HOBBS OCD

JAN 12 2012

RECEIVED

pLWJ1913835060

0525 2530

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	GC FEDERAL #27	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NMLC-029405B (API#) 30-025-39264

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	20	17S	32E	990	South	2200	West	Lea

Latitude 32 48.988 **Longitude** 103 47.443

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 60bbls	Volume Recovered 47bbls
Source of Release Produced water flowline	Date and Hour of Occurrence 05/04/2010	Date and Hour of Discovery 05/04/2010 4:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson – OCD, *Geoffrey Leking – OCD*, Trishia Bad Bear - BLM	
By Whom? Josh Russo	Date and Hour 05/05/2010 10:29 a.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 produced water line had a release at a fuse in the line. The line has been re-fused and put back into service.

Describe Area Affected and Cleanup Action Taken.*

60bbls of produced water was initially released and we able to recover 47bbls of free fluid. The fluid was localized in a 40' x 60' area off of the lease road in the pasture. The spill site area is located 100 yards west of the GC FEDERAL #27. The estimated chloride content of the produced water is 135548 mg/l. A sundry will be submitted and we will wait for archeological / wildlife sensitivity clearance from the BLM before having Tetra Tech sample the spill site area to delineate any possible contamination from the release. 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: 05/05/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

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JAN 12 2012
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Form C-141
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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 1300 Midland, Texas 79701**	Telephone No. **(432) 230-0077**
Facility Name **GC Federal #27**	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. 30-025-39264

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	20	17S	32E	990	South	2200	West	Lea

Latitude N 32 48.988 **Longitude** W 103 47.443

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release 60 bbls	Volume Recovered 47 bbls
Source of Release: flow line	Date and Hour of Occurrence 5/4/10	Date and Hour of Discovery 5/4/10 4:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson - OCD Geoffery Leking - OCD Trishia Bad Bear - BLM	
By Whom?	Date and Hour 5/5/10 10:29 am	
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.*

The produced water line had a release at a fuse in the line. The line has re-fused and put back in service.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected and assessed the spill area for extents. A work plan was prepared and submitted to NMOCD and BLM for approval. Soils exceeding the RRAL and chloride impact were removed to the appropriate depths and transported to proper disposal. Once excavated to the appropriate depths, the excavation was backfilled with clean soil. 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: 12-7-11 Phone: (432) 682-4559	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

General Site Information:		
Site:	GC Federal #27	
Company:	COG Operating LLC	
Section, Township and Range	T-17S R-32E Sec. 20 Unit N	
Lease Number:	30-025-39264	
County:	Lea County	
GPS:	32.81645° N	103.79073° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 1.5 miles to four way intersection. Spill was at south west corner of four way intersection.	

Release Data:	
Date Released:	5/4/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	60 bbls
Fluids Recovered:	47 bbls

Official Communication:			
Name:	Pat Ellis		Kim Dorey
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 631-0348
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		kim.dorey@tetratech.com

Ranking Criteria		
Depth to Groundwater:	**Ranking Score**	**Site Data**
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0

WellHead Protection:	**Ranking Score**	**Site Data**
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0

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

Total Ranking Score:	0

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

175

TETRA TECH

December 16, 2010

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 #27 Flowline, Unit N, Section 20, 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 #27 Flowline located in Unit N, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81645°, W 103.79073°. 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 May 4, 2010, and released approximately sixty (60) barrels of produced water due to flow line failure at a fused connection. To alleviate the problem, COG personnel repaired the flow line. Forty-seven (47) barrels of standing fluids were recovered. The flow line leak was located on the south edge of the lease road in a native low-lying area within the vicinity of the flow line. 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 21. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data is shown in Appendix A.

Tetra Tech
[illegible] Big Spring, Midland, TX 79705
Tel [illegible] Fax 432.682.3946 www.tetratech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On May 26, 2010, Tetra Tech personnel inspected and sampled the spill area which measured approximately 25' x 70'. A total of two (2) auger holes (AH-1 and AH-2) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected in both auger holes. Auger hole (AH-1) was not vertically define at 9.0' below surface, with a bottom hole sample of 7,540 mg/kg. However, AH-2 was vertically defined at 7.0' below surface.

On November 11, 2010, Tetra Tech personnel supervised the installation of a soil bore (SB-1) near AH-1 utilizing an air rotary drilling rig. Soil samples were collected to a depth of 60' to define the impact of the chloride concentrations. Referring to Table 1, the chloride concentrations significantly declined at 25.0' below surface to 400 mg/kg.

Work Plan

COG proposes to removal of impacted material as highlighted (green) in Table 1. Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil.

TETRA TECH

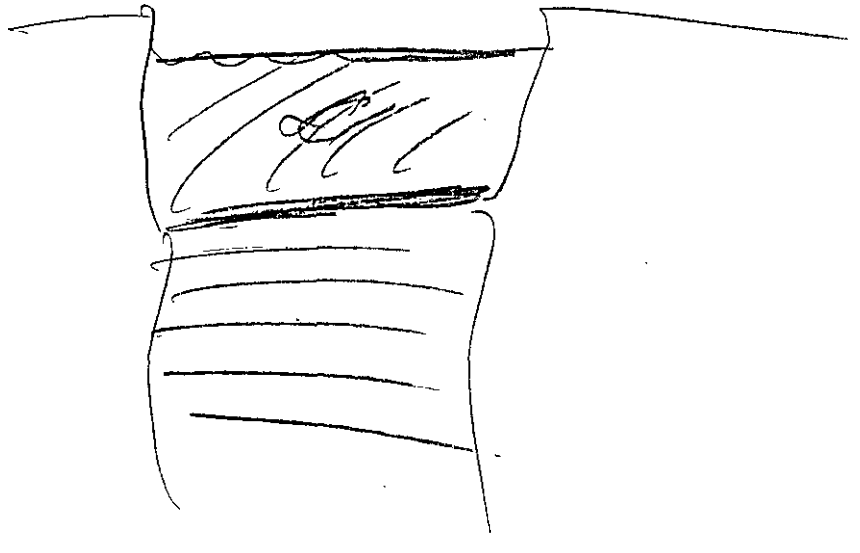
Since the impacted area is in the native sand dunes, the proposed excavation depths may not be reached due to wall cave ins, safety concerns for lines, equipment operators as well, as other onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths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

If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Kim Dorey
Staff Geologist

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



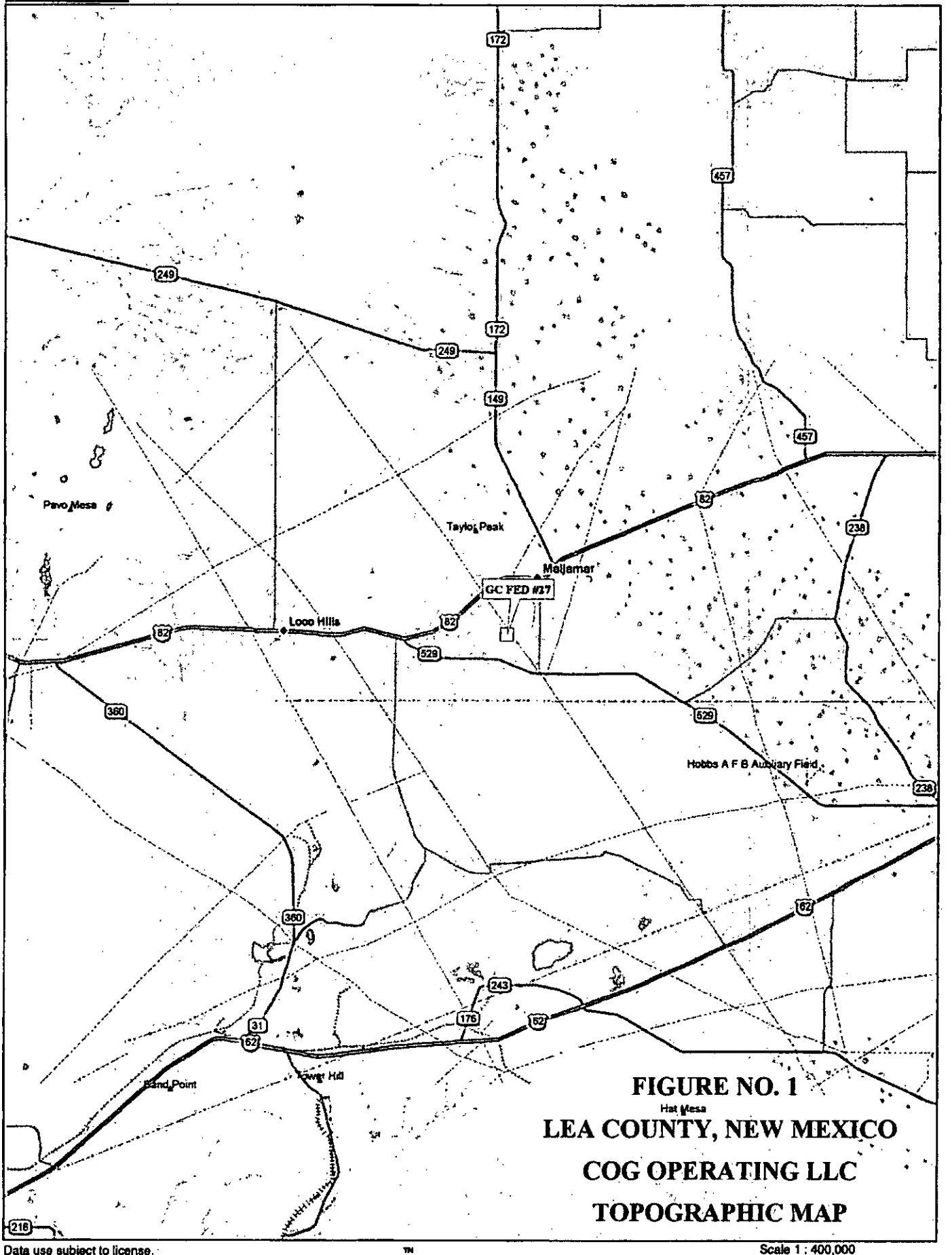


FIGURE NO. 1

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

TN
MN (7.5° E)

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

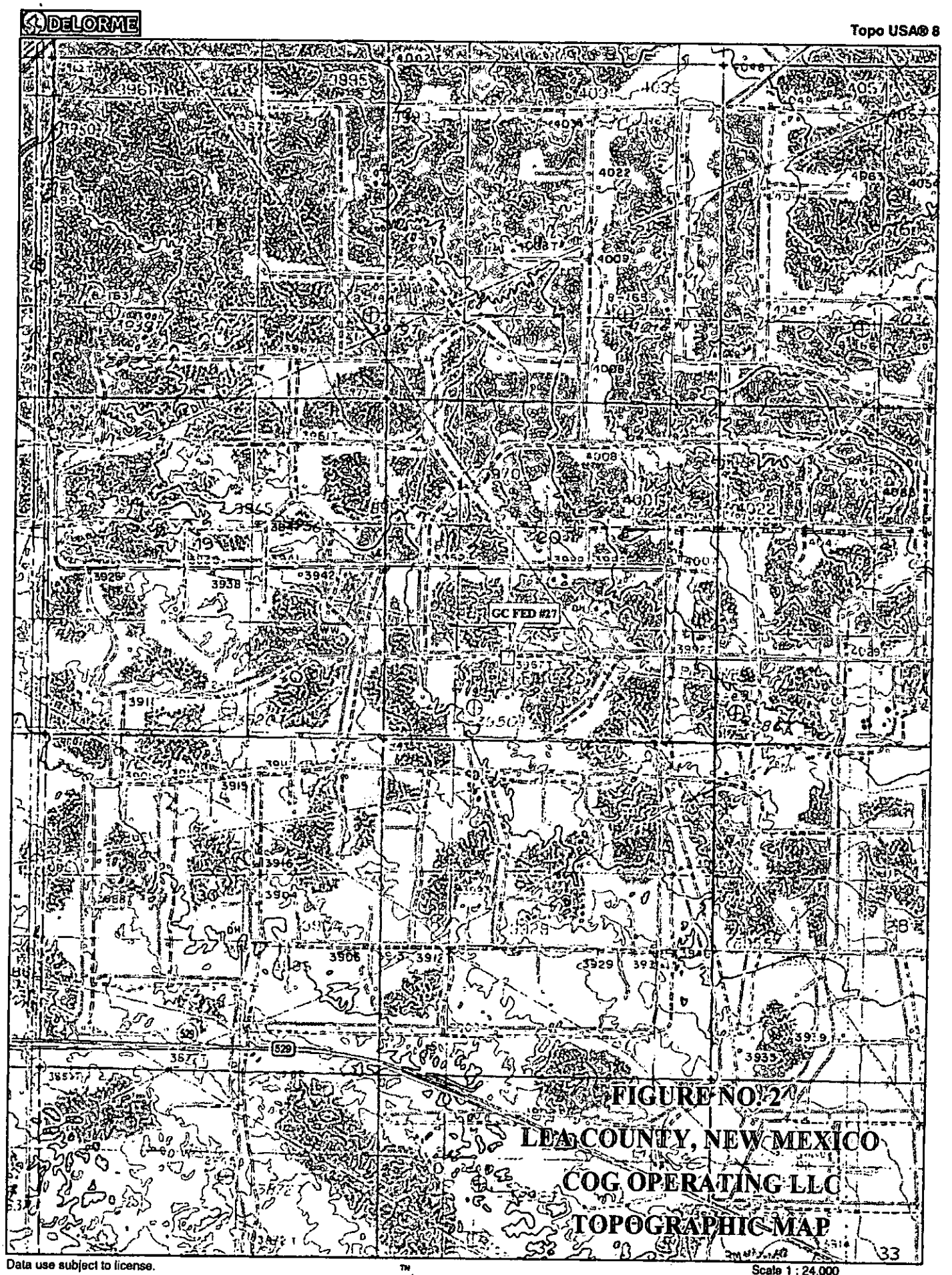


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

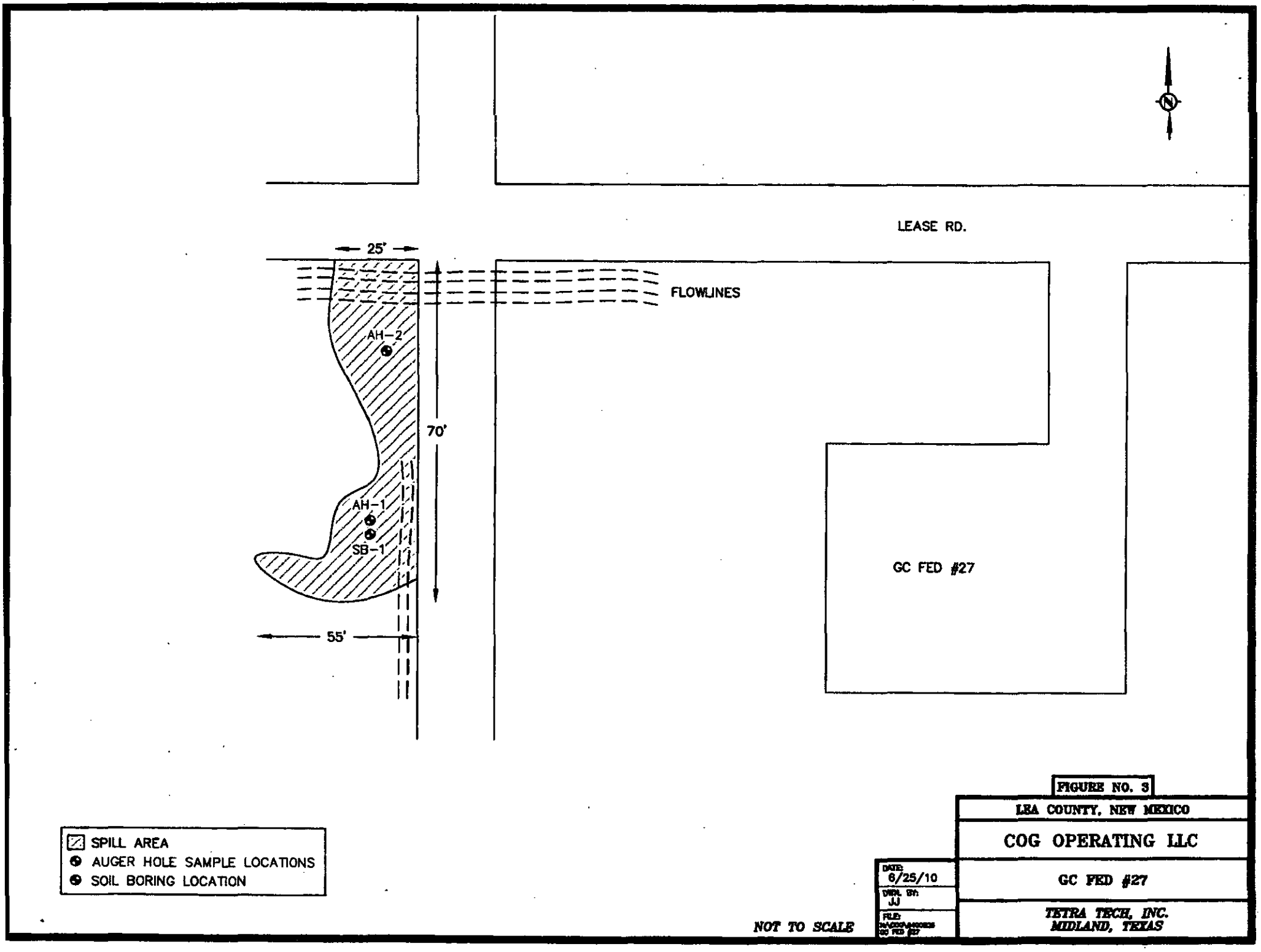


FIGURE NO. 3

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

GC FED #27

TETRA TECH, INC.
MIDLAND, TEXAS

Table 1
COG Operating LLC.
GC Federal #27
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	DRO	GRO	Total					
AH-1	5/26/10	0-1'	N/A	X		93.3	<1.00	93.3	<0.0200	<0.0200	<0.0200	<0.0200	332
	5/26/10	1-1.5'	N/A	X		-	-	-	-	-	-	-	224
	5/26/10	2-2.5'	N/A	X		-	-	-	-	-	-	-	2,050
	5/26/10	3-3.5'	N/A	X		-	-	-	-	-	-	-	11,400
	5/26/10	4-4.5'	N/A	X		-	-	-	-	-	-	-	10,300
	5/26/10	5-5.5'	N/A	X		-	-	-	-	-	-	-	17,600
	5/26/10	6-6.5'	N/A	X		-	-	-	-	-	-	-	10,200
	5/26/10	7-7.5'	N/A	X		-	-	-	-	-	-	-	5,850
	5/26/10	8-8.5'	N/A	X		-	-	-	-	-	-	-	5,170
	5/26/10	9-9.5'	N/A	X		-	-	-	-	-	-	-	7,540
SB-1	11/11/10	0-1'	N/A	X		-	-	-	-	-	-	-	<200
	11/11/10	3'	N/A	X		-	-	-	-	-	-	-	1,090
	11/11/10	5'	N/A	X		-	-	-	-	-	-	-	3,520
	11/11/10	7'	N/A	X		-	-	-	-	-	-	-	10,400
	11/11/10	10'	N/A	X		-	-	-	-	-	-	-	11,100
	11/11/10	15'	N/A	X		-	-	-	-	-	-	-	5,560
	11/11/10	20'	N/A	X		-	-	-	-	-	-	-	3,340
	11/11/10	25'	N/A	X		-	-	-	-	-	-	-	400
	11/11/10	30'	N/A	X		-	-	-	-	-	-	-	411
	11/11/10	40'	N/A	X		-	-	-	-	-	-	-	1,310
	11/11/10	50'	N/A	X		-	-	-	-	-	-	-	211
	11/11/10	60'	N/A	X		-	-	-	-	-	-	-	227

Table 1
COG Operating LLC.
GC Federal #27
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	DRO	GRO	Total					
AH-2	5/26/10	0-1'	N/A	X		<50.0	<1.00	<1.00	<0.0200	<0.0200	<0.0200	<0.0200	5,320
	5/26/10	1-1.5'	N/A	X		-	-	-	-	-	-	-	7,910
	5/26/10	2-2.5'	N/A	X		-	-	-	-	-	-	-	7,210
	5/26/10	3-3.5'	N/A	X		-	-	-	-	-	-	-	9,160
	5/26/10	4-4.5'	N/A	X		-	-	-	-	-	-	-	11,000
	5/26/10	5-5.5'	N/A	X		-	-	-	-	-	-	-	9,070
	5/26/10	6-6.5'	N/A	X		-	-	-	-	-	-	-	2,620
	5/26/10	7-7.5'	N/A	X		-	-	-	-	-	-	-	<200
	5/26/10	8-8.5'	N/A	X		-	-	-	-	-	-	-	251
	5/26/10	9-9.5'	N/A	X		-	-	-	-	-	-	-	221

BEB Below Excavation Bottom

(--) Not Analyzed

☐ Proposed excavation Depth

Water Well Data
Average Depth to Groundwater (ft)
COG - G.C. Federal 27 Tank Battery
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
31 290	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	20 SITE	21	22	23	24
30 180	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	12
18	17	16 84	15	14	13
19	20 184	21	22 429	23	24
30	29	28	27	26	25
31	32	33	34 117	35	36

16 South 33 East

6	5 180	4 150	3 130	2 148	1 142
7	8 200	9	10 182	11	12 142
18	17 182	16 180	15 175	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	1 150
7 167	8 173	9 161	10	11	12
18 188	17 180	16	15	14	13 165
19	20 190	21	22	23 115	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 36	13 60
19 >140	20	21	22	23	24 185
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
- Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: June 25, 2010

Work Order: 10052809

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400525

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
233041	AH-1 0-1'	soil	2010-05-26	00:00	2010-05-27
233042	AH-1 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233043	AH-1 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233044	AH-1 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233045	AH-1 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233046	AH-1 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233047	AH-1 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233048	AH-1 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233049	AH-1 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233050	AH-1 9-9.5'	soil	2010-05-26	00:00	2010-05-27
233051	AH-2 0-1'	soil	2010-05-26	00:00	2010-05-27
233052	AH-2 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233053	AH-2 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233054	AH-2 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233055	AH-2 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233056	AH-2 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233057	AH-2 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233058	AH-2 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233059	AH-2 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233060	AH-2 9-9.5'	soil	2010-05-26	00:00	2010-05-27

	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)
233041 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**93.3**	<1.00
233051 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<1.00

Sample: 233041 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**332**	mg/Kg	4.00

Sample: 233042 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**224**	mg/Kg	4.00

Sample: 233043 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2050**	mg/Kg	4.00

Sample: 233044 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**11400**	mg/Kg	4.00

Sample: 233045 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**10300**	mg/Kg	4.00

Sample: 233046 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**17600**	mg/Kg	4.00

Sample: 233047 - AH-1 6-6.5'

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

Sample: 233048 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**5850**	mg/Kg	4.00

Sample: 233049 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**5170**	mg/Kg	4.00

Sample: 233050 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**7540**	mg/Kg	4.00

Sample: 233051 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5320**	mg/Kg	4.00

Sample: 233052 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**7910**	mg/Kg	4.00

Sample: 233053 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**7210**	mg/Kg	4.00

Sample: 233054 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**9160**	mg/Kg	4.00

Sample: 233055 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4.00

Sample: 233056 - AH-2 5-5.5'

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

Sample: 233057 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**2620**	mg/Kg	4.00

Sample: 233058 - AH-2 7-7.5'

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

Sample: 233059 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**251**	mg/Kg	4.00

Sample: 233060 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**221**	mg/Kg	4.00

Summary Report

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

Report Date: November 19, 2010

Work Order: 10111512

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400549

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250467	SB-1 0-1'	soil	2010-11-11	00:00	2010-11-15
250468	SB-1 3'	soil	2010-11-11	00:00	2010-11-15
250469	SB-1 5'	soil	2010-11-11	00:00	2010-11-15
250470	SB-1 7'	soil	2010-11-11	00:00	2010-11-15
250471	SB-1 10'	soil	2010-11-11	00:00	2010-11-15
250472	SB-1 15'	soil	2010-11-11	00:00	2010-11-15
250473	SB-1 20'	soil	2010-11-11	00:00	2010-11-15
250474	SB-1 25'	soil	2010-11-11	00:00	2010-11-15
250475	SB-1 30'	soil	2010-11-11	00:00	2010-11-15
250476	SB-1 40'	soil	2010-11-11	00:00	2010-11-15
250477	SB-1 50'	soil	2010-11-11	00:00	2010-11-15
250478	SB-1 60'	soil	2010-11-11	00:00	2010-11-15

Sample: 250467 - SB-1 0-1'

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

Sample: 250468 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	4.00

Sample: 250469 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**3520**	mg/Kg	4.00

Sample: 250470 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**10400**	mg/Kg	4.00

Sample: 250471 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**11100**	mg/Kg	4.00

Sample: 250472 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**5560**	mg/Kg	4.00

Sample: 250473 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		**3340**	mg/Kg	4.00

Sample: 250474 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		**400**	mg/Kg	4.00

Sample: 250475 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		**411**	mg/Kg	4.00

Sample: 250476 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		**1310**	mg/Kg	4.00

0525

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	GC FEDERAL #27	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NMLC-029405B (API#) 30-025-39264

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	20	17S	32E	990	South	2200	West	Lea

Latitude 32 48.988 **Longitude** 103 47.443

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 60bbls	Volume Recovered 47bbls
Source of Release Produced water flowline	Date and Hour of Occurrence 05/04/2010	Date and Hour of Discovery 05/04/2010 4:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson – OCD Geoffrey Leking – OCD Trishia Bad Bear - BLM	
By Whom? Josh Russo	Date and Hour 05/05/2010 10:29 a.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 produced water line had a release at a fuse in the line. The line has been re-fused and put back into service.

Describe Area Affected and Cleanup Action Taken.*

60bbls of produced water was initially released and we able to recover 47bbls of free fluid. The fluid was localized in a 40' x 60' area off of the lease road in the pasture. The spill site area is located 100 yards west of the GC FEDERAL #27. The estimated chloride content of the produced water is 135548 mg/l. A sundry will be submitted and we will wait for archeological / wildlife sensitivity clearance from the BLM before having Tetra Tech sample the spill site area to delineate any possible contamination from the release. 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: 05/05/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure Report

General Site Information:		
Site:	GC Federal #27	
Company:	COG Operating LLC	
Section, Township and Range	T-17S R-32E Sec. 20 Unit N	
Lease Number:	30-025-39264	
County:	Lea County	
GPS:	32.81645° N	103.79073° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 1.5 miles to four way intersection. Spill was at south west corner of four way intersection.	

Release Data:	
Date Released:	5/4/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	60 bbls
Fluids Recovered:	47 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	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

JAN 12 2012

RECEIVED

TETRA TECH

December 7, 2011

HOBBS OCD

JAN 12 2012

RECEIVED

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

Re: Closure Request for the COG Operating LLC., GC Federal #27 Flow line, Unit N, Section 20, 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 #27 Flow line located in Unit N, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81645°, W 103.79073°. 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 May 4, 2010, and released approximately sixty (60) barrels of produced water due to flow line failure at a fused connection. To alleviate the problem, COG personnel repaired the flow line. Forty-seven (47) barrels of standing fluids were recovered. The flow line leak was located on the south edge of the lease road in a native low-lying area within the vicinity of the flow line. 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 21. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data is shown in Appendix A.

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

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On May 26, 2010, Tetra Tech personnel inspected and sampled the spill area which measured approximately 25' x 70'. A total of two (2) auger holes (AH-1 and AH-2) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected in both auger holes. Auger hole (AH-1) was not vertically define at 9.0' below surface, with a bottom hole sample of 7,540 mg/kg. However, AH-2 was vertically defined at 7.0' below surface.

On November 11, 2010, Tetra Tech personnel supervised the installation of a soil bore (SB-1) near AH-1 utilizing an air rotary drilling rig. Soil samples were collected to a depth of 60' to define the impact of the chloride concentrations. Referring to Table 1, the chloride concentrations significantly declined at 25.0' below surface to 400 mg/kg.

TETRA TECH

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The final excavation depths of the soil remediation were met or exceeded, as stated in the approved work plan. The areas of AH-1 and AH-2 were excavated to a depth of 20.0' and 6.0', respectively. A total of 1,020 cubic yards of soil were excavated and hauled to proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4. Once completed, the BLM inspected the excavation and approved the site for backfilling. The excavations were backfilled with clean soil to grade.

Based on the approved remedial activities performed, COG requests closure of the site. A copy of the C-141 (Final) is included in Appendix C. If you have any questions or comments concerning the remedial activities, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

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

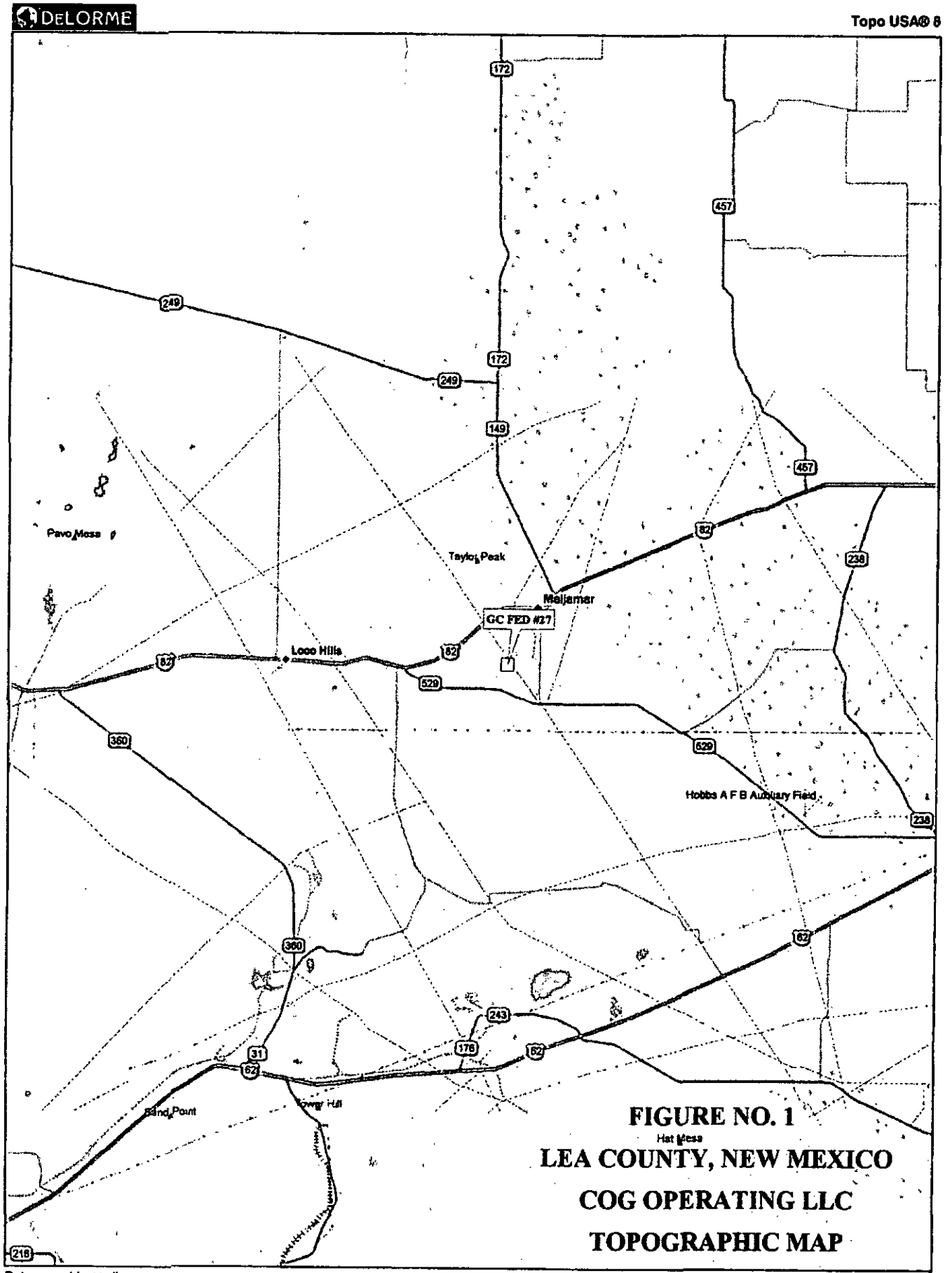


FIGURE NO. 1

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

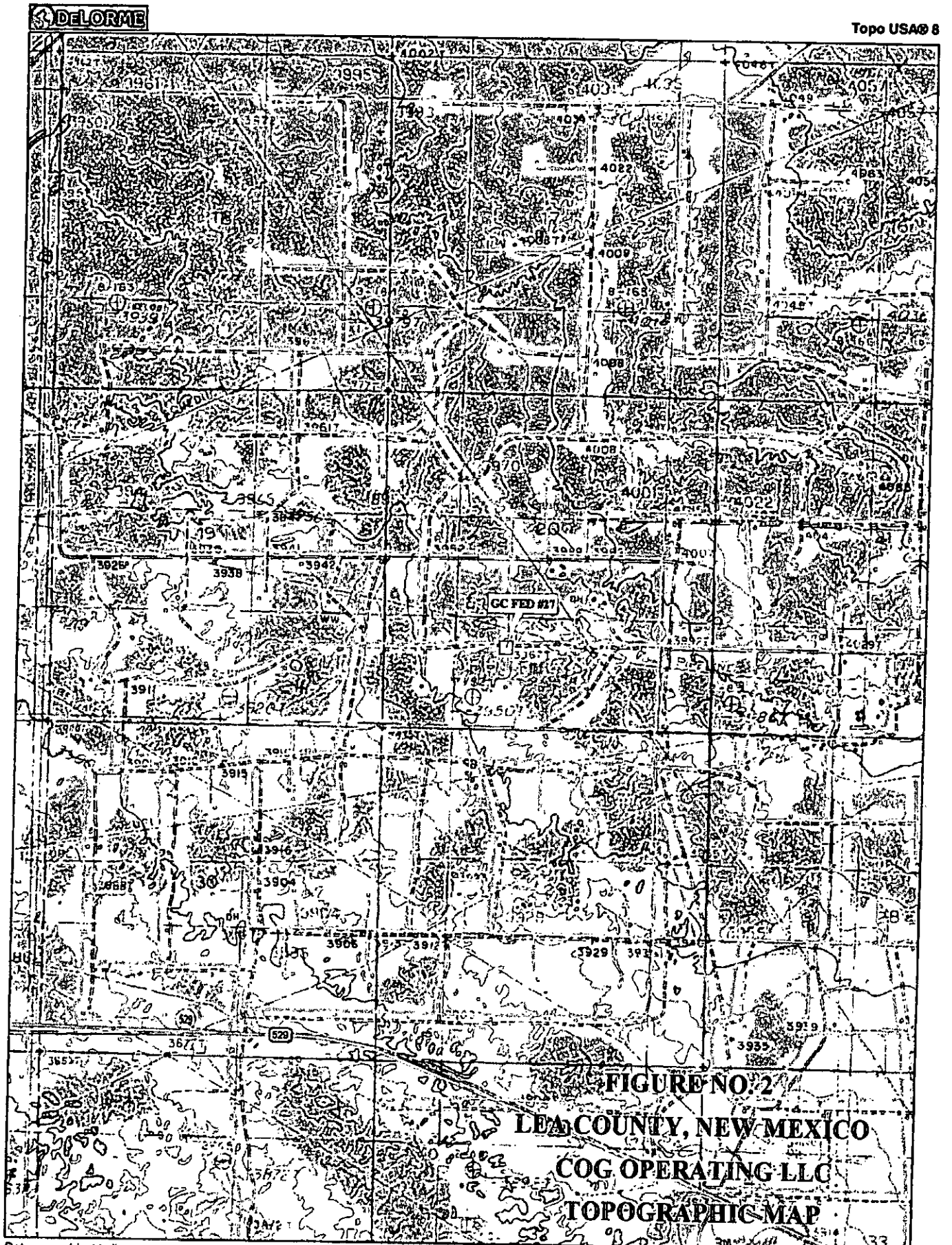
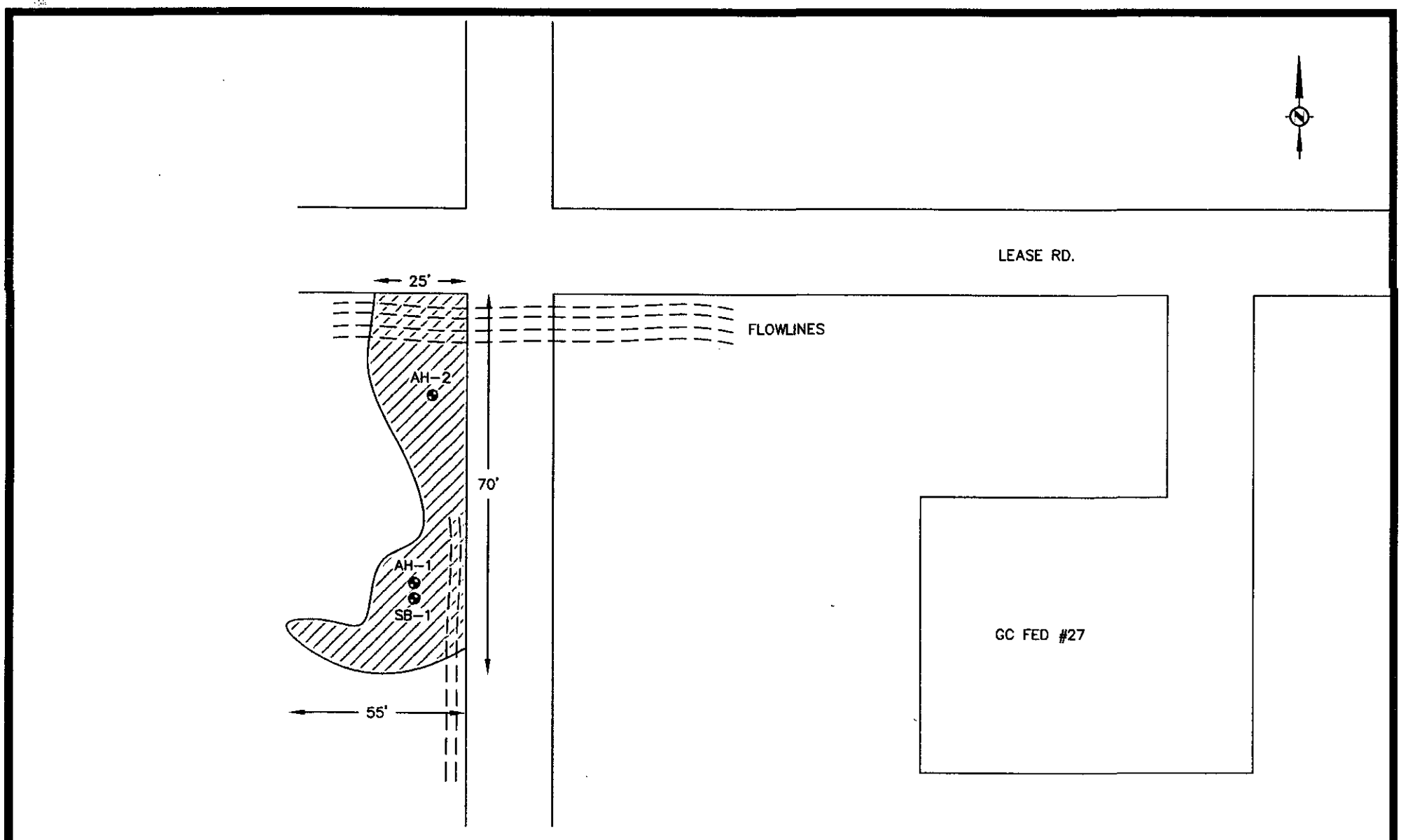


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP



SPILL AREA
AUGER HOLE SAMPLE LOCATIONS
SOIL BORING SAMPLE LOCATION

NOT TO SCALE

FIGURE NO. 3

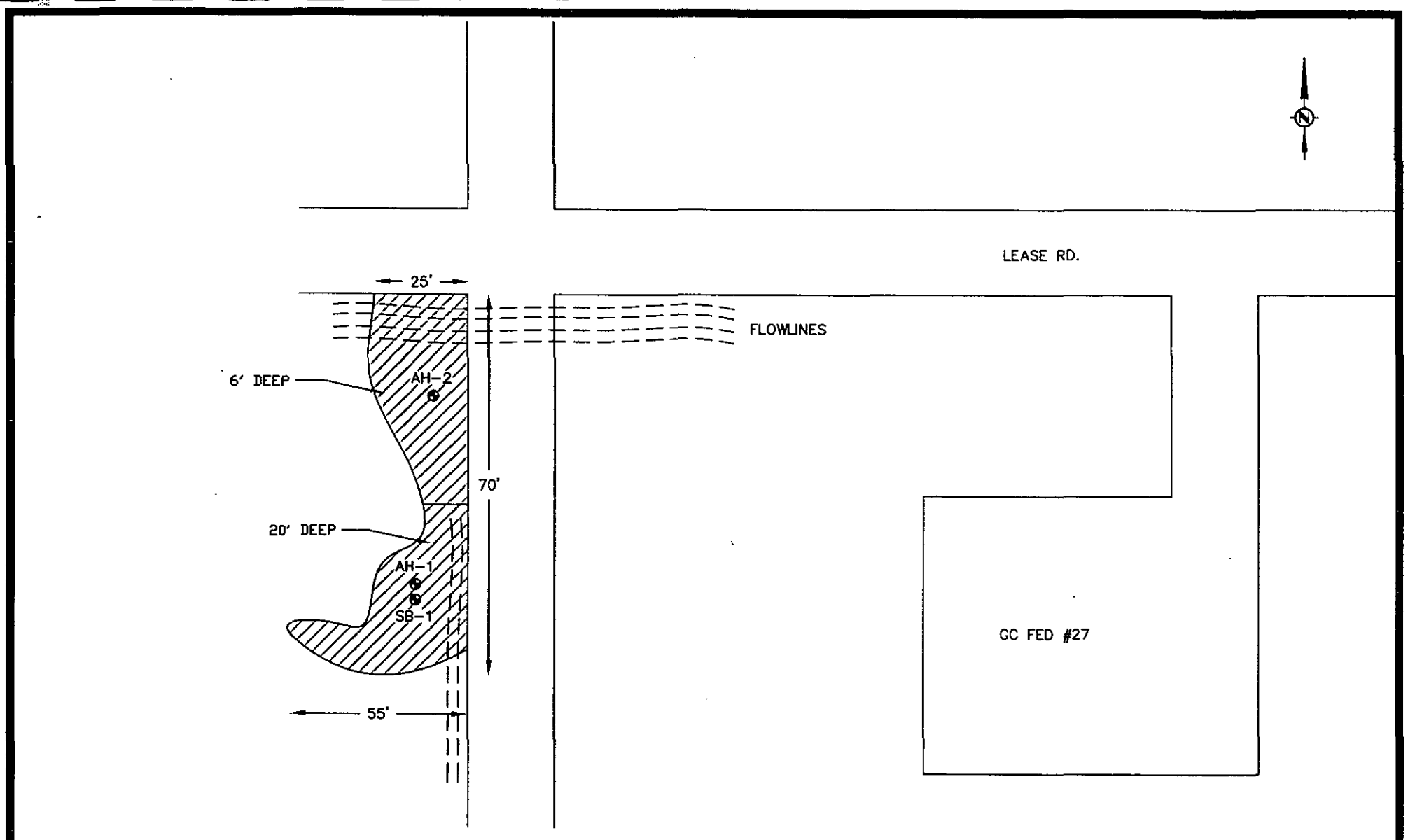
LEA COUNTY, NEW MEXICO

COG OPERATING LLC

GC FED #27

DATE: 6/25/10
DWN. BY: IM
FILE: H:\COG\5400625 GC FED #27

TETRA TECH, INC.
MIDLAND, TEXAS



NOT TO SCALE

FIGURE NO. 4

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

GC FED #27

DATE: 12/13/2011

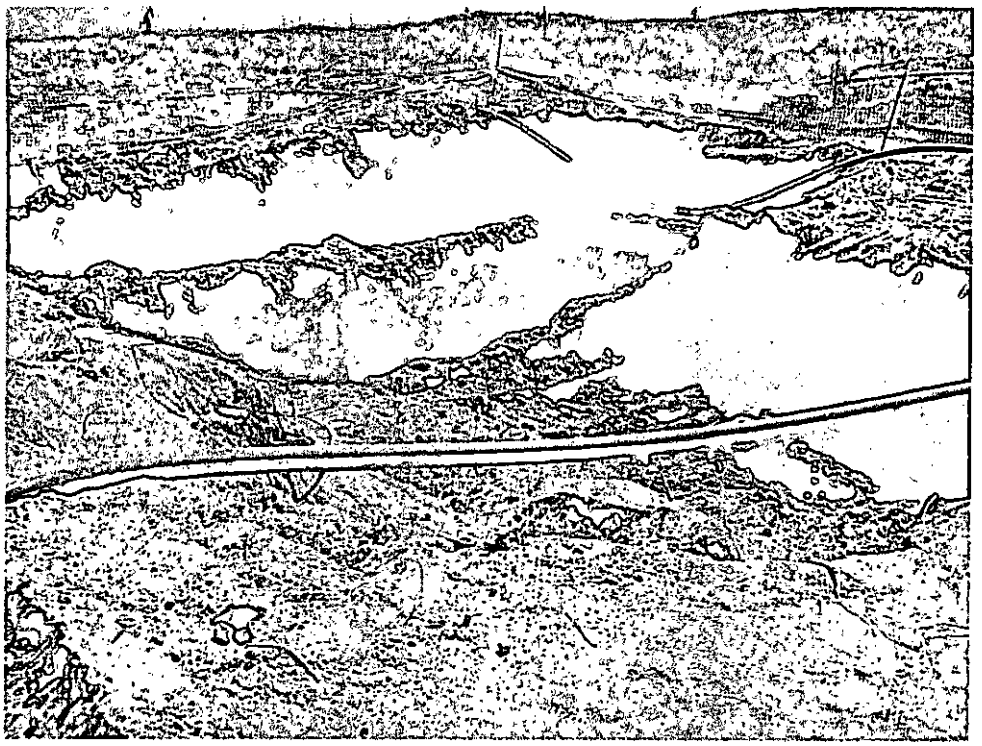
DWN. BY: IM

FILE: H:\COG\8400525 GC FED #27

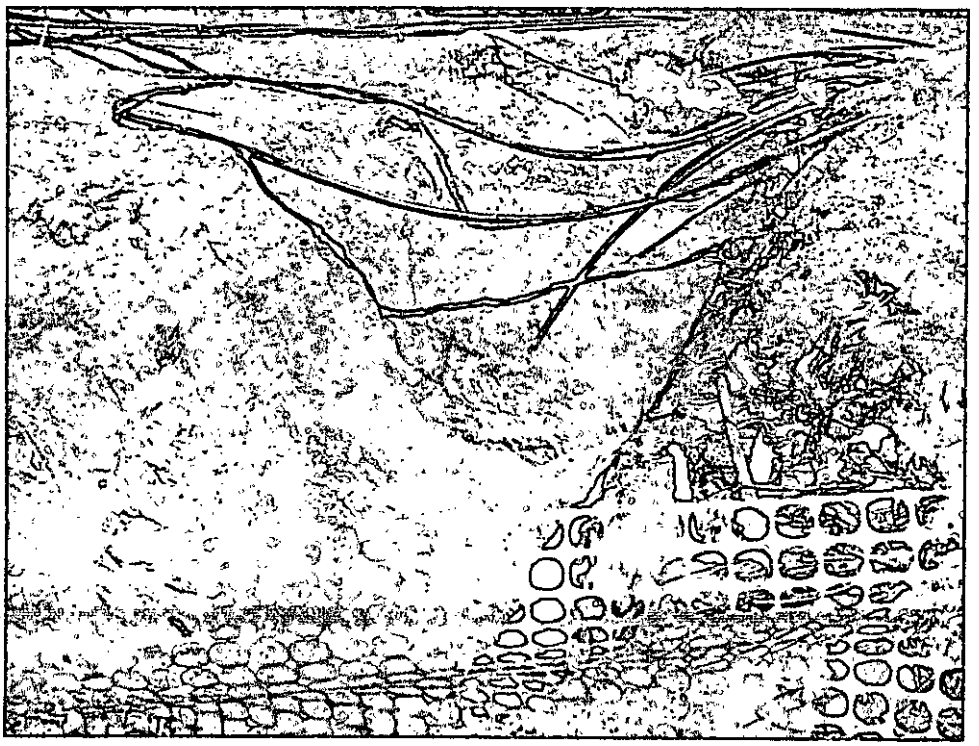
TETRA TECH, INC.
MIDLAND, TEXAS

COG - GC Federal #27 Flow Line

Eddy County, NM



1. View of excavation - areas of AH-1 and AH-2



2. View of excavation - areas of AH-1 and AH-2

Table 1
COG Operating LLC.
GC Federal #27
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	DRO	GRO	Total					
AH-1	5/26/10	0-1'	N/A		X	93.3	<1.00	93.3	<0.0200	<0.0200	<0.0200	<0.0200	332
	5/26/10	1-1.5'	N/A		X	-	-	-	-	-	-	-	224
	5/26/10	2-2.5'	N/A		X	-	-	-	-	-	-	-	2,050
	5/26/10	3-3.5'	N/A		X	-	-	-	-	-	-	-	11,400
	5/26/10	4-4.5'	N/A		X	-	-	-	-	-	-	-	10,300
	5/26/10	5-5.5'	N/A		X	-	-	-	-	-	-	-	17,600
	5/26/10	6-6.5'	N/A		X	-	-	-	-	-	-	-	10,200
	5/26/10	7-7.5'	N/A		X	-	-	-	-	-	-	-	5,850
	5/26/10	8-8.5'	N/A		X	-	-	-	-	-	-	-	5,170
	5/26/10	9-9.5'	N/A		X	-	-	-	-	-	-	-	7,540
SB-1	11/11/10	0-1'	N/A		X	-	-	-	-	-	-	-	<200
	11/11/10	3'	N/A		X	-	-	-	-	-	-	-	1,090
	11/11/10	5'	N/A		X	-	-	-	-	-	-	-	3,520
	11/11/10	7'	N/A		X	-	-	-	-	-	-	-	10,400
	11/11/10	10'	N/A		X	-	-	-	-	-	-	-	11,100
	11/11/10	15'	N/A		X	-	-	-	-	-	-	-	5,560
	11/11/10	20'	N/A		X	-	-	-	-	-	-	-	3,340
	11/11/10	25'	N/A	X		-	-	-	-	-	-	-	400
	11/11/10	30'	N/A	X		-	-	-	-	-	-	-	411
	11/11/10	40'	N/A	X		-	-	-	-	-	-	-	1,310
	11/11/10	50'	N/A	X		-	-	-	-	-	-	-	211
	11/11/10	60'	N/A	X		-	-	-	-	-	-	-	227

Table 1
COG Operating LLC.
GC Federal #27
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	DRO	GRO	Total					
AH-2	5/26/10	0-1'	N/A		X	<50.0	<1.00	<1.00	<0.0200	<0.0200	<0.0200	<0.0200	5,320
	5/26/10	1-1.5'	N/A		X	-	-	-	-	-	-	-	7,910
	5/26/10	2-2.5'	N/A		X	-	-	-	-	-	-	-	7,210
	5/26/10	3-3.5'	N/A		X	-	-	-	-	-	-	-	9,160
	5/26/10	4-4.5'	N/A		X	-	-	-	-	-	-	-	11,000
	5/26/10	5-5.5'	N/A		X	-	-	-	-	-	-	-	9,070
	5/26/10	6-6.5'	N/A		X	-	-	-	-	-	-	-	2,620
	5/26/10	7-7.5'	N/A	X		-	-	-	-	-	-	-	<200
	5/26/10	8-8.5'	N/A	X		-	-	-	-	-	-	-	251
	5/26/10	9-9.5'	N/A	X		-	-	-	-	-	-	-	221

BEB Below Excavation Bottom

(--) Not Analyzed

[ ] Excavated material and depth

Water Well Data
Average Depth to Groundwater (ft)
COG - G.C. Federal 27 Tank Battery
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
31 290	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	20 SITE	21	22	23	24
30 180	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	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	5 180	4 150	3 130	2 148	1 142
7	8 200	9	10 182	11	12 142
18	17 182	16 180	15 175	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	1 150
7 167	8 173	9 161	10	11	12
18 188	17 180	16	15	14	13 165
19	20 190	21	22	23 115	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 36	13 50
19 >140	20	21	22	23	24 185
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
- Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: June 25, 2010

Work Order: 10052809

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400525

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
233041	AH-1 0-1'	soil	2010-05-26	00:00	2010-05-27
233042	AH-1 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233043	AH-1 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233044	AH-1 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233045	AH-1 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233046	AH-1 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233047	AH-1 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233048	AH-1 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233049	AH-1 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233050	AH-1 9-9.5'	soil	2010-05-26	00:00	2010-05-27
233051	AH-2 0-1'	soil	2010-05-26	00:00	2010-05-27
233052	AH-2 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233053	AH-2 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233054	AH-2 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233055	AH-2 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233056	AH-2 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233057	AH-2 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233058	AH-2 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233059	AH-2 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233060	AH-2 9-9.5'	soil	2010-05-26	00:00	2010-05-27

	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)
233041 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**93.3**	<1.00
233051 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<1.00

Sample: 233041 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		332	mg/Kg	4.00

Sample: 233042 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		224	mg/Kg	4.00

Sample: 233043 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2050	mg/Kg	4.00

Sample: 233044 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		11400	mg/Kg	4.00

Sample: 233045 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		10300	mg/Kg	4.00

Sample: 233046 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		17600	mg/Kg	4.00

Sample: 233047 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		10200	mg/Kg	4.00

Sample: 233048 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		5850	mg/Kg	4.00

Sample: 233049 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**5170**	mg/Kg	4.00

Sample: 233050 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**7540**	mg/Kg	4.00

Sample: 233051 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5320**	mg/Kg	4.00

Sample: 233052 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**7910**	mg/Kg	4.00

Sample: 233053 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**7210**	mg/Kg	4.00

Sample: 233054 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**9160**	mg/Kg	4.00

Sample: 233055 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4.00

Sample: 233056 - AH-2 5-5.5'

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

Sample: 233057 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**2620**	mg/Kg	4.00

Sample: 233058 - AH-2 7-7.5'

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

Sample: 233059 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**251**	mg/Kg	4.00

Sample: 233060 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**221**	mg/Kg	4.00

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

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: June 7, 2010

Work Order: 10052809

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400525

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
233041	AH-1 0-1'	soil	2010-05-26	00:00	2010-05-27
233051	AH-2 0-1'	soil	2010-05-26	00:00	2010-05-27

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.

Michael Abel

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 Federal #27 were received by TraceAnalysis, Inc. on 2010-05-27 and assigned to work order 10052809. Samples for work order 10052809 were received intact at a temperature of 3.1 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	60409	2010-06-01 at 12:03	70556	2010-06-02 at 13:04
TPH DRO - NEW	S 8015 D	60419	2010-06-01 at 13:52	70544	2010-06-01 at 13:52
TPH GRO	S 8015 D	60437	2010-06-02 at 14:15	70574	2010-06-02 at 16:59

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 10052809 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: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	Sample Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**332**	mg/Kg	50	4.00

Sample: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	Sample Preparation:	2010-06-01	Prepared By:	kg

Parameter	Flag	Result	RL Units	Dilution	RL
DRO		**93.3**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[1]	133	mg/Kg	1	100	133	70 - 130

Sample: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	Result	RL Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.29	mg/Kg	1	2.00	114	50.3 - 155
4-Bromofluorobenzene (4-BFB)		2.01	mg/Kg	1	2.00	100	51.7 - 131.1

[1] High surrogate recovery due to peak interference.

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	Sample Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**5320**	mg/Kg	100	4.00

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	Sample Preparation:	2010-06-01	Prepared By:	kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[2]	132	mg/Kg	1	100	132	70 - 130

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	Result	RL Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.29	mg/Kg	1	2.00	114	50.3 - 155
4-Bromofluorobenzene (4-BFB)		2.02	mg/Kg	1	2.00	101	51.7 - 131.1

[2]High surrogate recovery. Sample non-detect, result bias high.

Method Blank (1) QC Batch: 70544

QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	QC Preparation:	2010-06-01	Prepared By:	kg

Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		95.4	mg/Kg	1	100	95	70 - 130

Method Blank (1) QC Batch: 70556

QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	QC Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70574

QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	QC Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.06	mg/Kg	1	2.00	103	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.60	mg/Kg	1	2.00	80	62 - 120.5

Laboratory Control Spike (LCS-1)

QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	QC Preparation:	2010-06-01	Prepared By:	kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	265	mg/Kg	1	250	<5.86	106	57.4 - 133.4

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
DRO	277	mg/Kg	1	250	<5.86	111	57.4 - 133.4	4	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	98.0	99.8	mg/Kg	1	100	98	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR
Prep Batch: 60409 | QC Preparation: 2010-06-01 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.6	mg/Kg	1	100	<2.18	99	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	100	mg/Kg	1	100	<2.18	100	85 - 115	1	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: 70574 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.4	mg/Kg	1	20.0	<0.396	77	52.5 - 114.3

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	16.0	mg/Kg	1	20.0	<0.396	80	52.5 - 114.3	4	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)	2.08	1.89	mg/Kg	1	2.00	104	94	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	1.83	1.66	mg/Kg	1	2.00	92	83	64.1 - 127.4

Matrix Spike (MS-1) Spiked Sample: 233169

QC Batch: 70544 | Date Analyzed: 2010-06-01 | Analyzed By: kg
Prep Batch: 60419 | QC Preparation: 2010-06-01 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	334	mg/Kg	1	250	37.7	118	35.2 - 167.1

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	298	mg/Kg	1	250	37.7	104	35.2 - 167.1	11	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	115	112	mg/Kg	1	100	115	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 233088

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR
Prep Batch: 60409 | QC Preparation: 2010-06-01 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9670	mg/Kg	100	10000	545	91	85 - 115

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	9830	mg/Kg	100	10000	545	93	85 - 115	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: 233165

QC Batch: 70574 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	25.1	mg/Kg	1	20.0	5.5866	98	10 - 198.3

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
GRO	26.8	mg/Kg	1	20.0	5.5866	106	10 - 198.3	7	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)	2.28	2.37	mg/Kg	1	2	114	118	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.42	2.38	mg/Kg	1	2	121	119	58.6 - 140

Standard (CCV-1)

QC Batch: 70544 Date Analyzed: 2010-06-01 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	291	116	80 - 120	2010-06-01

Standard (CCV-2)

QC Batch: 70544 Date Analyzed: 2010-06-01 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	290	116	80 - 120	2010-06-01

Standard (ICV-1)

QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.0	99	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70574 Date Analyzed: 2010-06-02 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.949	95	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70574 Date Analyzed: 2010-06-02 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.01	101	80 - 120	2010-06-02

WO # 10052909

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400525

PROJECT NAME: COG / GC Federal #27 Lea Co NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
73041	5/26		S		X	AH-1	0-1'	1				
042						AH-1	1-1.5'					
043						AH-1	2-2.5'					
044						AH-1	3-3.5'					
045						AH-1	4-4.5'					
046						AH-1	5-5.5'					
047						AH-1	6-6.5'					
048						AH-1	7-7.5'					
049						AH-1	8-8.5'					
050						AH-1	9-9.5'					

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. 608/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
X	X											X				

RELINQUISHED BY: (Signature) — Date: 5-27-10 Time: 1605
RECEIVED BY: (Signature) — Date: Time:
SAMPLED BY: (Print & Initial) TF — Date: 5-26-10 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
ADDRESS:
CITY: Midland STATE: Tx ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 5-27-10 TIME: 16:05
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.1°C Intact

REMARKS: If TPH exceeds 5000 spike and dup sample. Attn: Midland

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

WO# 10052809

Analysis Request of Chain of Custody Record

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: CDG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400525

PROJECT NAME: CDG / GC Federal #27 Lea Co NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
233051	5/26		S		X	AH-2 0-1'	1					
052						AH-2 1-1.5'						
053						AH-2 2-2.5'						
054						AH-2 3-3.5'						
055						AH-2 4-4.5'						
056						AH-2 5-5.5'						
057						AH-2 6-6.5'						
058						AH-2 7-7.5'						
059						AH-2 8-8.5'						
060	↓		↓		↓	AH-2 9-9.5'	↓					

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. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
	X											X				

RELINQUISHED BY: (Signature) — Date: 5-27-10 Time: 1100

RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) RG TF — Date: 5-26-10 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: Xenco

ADDRESS:

CITY: Midland STATE: Tx ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: 5-27-10 TIME: 11:00

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.1 C

REMARKS: If TPH exceeds 5000 mg/kg run chem on sample

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

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

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: June 25, 2010

Work Order: 10052809

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400525

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
233041	AH-1 0-1'	soil	2010-05-26	00:00	2010-05-27
233042	AH-1 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233043	AH-1 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233044	AH-1 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233045	AH-1 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233046	AH-1 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233047	AH-1 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233048	AH-1 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233049	AH-1 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233050	AH-1 9-9.5'	soil	2010-05-26	00:00	2010-05-27

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
233051	AH-2 0-1'	soil	2010-05-26	00:00	2010-05-27
233052	AH-2 1-1.5'	soil	2010-05-26	00:00	2010-05-27
233053	AH-2 2-2.5'	soil	2010-05-26	00:00	2010-05-27
233054	AH-2 3-3.5'	soil	2010-05-26	00:00	2010-05-27
233055	AH-2 4-4.5'	soil	2010-05-26	00:00	2010-05-27
233056	AH-2 5-5.5'	soil	2010-05-26	00:00	2010-05-27
233057	AH-2 6-6.5'	soil	2010-05-26	00:00	2010-05-27
233058	AH-2 7-7.5'	soil	2010-05-26	00:00	2010-05-27
233059	AH-2 8-8.5'	soil	2010-05-26	00:00	2010-05-27
233060	AH-2 9-9.5'	soil	2010-05-26	00:00	2010-05-27

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.

Blair Leftwich

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 Federal #27 were received by TraceAnalysis, Inc. on 2010-05-27 and assigned to work order 10052809. Samples for work order 10052809 were received intact at a temperature of 3.1 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	60437	2010-06-02 at 14:15	70573	2010-06-02 at 16:31
Chloride (Titration)	SM 4500-Cl B	60409	2010-06-01 at 12:03	70556	2010-06-02 at 13:04
Chloride (Titration)	SM 4500-Cl B	60876	2010-06-22 at 11:55	71104	2010-06-23 at 14:10
Chloride (Titration)	SM 4500-Cl B	60877	2010-06-22 at 11:56	71105	2010-06-23 at 14:11
TPH DRO - NEW	S 8015 D	60419	2010-06-01 at 13:52	70544	2010-06-01 at 13:52
TPH GRO	S 8015 D	60437	2010-06-02 at 14:15	70574	2010-06-02 at 16:59

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 10052809 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: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	70573	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

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)		2.03	mg/Kg	1	2.00	102	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.90	mg/Kg	1	2.00	95	38.4 - 157

Sample: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	Sample Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**332**	mg/Kg	50	4.00

Sample: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	Sample Preparation:	2010-06-01	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**93.3**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[1]	133	mg/Kg	1	100	133	70 - 130

Sample: 233041 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.29	mg/Kg	1	2.00	114	50.3 - 155
4-Bromofluorobenzene (4-BFB)		2.01	mg/Kg	1	2.00	100	51.7 - 131.1

Sample: 233042 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**224**	mg/Kg	50	4.00

Sample: 233043 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**2050**	mg/Kg	100	4.00

[1] High surrogate recovery due to peak interference.

Sample: 233044 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**11400**	mg/Kg	100	4.00

Sample: 233045 - AH-1 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**10300**	mg/Kg	100	4.00

Sample: 233046 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**17600**	mg/Kg	100	4.00

Sample: 233047 - AH-1 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**10200**	mg/Kg	100	4.00

Sample: 233048 - AH-1 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**5850**	mg/Kg	100	4.00

Sample: 233049 - AH-1 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**5170**	mg/Kg	100	4.00

Sample: 233050 - AH-1 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**7540**	mg/Kg	100	4.00

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	70573	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

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

continued ...

sample 233051 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
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)		2.05	mg/Kg	1	2.00	102	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.91	mg/Kg	1	2.00	96	38.4 - 157

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	Sample Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**5320**	mg/Kg	100	4.00

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	Sample Preparation:	2010-06-01	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	[2]	132	mg/Kg	1	100	132	70 - 130

Sample: 233051 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	Sample Preparation:	2010-06-02	Prepared By:	AG

[2]High surrogate recovery. Sample non-detect, result bias high.

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.29	mg/Kg	1	2.00	114	50.3 - 155
4-Bromofluorobenzene (4-BFB)		2.02	mg/Kg	1	2.00	101	51.7 - 131.1

Sample: 233052 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**7910**	mg/Kg	100	4.00

Sample: 233053 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**7210**	mg/Kg	100	4.00

Sample: 233054 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**9160**	mg/Kg	100	4.00

Sample: 233055 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**11000**	mg/Kg	100	4.00

Sample: 233056 - AH-2 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**9070**	mg/Kg	100	4.00

Sample: 233057 - AH-2 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**2620**	mg/Kg	100	4.00

Sample: 233058 - AH-2 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

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

Sample: 233059 - AH-2 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**251**	mg/Kg	50	4.00

Sample: 233060 - AH-2 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	Sample Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**221**	mg/Kg	50	4.00

Method Blank (1) QC Batch: 70544

QC Batch:	70544	Date Analyzed:	2010-06-01	Analyzed By:	kg
Prep Batch:	60419	QC Preparation:	2010-06-01	Prepared By:	kg

Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		95.4	mg/Kg	1	100	95	70 - 130

Method Blank (1) QC Batch: 70556

QC Batch:	70556	Date Analyzed:	2010-06-02	Analyzed By:	AR
Prep Batch:	60409	QC Preparation:	2010-06-01	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70573

QC Batch:	70573	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	QC Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0150	mg/Kg	0.02
Toluene		<0.00950	mg/Kg	0.02
Ethylbenzene		<0.0106	mg/Kg	0.02
Xylene		<0.00930	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.50	mg/Kg	1	2.00	75	55.4 - 104

Method Blank (1) QC Batch: 70574

QC Batch:	70574	Date Analyzed:	2010-06-02	Analyzed By:	AG
Prep Batch:	60437	QC Preparation:	2010-06-02	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.06	mg/Kg	1	2.00	103	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.60	mg/Kg	1	2.00	80	62 - 120.5

Method Blank (1) QC Batch: 71104

QC Batch:	71104	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60876	QC Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 71105

QC Batch:	71105	Date Analyzed:	2010-06-23	Analyzed By:	AR
Prep Batch:	60877	QC Preparation:	2010-06-22	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch: 70544 | Date Analyzed: 2010-06-01 | Analyzed By: kg
Prep Batch: 60419 | QC Preparation: 2010-06-01 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	265	mg/Kg	1	250	<5.86	106	57.4 - 133.4

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
DRO	277	mg/Kg	1	250	<5.86	111	57.4 - 133.4	4	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	98.0	99.8	mg/Kg	1	100	98	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR
Prep Batch: 60409 | QC Preparation: 2010-06-01 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.6	mg/Kg	1	100	<2.18	99	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	100	mg/Kg	1	100	<2.18	100	85 - 115	1	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: 70573 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.83	mg/Kg	1	2.00	<0.0150	92	81.9 - 108
Toluene	1.84	mg/Kg	1	2.00	<0.00950	92	81.9 - 107
Ethylbenzene	1.80	mg/Kg	1	2.00	<0.0106	90	78.4 - 107
Xylene	5.44	mg/Kg	1	6.00	<0.00930	91	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	1.90	mg/Kg	1	2.00	<0.0150	95	81.9 - 108	4	20
Toluene	1.91	mg/Kg	1	2.00	<0.00950	96	81.9 - 107	4	20
Ethylbenzene	1.87	mg/Kg	1	2.00	<0.0106	94	78.4 - 107	4	20
Xylene	5.64	mg/Kg	1	6.00	<0.00930	94	79.1 - 107	4	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)	1.86	1.82	mg/Kg	1	2.00	93	91	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.76	1.76	mg/Kg	1	2.00	88	88	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 70574 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.4	mg/Kg	1	20.0	<0.396	77	52.5 - 114.3

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	16.0	mg/Kg	1	20.0	<0.396	80	52.5 - 114.3	4	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)	2.08	1.89	mg/Kg	1	2.00	104	94	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	1.83	1.66	mg/Kg	1	2.00	92	83	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 71104 | Date Analyzed: 2010-06-23 | Analyzed By: AR
Prep Batch: 60876 | QC Preparation: 2010-06-22 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.3	mg/Kg	1	100	<2.18	98	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	101	mg/Kg	1	100	<2.18	101	85 - 115	3	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: 71105 | Date Analyzed: 2010-06-23 | Analyzed By: AR
Prep Batch: 60877 | QC Preparation: 2010-06-22 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.9	mg/Kg	1	100	<2.18	99	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	101	mg/Kg	1	100	<2.18	101	85 - 115	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: 233169

QC Batch: 70544 | Date Analyzed: 2010-06-01 | Analyzed By: kg
Prep Batch: 60419 | QC Preparation: 2010-06-01 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	334	mg/Kg	1	250	37.7	118	35.2 - 167.1

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	298	mg/Kg	1	250	37.7	104	35.2 - 167.1	11	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	115	112	mg/Kg	1	100	115	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 233088

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR
Prep Batch: 60409 | QC Preparation: 2010-06-01 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9670	mg/Kg	100	10000	545	91	85 - 115

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	9830	mg/Kg	100	10000	545	93	85 - 115	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: 233018

QC Batch: 70573 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.82	mg/Kg	1	2.00	<0.0150	91	80.5 - 112
Toluene	1.88	mg/Kg	1	2.00	<0.00950	94	82.4 - 113
Ethylbenzene	1.90	mg/Kg	1	2.00	<0.0106	95	83.9 - 114
Xylene	5.72	mg/Kg	1	6.00	<0.00930	95	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	1.86	mg/Kg	1	2.00	<0.0150	93	80.5 - 112	2	20
Toluene	1.92	mg/Kg	1	2.00	<0.00950	96	82.4 - 113	2	20
Ethylbenzene	1.94	mg/Kg	1	2.00	<0.0106	97	83.9 - 114	2	20
Xylene	5.82	mg/Kg	1	6.00	<0.00930	97	84 - 114	2	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)	1.48	1.54	mg/Kg	1	2	74	77	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1.44	1.48	mg/Kg	1	2	72	74	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 233165

QC Batch: 70574 | Date Analyzed: 2010-06-02 | Analyzed By: AG
Prep Batch: 60437 | QC Preparation: 2010-06-02 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	25.1	mg/Kg	1	20.0	5.5866	98	10 - 198.3

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
GRO	26.8	mg/Kg	1	20.0	5.5866	106	10 - 198.3	7	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)	2.28	2.37	mg/Kg	1	2	114	118	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.42	2.38	mg/Kg	1	2	121	119	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 233052

QC Batch: 71104 | Date Analyzed: 2010-06-23 | Analyzed By: AR
Prep Batch: 60876 | QC Preparation: 2010-06-22 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	17500	mg/Kg	100	10000	7910	96	85 - 115

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	17700	mg/Kg	100	10000	7910	98	85 - 115	1	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: 234791

QC Batch: 71105 | Date Analyzed: 2010-06-23 | Analyzed By: AR
Prep Batch: 60877 | QC Preparation: 2010-06-22 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11400	mg/Kg	100	10000	1870	95	85 - 115

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	11600	mg/Kg	100	10000	1870	97	85 - 115	2	20

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

Standard (CCV-1)

QC Batch: 70544 | Date Analyzed: 2010-06-01 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	291	116	80 - 120	2010-06-01

Standard (CCV-2)

QC Batch: 70544 | Date Analyzed: 2010-06-01 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	290	116	80 - 120	2010-06-01

Standard (ICV-1)

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70556 | Date Analyzed: 2010-06-02 | Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.0	99	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70573 | Date Analyzed: 2010-06-02 | Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0918	92	80 - 120	2010-06-02
Toluene		mg/Kg	0.100	0.0925	92	80 - 120	2010-06-02

continued ...

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		mg/Kg	0.100	0.0910	91	80 - 120	2010-06-02
Xylene		mg/Kg	0.300	0.274	91	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70573 Date Analyzed: 2010-06-02 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0906	91	80 - 120	2010-06-02
Toluene		mg/Kg	0.100	0.0911	91	80 - 120	2010-06-02
Ethylbenzene		mg/Kg	0.100	0.0879	88	80 - 120	2010-06-02
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2010-06-02

Standard (CCV-1)

QC Batch: 70574 Date Analyzed: 2010-06-02 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.949	95	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70574 Date Analyzed: 2010-06-02 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.01	101	80 - 120	2010-06-02

Standard (ICV-1)

QC Batch: 71104 Date Analyzed: 2010-06-23 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-23

Standard (CCV-1)

QC Batch: 71104 | Date Analyzed: 2010-06-23 | Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.6	99	85 - 115	2010-06-23

Standard (ICV-1)

QC Batch: 71105 | Date Analyzed: 2010-06-23 | Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2010-06-23

Standard (CCV-1)

QC Batch: 71105 | Date Analyzed: 2010-06-23 | Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-23

WO # 10052909

Analysis Request of Chain of Custody Record

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

PAGE: 1 OF: 2

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400525

PROJECT NAME: COG / GC Federal #24 Lea Co NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
230041	5/26		S		X	AH-1 0-1'	1					
042						AH-1 1-1.5'						
043						AH-1 2-2.5'						
044						AH-1 3-3.5'						
045						AH-1 4-4.5'						
046						AH-1 5-5.5'						
047						AH-1 6-6.5'						
048						AH-1 7-7.5'						
049						AH-1 8-8.5'						
050						AH-1 9-9.5'						

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. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
	X											X				

RELINQUISHED BY: (Signature) — Date: 5-27-10 Time: 1605 — RECEIVED BY: (Signature) — Date: — Time:

SAMPLED BY: (Print & Initial) TF RH — Date: 5-26-10 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: 5-27-10 TIME: 16:05

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.1°C Wet

REMARKS: If TPH exceeds 5,000 spike and dupe sample Attn: Midland

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

WO# 10052809

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: CDG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400525

PROJECT NAME: COG / Gr Federal #27 Lea Co NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 MOD.	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 Arions/Cations, pH, TDS
233051	5/26		S		X	AH-2 0-1'	1								X											X				
052						AH-2 1-1.5'																								
053						AH-2 2-2.5'																								
054						AH-2 3-3.5'																								
055						AH-2 4-4.5'																								
056						AH-2 5-5.5'																								
057						AH-2 6-6.5'																								
058						AH-2 7-7.5'																								
059						AH-2 8-8.5'																								
060						AH-2 9-9.5'																								

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 5-27-10 Time: 1605	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) RG TF — Date: 5-26-10 Time:

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

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: Tx ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 5.27.10 TIME: 16:05

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.1 C

REMARKS: If TPH exceeds 5000 mg/kg run chem suite

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

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

Report Date: November 19, 2010

Work Order: 10111512

Project Location: Lea County, NM
Project Name: COG/GC Federal #27
Project Number: 114-6400549

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250467	SB-1 0-1'	soil	2010-11-11	00:00	2010-11-15
250468	SB-1 3'	soil	2010-11-11	00:00	2010-11-15
250469	SB-1 5'	soil	2010-11-11	00:00	2010-11-15
250470	SB-1 7'	soil	2010-11-11	00:00	2010-11-15
250471	SB-1 10'	soil	2010-11-11	00:00	2010-11-15
250472	SB-1 15'	soil	2010-11-11	00:00	2010-11-15
250473	SB-1 20'	soil	2010-11-11	00:00	2010-11-15
250474	SB-1 25'	soil	2010-11-11	00:00	2010-11-15
250475	SB-1 30'	soil	2010-11-11	00:00	2010-11-15
250476	SB-1 40'	soil	2010-11-11	00:00	2010-11-15
250477	SB-1 50'	soil	2010-11-11	00:00	2010-11-15
250478	SB-1 60'	soil	2010-11-11	00:00	2010-11-15

Sample: 250467 - SB-1 0-1'

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

Sample: 250468 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	4.00

Sample: 250469 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		3520	mg/Kg	4.00

Sample: 250470 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		10400	mg/Kg	4.00

Sample: 250471 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		11100	mg/Kg	4.00

Sample: 250472 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		5560	mg/Kg	4.00

Sample: 250473 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		3340	mg/Kg	4.00

Sample: 250474 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		400	mg/Kg	4.00

Sample: 250475 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		411	mg/Kg	4.00

Sample: 250476 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		1310	mg/Kg	4.00

Sample: 250477 - SB-1 50'

Param	Flag	Result	Units	RL
Chloride		**211**	mg/Kg	4.00

Sample: 250478 - SB-1 60'

Param	Flag	Result	Units	RL
Chloride		**227**	mg/Kg	4.00