Bratcher, Mike, EMNRD

From: Tavarez, Ike [Ike.Tavarez@tetratech.com]
Sent: Monday, September 13, 2010 10:28 AM
To: Bratcher, Mike, EMNRD
Cc: Pat Ellis; Joshua Russo
Subject: COG - Work Plan Approvals, Eddy County, NM
Attachments: COG - Muskegon State Com #1 TB Work Plan .pdf; COG - Auodad State #8 Work Plan .pdf; COG - GJ West State #135 Work Plan .pdf

Mike,

Please find the enclosed COG work plans discussed on September 1, 2010 in your office. During our meeting, the work plans were reviewed, discussed and confirmed the proposed excavation depths for each site. COG proposes to start the site remediation as soon as possible. Tetra Tech will notify you before starting the soil remediation. Once completed, a closure report with the final C-141 will be prepared for your files. We appreciate your time to review and approve the attached work plans. Please let me know if you need additional information. Thanks

Ike Tavarez
Tetra Tech

Ike Tavarez, PG Senior Project Manager

Direct 432 682 4559 | Fax 432 682 3946 | Cell 432 425 0076

Ike.Tavarez@tetratech.com

Tetra Tech Complex World Clear Solutions ™

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

TETRA TECH

August 2, 2010

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

Re: Work Plan for the COG Operating LLC., Aoudad State #8, Unit A, Section 36, Township 17 South, Range 31 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Aoudad State #8 flow line, Unit A, Section 36, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79222°, W 103.82318°. 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 January 29, 2010, and released approximately fifty five (55) barrels of produced water from a flow line that ruptured along a COG pipeline right-a-way. To alleviate the problem, COG personnel repaired the flow line and recovered fifty (50) barrels of standing fluids from the site. The spill initiated north of a two track right-of-away road impacting an area approximately 60' long by 10' wide and pooled in a native low-lying area. The initial C-141 form is enclosed in Appendix C.

Groundwater

No water wells were listed within Section 36. According to the *Geology and Groundwater Resources of Eddy County, New Mexico* (Report 3), one well is located in Section 34, with a reported depth to water of 271' below surface. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 350' below surface. The *Geology and Groundwater Resources of Eddy County, New Mexico* (Report

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432 682 3946 www.tetratech.com

3) well report data is shown in Appendix B.

Regulatory

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

Soil Assessment and Analytical Results

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

Referring to Table 1, the hydrocarbon impact showed a shallow impact to the soils. The auger holes (AH-1, AH-2, and AH-3) exceeded the RRAL for TPH and BTEX from surface down to 1-1.5', 0-1', and 1-1.5' below surface, respectively. The chloride concentrations were not defined in all the auger hole locations, with chloride concentrations of 6,320 mg/kg at AH-1 (9.0'), 6,020 mg/kg at AH-2 (9.0') and 29,900 mg/kg at AH-3 (5.0').

To delineate the chloride impact, on April 23, 2010, Tetra Tech supervised the installation of two boreholes (BH-1 and BH-2) utilizing an air rotary drilling rig. Soil samples were collected to a total depth of 40' below surface and the results are summarized in Table 1. Referring to Table 1, the chloride concentrations declined in SB-1 to 260 mg/kg and SB-2 to 716 mg/kg at 40' below surface. A spike in chloride concentrations for SB-1 at 20' appears to be cross contaminated from the upper zone.

TETRA TECH

Work Plan

On June 4, 2010, Tetra Tech met with Mike Bratcher of the NMOCD to discuss the results and concerns regarding with a deep excavation plan. Since the impacted area is in the native sand dunes, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for equipment operators as well as other onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

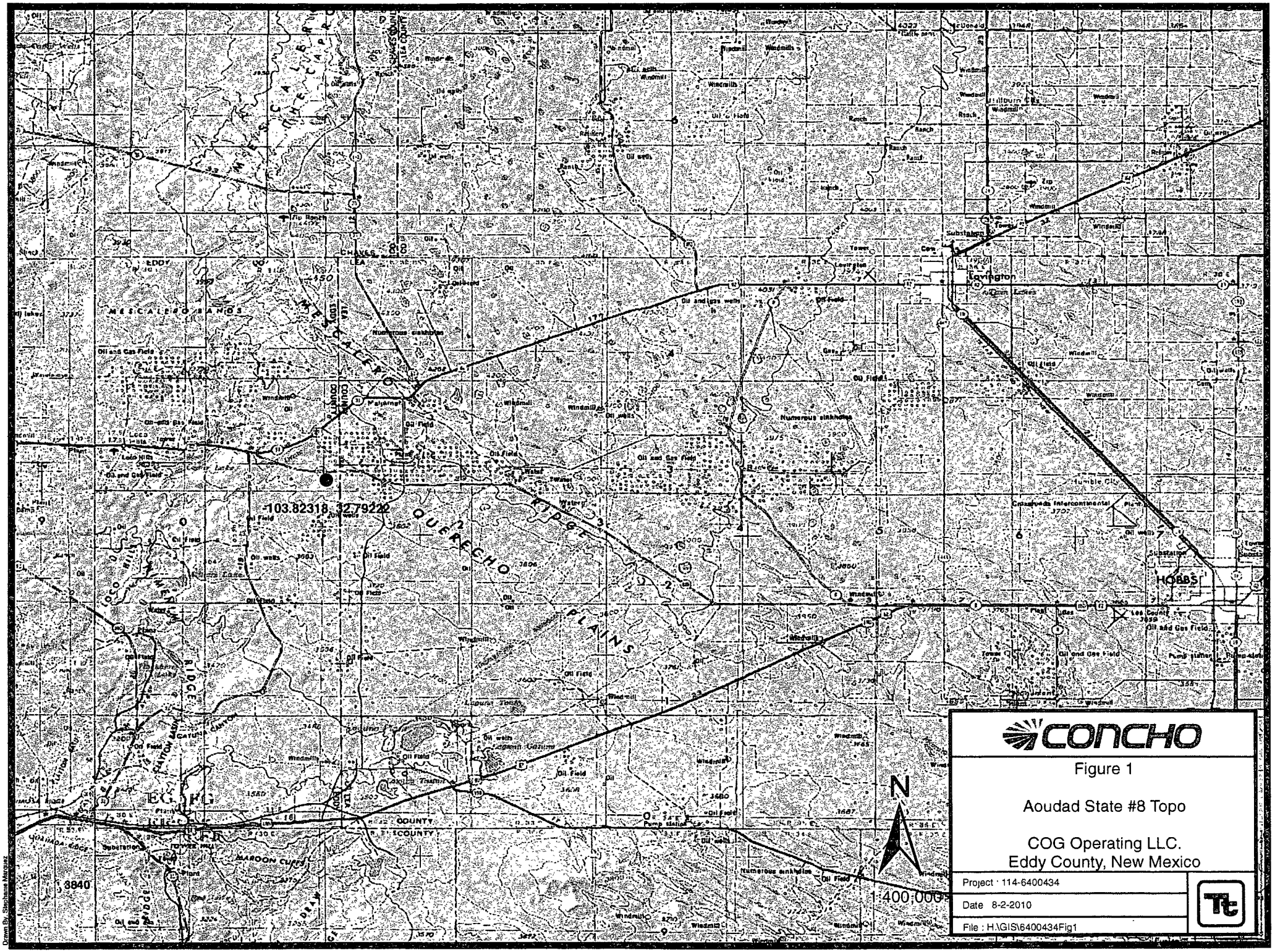
As was approved in that meeting, Tetra Tech personnel will supervise the removal of impacted soils as shown in attached Table 1. In addition, the excavated area will be capped (lined) with a 40 mil plastic liner. Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil. The liner will be installed at a depth of 4.0' below surface. The liner installation areas are shown on Figure 4.

Respectfully submitted,
TETRA TECH

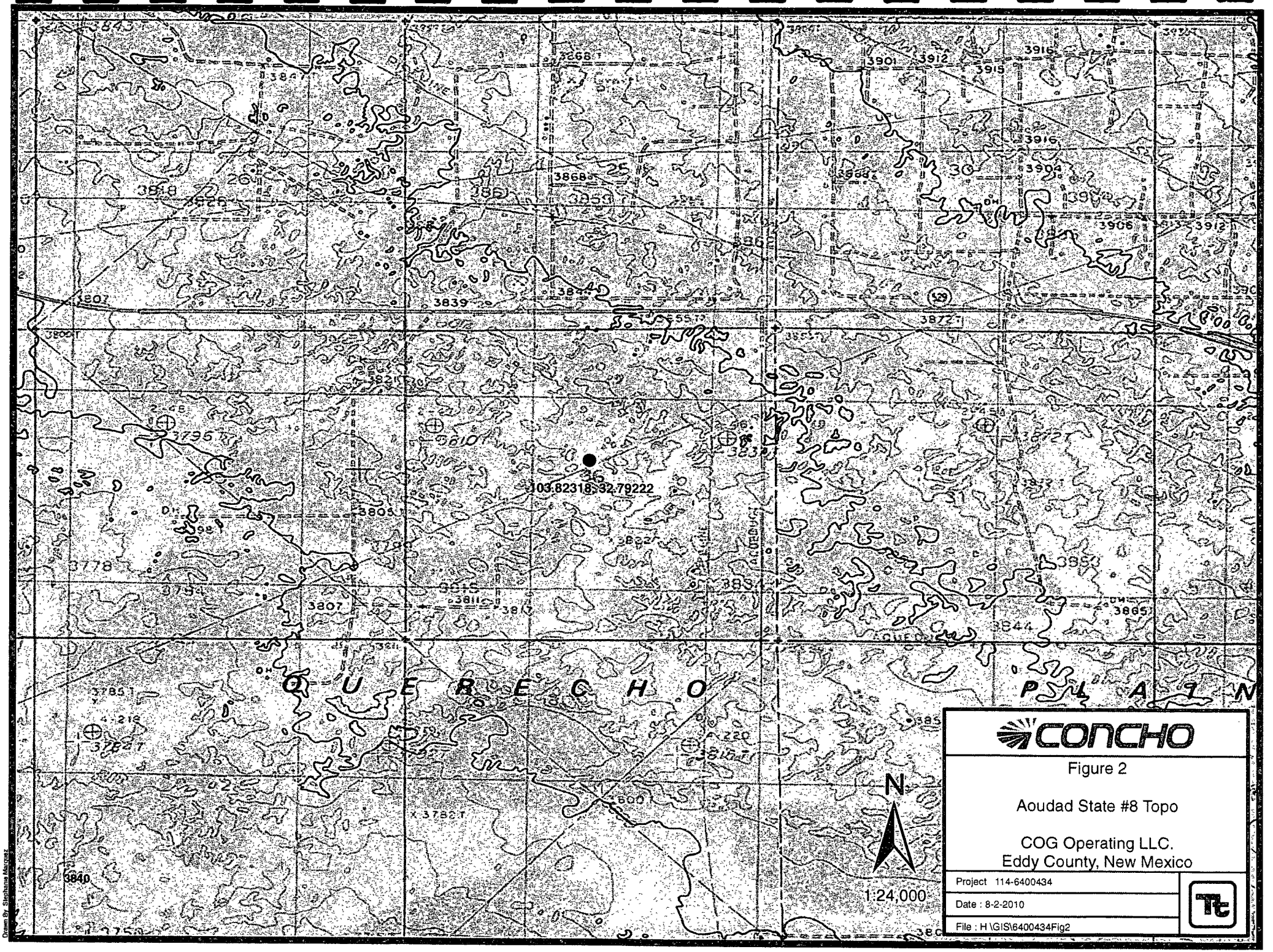
Ike Tavarez
Project Manager

cc: Pat Ellis – COG

FIGURES



Drawn By: Stephanie Marquez



CONCHO

Figure 2

Aoudad State #8 Topo

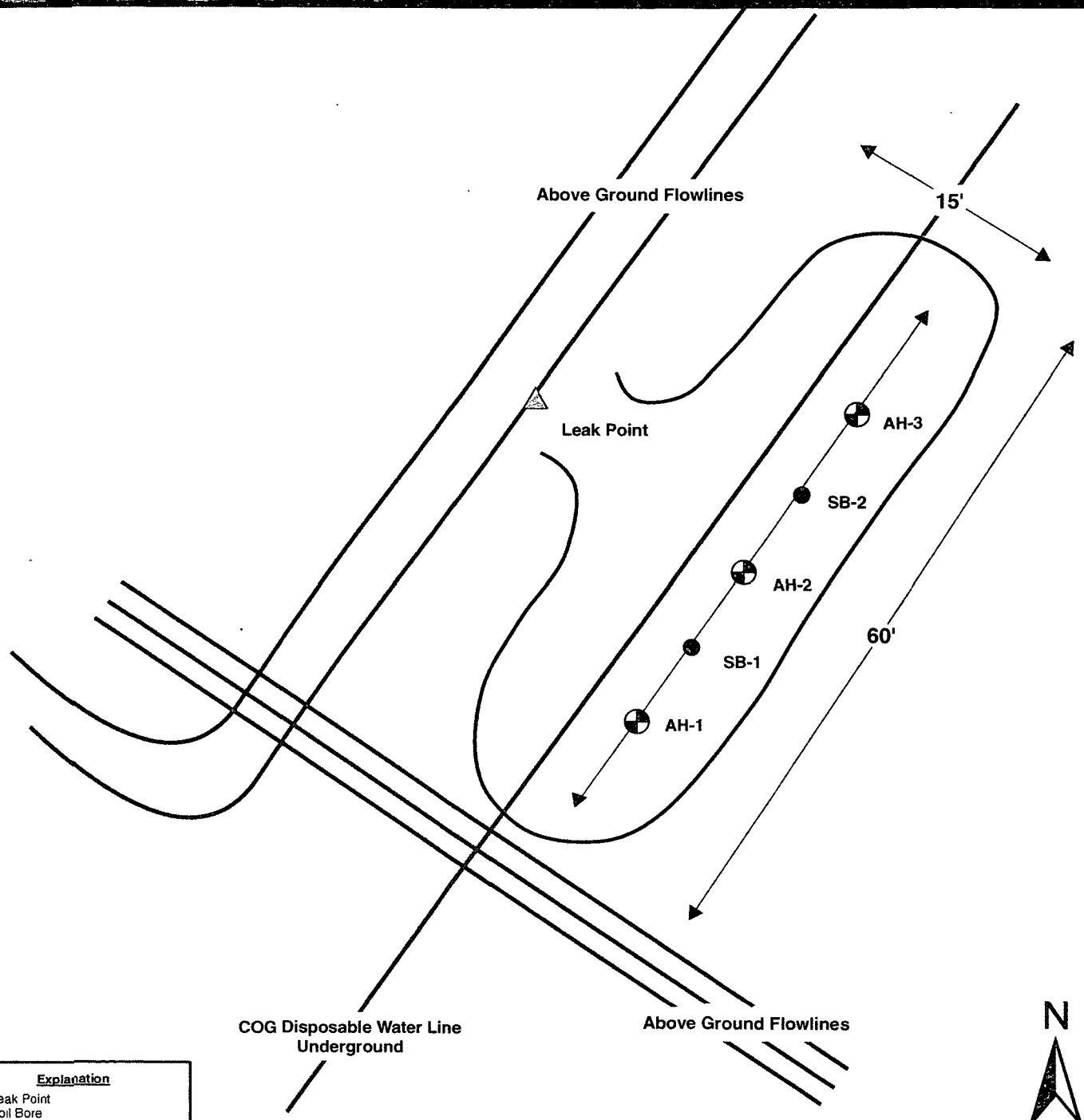
COG Operating LLC.
Eddy County, New Mexico

Project 114-6400434

Date : 8-2-2010

File : H:\GIS\6400434Fig2

Drawn By: Stephanie Marquez



Explanation

- Leak Point
- Soil Bore
- Auger Hole
- COG Disposable Water Pipeline
- 2.5" Metal Flowline

N

NOT TO SCALE

CONCHO

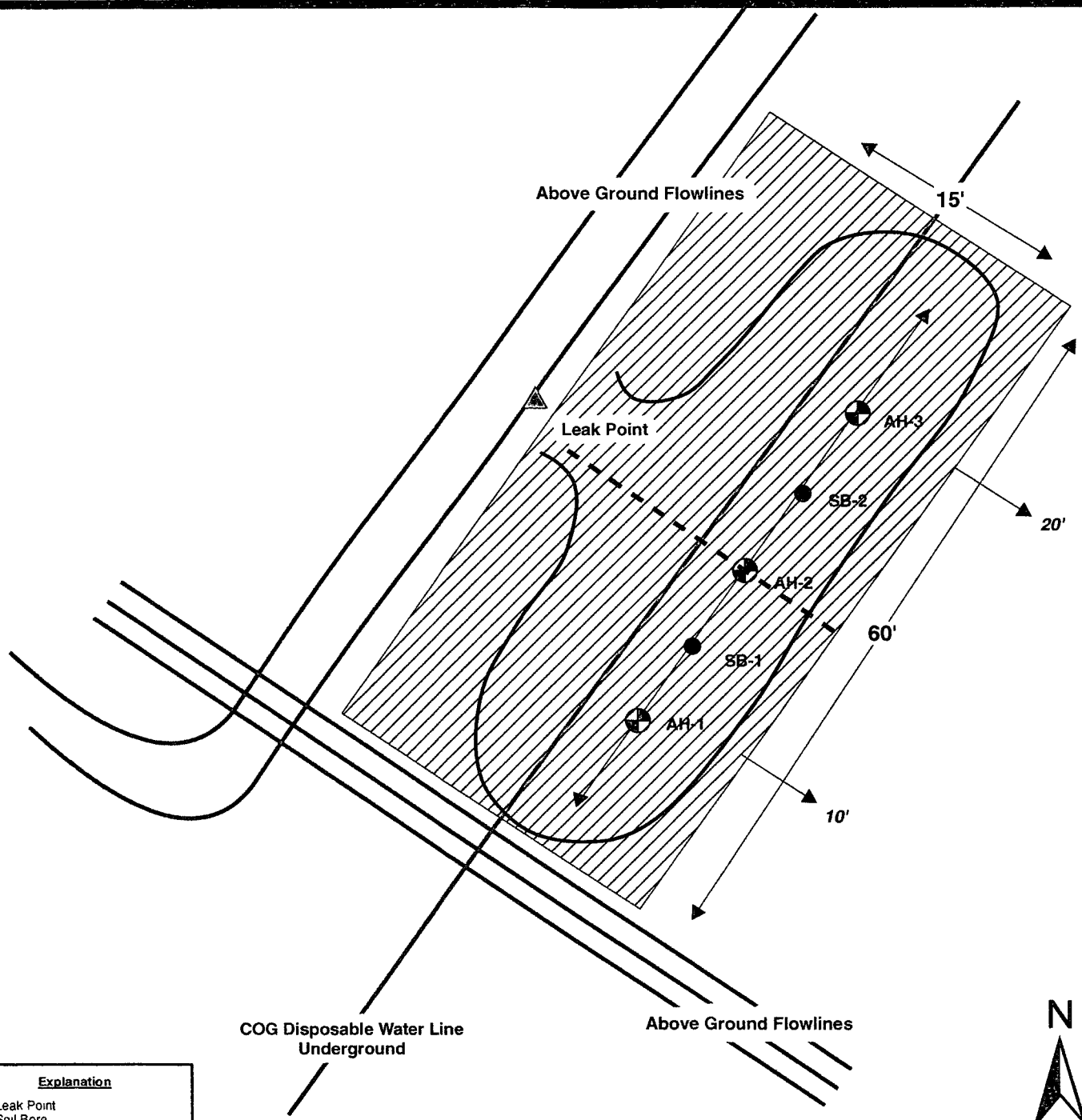
Figure 3

Aoudad State #8
Site Plan

COG Operating LLC.
Eddy County, New Mexico

Project 114-6400434	
Date : 8-2-2010	
File : H \GIS\6400434Fig3	

Drawn By: Stephanie Marquez



Explanation

- Leak Point
- Soil Bore
- Auger Hole
- COG Disposable Water Pipeline
- 2.5" Metal Flowline
- Proposed Liner (Capped Area)

N

NOT TO SCALE

CONCHO

Figure 4

Aoudad State #8
Proposed Excavation & Lining

COG Operating LLC.
Eddy County, New Mexico

Project : 114-6400434

Date 8-2-2010

File : H:\GIS\6400434Fig4

Drawn By: Stephanie Marquez

TABLE

Table 1
COG Operating LLC.
Auodad State #8
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-1	3/3/2010	0-1'	1'	X		8,710	5,840	14,550	17.6	78.2	60.7	102	2,840
		1-1.5'	1'	X		2,920	3,810	6,730	6.97	49	40	84.6	3,610
		2-2.5'	1'	X		<50.0	27	27	<0.0100	<0.0100	<0.0100	0.0854	3,520
		3-3.5'	1'	X		-	-	-	-	-	-	-	4,780
		4-4.5'	1'	X		-	-	-	-	-	-	-	4,260
		5-5.5'	1'	X		-	-	-	-	-	-	-	4,590
		6-6.5'	1'	X		-	-	-	-	-	-	-	3,150
		7-7.5'	1'	X		-	-	-	-	-	-	-	3,270
		8-8.5'	1'	X		-	-	-	-	-	-	-	2,810
		9-9.5'	1'	X		-	-	-	-	-	-	-	6,320
SB-1	4/23/2010	5'	1'	X		-	-	-	-	-	-	-	5,290
		7'	1'	X		-	-	-	-	-	-	-	11,600
		10'	1'	X		-	-	-	-	-	-	-	1,060
		15'	1'	X		-	-	-	-	-	-	-	260
		20'	1'	X		-	-	-	-	-	-	-	7,900
		25'	1'	X		-	-	-	-	-	-	-	650
		30'	1'	X		-	-	-	-	-	-	-	480
		40'	1'	X		-	-	-	-	-	-	-	430

Table 1
COG Operating LLC.
Auodad State #8
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-2	3/3/2010	0-1'	1.5'	X		4,170	2,910	**7,080**	4.95	30.4	22.2	46.3	390
		1-1.5'	1.5'	X		<50	<1	<50	<0.0100	<0.0100	<0.0100	<0.0100	901
		2-2.5'	1.5'	X		<50	<1	<50	<0.0100	<0.0100	<0.0100	<0.0100	4,530
		3-3.5'	1.5'	X		-	-	-	-	-	-	-	4,020
		4-4.5'	1.5'	X		-	-	-	-	-	-	-	3,440
		5-5.5'	1.5'	X		-	-	-	-	-	-	-	4,680
		6-6.5'	1.5'	X		-	-	-	-	-	-	-	3,550
		7-7.5'	1.5'	X		-	-	-	-	-	-	-	4,810
		8-8.5'	1.5'	X		-	-	-	-	-	-	-	2,940
		9-9.5'	1.5'	X		-	-	-	-	-	-	-	6,020
SB-2	4/23/2010	5'	1'	X		-	-	-	-	-	-	-	1,300
		7'	1'	X		-	-	-	-	-	-	-	3,630
		10'	1'	X		-	-	-	-	-	-	-	4,920
		15'	1'	X		-	-	-	-	-	-	-	8,960
		20'	1'	X		-	-	-	-	-	-	-	6,520
		25'	1'	X		-	-	-	-	-	-	-	9,550
		30'	1'	X		-	-	-	-	-	-	-	8,210
		40'	1'	X		-	-	-	-	-	-	-	716
AH-3	3/3/2010	0-1'		X		8,860	5,560	**14,420**	6.24	51.7	55.5	97.9	2,890
		1-1.5'		X		4,520	5,320	**9,840**	8.35	52.6	50	85.1	2,740
		2-2.5'		X		<50	<1	<50	<0.0100	0.0389	<0.0100	<0.0100	3,560
		3-3.5'		X		-	-	-	-	-	-	-	3,460
		4-4.5'		X		-	-	-	-	-	-	-	4,950
		5-5.5'		X		-	-	-	-	-	-	-	29,900

BEB Below Excavation Bottom

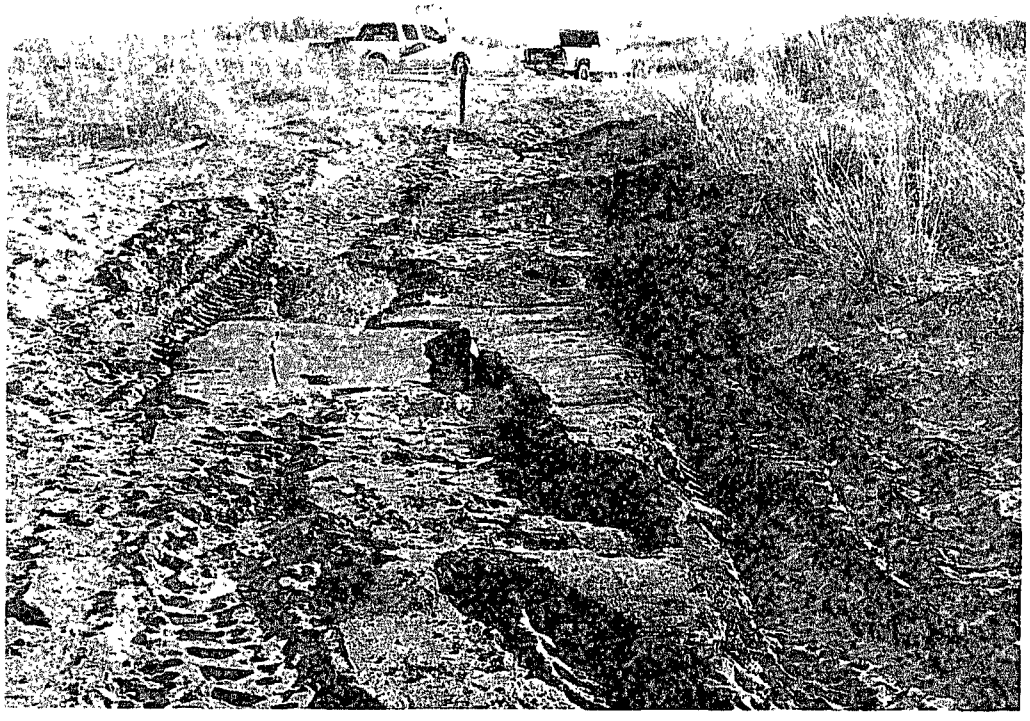
(--) Not Analyzed

Proposed excavation depth

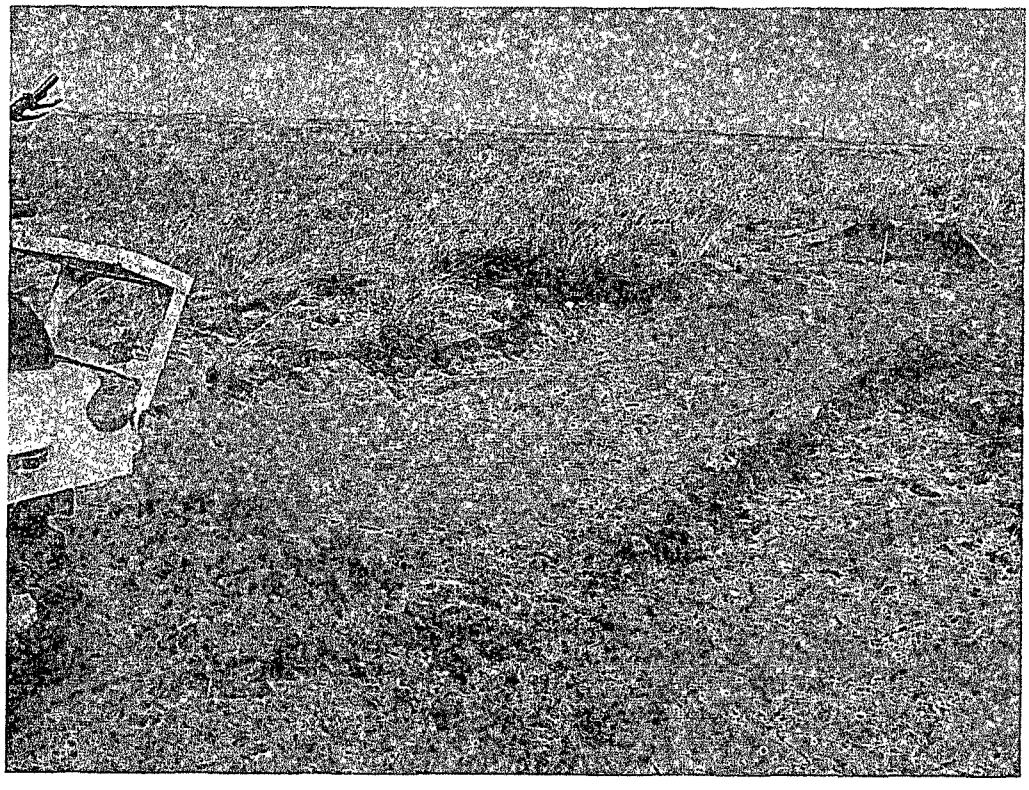
PHOTOGRAPHS

COG Operating LLC
Aoudad State #8
Eddy County, New Mexico

TETRA TECH



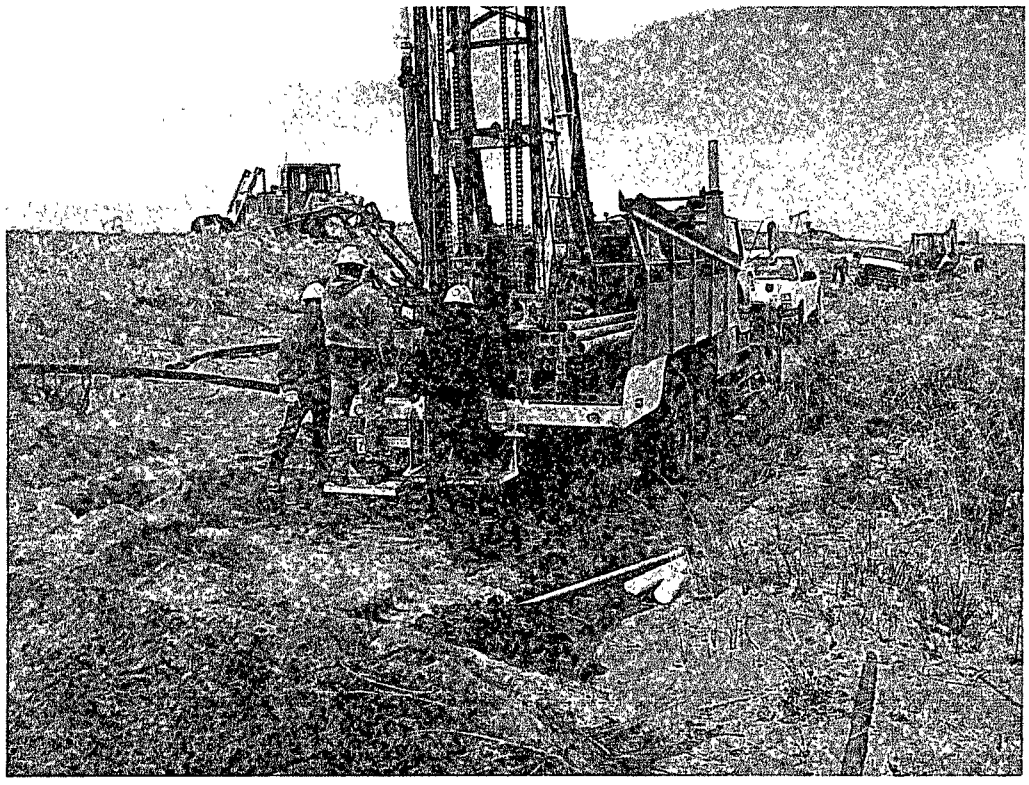
Assessment AH-1, AH-2, and AH-3 (March 3, 2010)



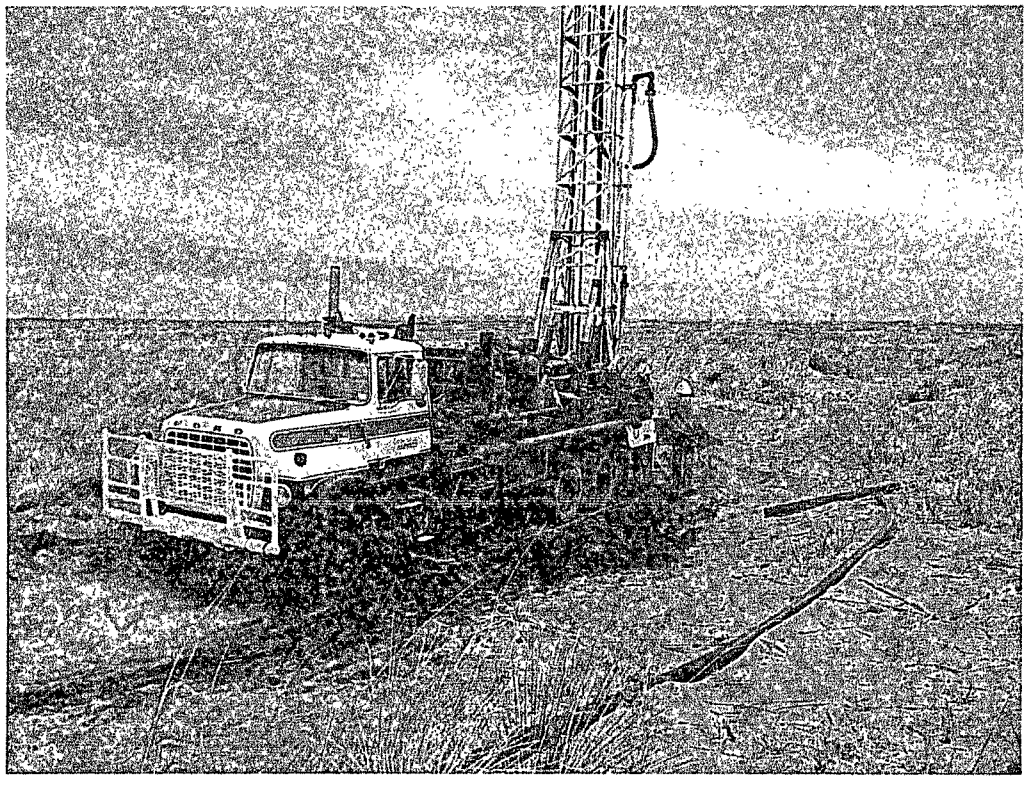
After surface scrape and installing SB-1 and SB-2 (April 23, 2010)

COG Operating LLC
Aoudad State #8
Eddy County, New Mexico

TETRA TECH



Installing soil bore (April 23, 2010)



Installing soil bore (April 23, 2010)

APPENDIX A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final 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 Aoudad State #8	Facility Type Well (Flowline)

Surface Owner State	Mineral Owner	Lease No. (API#) 30-015-32828

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	36	17S	31E	330	N	1040	E	Eddy

Latitude 32.79225 **Longitude** 103.8233

NATURE OF RELEASE

Type of Release Produced Fluid	Volume of Release 55bbls	Volume Recovered 50bbls
Source of Release Flowline	Date and Hour of Occurrence 01/29/2010 1:00 p.m.	Date and Hour of Discovery 01/29/2010 3:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher - OCD	
By Whom? Rick Wright	Date and Hour 01/29/2010	
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.*

A flowline ruptured and leaked, releasing produced fluids into the pasture. The ruptured flowline was immediately repaired.

Describe Area Affected and Cleanup Action Taken.*

55bbls of produced fluid released into the area next to the ruptured flowline. A vacuum truck recovered 50bbls of produced fluid from the initial spill. One-call protocol will be made by dirt contractor who will then remove saturated soils prior to soil sampling by Tetra Tech. (The nearest location to the release is the COYOTE STATE #1 F-36-17S-31E 2310 FNL 1650 FWL 32.792027 : 103.826276). Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM for your approval prior to any significant remediation.

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: 02/02/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - Aoudad State #8
Eddy County, New Mexico

16 South 30 East

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

16 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **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

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 30 East

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

17 South 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 **SITE**

17 South 32 East

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

18 South 30 East

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

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **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

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

- 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

LOCATION NUMBER	BELOW LAND SURFACE (feet)	DATE OF MEASUREMENT	YIELD (g.p.m.)	METHOD OF LIFT	USE OF WATER	REMARKS
17.28.2.240	27.6	Dec. 1, 1948	3	W	S	Depth to water measured while pumping.
14.220	80	–	61	W	S & D	Driller: Cy Hinshaw. See analysis, Table 3.
19.200	224.3	Dec. 2, 1948	1.2	W	S	Depth to water measured while pumping.
22.230	45.5	Dec. 1, 1948	–	N	N	Abandoned stock well.
17.29.22.110	79.7	Nov. 29, 1948	3 E.	W	S	Depth to water measured while pumping.
29.400	210	Dec. 3, 1948	1.1	W	S	do.
17.31.34.000	271+	Dec. 6, 1948	3.5	W	S	do. See analysis, Table 3.
18.21.13.310	505	–	10 R.	W	S & D	Formerly C.C.C. well. Cased to 30 ft.
27.440	530	–	–	W	S	Cased to 120 ft.
32.430	800 (?)	–	12 R.	W	S & D	Lowered cylinder 5 ft. in 1948 because water level declined. Cased to 380 ft.
18.23.6.140	440	Jan. 12, 1950	–	W	S & D	
18.25.23.111	117.8	Jan. 1950	–	W	S	

See explanation at beginning of table.
1 Measured Dec. 3, 1948.

APPENDIX C

Summary Report

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

Report Date: March 17, 2010

Work Order: 10031010

Project Location: Eddy County, NM
Project Name: COG/Aoudad State #8
Project Number: 114-6400434

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
225025	AH-1 0-1' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225026	AH-1 1-1.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225027	AH-1 2-2.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225028	AH-1 3-3.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225029	AH-1 4-4.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225030	AH-1 5-5.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225031	AH-1 6-6.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225032	AH-1 7-7.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225033	AH-1 8-8.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225034	AH-1 9-9.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225035	AH-2 0-1' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225036	AH-2 1-1.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225037	AH-2 2-2.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225038	AH-2 3-3.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225039	AH-2 4-4.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225040	AH-2 5-5.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225041	AH-2 6-6.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225042	AH-2 7-7.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225043	AH-2 8-8.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225044	AH-2 9-9.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225045	AH-3 0-1'	soil	2010-03-03	00:00	2010-03-09
225046	AH-3 1-1.5'	soil	2010-03-03	00:00	2010-03-09
225047	AH-3 2-2.5'	soil	2010-03-03	00:00	2010-03-09
225048	AH-3 3-3.5'	soil	2010-03-03	00:00	2010-03-09
225049	AH-3 4-4.5'	soil	2010-03-03	00:00	2010-03-09
225050	AH-3 5-5.5'	soil	2010-03-03	00:00	2010-03-09

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
225025 - AH-1 0-1' 1' BEB	**17.6**	**78.2**	**60.7**	**102**	**8710**	**5840**
225026 - AH-1 1-1.5' 1' BEB	**6.97**	**49.0**	**40.0**	**84.6**	**2920**	**3810**
225027 - AH-1 2-2.5' 1' BEB	<0.0100	<0.0100	<0.0100	**0.0854**	<50.0	**26.8**
225035 - AH-2 0-1' 1.5' BEB	**4.95**	**30.4**	**22.2**	**46.3**	**4170**	**2910**
225036 - AH-2 1-1.5' 1.5' BEB	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
225037 - AH-2 2-2.5' 1.5' BEB	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
225045 - AH-3 0-1'	**6.24**	**51.7**	**55.5**	**97.9**	**8860**	**5560**
225046 - AH-3 1-1.5'	**8.35**	**52.6**	**50.0**	**85.1**	**4520**	**5320**
225047 - AH-3 2-2.5'	<0.0100	**0.0389**	<0.0100	<0.0100	<50.0	<1.00

Sample: 225025 - AH-1 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**2840**	mg/Kg	4.00

Sample: 225026 - AH-1 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3610**	mg/Kg	4.00

Sample: 225027 - AH-1 2-2.5' 1' BEB

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

Sample: 225028 - AH-1 3-3.5' 1' BEB

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

Sample: 225029 - AH-1 4-4.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**4260**	mg/Kg	4.00

Sample: 225030 - AH-1 5-5.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**4590**	mg/Kg	4.00

Sample: 225031 - AH-1 6-6.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3150**	mg/Kg	4.00

Sample: 225032 - AH-1 7-7.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**3270**	mg/Kg	4.00

Sample: 225033 - AH-1 8-8.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**2810**	mg/Kg	4.00

Sample: 225034 - AH-1 9-9.5' 1' BEB

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

Sample: 225035 - AH-2 0-1' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**390**	mg/Kg	4.00

Sample: 225036 - AH-2 1-1.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**901**	mg/Kg	4.00

Sample: 225037 - AH-2 2-2.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4530**	mg/Kg	4.00

Sample: 225038 - AH-2 3-3.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4020**	mg/Kg	4.00

Sample: 225039 - AH-2 4-4.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**3440**	mg/Kg	4.00

Sample: 225040 - AH-2 5-5.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4680**	mg/Kg	4.00

Sample: 225041 - AH-2 6-6.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**3550**	mg/Kg	4.00

Sample: 225042 - AH-2 7-7.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**4810**	mg/Kg	4.00

Sample: 225043 - AH-2 8-8.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**2940**	mg/Kg	4.00

Sample: 225044 - AH-2 9-9.5' 1.5' BEB

Param	Flag	Result	Units	RL
Chloride		**6020**	mg/Kg	4.00

Sample: 225045 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2890**	mg/Kg	4.00

Sample: 225046 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2740**	mg/Kg	4.00

Sample: 225047 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**3560**	mg/Kg	4.00

Sample: 225048 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**3460**	mg/Kg	4.00

Sample: 225049 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**4950**	mg/Kg	4.00

Sample: 225050 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**29900**	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: March 17, 2010

Work Order: 10031010

Project Location: Eddy County, NM
Project Name: COG/Aoudad State #8
Project Number: 114-6400434

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
225025	AH-1 0-1' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225026	AH-1 1-1.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225027	AH-1 2-2.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225028	AH-1 3-3.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225029	AH-1 4-4.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225030	AH-1 5-5.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225031	AH-1 6-6.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225032	AH-1 7-7.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225033	AH-1 8-8.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09
225034	AH-1 9-9.5' 1' BEB	soil	2010-03-03	00:00	2010-03-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
225035	AH-2 0-1' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225036	AH-2 1-1.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225037	AH-2 2-2.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225038	AH-2 3-3.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225039	AH-2 4-4.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225040	AH-2 5-5.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225041	AH-2 6-6.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225042	AH-2 7-7.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225043	AH-2 8-8.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225044	AH-2 9-9.5' 1.5' BEB	soil	2010-03-03	00:00	2010-03-09
225045	AH-3 0-1'	soil	2010-03-03	00:00	2010-03-09
225046	AH-3 1-1.5'	soil	2010-03-03	00:00	2010-03-09
225047	AH-3 2-2.5'	soil	2010-03-03	00:00	2010-03-09
225048	AH-3 3-3.5'	soil	2010-03-03	00:00	2010-03-09
225049	AH-3 4-4.5'	soil	2010-03-03	00:00	2010-03-09
225050	AH-3 5-5.5'	soil	2010-03-03	00:00	2010-03-09

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/Aoudad State #8 were received by TraceAnalysis, Inc. on 2010-03-09 and assigned to work order 10031010. Samples for work order 10031010 were received intact at a temperature of 7.6 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	58349	2010-03-11 at 15:00	68187	2010-03-11 at 14:27
BTEX	S 8021B	58381	2010-03-12 at 15:00	68230	2010-03-12 at 10:38
Chloride (Titration)	SM 4500-Cl B	58323	2010-03-11 at 09:53	68200	2010-03-12 at 15:30
Chloride (Titration)	SM 4500-Cl B	58324	2010-03-11 at 12:54	68201	2010-03-12 at 15:30
Chloride (Titration)	SM 4500-Cl B	58325	2010-03-11 at 12:55	68202	2010-03-12 at 15:31
Chloride (Titration)	SM 4500-Cl B	58326	2010-03-11 at 12:55	68300	2010-03-16 at 14:58
TPH DRO - NEW	Mod. 8015B	58292	2010-03-10 at 14:49	68138	2010-03-10 at 14:49
TPH DRO - NEW	Mod. 8015B	58430	2010-03-15 at 14:33	68283	2010-03-15 at 14:33
TPH GRO	S 8015B	58349	2010-03-11 at 15:00	68188	2010-03-11 at 14:54
TPH GRO	S 8015B	58381	2010-03-12 at 15:00	68231	2010-03-12 at 11:05

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 10031010 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: 225025 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68187	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzene		**17.6**		mg/Kg	100	0.0100
Toluene		**78.2**		mg/Kg	100	0.0100
Ethylbenzene		**60.7**		mg/Kg	100	0.0100
Xylene		**102**		mg/Kg	100	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		92.2	mg/Kg	100	100	92	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		132	mg/Kg	100	100	132	43.1 - 158.4

Sample: 225025 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68200	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58323	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**2840**		mg/Kg	100	4.00

Sample: 225025 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68138	Date Analyzed:	2010-03-10	Analyzed By:	kg
Prep Batch:	58292	Sample Preparation:	2010-03-10	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**8710**		mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[1]	1390	mg/Kg	10	100	1390	70 - 130

Sample: 225025 - AH-1 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68188	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**5840**	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		123	mg/Kg	100	100	123	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[2]	160	mg/Kg	100	100	160	61.7 - 131.1

Sample: 225026 - AH-1 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**6.97**	mg/Kg	20	0.0100
Toluene		**49.0**	mg/Kg	20	0.0100
Ethylbenzene		**40.0**	mg/Kg	20	0.0100
Xylene		**84.6**	mg/Kg	20	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		20.8	mg/Kg	20	20.0	104	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)	[3]	39.0	mg/Kg	20	20.0	195	43.1 - 158.4

Sample: 225026 - AH-1 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

[1] High surrogate recovery due to peak interference.
[2] High surrogate recovery due to peak interference.
[3] High surrogate recovery due to peak interference.

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**3610**		mg/Kg	100	4.00

Sample: 225026 - AH-1 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**2920**		mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[4]	527	mg/Kg	10	100	527	70 - 130

Sample: 225026 - AH-1 1-1.5' 1' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**3810**		mg/Kg	20	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	[5]	29.8	mg/Kg	20	20.0	149	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[6]	54.8	mg/Kg	20	20.0	274	61.7 - 131.1

Sample: 225027 - AH-1 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

[4] High surrogate recovery due to peak interference.
[5] High surrogate recovery due to peak interference.
[6] High surrogate recovery due to peak interference.

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		**0.0854**	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	[7]	0.919	mg/Kg	1	2.00	46	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		1.14	mg/Kg	1	2.00	57	43.1 - 158.4

Sample: 225027 - AH-1 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**3520**	mg/Kg	100	4.00

Sample: 225027 - AH-1 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	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		96.7	mg/Kg	1	100	97	70 - 130

Sample: 225027 - AH-1 2-2.5' 1' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

[7] Surrogate out due to peak interference.

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**26.8**	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.38	mg/Kg	1	2.00	69	65.3 - 145
4-Bromofluorobenzene (4-BFB)		1.52	mg/Kg	1	2.00	76	61.7 - 131.1

Sample: 225028 - AH-1 3-3.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4780**	mg/Kg	100	4.00

Sample: 225029 - AH-1 4-4.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4260**	mg/Kg	100	4.00

Sample: 225030 - AH-1 5-5.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4590**	mg/Kg	100	4.00

Sample: 225031 - AH-1 6-6.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**3150**		mg/Kg	100	4.00

Sample: 225032 - AH-1 7-7.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**3270**		mg/Kg	100	4.00

Sample: 225033 - AH-1 8-8.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**2810**		mg/Kg	100	4.00

Sample: 225034 - AH-1 9-9.5' 1' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**6320**		mg/Kg	100	4.00

Sample: 225035 - AH-2 0-1' 1.5' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68187	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzene		**4.95**		mg/Kg	20	0.0100
Toluene		**30.4**		mg/Kg	20	0.0100
Ethylbenzene		**22.2**		mg/Kg	20	0.0100
Xylene		**46.3**		mg/Kg	20	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		19.3	mg/Kg	20	20.0	96	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)	[8]	33.3	mg/Kg	20	20.0	166	43.1 - 158.4

Sample: 225035 - AH-2 0-1' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**390**		mg/Kg	50	4.00

Sample: 225035 - AH-2 0-1' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68138	Date Analyzed:	2010-03-10	Analyzed By:	kg
Prep Batch:	58292	Sample Preparation:	2010-03-10	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**4170**		mg/Kg	10	50.0

continued ...

[8]High surrogate recovery due to peak interference.

sample continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[9]	793	mg/Kg	10	100	793	70 - 130

Sample: 225035 - AH-2 0-1' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68188	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**2910**	mg/Kg	20	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		25.5	mg/Kg	20	20.0	128	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[10]	33.6	mg/Kg	20	20.0	168	61.7 - 131.1

Sample: 225036 - AH-2 1-1.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.27	mg/Kg	1	2.00	114	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.54	mg/Kg	1	2.00	127	43.1 - 158.4

[9] High surrogate recovery due to peak interference.
[10] High surrogate recovery due to peak interference.

Sample: 225036 - AH-2 1-1.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**901**	mg/Kg	50	4.00

Sample: 225036 - AH-2 1-1.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	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		101	mg/Kg	1	100	101	70 - 130

Sample: 225036 - AH-2 1-1.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	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)	[11]	3.27	mg/Kg	1	2.00	164	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[12]	3.12	mg/Kg	1	2.00	156	61.7 - 131.1

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

Sample: 225037 - AH-2 2-2.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzene		<0.0100		mg/Kg	1	0.0100
Toluene		<0.0100		mg/Kg	1	0.0100
Ethylbenzene		<0.0100		mg/Kg	1	0.0100
Xylene		<0.0100		mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.92	mg/Kg	1	2.00	96	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.14	mg/Kg	1	2.00	107	43.1 - 158.4

Sample: 225037 - AH-2 2-2.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**4530**		mg/Kg	100	4.00

Sample: 225037 - AH-2 2-2.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	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		98.6	mg/Kg	1	100	99	70 - 130

Sample: 225037 - AH-2 2-2.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	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)		2.77	mg/Kg	1	2.00	138	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[13]	2.64	mg/Kg	1	2.00	132	61.7 - 131.1

Sample: 225038 - AH-2 3-3.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4020**	mg/Kg	100	4.00

Sample: 225039 - AH-2 4-4.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**3440**	mg/Kg	100	4.00

Sample: 225040 - AH-2 5-5.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4680**	mg/Kg	100	4.00

Sample: 225041 - AH-2 6-6.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**3550**	mg/Kg	100	4.00

Sample: 225042 - AH-2 7-7.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4810**	mg/Kg	100	4.00

Sample: 225043 - AH-2 8-8.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**2940**	mg/Kg	100	4.00

Sample: 225044 - AH-2 9-9.5' 1.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**6020**	mg/Kg	100	4.00

Sample: 225045 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68187	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**6.24**	mg/Kg	50	0.0100
Toluene		**51.7**	mg/Kg	50	0.0100
Ethylbenzene		**55.5**	mg/Kg	50	0.0100
Xylene		**97.9**	mg/Kg	50	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		46.9	mg/Kg	50	50.0	94	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)	[14]	83.2	mg/Kg	50	50.0	166	43.1 - 158.4

Sample: 225045 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**2890**	mg/Kg	100	4.00

Sample: 225045 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68138	Date Analyzed:	2010-03-10	Analyzed By:	kg
Prep Batch:	58292	Sample Preparation:	2010-03-10	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**8860**	mg/Kg	10	50.0

[14] High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[15]	1420	mg/Kg	10	100	1420	70 - 130

Sample: 225045 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68188	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	Sample Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**5560**	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		62.6	mg/Kg	50	50.0	125	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[16]	101	mg/Kg	50	50.0	202	61.7 - 131.1

Sample: 225046 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**8.35**	mg/Kg	50	0.0100
Toluene		**52.6**	mg/Kg	50	0.0100
Ethylbenzene		**50.0**	mg/Kg	50	0.0100
Xylene		**85.1**	mg/Kg	50	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		47.5	mg/Kg	50	50.0	95	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		73.2	mg/Kg	50	50.0	146	43.1 - 158.4

Sample: 225046 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	Sample Preparation:	2010-03-11	Prepared By:	AR

[15] High surrogate recovery due to peak interference.
[16] High surrogate recovery due to peak interference.

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**2740**	mg/Kg	100	4.00

Sample: 225046 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**4520**	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[17]	765	mg/Kg	10	100	765	70 - 130

Sample: 225046 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**5320**	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		68.1	mg/Kg	50	50.0	136	65.3 - 145
4-Bromofluorobenzene (4-BFB)	[18]	96.7	mg/Kg	50	50.0	193	61.7 - 131.1

Sample: 225047 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	Prepared By:	AG

[17] High surrogate recovery due to peak interference.
[18] High surrogate recovery due to peak interference.

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzene		<0.0100		mg/Kg	1	0.0100
Toluene		**0.0389**		mg/Kg	1	0.0100
Ethylbenzene		<0.0100		mg/Kg	1	0.0100
Xylene		<0.0100		mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.79	mg/Kg	1	2.00	90	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.00	mg/Kg	1	2.00	100	43.1 - 158.4

Sample: 225047 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**3560**		mg/Kg	100	4.00

Sample: 225047 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	Sample Preparation:	2010-03-15	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		95.5	mg/Kg	1	100	96	70 - 130

Sample: 225047 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	Sample Preparation:	2010-03-12	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)		2.61	mg/Kg	1	2.00	130	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.46	mg/Kg	1	2.00	123	61.7 - 131.1

Sample: 225048 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**3460**		mg/Kg	100	4.00

Sample: 225049 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**4950**		mg/Kg	100	4.00

Sample: 225050 - AH-3 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	Sample Preparation:	2010-03-11	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**29900**		mg/Kg	100	4.00

Method Blank (1) QC Batch: 68138

QC Batch:	68138	Date Analyzed:	2010-03-10	Analyzed By:	kg
Prep Batch:	58292	QC Preparation:	2010-03-10	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		87.9	mg/Kg	1	100	88	70 - 130

Method Blank (1) QC Batch: 68187

QC Batch:	68187	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	QC Preparation:	2010-03-11	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.68	mg/Kg	1	2.00	84	43.9 - 141.9

Method Blank (1) QC Batch: 68188

QC Batch:	68188	Date Analyzed:	2010-03-11	Analyzed By:	AG
Prep Batch:	58349	QC Preparation:	2010-03-11	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)		2.54	mg/Kg	1	2.00	127	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.98	mg/Kg	1	2.00	99	62 - 120.5

Method Blank (1) QC Batch: 68200

QC Batch:	68200	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58323	QC Preparation:	2010-03-11	Prepared By:	AR

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

Method Blank (1) QC Batch: 68201

QC Batch:	68201	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58324	QC Preparation:	2010-03-11	Prepared By:	AR

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

Method Blank (1) QC Batch: 68202

QC Batch:	68202	Date Analyzed:	2010-03-12	Analyzed By:	AR
Prep Batch:	58325	QC Preparation:	2010-03-11	Prepared By:	AR

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

Method Blank (1) QC Batch: 68230

QC Batch:	68230	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	QC Preparation:	2010-03-12	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.87	mg/Kg	1	2.00	94	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		2.03	mg/Kg	1	2.00	102	43.9 - 141.9

Method Blank (1) QC Batch: 68231

QC Batch:	68231	Date Analyzed:	2010-03-12	Analyzed By:	AG
Prep Batch:	58381	QC Preparation:	2010-03-12	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)		2.54	mg/Kg	1	2.00	127	66.2 - 145
4-Bromofluorobenzene (4-BFB)		2.38	mg/Kg	1	2.00	119	62 - 120.5

Method Blank (1) QC Batch: 68283

QC Batch:	68283	Date Analyzed:	2010-03-15	Analyzed By:	kg
Prep Batch:	58430	QC Preparation:	2010-03-15	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		85.4	mg/Kg	1	100	85	70 - 130

Method Blank (1) QC Batch: 68300

QC Batch:	68300	Date Analyzed:	2010-03-16	Analyzed By:	AR
Prep Batch:	58326	QC Preparation:	2010-03-11	Prepared By:	AR

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

Laboratory Control Spike (LCS-1)

QC Batch:	68138	Date Analyzed:	2010-03-10	Analyzed By:	kg
Prep Batch:	58292	QC Preparation:	2010-03-10	Prepared By:	kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	225	mg/Kg	1	250	<5.86	90	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	226	mg/Kg	1	250	<5.86	90	57.4 - 133.4	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	109	104	mg/Kg	1	100	109	104	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 68187 | Date Analyzed: 2010-03-11 | Analyzed By: AG
Prep Batch: 58349 | QC Preparation: 2010-03-11 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.79	mg/Kg	1	2.00	<0.00410	90	75.4 - 115.7
Toluene	1.78	mg/Kg	1	2.00	<0.00310	89	78.4 - 113.6
Ethylbenzene	1.75	mg/Kg	1	2.00	<0.00240	88	76 - 114.2
Xylene	5.26	mg/Kg	1	6.00	<0.00650	88	76.9 - 113.6

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	1.82	mg/Kg	1	2.00	<0.00410	91	75.4 - 115.7	2	20
Toluene	1.81	mg/Kg	1	2.00	<0.00310	90	78.4 - 113.6	2	20
Ethylbenzene	1.82	mg/Kg	1	2.00	<0.00240	91	76 - 114.2	4	20
Xylene	5.45	mg/Kg	1	6.00	<0.00650	91	76.9 - 113.6	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)	1.68	1.76	mg/Kg	1	2.00	84	88	65 - 142.9
4-Bromofluorobenzene (4-BFB)	1.89	2.01	mg/Kg	1	2.00	94	100	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 68188 | Date Analyzed: 2010-03-11 | Analyzed By: AG
Prep Batch: 58349 | QC Preparation: 2010-03-11 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.3	mg/Kg	1	20.0	<0.396	82	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	16.6	mg/Kg	1	20.0	<0.396	83	52.5 - 114.3	2	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)	2.39	2.18	mg/Kg	1	2.00	120	109	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.23	2.05	mg/Kg	1	2.00	112	102	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 68200 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58323 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.0	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	99.9	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: 68201 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58324 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.0	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: 68202 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58325 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.2	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.

Laboratory Control Spike (LCS-1)

QC Batch: 68230 | Date Analyzed: 2010-03-12 | Analyzed By: AG
Prep Batch: 58381 | QC Preparation: 2010-03-12 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.78	mg/Kg	1	2.00	<0.00410	89	75.4 - 115.7
Toluene	1.78	mg/Kg	1	2.00	<0.00310	89	78.4 - 113.6
Ethylbenzene	1.74	mg/Kg	1	2.00	<0.00240	87	76 - 114.2
Xylene	5.19	mg/Kg	1	6.00	<0.00650	86	76.9 - 113.6

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	1.82	mg/Kg	1	2.00	<0.00410	91	75.4 - 115.7	2	20
Toluene	1.81	mg/Kg	1	2.00	<0.00310	90	78.4 - 113.6	2	20
Ethylbenzene	1.76	mg/Kg	1	2.00	<0.00240	88	76 - 114.2	1	20
Xylene	5.31	mg/Kg	1	6.00	<0.00650	88	76.9 - 113.6	2	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)	1.72	1.47	mg/Kg	1	2.00	86	74	65 - 142.9
4-Bromofluorobenzene (4-BFB)	2.04	1.75	mg/Kg	1	2.00	102	88	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 68231 | Date Analyzed: 2010-03-12 | Analyzed By: AG
Prep Batch: 58381 | QC Preparation: 2010-03-12 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.9	mg/Kg	1	20.0	<0.396	80	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	15.7	mg/Kg	1	20.0	<0.396	78	52.5 - 114.3	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.36	2.36	mg/Kg	1	2.00	118	118	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.34	2.33	mg/Kg	1	2.00	117	116	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 68283 | Date Analyzed: 2010-03-15 | Analyzed By: kg
Prep Batch: 58430 | QC Preparation: 2010-03-15 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	187	mg/Kg	1	250	<5.86	75	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	215	mg/Kg	1	250	<5.86	86	57.4 - 133.4	14	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	89.4	103	mg/Kg	1	100	89	103	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 68300 | Date Analyzed: 2010-03-16 | Analyzed By: AR
Prep Batch: 58326 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.4	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	99.9	mg/Kg	1	100	<2.18	100	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: 224995

QC Batch: 68138 | Date Analyzed: 2010-03-10 | Analyzed By: kg
Prep Batch: 58292 | QC Preparation: 2010-03-10 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	198	mg/Kg	1	250	<5.86	79	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	198	mg/Kg	1	250	<5.86	79	35.2 - 167.1	0	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	94.2	93.3	mg/Kg	1	100	94	93	70 - 130

Matrix Spike (MS-1) Spiked Sample: 224995

QC Batch: 68187 | Date Analyzed: 2010-03-11 | Analyzed By: AG
Prep Batch: 58349 | QC Preparation: 2010-03-11 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene [19]	1.65	mg/Kg	1	2.00	<0.00410	82	57.7 - 140.7
Toluene	1.67	mg/Kg	1	2.00	<0.00310	84	53.4 - 146.6
Ethylbenzene	1.67	mg/Kg	1	2.00	<0.00240	84	62.1 - 141.6
Xylene	5.02	mg/Kg	1	6.00	<0.00650	84	61.2 - 142.7

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	<0.00410	mg/Kg	1	2.00	<0.00410		57.7 - 140.7		20
Toluene	<0.00310	mg/Kg	1	2.00	<0.00310		53.4 - 146.6		20
Ethylbenzene	<0.00240	mg/Kg	1	2.00	<0.00240		62.1 - 141.6		20
Xylene	<0.00650	mg/Kg	1	6.00	<0.00650		61.2 - 142.7		20

[19]SPECIAL - MSD was run but not reported due to prep error (spiked with wrong spiking solution). •

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)	1.60	0.00	mg/Kg	1	2	80		61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.79	0.00	mg/Kg	1	2	90		49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 224992

QC Batch: 68188 | Date Analyzed: 2010-03-11 | Analyzed By: AG
Prep Batch: 58349 | QC Preparation: 2010-03-11 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	18.4	mg/Kg	1	20.0	<0.396	92	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	18.5	mg/Kg	1	20.0	<0.396	92	10 - 198.3	0	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)	2.17	1.58	mg/Kg	1	2	108	79	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.20	1.66	mg/Kg	1	2	110	83	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 225025

QC Batch: 68200 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58323 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11400	mg/Kg	100	10000	2840	86	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	2840	88	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: 225035

QC Batch: 68201 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58324 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	mg/Kg	100	10000	390	100	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	10600	mg/Kg	100	10000	390	102	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: 225045

QC Batch: 68202 | Date Analyzed: 2010-03-12 | Analyzed By: AR
Prep Batch: 58325 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12800	mg/Kg	100	10000	2890	99	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	12900	mg/Kg	100	10000	2890	100	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: 225222

QC Batch: 68230 | Date Analyzed: 2010-03-12 | Analyzed By: AG
Prep Batch: 58381 | QC Preparation: 2010-03-12 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.89	mg/Kg	1	2.00	<0.00410	94	57.7 - 140.7
Toluene	1.92	mg/Kg	1	2.00	0.0664	93	53.4 - 146.6
Ethylbenzene	1.96	mg/Kg	1	2.00	<0.00240	98	62.1 - 141.6
Xylene	5.91	mg/Kg	1	6.00	0.1979	95	61.2 - 142.7

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	1.95	mg/Kg	1	2.00	<0.00410	98	57.7 - 140.7	3	20
Toluene	2.00	mg/Kg	1	2.00	0.0664	97	53.4 - 146.6	4	20
Ethylbenzene	2.01	mg/Kg	1	2.00	<0.00240	100	62.1 - 141.6	2	20
Xylene	6.06	mg/Kg	1	6.00	0.1979	98	61.2 - 142.7	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)	1.90	1.93	mg/Kg	1	2	95	96	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	2.19	2.20	mg/Kg	1	2	110	110	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 225126

QC Batch: 68231 | Date Analyzed: 2010-03-12 | Analyzed By: AG
Prep Batch: 58381 | QC Preparation: 2010-03-12 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	17.0	mg/Kg	1	20.0	<0.396	85	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	19.6	mg/Kg	1	20.0	<0.396	98	10 - 198.3	14	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)		2.79	2.82	mg/Kg	1	2	140	141	65.5 - 143
4-Bromofluorobenzene (4-BFB)	[20] [21]	2.97	2.86	mg/Kg	1	2	148	143	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 225036

QC Batch: 68283 | Date Analyzed: 2010-03-15 | Analyzed By: kg
Prep Batch: 58430 | QC Preparation: 2010-03-15 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	180	mg/Kg	1	250	<5.86	72	35.2 - 167.1

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

[20] High surrogate recovery due to peak interference.
[21] High surrogate recovery due to peak interference.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	188	mg/Kg	1	250	<5.86	75	35.2 - 167.1	4	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	93.6	95.4	mg/Kg	1	100	94	95	70 - 130

Matrix Spike (MS-1) Spiked Sample: 225059

QC Batch: 68300 | Date Analyzed: 2010-03-16 | Analyzed By: AR
Prep Batch: 58326 | QC Preparation: 2010-03-11 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10000	mg/Kg	100	10000	232	98	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	10200	mg/Kg	100	10000	232	100	85 - 115	2	20

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

Standard (CCV-3)

QC Batch: 68138 | Date Analyzed: 2010-03-10 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	224	90	80 - 120	2010-03-10

Standard (CCV-4)

QC Batch: 68138 | Date Analyzed: 2010-03-10 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	222	89	80 - 120	2010-03-10

Standard (CCV-2)

QC Batch: 68187 | Date Analyzed: 2010-03-11 | 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	0.0905	90	80 - 120	2010-03-11
Toluene		mg/Kg	0.100	0.0895	90	80 - 120	2010-03-11
Ethylbenzene		mg/Kg	0.100	0.0877	88	80 - 120	2010-03-11
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2010-03-11

Standard (CCV-3)

QC Batch: 68187 Date Analyzed: 2010-03-11 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	0.0917	92	80 - 120	2010-03-11
Toluene		mg/Kg	0.100	0.0911	91	80 - 120	2010-03-11
Ethylbenzene		mg/Kg	0.100	0.0886	89	80 - 120	2010-03-11
Xylene		mg/Kg	0.300	0.266	89	80 - 120	2010-03-11

Standard (CCV-2)

QC Batch: 68188 Date Analyzed: 2010-03-11 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	1.03	103	80 - 120	2010-03-11

Standard (CCV-3)

QC Batch: 68188 Date Analyzed: 2010-03-11 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	1.03	103	80 - 120	2010-03-11

Standard (ICV-1)

QC Batch: 68200 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.5	98	85 - 115	2010-03-12

Standard (CCV-1)

QC Batch: 68200 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-03-12

Standard (ICV-1)

QC Batch: 68201 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-12

Standard (CCV-1)

QC Batch: 68201 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2010-03-12

Standard (ICV-1)

QC Batch: 68202 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-03-12

Standard (CCV-1)

QC Batch: 68202 Date Analyzed: 2010-03-12 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.7	100	85 - 115	2010-03-12

Standard (CCV-1)

QC Batch: 68230 Date Analyzed: 2010-03-12 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	0.0864	86	80 - 120	2010-03-12
Toluene		mg/Kg	0.100	0.0913	91	80 - 120	2010-03-12
Ethylbenzene		mg/Kg	0.100	0.0840	84	80 - 120	2010-03-12
Xylene		mg/Kg	0.300	0.255	85	80 - 120	2010-03-12

Standard (CCV-2)

QC Batch: 68230 Date Analyzed: 2010-03-12 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	0.0917	92	80 - 120	2010-03-12
Toluene		mg/Kg	0.100	0.0912	91	80 - 120	2010-03-12
Ethylbenzene		mg/Kg	0.100	0.0908	91	80 - 120	2010-03-12
Xylene		mg/Kg	0.300	0.272	91	80 - 120	2010-03-12

Standard (CCV-3)

QC Batch: 68230 Date Analyzed: 2010-03-12 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	0.0947	95	80 - 120	2010-03-12
Toluene		mg/Kg	0.100	0.0938	94	80 - 120	2010-03-12
Ethylbenzene		mg/Kg	0.100	0.0926	93	80 - 120	2010-03-12
Xylene		mg/Kg	0.300	0.276	92	80 - 120	2010-03-12

Standard (CCV-1)

QC Batch: 68231 Date Analyzed: 2010-03-12 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	1.15	115	80 - 120	2010-03-12

Standard (CCV-2)

QC Batch: 68231 Date Analyzed: 2010-03-12 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	1.00	100	80 - 120	2010-03-12

Standard (CCV-3)

QC Batch: 68231 Date Analyzed: 2010-03-12 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	1.14	114	80 - 120	2010-03-12

Standard (CCV-1)

QC Batch: 68283 Date Analyzed: 2010-03-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	206	82	80 - 120	2010-03-15

Standard (CCV-2)

QC Batch: 68283 Date Analyzed: 2010-03-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	204	82	80 - 120	2010-03-15

Standard (CCV-3)

QC Batch: 68283 Date Analyzed: 2010-03-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	296	118	80 - 120	2010-03-15

Standard (CCV-4)

QC Batch: 68283 Date Analyzed: 2010-03-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	204	82	80 - 120	2010-03-15

Standard (ICV-1)

QC Batch: 68300 Date Analyzed: 2010-03-16 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	2010-03-16

Standard (CCV-1)

QC Batch: 68300 Date Analyzed: 2010-03-16 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.1	99	85 - 115	2010-03-16

Order #: 100310 10

Analysis Request of Chain of Custody Record

PAGE: 1 of: 3

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.: 114-6400434

PROJECT NAME: COG / Haudad State #8 Eddy 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 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
225025	3/3		S		X	AH-1	0-1'	1' BEB	1				X		X	X										X				
026						AH-1	1'-1.5'	1' BEB																						
027						AH-1	2'-2.5'	1' BEB																						
028						AH-1	3'-3.5'	1' BEB																						
029						AH-1	4'-4.5'	1' BEB																						
030						AH-1	5'-5.5'	1' BEB																						
031						AH-1	6'-6.5'	1' BEB																						
032						AH-1	7'-7.5'	1' BEB																						
033						AH-1	8'-8.5'	1' BEB																						
034						AH-1	9'-9.5'	1' BEB																						

RELINQUISHED BY: (Signature) — Date: 3/4/10 Time: 1610 — RECEIVED BY: (Signature) — Date: 3/4/10 Time: 16:10

SAMPLED BY: (Print & Initial) Robert Gonzales Jr. Date: 3-3-10 Time: 2100

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: Maxie PHONE: — DATE: — TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by: — RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.6 c intact

REMARKS: If total TPH exceeds 5,000 mg/kg run deeper samples / If Benzene exceeds 10 mg/kg run deeper samples / If Total BTEX exceeds 50 mg/kg run deeper samples

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

Order #: 10031010

Analysis Request of Chain of Custody Record

PAGE: 2 of 3

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-04000434

PROJECT NAME: Aquadel State #8 Eddy Co, NM

ANALYSIS REQUEST (Circle or Specify Method No.)

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 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. 8240/8260/824	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
205035	3-3		X		X	AH-2	0-1	1.5' BEB	1				X		X	X										X					
036						AH-2	1-1.5	1.5' BEB																							
037						AH-2	2-2.5	1.5' BEB																							
038						AH-2	3-3.5	1.5' BEB																							
039						AH-2	4-4.5	1.5' BEB																							
040						AH-2	5-5.5	1.5' BEB																							
041						AH-2	6-6.5	1.5' BEB																							
042						AH-2	7-7.5	1.5' BEB																							
043						AH-2	8-8.5	1.5' BEB																							
044	✓		✓		✓	AH-2	9-9.5	1.5' BEB	✓				✓																		

RELINQUISHED BY: (Signature) Date: 3/9/10 Time: 1610 — RECEIVED BY: (Signature) Date: 3/9/10 Time: 1610 — SAMPLED BY: (Print & Initial) Ebrent Gabbs Jr Date: 3-3-10 Time: 2:40

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: Xenco PHONE: — RECEIVED BY: (Signature) DATE: TIME: — RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.1°C intact

REMARKS: If total TPH exceeds 5,000 mg/kg run deeper samples / If Benzene exceeds 10 mg/kg run deeper samples / If total BTEX exceeds 50 mg/kg run deeper samples

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

Order #: 10031010

Analysis Request of Chain of Custody Record

PAGE: 3 of: 3

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:	SITE MANAGER:
COG	Ike Tavarez

PROJECT NO.:	PROJECT NAME:
114-64000434	COG / Aoudad State #8 Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd 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
225045	3-3-2010		S		X	AH-3 0-1'	1				X		X	X											X				
046						AH-3 1'-1.5'																							
047						AH-3 2'-2.5'																							
048						AH-3 3'-3.5'																							
049						AH-3 4'-4.5'																							
050	↓		↓		↓	AH-3 5'-5.5'	↓				↓														↓				

RELINQUISHED BY: (Signature)	Date: 3/9/10 Time: 1610	RECEIVED BY: (Signature)	Date: 3/9/10 Time: 1610
SAMPLED BY: (Print & Initial) Robert Crabbs Jr	Date: 3-8-10 Time: 2120		
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: Pamela PHONE:	RECEIVED BY: (Signature) DATE: TIME:		RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.6°c intact

REMARKS: If total TPH exceeds 5,000 mg/kg run deeper samples / If Benzene exceeds 10 mg/kg run deeper samples / If total BTEX exceeds 50 mg/kg run deeper samples

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: May 4, 2010

Work Order: 10042612

Project Location: Eddy County, NM
Project Name: COG/Aoudad State #8
Project Number: 114-6400434

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
229537	SB-1 5' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229538	SB-1 7' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229539	SB-1 10' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229540	SB-1 15' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229541	SB-1 20' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229542	SB-1 25' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229543	SB-1 30' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229544	SB-1 40' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229545	SB-2 5' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229546	SB-2 7' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229547	SB-2 10' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229548	SB-2 15' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229549	SB-2 20' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229550	SB-2 25' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229551	SB-2 30' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229552	SB-2 40' (1' BEB)	soil	2010-04-23	00:00	2010-04-23

Sample: 229537 - SB-1 5' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**5290**	mg/Kg	4.00

Sample: 229538 - SB-1 7' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**11600**	mg/Kg	4.00

Sample: 229539 - SB-1 10' (1' BEB)

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

Sample: 229540 - SB-1 15' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**260**	mg/Kg	4.00

Sample: 229541 - SB-1 20' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**7900**	mg/Kg	4.00

Sample: 229542 - SB-1 25' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**650**	mg/Kg	4.00

Sample: 229543 - SB-1 30' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**480**	mg/Kg	4.00

Sample: 229544 - SB-1 40' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**430**	mg/Kg	4.00

Sample: 229545 - SB-2 5' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**1300**	mg/Kg	4.00

Sample: 229546 - SB-2 7' (1' BEB)

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

Sample: 229547 - SB-2 10' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**4920**	mg/Kg	4.00

Sample: 229548 - SB-2 15' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**8960**	mg/Kg	4.00

Sample: 229549 - SB-2 20' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**6520**	mg/Kg	4.00

Sample: 229550 - SB-2 25' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**9550**	mg/Kg	4.00

Sample: 229551 - SB-2 30' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**8210**	mg/Kg	4.00

Sample: 229552 - SB-2 40' (1' BEB)

Param	Flag	Result	Units	RL
Chloride		**716**	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: May 4, 2010

Work Order: 10042612

Project Location: Eddy County, NM
Project Name: COG/Aoudad State #8
Project Number: 114-6400434

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
229537	SB-1 5' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229538	SB-1 7' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229539	SB-1 10' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229540	SB-1 15' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229541	SB-1 20' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229542	SB-1 25' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229543	SB-1 30' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229544	SB-1 40' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229545	SB-2 5' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229546	SB-2 7' (1' BEB)	soil	2010-04-23	00:00	2010-04-23

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
229547	SB-2 10' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229548	SB-2 15' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229549	SB-2 20' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229550	SB-2 25' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229551	SB-2 30' (1' BEB)	soil	2010-04-23	00:00	2010-04-23
229552	SB-2 40' (1' BEB)	soil	2010-04-23	00:00	2010-04-23

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

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

Standard Flags

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

Case Narrative

Samples for project COG/Aoudad State #8 were received by TraceAnalysis, Inc. on 2010-04-23 and assigned to work order 10042612. Samples for work order 10042612 were received intact at a temperature of 24.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	59456	2010-04-28 at 08:51	69515	2010-04-29 at 12:17
Chloride (Titration)	SM 4500-Cl B	59457	2010-04-28 at 08:51	69630	2010-05-03 at 15:07

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 10042612 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: 229537 - SB-1 5' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**5290**	mg/Kg	100	4.00

Sample: 229538 - SB-1 7' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

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

Sample: 229539 - SB-1 10' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1060**	mg/Kg	50	4.00

Sample: 229540 - SB-1 15' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**260**		mg/Kg	50	4.00

Sample: 229541 - SB-1 20' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**7900**		mg/Kg	100	4.00

Sample: 229542 - SB-1 25' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**650**		mg/Kg	50	4.00

Sample: 229543 - SB-1 30' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**480**		mg/Kg	50	4.00

Sample: 229544 - SB-1 40' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**430**	mg/Kg	50	4.00

Sample: 229545 - SB-2 5' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1300**	mg/Kg	50	4.00

Sample: 229546 - SB-2 7' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69515	Date Analyzed:	2010-04-29	Analyzed By:	AR
Prep Batch:	59456	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**3630**	mg/Kg	100	4.00

Sample: 229547 - SB-2 10' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4920**	mg/Kg	100	4.00

Sample: 229548 - SB-2 15' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**8960**		mg/Kg	100	4.00

Sample: 229549 - SB-2 20' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**6520**		mg/Kg	100	4.00

Sample: 229550 - SB-2 25' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**9550**		mg/Kg	100	4.00

Sample: 229551 - SB-2 30' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**8210**		mg/Kg	100	4.00

Sample: 229552 - SB-2 40' (1' BEB)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	Sample Preparation:	2010-04-28	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**716**	mg/Kg	50	4.00

Method Blank (1) QC Batch: 69515

QC Batch: 69515 Date Analyzed: 2010-04-29 Analyzed By: AR
Prep Batch: 59456 QC Preparation: 2010-04-28 Prepared By: AR

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

Method Blank (1) QC Batch: 69630

QC Batch: 69630 Date Analyzed: 2010-05-03 Analyzed By: AR
Prep Batch: 59457 QC Preparation: 2010-04-28 Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 69515 Date Analyzed: 2010-04-29 Analyzed By: AR
Prep Batch: 59456 QC Preparation: 2010-04-28 Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.7	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	99.5	mg/Kg	1	100	<2.18	100	85 - 115	2	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: 69630 | Date Analyzed: 2010-05-03 | Analyzed By: AR
Prep Batch: 59457 | QC Preparation: 2010-04-28 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	101	mg/Kg	1	100	<2.18	101	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	0	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: 229546

QC Batch: 69515 | Date Analyzed: 2010-04-29 | Analyzed By: AR
Prep Batch: 59456 | QC Preparation: 2010-04-28 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13700	mg/Kg	100	10000	3630	101	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	13900	mg/Kg	100	10000	3630	103	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: 229579

QC Batch: 69630 | Date Analyzed: 2010-05-03 | Analyzed By: AR
Prep Batch: 59457 | QC Preparation: 2010-04-28 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10200	mg/Kg	100	10000	<218	102	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	10300	mg/Kg	100	10000	<218	103	85 - 115	1	20

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

Standard (ICV-1)

QC Batch: 69515 | Date Analyzed: 2010-04-29 | Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.0	98	85 - 115	2010-04-29

Standard (CCV-1)

QC Batch: 69515 | Date Analyzed: 2010-04-29 | Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-04-29

Standard (ICV-1)

QC Batch: 69630 | Date Analyzed: 2010-05-03 | Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.6	99	85 - 115	2010-05-03

Standard (CCV-1)

QC Batch: 69630 | Date Analyzed: 2010-05-03 | 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	2010-05-03

Order #: 100426l2

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.: 114-640 0434

PROJECT NAME: COG / Aoudad State #8
Eddy 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 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
229837	4/23		S		X	SB-1 5' (1' BEB)	1																	X				
538	4/23		S		X	SB-1 7' (1' BEB)	1																	X				
539	4/23		S		X	SB-1 10' (1' BEB)	1																	X				
540	4/23		S		X	SB-1 15' (1' BEB)	1																	X				
541	4/23		S		X	SB-1 20' (1' BEB)	1																	X				
542	4/23		S		X	SB-1 25' (1' BEB)	1																	X				
543	4/23		S		X	SB-1 30' (1' BEB)	1																	X				
544	4/23		S		X	SB-1 40' (1' BEB)	1																	X				
545	4/23		S		X	SB-2 5' (1' BEB)	1																	X				
546	4/23		S		X	SB-2 7' (1' BEB)	1																	X				

RELINQUISHED BY: (Signature) Date: 4/23/10 Time: 1700
RECEIVED BY: (Signature) Date: 4/23/10 Time: 17:00
SAMPLED BY: (Print & Initial) Kim Date: 4/23/10 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:
RUSH Charges Authorized: Yes No

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 24.0°C intact
REMARKS: ALL tests Midland

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

Order #: 100426l2

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: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400434

PROJECT NAME: COG / Aoudad State #8

Eddy 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 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
229547	4/23					SB-2 10' (1' BEB)	1																		X				
548	4/23					SB-2 15' (1' BEB)	1																		X				
549	4/23					SB-2 20' (1' BEB)	1																		X				
550	4/23					SB-2 25' (1' BEB)	1																		X				
551	4/23					SB-2 30' (1' BEB)	1																		X				
552	4/23					SB-2 40' (1' BEB)	1																		X				
(4008)																													

RELINQUISHED BY: (Signature) Date: 4/23/10 Time: 1700
RECEIVED BY: (Signature) Date: 4/23/10 Time: 1700
SAMPLED BY: (Print & Initial) Kim Date: 4/23/10 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
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 24.0°c intact

REMARKS: All tests Midland

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