**4760**	mg/Kg	4.00

Sample: 262814 - AH-1 2-2.5

continued ...

sample 262814 continued . . .

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**7100**	mg/Kg	4.00

Sample: 262815 - AH-1 3-3.5

Param	Flag	Result	Units	RL
Chloride		**9790**	mg/Kg	4.00

Sample: 262816 - AH-1 4-4.5

Param	Flag	Result	Units	RL
Chloride		**13800**	mg/Kg	4.00

TRACEANALYSIS, INC.

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Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: April 13, 2011

Work Order: 11040723

Project Location: Lea Co., NM
Project Name: COG/GC Fed. #16 Well
Project Number: 114-6400874

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
262812	AH-1 0-1	soil	2011-04-06	00:00	2011-04-07
262813	AH-1 1-1.5	soil	2011-04-06	00:00	2011-04-07
262814	AH-1 2-2.5	soil	2011-04-06	00:00	2011-04-07
262815	AH-1 3-3.5	soil	2011-04-06	00:00	2011-04-07
262816	AH-1 4-4.5	soil	2011-04-06	00:00	2011-04-07

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/GC Fed. #16 Well were received by TraceAnalysis, Inc. on 2011-04-07 and assigned to work order 11040723. Samples for work order 11040723 were received intact at a temperature of 4.4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	68059	2011-04-08 at 08:03	80199	2011-04-08 at 08:03
Chloride (Titration)	SM 4500-Cl B	68087	2011-04-11 at 09:47	80268	2011-04-12 at 15:17
TPH DRO - NEW	S 8015 D	68032	2011-04-07 at 10:44	80168	2011-04-07 at 10:44
TPH GRO	S 8015 D	68059	2011-04-08 at 08:03	80200	2011-04-08 at 08:03

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11040723 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 262812 - AH-1 0-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80199	Date Analyzed:	2011-04-08	Analyzed By:	ME
Prep Batch:	68059	Sample Preparation:	2011-04-08	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.42	mg/Kg	1	2.00	121	52.8 - 137
4-Bromofluorobenzene (4-BFB)		*2.64*	*mg/Kg*	*1*	*2.00*	*132*	*38.4 - 157*

Sample: 262812 - AH-1 0-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80268	Date Analyzed:	2011-04-12	Analyzed By:	AR
Prep Batch:	68087	Sample Preparation:	2011-04-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**7740**	mg/Kg	100	4.00

Sample: 262812 - AH-1 0-1

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	80168	Date Analyzed:	2011-04-07	Analyzed By:	kg
Prep Batch:	68032	Sample Preparation:	2011-04-07	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		89.6	mg/Kg	1	100	90	70 - 130

Sample: 262812 - AH-1 0-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	80200	Date Analyzed:	2011-04-08	Analyzed By:	ME
Prep Batch:	68059	Sample Preparation:	2011-04-08	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.39	mg/Kg	1	2.00	120	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.35	mg/Kg	1	2.00	118	42 - 159

Sample: 262813 - AH-1 1-1.5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80268	Date Analyzed:	2011-04-12	Analyzed By:	AR
Prep Batch:	68087	Sample Preparation:	2011-04-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4760**	mg/Kg	100	4.00

Sample: 262814 - AH-1 2-2.5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80268	Date Analyzed:	2011-04-12	Analyzed By:	AR
Prep Batch:	68087	Sample Preparation:	2011-04-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**7100**	mg/Kg	100	4.00

Sample: 262815 - AH-1 3-3.5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80268	Date Analyzed:	2011-04-12	Analyzed By:	AR
Prep Batch:	68087	Sample Preparation:	2011-04-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**9790**	mg/Kg	100	4.00

Sample: 262816 - AH-1 4-4.5

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80268	Date Analyzed:	2011-04-12	Analyzed By:	AR
Prep Batch:	68087	Sample Preparation:	2011-04-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**13800**	mg/Kg	100	4.00

Method Blank (1) QC Batch: 80168

QC Batch:	80168	Date Analyzed:	2011-04-07	Analyzed By:	kg
Prep Batch:	68032	QC Preparation:	2011-04-07	Prepared By:	kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		96.9	mg/Kg	1	100	97	70 - 130

Method Blank (1) QC Batch: 80199

QC Batch:	80199	Date Analyzed:	2011-04-08	Analyzed By:	ME
Prep Batch:	68059	QC Preparation:	2011-04-08	Prepared By:	ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02

continued ...

method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.66	mg/Kg	1	2.00	83	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.76	mg/Kg	1	2.00	88	55.4 - 124

Method Blank (1) QC Batch: 80200

QC Batch: 80200 | Date Analyzed: 2011-04-08 | Analyzed By: ME
Prep Batch: 68059 | QC Preparation: 2011-04-08 | Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.63	mg/Kg	1	2.00	82	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.59	mg/Kg	1	2.00	80	52.4 - 130

Method Blank (1) QC Batch: 80268

QC Batch: 80268 | Date Analyzed: 2011-04-12 | Analyzed By: AR
Prep Batch: 68087 | QC Preparation: 2011-04-11 | Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<3.85	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch: 80168 | Date Analyzed: 2011-04-07 | Analyzed By: kg
Prep Batch: 68032 | QC Preparation: 2011-04-07 | Prepared By: kg

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	216	mg/Kg	1	250	<15.7	86	47.5 - 144.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	202	mg/Kg	1	250	<15.7	81	47.5 - 144.1	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	101	101	mg/Kg	1	100	101	101	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 80199 | Date Analyzed: 2011-04-08 | Analyzed By: ME
Prep Batch: 68059 | QC Preparation: 2011-04-08 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.02	mg/Kg	1	2.00	<0.0118	101	81.9 - 108
Toluene	2.07	mg/Kg	1	2.00	<0.00600	104	81.9 - 107
Ethylbenzene	2.10	mg/Kg	1	2.00	<0.00850	105	78.4 - 107
Xylene	6.29	mg/Kg	1	6.00	<0.00613	105	79.1 - 107

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.02	mg/Kg	1	2.00	<0.0118	101	81.9 - 108	0	20
Toluene	2.08	mg/Kg	1	2.00	<0.00600	104	81.9 - 107	0	20
Ethylbenzene	2.10	mg/Kg	1	2.00	<0.00850	105	78.4 - 107	0	20
Xylene	6.33	mg/Kg	1	6.00	<0.00613	106	79.1 - 107	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.07	1.79	mg/Kg	1	2.00	104	90	70.2 - 114
4-Bromofluorobenzene (4-BFB)	2.34	2.02	mg/Kg	1	2.00	117	101	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 80200 | Date Analyzed: 2011-04-08 | Analyzed By: ME
Prep Batch: 68059 | QC Preparation: 2011-04-08 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	18.3	mg/Kg	1	20.0	<0.753	92	60.9 - 95.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	18.4	mg/Kg	1	20.0	<0.753	92	60.9 - 95.4	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.91	1.92	mg/Kg	1	2.00	96	96	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.97	1.99	mg/Kg	1	2.00	98	100	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 80268 | Date Analyzed: 2011-04-12 | Analyzed By: AR
Prep Batch: 68087 | QC Preparation: 2011-04-11 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.0	mg/Kg	1	100	<3.85	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	104	mg/Kg	1	100	<3.85	104	85 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 262812

QC Batch: 80168 | Date Analyzed: 2011-04-07 | Analyzed By: kg
Prep Batch: 68032 | QC Preparation: 2011-04-07 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	209	mg/Kg	1	250	<15.7	84	11.7 - 152.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	202	mg/Kg	1	250	<15.7	81	11.7 - 152.3	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	98.7	99.8	mg/Kg	1	100	99	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 262896

QC Batch: 80199 | Date Analyzed: 2011-04-08 | Analyzed By: ME
Prep Batch: 68059 | QC Preparation: 2011-04-08 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.07	mg/Kg	1	2.00	<0.0118	104	80.5 - 112
Toluene	2.18	mg/Kg	1	2.00	<0.00600	109	82.4 - 113
Ethylbenzene	2.26	mg/Kg	1	2.00	<0.00850	113	83.9 - 114
Xylene	6.80	mg/Kg	1	6.00	<0.00613	113	84 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2.16	mg/Kg	1	2.00	<0.0118	108	80.5 - 112	4	20
Toluene	[1]	2.30	mg/Kg	1	2.00	<0.00600	115	82.4 - 113	5	20
Ethylbenzene	[2]	2.40	mg/Kg	1	2.00	<0.00850	120	83.9 - 114	6	20
Xylene	[3]	7.18	mg/Kg	1	6.00	<0.00613	120	84 - 114	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	[4]	2.50	2.30	mg/Kg	1	2	125	115	41.3 - 117
4-Bromofluorobenzene (4-BFB)	[5]	2.70	2.54	mg/Kg	1	2	135	127	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 262812

QC Batch: 80200 | Date Analyzed: 2011-04-08 | Analyzed By: ME
Prep Batch: 68059 | QC Preparation: 2011-04-08 | Prepared By: ME

[1]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[2]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[3]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[4]High surrogate recovery due to peak interference.
[5]High surrogate recovery due to peak interference.

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	21.0	mg/Kg	1	20.0	<0.753	105	61.8 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	21.6	mg/Kg	1	20.0	<0.753	108	61.8 - 114	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.27	1.90	mg/Kg	1	2	114	95	50 - 162
4-Bromofluorobenzene (4-BFB)	2.39	2.03	mg/Kg	1	2	120	102	50 - 162

Matrix Spike (MS-1) Spiked Sample: 262822

QC Batch: 80268 | Date Analyzed: 2011-04-12 | Analyzed By: AR
Prep Batch: 68087 | QC Preparation: 2011-04-11 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9940	mg/Kg	100	10000	<385	97	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10100	mg/Kg	100	10000	<385	99	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-2)

QC Batch: 80168 | Date Analyzed: 2011-04-07 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	205	82	80 - 120	2011-04-07

Standard (CCV-3)

QC Batch: 80168 | Date Analyzed: 2011-04-07 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	259	104	80 - 120	2011-04-07

Standard (CCV-1)

QC Batch: 80199 Date Analyzed: 2011-04-08 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.116	116	80 - 120	2011-04-08
Toluene		mg/Kg	0.100	0.119	119	80 - 120	2011-04-08
Ethylbenzene		mg/Kg	0.100	0.118	118	80 - 120	2011-04-08
Xylene		mg/Kg	0.300	0.357	119	80 - 120	2011-04-08

Standard (CCV-2)

QC Batch: 80199 Date Analyzed: 2011-04-08 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.103	103	80 - 120	2011-04-08
Toluene		mg/Kg	0.100	0.107	107	80 - 120	2011-04-08
Ethylbenzene		mg/Kg	0.100	0.105	105	80 - 120	2011-04-08
Xylene		mg/Kg	0.300	0.319	106	80 - 120	2011-04-08

Standard (CCV-1)

QC Batch: 80200 Date Analyzed: 2011-04-08 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.06	106	80 - 120	2011-04-08

Standard (CCV-2)

QC Batch: 80200 Date Analyzed: 2011-04-08 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.08	108	80 - 120	2011-04-08

Standard (ICV-1)

QC Batch: 80268 Date Analyzed: 2011-04-12 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2011-04-12

Standard (CCV-1)

QC Batch: 80268 Date Analyzed: 2011-04-12 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.6	98	85 - 115	2011-04-12

Work #: 11040723

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6400874
PROJECT NAME: COG- GC Fed. #16 Well, Lea Co. NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
262812	4/6/11		S		X	AH-1 0-1	1				X		X	X											X				
813			S		X	AH-1 1-1.5	1				X														X				
814			S		X	AH-1 2-2.5	1				X														X				
815			S		X	AH-1 3-3.5	1				X														X				
816			S		X	AH-1 4-4.5	1				X														X				

RELINQUISHED BY: (Signature) [signature] Date: April 7, 2011 Time: 1030
RECEIVED BY: (Signature) [signature] Date: 4/7/11 Time: 1630
SAMPLED BY: (Print & Initial) [initials] Date: Time:
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL #: HAND DELIVERED (circled) UPS OTHER:
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:
RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.4°C intact

REMARKS: Run deeper sample if TPH exceeds 1,000 mg/kg. All tests Midland
Run deeper sample if Benzene exceeds 10 mg/kg or total BTEX

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.