SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	Fir Federal Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit L	Sec. 25	T-17-S	R-27-E		
Lease Number:	API-30-015-32069					
County:	Eddy					
GPS:	32.80252° N			104.23788° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	Intersection of Hwy 82 and CR-204, travel south on CR-204 0.5 mi, turn right 500' to location.					

Release Data:	
Date Released:	1/30/2012
Type Release:	Produced Water
Source of Contamination:	Water haulers failed to make pick up
Fluid Released:	20 bbls
Fluids Recovered:	None

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Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	***0***
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	***0***
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	***0***
Total Ranking Score:	**0**	

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

TETRA TECH

October 16, 2012

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Closure Report for the COG Operating LLC., Fir Federal Tank Battery, Unit L, Section 25, Township 17 South, Range 27 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill at the Fir Federal Tank Battery, Unit L, Section 25, Township 17 South, Range 27 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.80252°, W 104.23788 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on January 30, 2012. The spill released approximately twenty (20) barrels of produced water due to a water tank overflow. COG was unable to recover any of the spilled fluids. The spill initiated from the tank impacting an area 50' x 60' inside the tank battery, which breached the facility berm impacting three areas measuring approximately 5' x 5', 15' x 20', and 10' x 20'. The spill footprint is shown on Figure 3. The initial Form C-141 is enclosed in Appendix A.

Groundwater

According to the USGS, no water wells are listed in Section 25. One water well is reported by the New Mexico State Engineers Office in Section 23, with a depth to groundwater of 40.0' below surface. According to the NMOCD groundwater map the depth to groundwater is approximately 150.0'

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

below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the 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

On March 8, 2012, Tetra Tech personnel inspected and sampled the spill area. Seven (7) auger holes (AH-1 through AH-7) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the samples were below the RRAL for TPH and BTEX. In the areas of auger holes (AH-5, AH-6 and AH-7) did not show a chloride impact to the areas. Elevated chloride concentrations were detected at auger holes (AH-1, AH-2, AH-3 and AH-4) located inside the tank battery. Chloride concentrations at 0-1' ranged from 6,200 mg/kg to 9,650 mg/kg and not vertically defined. Deeper sample could not be collected due a dense formation.

On April 18, 2012, Tetra Tech personnel supervised the installation of four (4) boreholes (BH-1 through BH-4). The borehole locations are shown in Figure 3. Soil samples were collected to depth of total depth of 25.0' below surface and analyzed for chlorides. The sampling results are summarized in Table 1. Referring to Table 1, the chloride impact soils were vertically defined and showed a significant decline at the 6-7' below surface.

TETRA TECH

Remediation and Conclusion

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The excavated areas of AH-1 and AH-2 measured approximately 3' x 60', while AH-3 and AH-4 measured 11' x 60'. All of the areas were excavated to a depth of approximately 3.0' below surface. The excavated areas and depths are highlighted in Table 1. Approximately 80 cubic yards of soil were excavated and transported to the R360 facility for proper disposal.

Once excavated, bottom hole and side wall confirmation samples were collected from the excavation in the areas of auger holes (AH-1 through AH-4) for chlorides. The sampling results are shown in Table 1.

Referring to Table 1, chloride concentrations were detected in the some of the sidewall samples in the areas of AH-1, AH-3 and AH-4, with concentrations of 1,640 mg/kg, 1,900 mg/kg and 1,460 mg/kg, respectively. Based on the results, it was determined that further excavation of these areas was not practical due to structures at the facility and the remaining impacted soils will be deferred until abandonment of the facility. The excavations were then backfilled to grade with clean material.

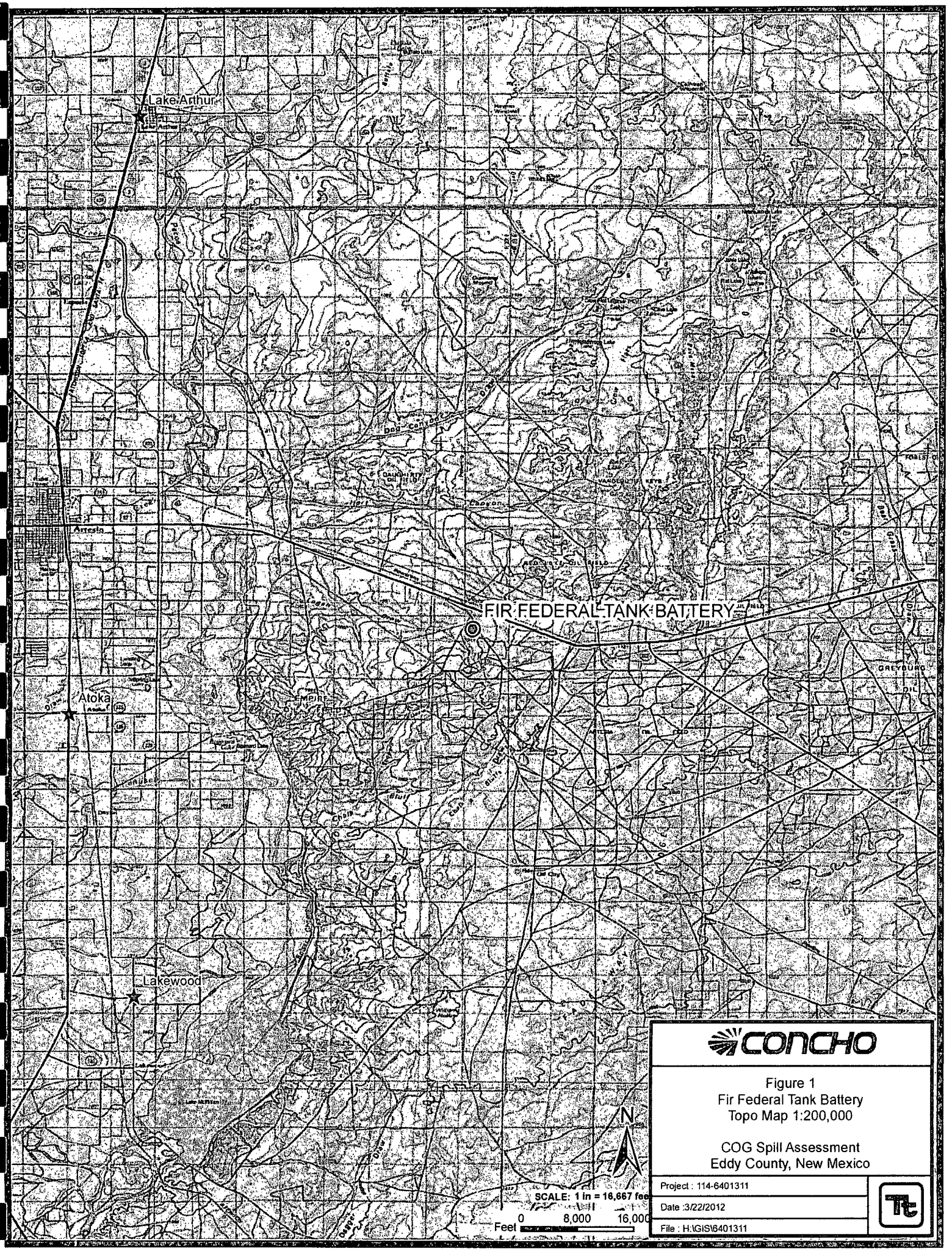
Based on the remedial activities performed, COG request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Senior Project Manager

cc: Pat Ellis – COG
Terry Gregston -BLM

FIGURES



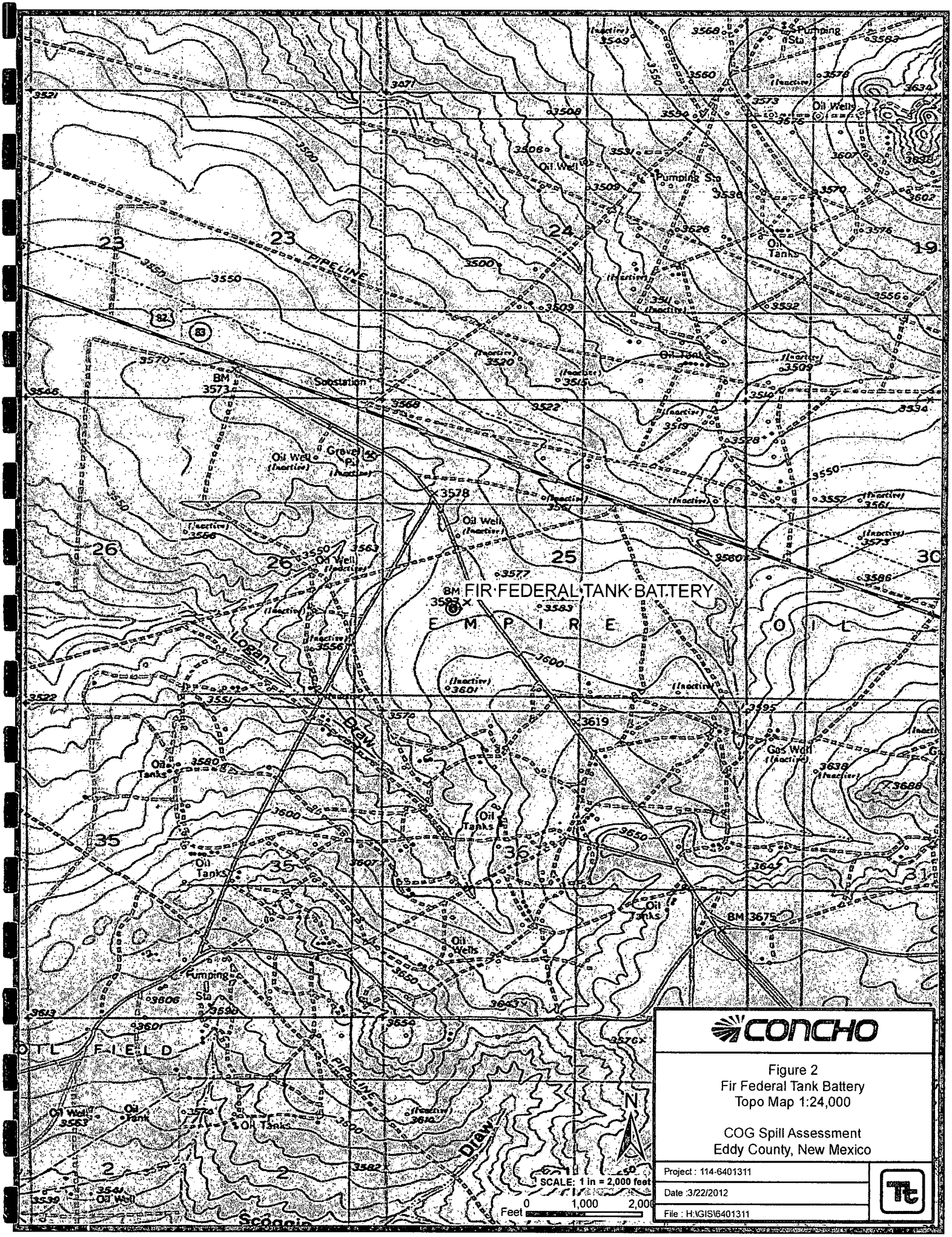
CONCHO

Figure 1
Fir Federal Tank Battery
Topo Map 1:200,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401311	
Date :3/22/2012	
File : H:\GIS\6401311	

Drawn By: Isabel Marmolejo



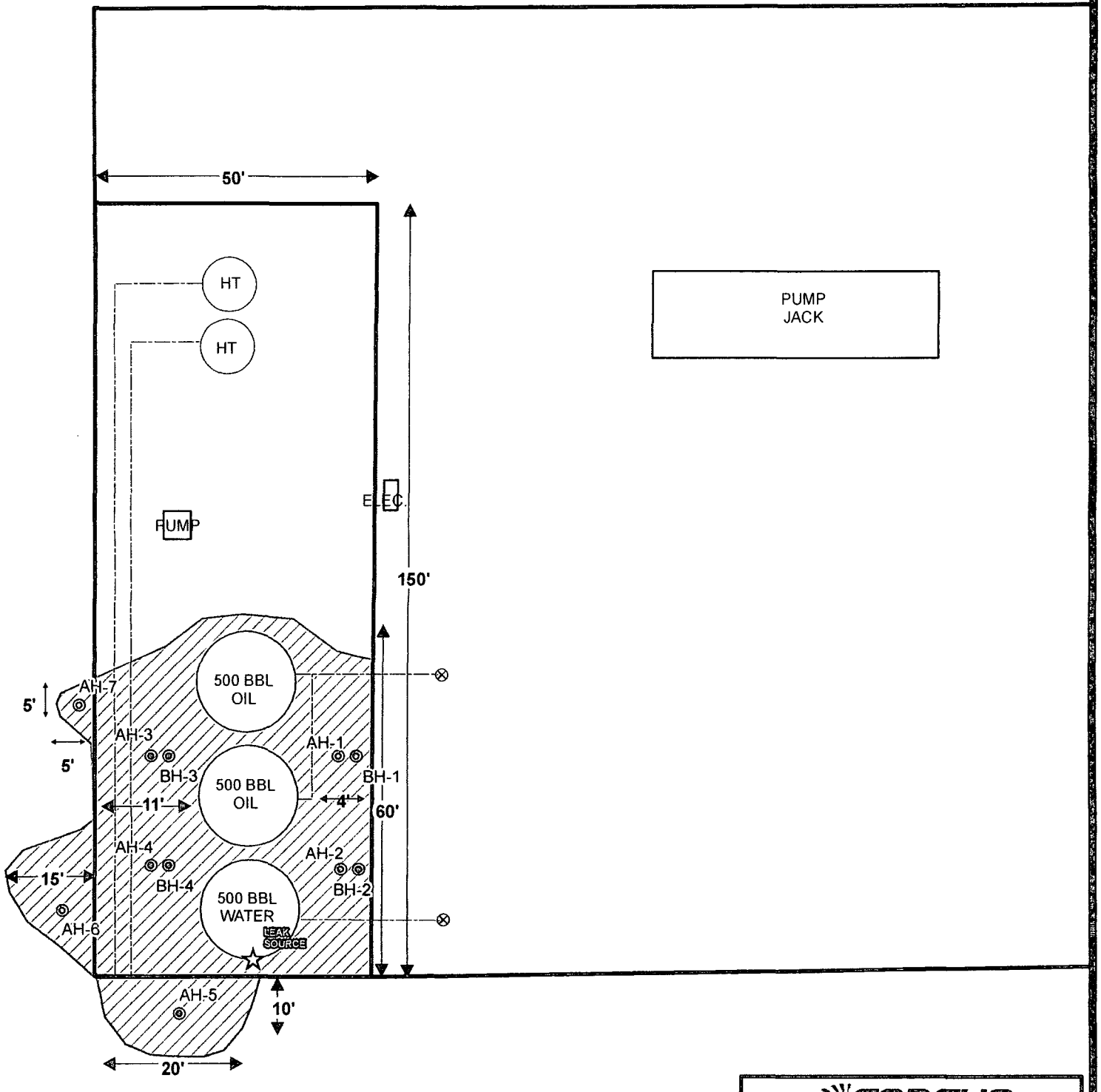
CONCHO

Figure 2
Fir Federal Tank Battery
Topo Map 1:24,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401311	
Date :3/22/2012	
File : H:\GIS\6401311	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- LEAK SOURCE
- LINE
- SPILL AREA

N

CONCHO

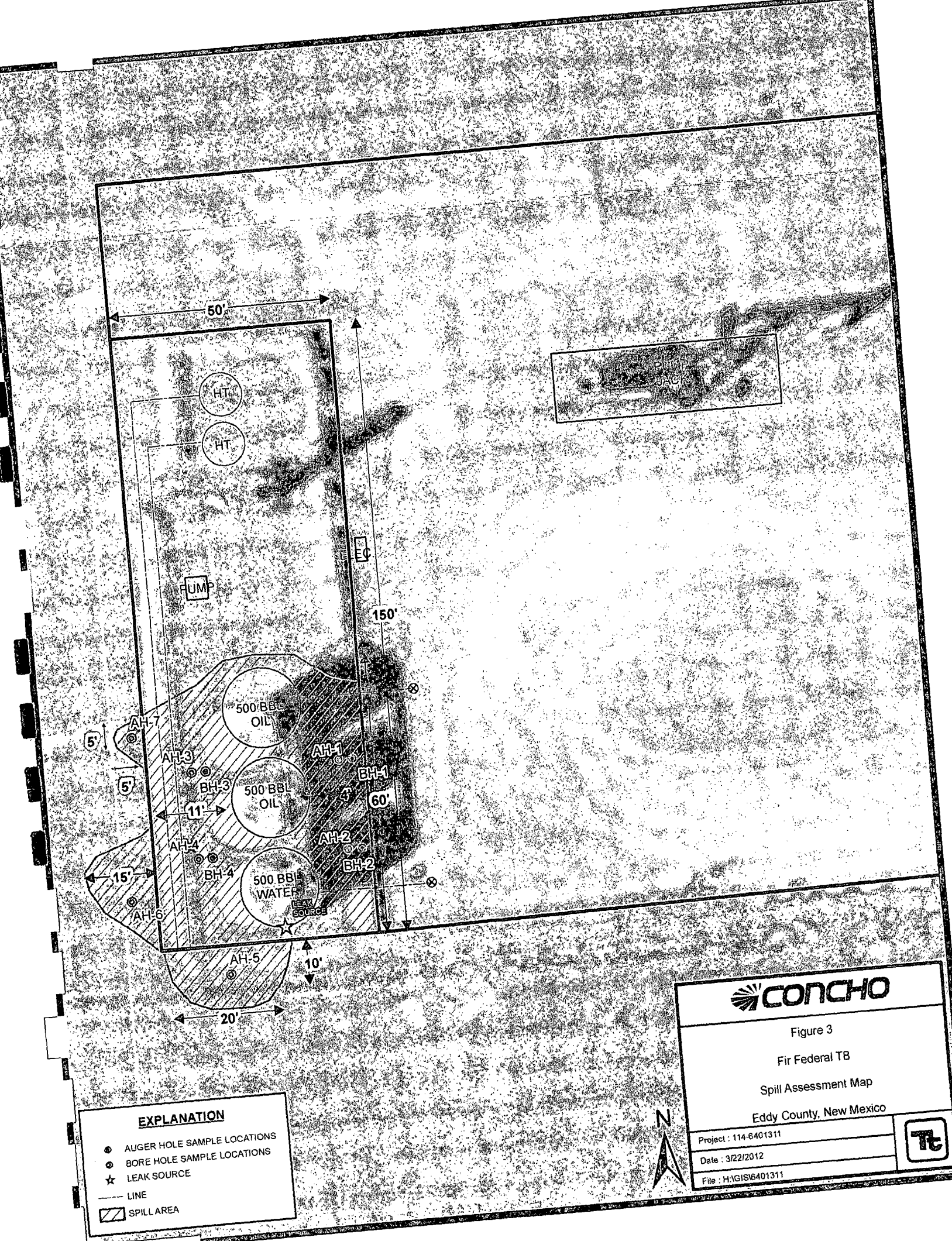
Figure 3

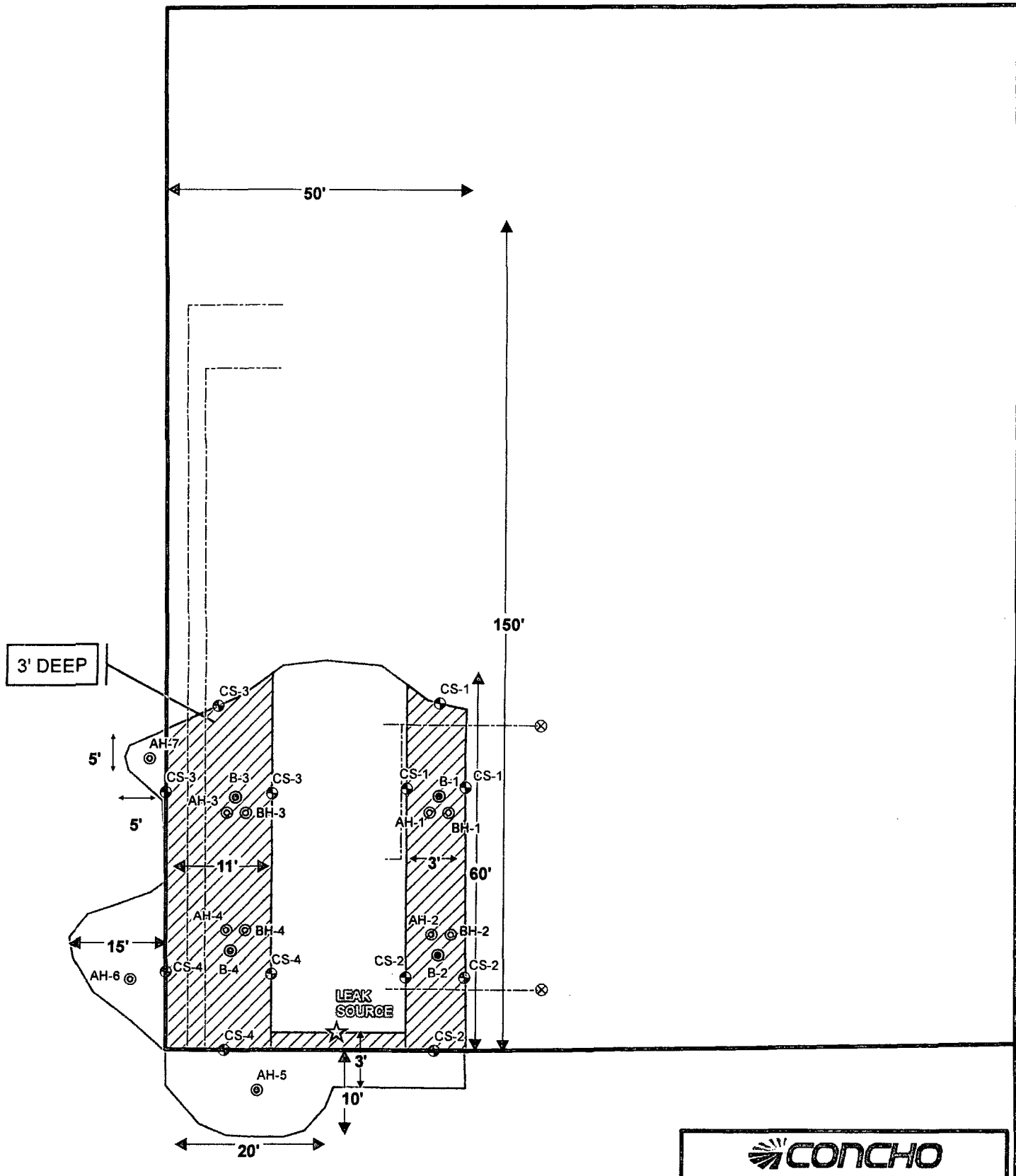
Fir Federal TB

Spill Assessment Map

Eddy County, New Mexico

Project : 114-6401311	
Date : 3/22/2012	
File : H:\GIS\6401311	


50'
HT
HT
PUMP
PUMP JACK
150'
500 BBL OIL
500 BBL OIL
500 BBL WATER
LEAK SOURCE
AH-1
AH-2
AH-3
AH-4
AH-5
AH-6
AH-7
BH-1
BH-2
BH-3
BH-4
5'
5'
11'
4'
60'
15'
10'
20'
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
LEAK SOURCE
LINE
SPILL AREA
N
CONCHO
Figure 3
Fir Federal TB
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401311
Date : 3/22/2012
File : H:\GIS\6401311



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- BOTTOM HOLE SAMPLE LOCATIONS
- CONFIRMATION SAMPLE LOCATIONS
- LEAK SOURCE
- LINE
- EXCAVATED AREAS

N

CONCHO

Figure 4

Fir Federal TB

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 114-6401311	
Date : 10/18/2012	
File : H:\GIS\6401311	

Drawn By: Isabel Marmolejo

TABLES

Table 1
COG Operating LLC.
Fir Federal Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	3/8/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,370
BH-1	4/18/2012	0-1		X	-	-	-	-	-	-	-	-	7,870
	"	2-3		X	-	-	-	-	-	-	-	-	7,940
	"	4-5	X		-	-	-	-	-	-	-	-	1,390
	"	6-7	X		-	-	-	-	-	-	-	-	218
	"	9-10	X		-	-	-	-	-	-	-	-	300
	"	14-15	X		-	-	-	-	-	-	-	-	280
	"	19-20	X		-	-	-	-	-	-	-	-	401
CS-1 North Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	287
CS-1 East Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	488
CS-1 West Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	1,640
CS-1 Bottom Hole	8/28/2012	3'	X		-	-	-	-	-	-	-	-	301
AH-2	3/8/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,650
BH-2	4/18/2012	0-1		X	-	-	-	-	-	-	-	-	10,600
	"	2-3		X	-	-	-	-	-	-	-	-	6,230
	"	4-5	X		-	-	-	-	-	-	-	-	1,180
	"	6-7	X		-	-	-	-	-	-	-	-	264
	"	9-10	X		-	-	-	-	-	-	-	-	694
	"	14-15	X		-	-	-	-	-	-	-	-	44.0
	"	19-20	X		-	-	-	-	-	-	-	-	24.4
CS-2 South Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	488
CS-2 East Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	179
CS-2 West Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	151
CS-2 Bottom Hole	8/28/2012	3'	X		-	-	-	-	-	-	-	-	273

Table 1
COG Operating LLC.
Fir Federal Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-3	3/8/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,200
BH-3	4/18/2012	0-1		X	-	-	-	-	-	-	-	-	9,420
	"	2-3		X	-	-	-	-	-	-	-	-	5,160
	"	4-5	X		-	-	-	-	-	-	-	-	4,550
	"	6-7	X		-	-	-	-	-	-	-	-	954
	"	9-10	X		-	-	-	-	-	-	-	-	134
	"	14-15	X		-	-	-	-	-	-	-	-	209
	"	19-20	X		-	-	-	-	-	-	-	-	442
	"	24-25	X		-	-	-	-	-	-	-	-	542
CS-3 North Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	451
CS-3 East Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	1,900
CS-3 West Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	437
CS-3 Bottom Hole	8/28/2012	3'	X		-	-	-	-	-	-	-	-	366
AH-4	3/8/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,110
BH-4	4/18/2012	0-1		X	-	-	-	-	-	-	-	-	8,160
	"	2-3		X	-	-	-	-	-	-	-	-	11,300
	"	4-5	X		-	-	-	-	-	-	-	-	2,160
	"	6-7	X		-	-	-	-	-	-	-	-	646
	"	9-10	X		-	-	-	-	-	-	-	-	482
	"	14-15	X		-	-	-	-	-	-	-	-	69.5
	"	19-20	X		-	-	-	-	-	-	-	-	556
CS-4 South Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	409
CS-4 East Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	1,460
CS-4 West Wall	8/28/2012	-	X		-	-	-	-	-	-	-	-	486
CS-4 Bottom Hole	8/28/2012	3'	X		-	-	-	-	-	-	-	-	550

Table 1
COG Operating LLC.
Fir Federal Tank Battery
Eddy County, New Mexico

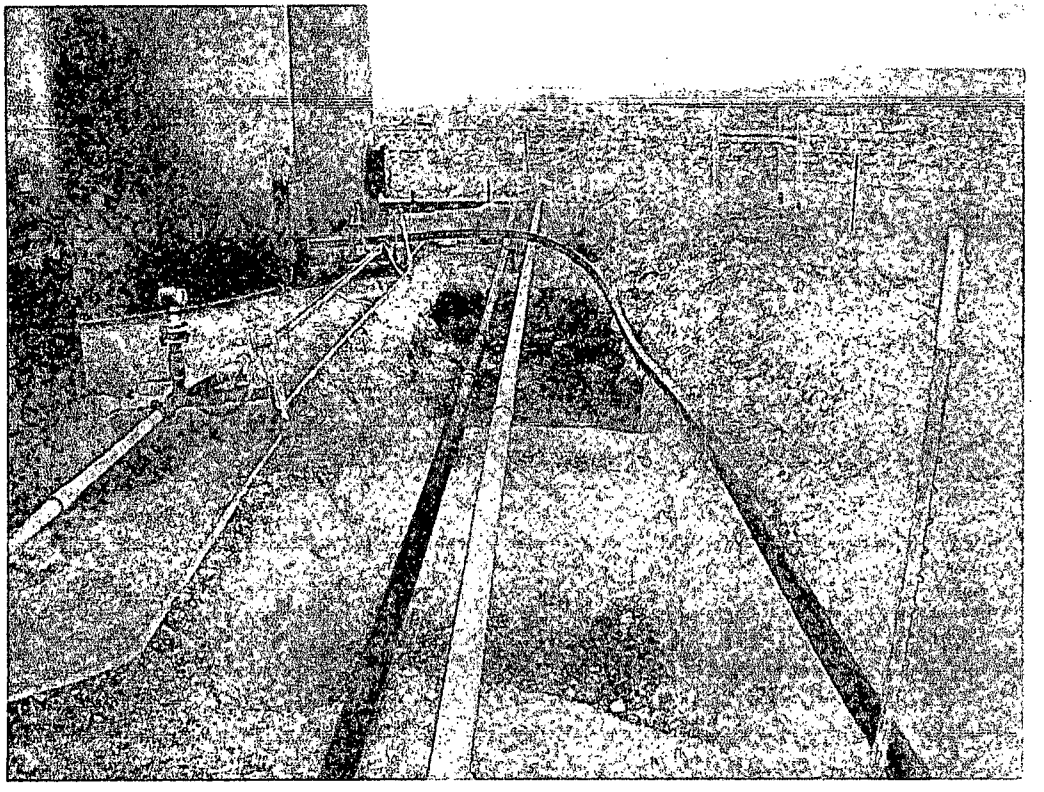
Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-5	3/8/2012	0-1	X		2.38	<50.0	2.38	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	1-1.5	X		-	-	-	-	-	-	-	-	263
AH-6	3/8/2012	0-1	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	1-1.5	X		-	-	-	-	-	-	-	-	<200
AH-7	3/8/2012	0-1	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	"	1-1.5	X		-	-	-	-	-	-	-	-	<200

(-) Not Analyzed

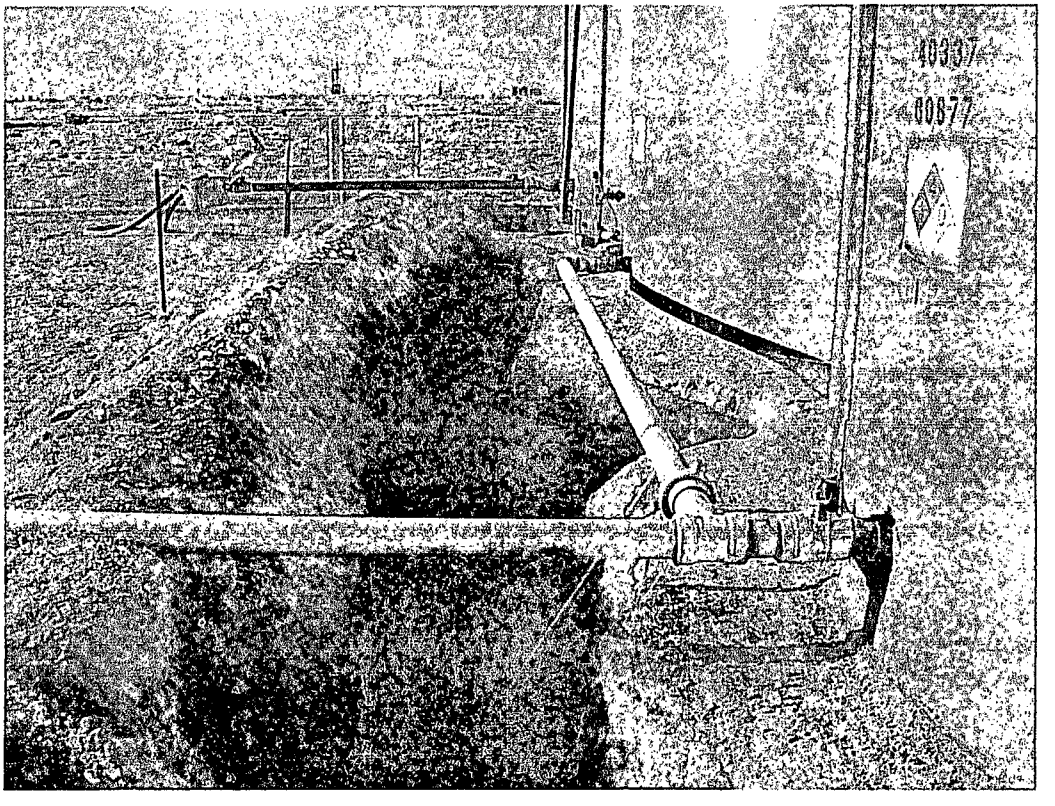
Excavation Depth

PHOTOGRAPHS

COG Operating LLC
Fir Federal Tank Battery
Eddy County, New Mexico
Assessment Date: March 8, 2012



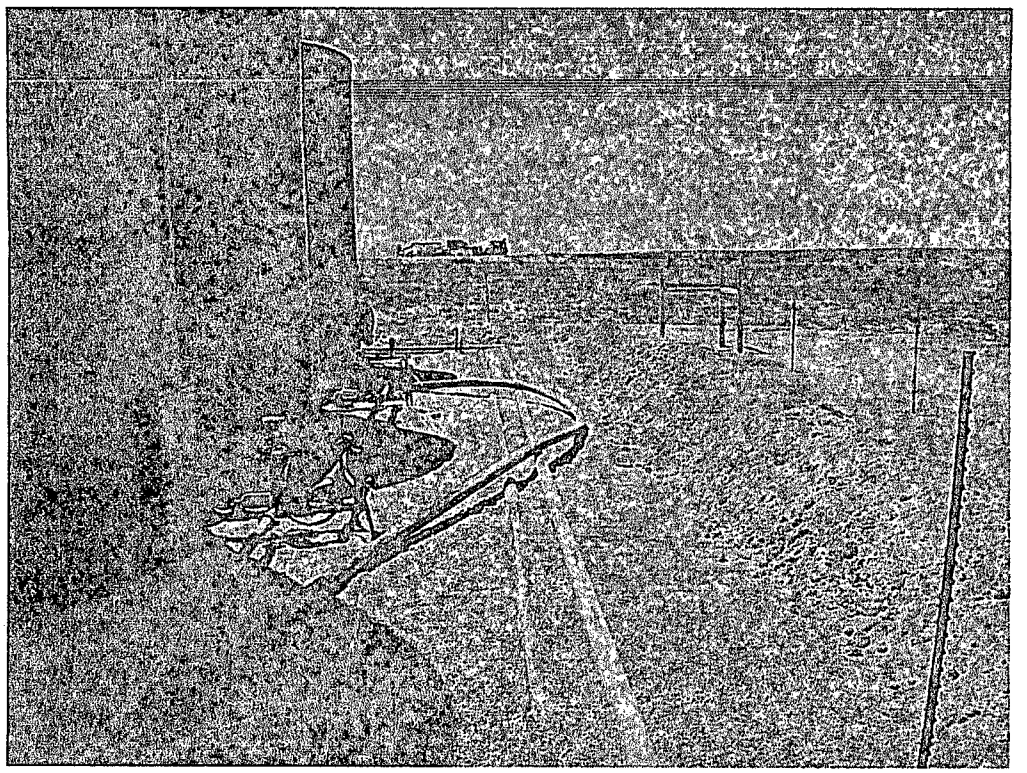
View South – Excavation of AH-3 and AH-4.



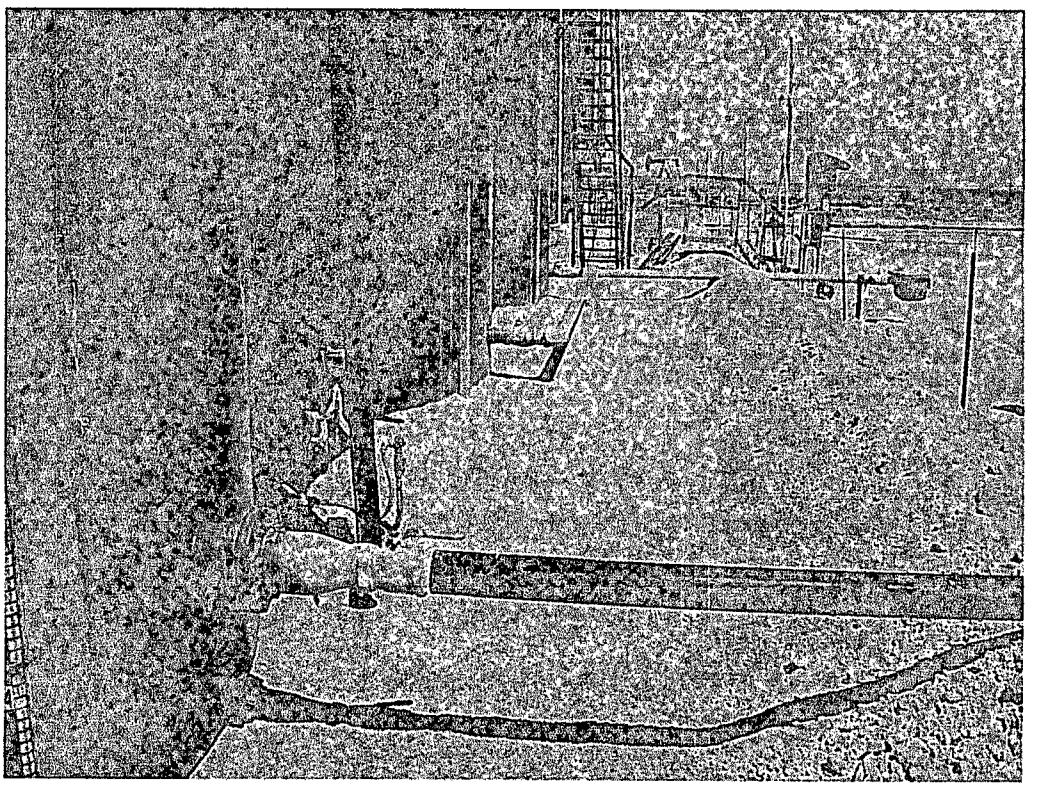
View South - Excavation of AH-1 and AH-2.

TETRA TECH

COG Operating LLC
Fir Federal Tank Battery
Eddy County, New Mexico
Assessment Date: March 8, 2012



View South – Backfill of AH-3 and AH-4 excavations.



View North – Backfill of AH-1 and AH-2 excavations.

TETRA TECH

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

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NMOCD ARTESIA

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	**COG Operating LLC**	Contact	**Pat Ellis**
Address	**550 W. Texas, Suite 100 Midland, Texas 79701**	Telephone No.	**(432) 230-0077**
Facility Name	**Fir Federal Tank Battery**	Facility Type	**Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-32069

LOCATION OF RELEASE

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

Latitude N 32 48.160° **Longitude** W 104 14.276°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 20 bbls	Volume Recovered 0 bbls oil
Source of Release: Water Tank	Date and Hour of Occurrence 01/30/2012	Date and Hour of Discovery 01/30/2012 8:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom? Mike Bratcher -OCD	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Water haulers could not keep up with their hauling schedules causing this water tank to run over. Water haulers responsibilities have been cut back to ensure they are not overloaded and won't miss any facilities.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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

Signature:

Printed Name: Ike Tavarez (Agent for COG)

Title: Project Manager

E-mail Address: Ike.Tavarez@TetraTech.com

Date: 10-16-12 Phone: (432) 682-4559

OIL CONSERVATION DIVISION

Approved by District Supervisor:

Approval Date: Expiration Date:

Conditions of Approval: Attached ☐

Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Fir Federal Tank Battery	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-32069

LOCATION OF RELEASE

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

Latitude 32 48.160 **Longitude** 104 14.276

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 20bbls	Volume Recovered 0bbls
Source of Release Water tank	Date and Hour of Occurrence 01/30/2012	Date and Hour of Discovery 01/30/2012 8:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Water haulers did not keep up with their hauling schedule causing this water tank to run over. We have cut back on the trucking companies responsibilities for Concho to ensure they are not overloaded and won't miss any facilities.

Describe Area Affected and Cleanup Action Taken.*

Initially 20bbls of produced water was released from the water tank and we were unable to recover any fluid from the release. The majority of the release was contained inside the berm walls with a small portion seeping through the berm. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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

Signature:	OIL CONSERVATION DIVISION
Printed Name: Josh Russo	Approved by District Supervisor:
Title: HSE Coordinator	Approval Date: / Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval: / Attached ☐
Date: 02/08/2012 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
Fir Federal Tank Battery
Eddy County, New Mexico

16 South 26 East

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

16 South 27 East

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

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 **61**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 26 East

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

17 South 27 East

6	5 **30**	4	3	2	1
7 **14**	8	9	10	11 **54** **50**	12
18 **86**	17 **283**	16 **172**	15	14	13
19	20	21	22	23 **40**	24
30	29	28	27	26	25 **SITE**
31	32 **120**	33	34	35	36

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 **191**	20	21	22 **79**	23	24
30	29	28	27	26	25
31	32	33	34 **53**	35	36

18 South 26 East

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

18 South 27 East

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

18 South 28 East

6	5	4 **108**	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **65**	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System
- Site Location

APPENDIX C

Summary Report

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

Report Date: March 21, 2012

Work Order: 12030928

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
290974	AH-1 0-1'	soil	2012-03-08	00:00	2012-03-09
290975	AH-2 0-1'	soil	2012-03-08	00:00	2012-03-09
290976	AH-3 0-1'	soil	2012-03-08	00:00	2012-03-09
290977	AH-4 0-1'	soil	2012-03-08	00:00	2012-03-09
290978	AH-5 0-1'	soil	2012-03-08	00:00	2012-03-09
290979	AH-5 1-1.5'	soil	2012-03-08	00:00	2012-03-09
290980	AH-6 0-1'	soil	2012-03-08	00:00	2012-03-09
290981	AH-6 1-1.5'	soil	2012-03-08	00:00	2012-03-09
290982	AH-7 0-1'	soil	2012-03-08	00:00	2012-03-09
290983	AH-7 1-1.5'	soil	2012-03-08	00:00	2012-03-09

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
290974 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
290975 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
290976 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
290977 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
290978 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**2.38**
290980 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
290982 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 290974 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**6370**	mg/Kg	4

Sample: 290975 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**9650**	mg/Kg	4

Sample: 290976 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**6200**	mg/Kg	4

Sample: 290977 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**7110**	mg/Kg	4

Sample: 290978 - AH-5 0-1'

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

Sample: 290979 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**263**	mg/Kg	4

Sample: 290980 - AH-6 0-1'

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

Sample: 290981 - AH-6 1-1.5'

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

Sample: 290982 - AH-7 0-1'

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

Sample: 290983 - AH-7 1-1.5'

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

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: March 21, 2012

Work Order: 12030928

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

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
290974	AH-1 0-1'	soil	2012-03-08	00:00	2012-03-09
290975	AH-2 0-1'	soil	2012-03-08	00:00	2012-03-09
290976	AH-3 0-1'	soil	2012-03-08	00:00	2012-03-09
290977	AH-4 0-1'	soil	2012-03-08	00:00	2012-03-09
290978	AH-5 0-1'	soil	2012-03-08	00:00	2012-03-09
290979	AH-5 1-1.5'	soil	2012-03-08	00:00	2012-03-09
290980	AH-6 0-1'	soil	2012-03-08	00:00	2012-03-09
290981	AH-6 1-1.5'	soil	2012-03-08	00:00	2012-03-09
290982	AH-7 0-1'	soil	2012-03-08	00:00	2012-03-09
290983	AH-7 1-1.5'	soil	2012-03-08	00:00	2012-03-09

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.

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

Report Contents

Case Narrative

Samples for project COG/Fir Federal Tank Battery were received by TraceAnalysis, Inc. on 2012-03-09 and assigned to work order 12030928. Samples for work order 12030928 were received intact at a temperature of 0.8 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	75875	2012-03-14 at 11:37	89384	2012-03-14 at 12:29
BTEX	S 8021B	75978	2012-03-20 at 10:05	89508	2012-03-20 at 11:03
Chloride (Titration)	SM 4500-Cl B	75814	2012-03-10 at 07:48	89331	2012-03-12 at 14:25
Chloride (Titration)	SM 4500-Cl B	75814	2012-03-10 at 07:48	89332	2012-03-13 at 14:26
TPH DRO - NEW	S 8015 D	75807	2012-03-12 at 12:24	89298	2012-03-12 at 12:29
TPH GRO	S 8015 D	75875	2012-03-14 at 11:37	89385	2012-03-14 at 12:56
TPH GRO	S 8015 D	75978	2012-03-20 at 10:05	89509	2012-03-20 at 11:39

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 12030928 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: 290974 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89384	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.43	mg/Kg	1	2.00	122	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.93	mg/Kg	1	2.00	96	63.6 - 158.9

Sample: 290974 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6370**	mg/Kg	100	4.00

Sample: 290974 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.2	mg/Kg	1	100	93	49.3 - 157.5

Sample: 290974 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.28	mg/Kg	1	2.00	114	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	45.1 - 162.2

Sample: 290975 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89384	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.63	mg/Kg	1	2.00	82	63.6 - 158.9

Sample: 290975 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**9650**	mg/Kg	100	4.00

Sample: 290975 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.0	mg/Kg	1	100	93	49.3 - 157.5

Sample: 290975 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.89	mg/Kg	1	2.00	94	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.54	mg/Kg	1	2.00	77	45.1 - 162.2

Sample: 290976 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89508	Date Analyzed:	2012-03-20	Analyzed By:	tc
Prep Batch:	75978	Sample Preparation:	2012-03-20	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.61	mg/Kg	1	2.00	130	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	63.6 - 158.9

Sample: 290976 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6200**	mg/Kg	100	4.00

Sample: 290976 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			90.9	mg/Kg	1	100	91	49.3 - 157.5

Sample: 290976 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89509	Date Analyzed:	2012-03-20	Analyzed By:	tc
Prep Batch:	75978	Sample Preparation:	2012-03-20	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.55	mg/Kg	1	2.00	128	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.54	mg/Kg	1	2.00	77	45.1 - 162.2

Sample: 290977 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89384	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		2.75	mg/Kg	1	2.00	138	75 - 135.4
4-Bromofluorobenzene (4-BFB)				2.07	mg/Kg	1	2.00	104	63.6 - 158.9

Sample: 290977 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

continued ...

sample 290977 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7110**	mg/Kg	100	4.00

Sample: 290977 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.7	mg/Kg	1	100	95	49.3 - 157.5

Sample: 290977 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.62	mg/Kg	1	2.00	131	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	45.1 - 162.2

Sample: 290978 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89384	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		4.10	mg/Kg	1	2.00	205	75 - 135.4
4-Bromofluorobenzene (4-BFB)				2.99	mg/Kg	1	2.00	150	63.6 - 158.9

Sample: 290978 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

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

Sample: 290978 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			91.1	mg/Kg	1	100	91	49.3 - 157.5

Sample: 290978 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**2.38**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.91	mg/Kg	1	2.00	196	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.78	mg/Kg	1	2.00	139	45.1 - 162.2

Sample: 290979 - AH-5 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**263**	mg/Kg	50	4.00

Sample: 290980 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89508	Date Analyzed:	2012-03-20	Analyzed By:	tc
Prep Batch:	75978	Sample Preparation:	2012-03-20	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.43	mg/Kg	1	2.00	122	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	63.6 - 158.9

Sample: 290980 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

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

Sample: 290980 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.4	mg/Kg	1	100	93	49.3 - 157.5

Sample: 290980 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.34	mg/Kg	1	2.00	67	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			0.941	mg/Kg	1	2.00	47	45.1 - 162.2

Sample: 290981 - AH-6 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89332	Date Analyzed:	2012-03-13	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

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

Sample: 290982 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	89384	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.44	mg/Kg	1	2.00	122	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.69	mg/Kg	1	2.00	84	63.6 - 158.9

Sample: 290982 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89332	Date Analyzed:	2012-03-13	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

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

Sample: 290982 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	Sample Preparation:	2012-03-12	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.0	mg/Kg	1	100	94	49.3 - 157.5

Sample: 290982 - AH-7 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	89385	Date Analyzed:	2012-03-14	Analyzed By:	tc
Prep Batch:	75875	Sample Preparation:	2012-03-14	Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.60	mg/Kg	1	2.00	80	45.1 - 162.2

Sample: 290983 - AH-7 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89332	Date Analyzed:	2012-03-13	Analyzed By:	AR
Prep Batch:	75814	Sample Preparation:	2012-03-10	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 89298

QC Batch:	89298	Date Analyzed:	2012-03-12	Analyzed By:	DA
Prep Batch:	75807	QC Preparation:	2012-03-12	Prepared By:	DA

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.1	mg/Kg	1	100	93	52 - 140.8

Method Blank (1) QC Batch: 89331

QC Batch:	89331	Date Analyzed:	2012-03-12	Analyzed By:	AR
Prep Batch:	75814	QC Preparation:	2012-03-10	Prepared By:	AR

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

Method Blank (1) QC Batch: 89332

QC Batch:	89332	Date Analyzed:	2012-03-13	Analyzed By:	AR
Prep Batch:	75814	QC Preparation:	2012-03-10	Prepared By:	AR

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

Method Blank (1) QC Batch: 89384

QC Batch: 89384 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02
Ethylbenzene		1	<0.00500	mg/Kg	0.02
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.73	mg/Kg	1	2.00	86	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.39	mg/Kg	1	2.00	70	55.9 - 112.4

Method Blank (1) QC Batch: 89385

QC Batch: 89385 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.32	mg/Kg	1	2.00	66	55 - 100

Method Blank (1) QC Batch: 89508

QC Batch: 89508 | Date Analyzed: 2012-03-20 | Analyzed By: tc
Prep Batch: 75978 | QC Preparation: 2012-03-20 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02
Ethylbenzene		1	<0.00500	mg/Kg	0.02

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1	2.00	107	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.29	mg/Kg	1	2.00	64	55.9 - 112.4

Method Blank (1) QC Batch: 89509

QC Batch:	89509	Date Analyzed:	2012-03-20	Analyzed By:	tc
Prep Batch:	75978	QC Preparation:	2012-03-20	Prepared By:	tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.51	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.20	mg/Kg	1	2.00	60	55 - 100

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA
Prep Batch: 75807 | QC Preparation: 2012-03-12 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	240	mg/Kg	1	250	<14.5	96	62 - 128.3

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	245	mg/Kg	1	250	<14.5	98	62 - 128.3	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
n-Tricosane	95.5	97.4	mg/Kg	1	100	96	97	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89331 | Date Analyzed: 2012-03-12 | Analyzed By: AR
Prep Batch: 75814 | QC Preparation: 2012-03-10 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.1	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	9	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: 89332 | Date Analyzed: 2012-03-13 | Analyzed By: AR
Prep Batch: 75814 | QC Preparation: 2012-03-10 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.7	mg/Kg	1	100	<3.85	97	85 - 115

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 89384 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.02	mg/Kg	1	2.00	<0.00470	101	86.5 - 124.9
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	84.7 - 122.5
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00500	100	79.4 - 118.9
Xylene		1	6.07	mg/Kg	1	6.00	<0.0170	101	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.05	mg/Kg	1	2.00	<0.00470	102	86.5 - 124.9	2	20
Toluene		1	2.07	mg/Kg	1	2.00	<0.00980	104	84.7 - 122.5	1	20
Ethylbenzene		1	2.05	mg/Kg	1	2.00	<0.00500	102	79.4 - 118.9	2	20
Xylene		1	6.16	mg/Kg	1	6.00	<0.0170	103	79.5 - 118.9	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)	2.28	2.08	mg/Kg	1	2.00	114	104	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.38	2.15	mg/Kg	1	2.00	119	108	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 89385 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.6	mg/Kg	1	20.0	<1.22	88	68.3 - 105.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	19.7	mg/Kg	1	20.0	<1.22	98	68.3 - 105.7	11	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)	1.92	2.18	mg/Kg	1	2.00	96	109	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.70	2.02	mg/Kg	1	2.00	85	101	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 89508 | Date Analyzed: 2012-03-20 | Analyzed By: tc
Prep Batch: 75978 | QC Preparation: 2012-03-20 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.89	mg/Kg	1	2.00	<0.00470	94	86.5 - 124.9
Toluene		1	1.90	mg/Kg	1	2.00	<0.00980	95	84.7 - 122.5
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00500	94	79.4 - 118.9
Xylene		1	5.55	mg/Kg	1	6.00	<0.0170	92	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.08	mg/Kg	1	2.00	<0.00470	104	86.5 - 124.9	10	20
Toluene		1	2.09	mg/Kg	1	2.00	<0.00980	104	84.7 - 122.5	10	20
Ethylbenzene		1	2.10	mg/Kg	1	2.00	<0.00500	105	79.4 - 118.9	10	20
Xylene		1	6.09	mg/Kg	1	6.00	<0.0170	102	79.5 - 118.9	9	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.13	1.98	mg/Kg	1	2.00	106	99	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.99	1.99	mg/Kg	1	2.00	100	100	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 89509 | Date Analyzed: 2012-03-20 | Analyzed By: tc
Prep Batch: 75978 | QC Preparation: 2012-03-20 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.0	mg/Kg	1	20.0	<1.22	80	68.3 - 105.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	15.5	mg/Kg	1	20.0	<1.22	78	68.3 - 105.7	3	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)	2.18	2.11	mg/Kg	1	2.00	109	106	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.45	1.42	mg/Kg	1	2.00	72	71	66.4 - 106.6

Matrix Spike (MS-1) Spiked Sample: 290978

QC Batch: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA
Prep Batch: 75807 | QC Preparation: 2012-03-12 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	256	mg/Kg	1	250	<14.5	102	45.5 - 127

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

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	259	mg/Kg	1	250	<14.5	104	45.5 - 127	1	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	91.0	94.2	mg/Kg	1	100	91	94	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 290980

QC Batch: 89331 | Date Analyzed: 2012-03-12 | Analyzed By: AR
Prep Batch: 75814 | QC Preparation: 2012-03-10 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	<385	104	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10900	mg/Kg	100	10000	<385	109	79.4 - 120.6	5	20

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

Matrix Spike (MS-1) Spiked Sample: 290990

QC Batch: 89332 | Date Analyzed: 2012-03-13 | Analyzed By: AR
Prep Batch: 75814 | QC Preparation: 2012-03-10 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			21800	mg/Kg	100	10000	11800	100	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			22500	mg/Kg	100	10000	11800	107	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 290978

QC Batch: 89384 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.77	mg/Kg	1	2.00	<0.00470	138	69.3 - 159.2
Toluene		1	2.86	mg/Kg	1	2.00	<0.00980	143	68.7 - 157
Ethylbenzene		1	2.95	mg/Kg	1	2.00	<0.00500	148	71.6 - 158.2
Xylene		1	8.71	mg/Kg	1	6.00	<0.0170	145	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.40	mg/Kg	1	2.00	<0.00470	120	69.3 - 159.2	14	20
Toluene		1	2.50	mg/Kg	1	2.00	<0.00980	125	68.7 - 157	13	20
Ethylbenzene		1	2.56	mg/Kg	1	2.00	<0.00500	128	71.6 - 158.2	14	20
Xylene		1	7.52	mg/Kg	1	6.00	<0.0170	125	70.8 - 159.8	15	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)	2.61	3.07	mg/Kg	1	2	130	154	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.15	2.52	mg/Kg	1	2	108	126	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 290982

QC Batch: 89385 | Date Analyzed: 2012-03-14 | Analyzed By: tc
Prep Batch: 75875 | QC Preparation: 2012-03-14 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	21.1	mg/Kg	1	20.0	1.8991	96	28.2 - 157.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	22.0	mg/Kg	1	20.0	1.8991	100	28.2 - 157.2	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
Trifluorotoluene (TFT)	2.44	2.48	mg/Kg	1	2	122	124	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	1.93	1.97	mg/Kg	1	2	96	98	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 290980

QC Batch: 89508 | Date Analyzed: 2012-03-20 | Analyzed By: tc
Prep Batch: 75978 | QC Preparation: 2012-03-20 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.10	mg/Kg	1	2.00	<0.00470	105	69.3 - 159.2
Toluene		1	2.18	mg/Kg	1	2.00	<0.00980	109	68.7 - 157
Ethylbenzene		1	2.35	mg/Kg	1	2.00	<0.00500	118	71.6 - 158.2
Xylene		1	6.77	mg/Kg	1	6.00	<0.0170	113	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.24	mg/Kg	1	2.00	<0.00470	112	69.3 - 159.2	6	20
Toluene		1	2.35	mg/Kg	1	2.00	<0.00980	118	68.7 - 157	8	20
Ethylbenzene		1	2.53	mg/Kg	1	2.00	<0.00500	126	71.6 - 158.2	7	20
Xylene		1	7.33	mg/Kg	1	6.00	<0.0170	122	70.8 - 159.8	8	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)	2.46	2.18	mg/Kg	1	2	123	109	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.67	2.35	mg/Kg	1	2	134	118	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 290976

QC Batch: 89509 | Date Analyzed: 2012-03-20 | Analyzed By: tc
Prep Batch: 75978 | QC Preparation: 2012-03-20 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	19.4	mg/Kg	1	20.0	1.8092	88	28.2 - 157.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		I	19.2	mg/Kg	1	20.0	1.8092	87	28.2 - 157.2	1	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)	Qsr	Qsr	2.52	2.41	mg/Kg	1	2	126	120	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)			2.12	2.00	mg/Kg	1	2	106	100	77.9 - 122.4

Calibration Standards

Standard (CCV-1)

QC Batch: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	252	101	80 - 120	2012-03-12

Standard (CCV-2)

QC Batch: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	285	114	80 - 120	2012-03-12

Standard (CCV-3)

QC Batch: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	264	106	80 - 120	2012-03-12

Standard (ICV-1)

QC Batch: 89331 | Date Analyzed: 2012-03-12 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	96.9	97	85 - 115	2012-03-12

Standard (CCV-1)

QC Batch: 89331 | Date Analyzed: 2012-03-12 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	103	103	85 - 115	2012-03-12

Standard (ICV-1)

QC Batch: 89332 | Date Analyzed: 2012-03-13 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-03-13

Standard (CCV-1)

QC Batch: 89332 | Date Analyzed: 2012-03-13 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-03-13

Standard (CCV-1)

QC Batch: 89384 | Date Analyzed: 2012-03-14 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0951	95	80 - 120	2012-03-14
Toluene		1	mg/kg	0.100	0.0944	94	80 - 120	2012-03-14
Ethylbenzene		1	mg/kg	0.100	0.0901	90	80 - 120	2012-03-14
Xylene		1	mg/kg	0.300	0.265	88	80 - 120	2012-03-14

Standard (CCV-2)

QC Batch: 89384 | Date Analyzed: 2012-03-14 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0959	96	80 - 120	2012-03-14
Toluene		1	mg/kg	0.100	0.0966	97	80 - 120	2012-03-14
Ethylbenzene		1	mg/kg	0.100	0.0943	94	80 - 120	2012-03-14
Xylene		1	mg/kg	0.300	0.273	91	80 - 120	2012-03-14

Standard (CCV-1)

QC Batch: 89385 | Date Analyzed: 2012-03-14 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.11	111	80 - 120	2012-03-14

Standard (CCV-2)

QC Batch: 89385 | Date Analyzed: 2012-03-14 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.966	97	80 - 120	2012-03-14

Standard (CCV-1)

QC Batch: 89508 | Date Analyzed: 2012-03-20 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0991	99	80 - 120	2012-03-20
Toluene		1	mg/kg	0.100	0.0988	99	80 - 120	2012-03-20
Ethylbenzene		1	mg/kg	0.100	0.0979	98	80 - 120	2012-03-20
Xylene		1	mg/kg	0.300	0.288	96	80 - 120	2012-03-20

Standard (CCV-2)

QC Batch: 89508 | Date Analyzed: 2012-03-20 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.108	108	80 - 120	2012-03-20
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-03-20
Ethylbenzene		1	mg/kg	0.100	0.100	100	80 - 120	2012-03-20
Xylene		1	mg/kg	0.300	0.295	98	80 - 120	2012-03-20

Standard (CCV-1)

QC Batch: 89509 | Date Analyzed: 2012-03-20 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.898	90	80 - 120	2012-03-20

Standard (CCV-2)

QC Batch: 89509 | Date Analyzed: 2012-03-20 | Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.938	94	80 - 120	2012-03-20

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

Standard Flags

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

Attachments

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

#12030720

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401311

PROJECT NAME: Fir Federal Tank Battery Eddy Co NM

ANALYSIS REQUEST (Circle or Specify Method No.)

Analyses listed: BTEX 8021B; TPH 8015 MOD. TX1005 (Ext. to C35) (circled); 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 (circled); Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD.	Chloride
290974	3/8		S		X	AH-1 0-1'	1				X		X	X	X
975	↓		↓		↓	AH-2 0-1'	↓				↓		X	X	X
976						AH-3 0-1'							X	X	X
977						AH-4 0-1'							X	X	X
978						AH-5 0-1'							X	X	X
979						AH-5 1-1.5'									X
980						AH-6 0-1'							X	X	X
981						AH-6 1-1.5'									X
982						AH-7 0-1'							X	X	X
983						AH-7 1-1.5'									X

RELINQUISHED BY: (Signature) [signature] Date: 3/8/12 Time: 3:07 P.M.
RECEIVED BY: (Signature) [signature] Date: 3/9/12 Time: 15:07

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

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

SAMPLED BY: (Print & Initial) TF Date: 3-8-12 Time:

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: .8° intact

REMARKS: Run deeper sample if TPH exceeds 5,000 mg/kg

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

Run deeper sample if benzene exceeds 10 mg/kg or if total BTEX exceeds 50 mg/kg.

Summary Report

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

Report Date: May 8, 2012

Work Order: 12042425

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
295162	BH-1 @ AH-1 0-1'	soil	2012-04-18	00:00	2012-04-24
295163	BH-1 @ AH-1 2-3'	soil	2012-04-18	00:00	2012-04-24
295164	BH-1 @ AH-1 4-5'	soil	2012-04-18	00:00	2012-04-24
295165	BH-1 @ AH-1 6-7'	soil	2012-04-18	00:00	2012-04-24
295166	BH-1 @ AH-1 9-10'	soil	2012-04-18	00:00	2012-04-24
295167	BH-1 @ AH-1 14-15'	soil	2012-04-18	00:00	2012-04-24
295168	BH-1 @ AH-1 19-20'	soil	2012-04-18	00:00	2012-04-24
295171	BH-2 @ AH-2 0-1'	soil	2012-04-18	00:00	2012-04-24
295172	BH-2 @ AH-2 2-3'	soil	2012-04-18	00:00	2012-04-24
295173	BH-2 @ AH-2 4-5'	soil	2012-04-18	00:00	2012-04-24
295174	BH-2 @ AH-2 6-7'	soil	2012-04-18	00:00	2012-04-24
295175	BH-2 @ AH-2 9-10'	soil	2012-04-18	00:00	2012-04-24
295176	BH-2 @ AH-2 14-15'	soil	2012-04-18	00:00	2012-04-24
295177	BH-2 @ AH-2 19-20'	soil	2012-04-18	00:00	2012-04-24
295180	BH-3 @ AH-3 0-1'	soil	2012-04-18	00:00	2012-04-24
295181	BH-3 @ AH-3 2-3'	soil	2012-04-18	00:00	2012-04-24
295182	BH-3 @ AH-3 4-5'	soil	2012-04-18	00:00	2012-04-24
295183	BH-3 @ AH-3 6-7'	soil	2012-04-18	00:00	2012-04-24
295184	BH-3 @ AH-3 9-10'	soil	2012-04-18	00:00	2012-04-24
295185	BH-3 @ AH-3 14-15'	soil	2012-04-18	00:00	2012-04-24
295186	BH-3 @ AH-3 19-20'	soil	2012-04-18	00:00	2012-04-24
295187	BH-3 @ AH-3 24-25'	soil	2012-04-18	00:00	2012-04-24
295192	BH-4 @ AH-4 0-1'	soil	2012-04-18	00:00	2012-04-24
295193	BH-4 @ AH-4 2-3'	soil	2012-04-18	00:00	2012-04-24
295194	BH-4 @ AH-4 4-5'	soil	2012-04-18	00:00	2012-04-24
295195	BH-4 @ AH-4 6-7'	soil	2012-04-18	00:00	2012-04-24
295196	BH-4 @ AH-4 9-10'	soil	2012-04-18	00:00	2012-04-24
295197	BH-4 @ AH-4 14-15'	soil	2012-04-18	00:00	2012-04-24
295198	BH-4 @ AH-4 19-20'	soil	2012-04-18	00:00	2012-04-24

Sample: 295162 - BH-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**7870**	mg/Kg	4

Sample: 295163 - BH-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**7940**	mg/Kg	4

Sample: 295164 - BH-1 @ AH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		**1390**	mg/Kg	4

Sample: 295165 - BH-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**218**	mg/Kg	4

Sample: 295166 - BH-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**300**	mg/Kg	4

Sample: 295167 - BH-1 @ AH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		**280**	mg/Kg	4

Sample: 295168 - BH-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		**401**	mg/Kg	4

Sample: 295171 - BH-2 @ AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**10600**	mg/Kg	4

Sample: 295172 - BH-2 @ AH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		**6230**	mg/Kg	4

Sample: 295173 - BH-2 @ AH-2 4-5'

Param	Flag	Result	Units	RL
Chloride		**1180**	mg/Kg	4

Sample: 295174 - BH-2 @ AH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		**264**	mg/Kg	4

Sample: 295175 - BH-2 @ AH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		**694**	mg/Kg	4

Sample: 295176 - BH-2 @ AH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		**44.0**	mg/Kg	4

Sample: 295177 - BH-2 @ AH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		**24.4**	mg/Kg	4

Sample: 295180 - BH-3 @ AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**9420**	mg/Kg	4

Sample: 295181 - BH-3 @ AH-3 2-3'

Param	Flag	Result	Units	RL
Chloride		**5160**	mg/Kg	4

Sample: 295182 - BH-3 @ AH-3 4-5'

Param	Flag	Result	Units	RL
Chloride		**4550**	mg/Kg	4

Sample: 295183 - BH-3 @ AH-3 6-7'

Param	Flag	Result	Units	RL
Chloride		**954**	mg/Kg	4

Sample: 295184 - BH-3 @ AH-3 9-10'

Param	Flag	Result	Units	RL
Chloride		**134**	mg/Kg	4

Sample: 295185 - BH-3 @ AH-3 14-15'

Param	Flag	Result	Units	RL
Chloride		**209**	mg/Kg	4

Sample: 295186 - BH-3 @ AH-3 19-20'

Param	Flag	Result	Units	RL
Chloride		**442**	mg/Kg	4

Sample: 295187 - BH-3 @ AH-3 24-25'

Param	Flag	Result	Units	RL
Chloride		**542**	mg/Kg	4

Sample: 295192 - BH-4 @ AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**8160**	mg/Kg	4

Sample: 295193 - BH-4 @ AH-4 2-3'

Param	Flag	Result	Units	RL
Chloride		**11300**	mg/Kg	4

Sample: 295194 - BH-4 @ AH-4 4-5'

Param	Flag	Result	Units	RL
Chloride		**2160**	mg/Kg	4

Sample: 295195 - BH-4 @ AH-4 6-7'

Param	Flag	Result	Units	RL
Chloride		**646**	mg/Kg	4

Sample: 295196 - BH-4 @ AH-4 9-10'

Param	Flag	Result	Units	RL
Chloride		**482**	mg/Kg	4

Sample: 295197 - BH-4 @ AH-4 14-15'

Param	Flag	Result	Units	RL
Chloride		**69.5**	mg/Kg	4

Sample: 295198 - BH-4 @ AH-4 19-20'

Param	Flag	Result	Units	RL
Chloride		**556**	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: May 8, 2012

Work Order: 12042425

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

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
295162	BH-1 @ AH-1 0-1'	soil	2012-04-18	00:00	2012-04-24
295163	BH-1 @ AH-1 2-3'	soil	2012-04-18	00:00	2012-04-24
295164	BH-1 @ AH-1 4-5'	soil	2012-04-18	00:00	2012-04-24
295165	BH-1 @ AH-1 6-7'	soil	2012-04-18	00:00	2012-04-24
295166	BH-1 @ AH-1 9-10'	soil	2012-04-18	00:00	2012-04-24
295167	BH-1 @ AH-1 14-15'	soil	2012-04-18	00:00	2012-04-24
295168	BH-1 @ AH-1 19-20'	soil	2012-04-18	00:00	2012-04-24
295171	BH-2 @ AH-2 0-1'	soil	2012-04-18	00:00	2012-04-24
295172	BH-2 @ AH-2 2-3'	soil	2012-04-18	00:00	2012-04-24
295173	BH-2 @ AH-2 4-5'	soil	2012-04-18	00:00	2012-04-24
295174	BH-2 @ AH-2 6-7'	soil	2012-04-18	00:00	2012-04-24
295175	BH-2 @ AH-2 9-10'	soil	2012-04-18	00:00	2012-04-24
295176	BH-2 @ AH-2 14-15'	soil	2012-04-18	00:00	2012-04-24
295177	BH-2 @ AH-2 19-20'	soil	2012-04-18	00:00	2012-04-24
295180	BH-3 @ AH-3 0-1'	soil	2012-04-18	00:00	2012-04-24
295181	BH-3 @ AH-3 2-3'	soil	2012-04-18	00:00	2012-04-24
295182	BH-3 @ AH-3 4-5'	soil	2012-04-18	00:00	2012-04-24
295183	BH-3 @ AH-3 6-7'	soil	2012-04-18	00:00	2012-04-24

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
295184	BH-3 @ AH-3 9-10'	soil	2012-04-18	00:00	2012-04-24
295185	BH-3 @ AH-3 14-15'	soil	2012-04-18	00:00	2012-04-24
295186	BH-3 @ AH-3 19-20'	soil	2012-04-18	00:00	2012-04-24
295187	BH-3 @ AH-3 24-25'	soil	2012-04-18	00:00	2012-04-24
295192	BH-4 @ AH-4 0-1'	soil	2012-04-18	00:00	2012-04-24
295193	BH-4 @ AH-4 2-3'	soil	2012-04-18	00:00	2012-04-24
295194	BH-4 @ AH-4 4-5'	soil	2012-04-18	00:00	2012-04-24
295195	BH-4 @ AH-4 6-7'	soil	2012-04-18	00:00	2012-04-24
295196	BH-4 @ AH-4 9-10'	soil	2012-04-18	00:00	2012-04-24
295197	BH-4 @ AH-4 14-15'	soil	2012-04-18	00:00	2012-04-24
295198	BH-4 @ AH-4 19-20'	soil	2012-04-18	00:00	2012-04-24

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

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

Report Contents

Analytical Report

Sample: 295162 - BH-1 @ AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7870**	mg/Kg	10	4.00

Sample: 295163 - BH-1 @ AH-1 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7940**	mg/Kg	10	4.00

Sample: 295164 - BH-1 @ AH-1 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1390**	mg/Kg	10	4.00

Sample: 295165 - BH-1 @ AH-1 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**218**	mg/Kg	5	4.00

Sample: 295166 - BH-1 @ AH-1 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**300**	mg/Kg	5	4.00

Sample: 295167 - BH-1 @ AH-1 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**280**	mg/Kg	5	4.00

Sample: 295168 - BH-1 @ AH-1 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**401**	mg/Kg	5	4.00

Sample: 295171 - BH-2 @ AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10600**	mg/Kg	10	4.00

Sample: 295172 - BH-2 @ AH-2 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6230**	mg/Kg	10	4.00

Sample: 295173 - BH-2 @ AH-2 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1180**	mg/Kg	10	4.00

Sample: 295174 - BH-2 @ AH-2 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**264**	mg/Kg	5	4.00

Sample: 295175 - BH-2 @ AH-2 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**694**	mg/Kg	5	4.00

Sample: 295176 - BH-2 @ AH-2 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**44.0**	mg/Kg	5	4.00

Sample: 295177 - BH-2 @ AH-2 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**24.4**	mg/Kg	5	4.00

Sample: 295180 - BH-3 @ AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9420**	mg/Kg	10	4.00

Sample: 295181 - BH-3 @ AH-3 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5160**	mg/Kg	10	4.00

Sample: 295182 - BH-3 @ AH-3 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4550**	mg/Kg	10	4.00

Sample: 295183 - BH-3 @ AH-3 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**954**	mg/Kg	10	4.00

Sample: 295184 - BH-3 @ AH-3 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**134**	mg/Kg	5	4.00

Sample: 295185 - BH-3 @ AH-3 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**209**	mg/Kg	5	4.00

Sample: 295186 - BH-3 @ AH-3 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**442**	mg/Kg	5	4.00

Sample: 295187 - BH-3 @ AH-3 24-25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**542**	mg/Kg	5	4.00

Sample: 295192 - BH-4 @ AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8160**	mg/Kg	10	4.00

Sample: 295193 - BH-4 @ AH-4 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**11300**	mg/Kg	10	4.00

Sample: 295194 - BH-4 @ AH-4 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2160**	mg/Kg	10	4.00

Sample: 295195 - BH-4 @ AH-4 6-7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	Sample Preparation:	2012-05-01	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**646**	mg/Kg	5	4.00

Sample: 295196 - BH-4 @ AH-4 9-10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90974	Date Analyzed:	2012-05-08	Analyzed By:	AR
Prep Batch:	77160	Sample Preparation:	2012-05-04	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**482**	mg/Kg	5	4.00

Sample: 295197 - BH-4 @ AH-4 14-15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90974	Date Analyzed:	2012-05-08	Analyzed By:	AR
Prep Batch:	77160	Sample Preparation:	2012-05-04	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**69.5**	mg/Kg	5	4.00

Sample: 295198 - BH-4 @ AH-4 19-20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90974	Date Analyzed:	2012-05-08	Analyzed By:	AR
Prep Batch:	77160	Sample Preparation:	2012-05-04	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**556**	mg/Kg	10	4.00

Method Blanks

Method Blank (1) QC Batch: 90866

QC Batch:	90866	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	QC Preparation:	2012-05-01	Prepared By:	AR

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

Method Blank (1) QC Batch: 90868

QC Batch:	90868	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	QC Preparation:	2012-05-01	Prepared By:	AR

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

Method Blank (1) QC Batch: 90869

QC Batch:	90869	Date Analyzed:	2012-05-03	Analyzed By:	AR
Prep Batch:	77061	QC Preparation:	2012-05-01	Prepared By:	AR

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

Method Blank (1) QC Batch: 90974

QC Batch:	90974	Date Analyzed:	2012-05-08	Analyzed By:	AR
Prep Batch:	77160	QC Preparation:	2012-05-04	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 90866 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2390	mg/Kg	1	2500	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2490	mg/Kg	1	2500	<3.85	100	85 - 115	4	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: 90868 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2430	mg/Kg	1	2500	<3.85	97	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2480	mg/Kg	1	2500	<3.85	99	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: 90869 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2550	mg/Kg	1	2500	<3.85	100	85 - 115	4	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: 90974 | Date Analyzed: 2012-05-08 | Analyzed By: AR
Prep Batch: 77160 | QC Preparation: 2012-05-04 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2400	mg/Kg	1	2500	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2480	mg/Kg	1	2500	<3.85	99	85 - 115	3	20

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

Matrix Spike (MS-1) Spiked Sample: 295167

QC Batch: 90866 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2730	mg/Kg	5	2500	280	98	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2810	mg/Kg	5	2500	280	101	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 295181

QC Batch: 90868 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			8030	mg/Kg	10	2500	5160	115	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			7770	mg/Kg	10	2500	5160	104	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 295195

QC Batch: 90869 | Date Analyzed: 2012-05-03 | Analyzed By: AR
Prep Batch: 77061 | QC Preparation: 2012-05-01 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3120	mg/Kg	5	2500	646	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3420	mg/Kg	5	2500	646	111	79.4 - 120.6	9	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: 295425

QC Batch: 90974 | Date Analyzed: 2012-05-08 | Analyzed By: AR
Prep Batch: 77160 | QC Preparation: 2012-05-04 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2550	mg/Kg	5	2500	<19.2	102	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2700	mg/Kg	5	2500	<19.2	108	79.4 - 120.6	6	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 90866 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-05-03

Standard (CCV-2)

QC Batch: 90866 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-05-03

Standard (CCV-1)

QC Batch: 90868 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-05-03

Standard (CCV-2)

QC Batch: 90868 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.9	99	85 - 115	2012-05-03

Standard (CCV-1)

QC Batch: 90869 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-05-03

Standard (CCV-2)

QC Batch: 90869 | Date Analyzed: 2012-05-03 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2012-05-03

Standard (CCV-1)

QC Batch: 90974 | Date Analyzed: 2012-05-08 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-05-08

Standard (CCV-2)

QC Batch: 90974 | Date Analyzed: 2012-05-08 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-05-08

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

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

Standard Flags

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

Attachments

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

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 4

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.: 114-640131I

PROJECT NAME: Fir Federal Tank Battery
Eddy Co. NM

LAB I.D. NUMBER	DATE 2012	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
295162	4/18		S		X	BH-1 @ AH-1 0-1'	1																	X				
163						2-3'	1																	X				
164						4-5'	1																	X				
165						6-7'	1																	X				
166						9-10'	1																	X				
167						14-15'	1																	X				
168						19-20'	1																	X				
169						24-25'	1																					
170						29-30'	1																					
171						BH-2 @ AH-2 0-1'	1																	X				

RELINQUISHED BY: (Signature) — Date: 4/24/12 Time: 10:35 am
RECEIVED BY: (Signature) — Date: 4/24/12 Time: 10:50

SAMPLED BY: (Print & Initial) Kim — Date: 4/18/12 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: TRACE
ADDRESS:
CITY: MIDLAND STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 1.7° intact

REMARKS:

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

1004040

Analysis Request of Chain of Custody Record

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640131I

PROJECT NAME: Fir Federal Tank Battery
Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	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
172	4/18		S		X	BH-2 @ AH-2 2-3'	1																	X				
173						4-5'	1																	X				
174						6-7'	1																	X				
175						9-10'	1																	X				
176						14-15'	1																	X				
177						19-20'	1																	X				
178						24-25'	1																					
179						29-30'	1																					
180						BH-3 @ AH-3 0-1'	1																	X				
181						2-3'	1																	X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 4/24/12 Time: 10:30am

RECEIVED BY: (Signature) Date: 4/24/12 Time: 10:30

SAMPLED BY: (Print & Initial) Kim Date: 4/18/12 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: DATE: TIME:

RECEIVED BY: (Signature)

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.4° Intact

REMARKS:

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

1004725

Analysis Request of Chain of Custody Record

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640 1311

PROJECT NAME: Fir Federal Tank Battery
Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	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
182	4/18		S		X	BH-3 @ AH-3 4-5'	1																	X				
183						6-7'	1																	X				
184						9-10'	1																	X				
185						14-15'	1																	X				
186						19-20'	1																	X				
187						24-25'	1																	X				
188						29-30'	1																					
189						39-40'	1																					
190						49-50'	1																					
191						59-60'	1																					

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 4/20/12 Time: 1630hrs
RECEIVED BY: (Signature) Date: 4/20/12 Time: 10:30

SAMPLED BY: (Print & Initial) Kim Date: 4/18/12 Time:

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

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

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.4° Intact

REMARKS:

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

1204205

Analysis Request of Chain of Custody Record

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

PAGE: 4 of 4

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640 1311

PROJECT NAME: Fir Federal Tank Battery
Eddy Co., NM

LAB I.D. NUMBER	DATE 2012	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
192	4/18		S		X	BH-4 @ AH-4 0-1'	1																	X				
193						2-3'	1																	X				
194						4-5'	1																	X				
195						6-7'	1																	X				
196						9-10'	1																	X				
197						14-15'	1																	X				
198						19-20'	1																	X				
199						24-25'	1																					
200						29-30'	1																					

ANALYSIS REQUEST
(Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 4/24/12 Time: 10:00 RECEIVED BY: (Signature) Date: 4/25/12 Time: 10:30

SAMPLED BY: (Print & Initial) Kim Date: 4/18/12 Time:

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

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.40 mkat

REMARKS:

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

Summary Report

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

Report Date: September 13, 2012

Work Order: 12083125

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
308272	CS-1 North Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308273	CS-1 East Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308274	CS-1 West Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308275	CS-1 BH-3'(AH-1)	soil	2012-08-28	00:00	2012-08-31
308276	CS-2 South Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308277	CS-2 East Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308278	CS-2 West Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308279	CS-2 BH-3'(AH-2)	soil	2012-08-28	00:00	2012-08-31
308280	CS-3 North Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308281	CS-3 East Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308282	CS-3 West Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308283	CS-3 BH-3'(AH-3)	soil	2012-08-28	00:00	2012-08-31
308284	CS-4 South Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308285	CS-4 East Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308286	CS-4 West Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308287	CS-4 BH-3' (AH-4)	soil	2012-08-28	00:00	2012-08-31

Sample: 308272 - CS-1 North Wall (AH-1)

Param	Flag	Result	Units	RL
Chloride		**287**	mg/Kg	4

Sample: 308273 - CS-1 East Wall (AH-1)

Param	Flag	Result	Units	RL
Chloride		**488**	mg/Kg	4

Sample: 308274 - CS-1 West Wall (AH-1)

Param	Flag	Result	Units	RL
Chloride		**1640**	mg/Kg	4

Sample: 308275 - CS-1 BH-3'(AH-1)

Param	Flag	Result	Units	RL
Chloride		**301**	mg/Kg	4

Sample: 308276 - CS-2 South Wall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**488**	mg/Kg	4

Sample: 308277 - CS-2 East Wall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**179**	mg/Kg	4

Sample: 308278 - CS-2 West Wall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**151**	mg/Kg	4

Sample: 308279 - CS-2 BH-3'(AH-2)

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

Sample: 308280 - CS-3 North Wall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**451**	mg/Kg	4

Sample: 308281 - CS-3 East Wall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**1900**	mg/Kg	4

Sample: 308282 - CS-3 West Wall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**437**	mg/Kg	4

Sample: 308283 - CS-3 BH-3'(AH-3)

Param	Flag	Result	Units	RL
Chloride		**366**	mg/Kg	4

Sample: 308284 - CS-4 South Wall (AH-4)

Param	Flag	Result	Units	RL
Chloride		**409**	mg/Kg	4

Sample: 308285 - CS-4 East Wall (AH-4)

Param	Flag	Result	Units	RL
Chloride		**1460**	mg/Kg	4

Sample: 308286 - CS-4 West Wall (AH-4)

Param	Flag	Result	Units	RL
Chloride		**486**	mg/Kg	4

Sample: 308287 - CS-4 BH-3' (AH-4)

Param	Flag	Result	Units	RL
Chloride		**550**	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report
(Corrected Report)

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

Report Date: September 13, 2012

Work Order: 12083125

Project Location: Eddy Co., NM
Project Name: COG/Fir Federal Tank Battery
Project Number: 114-6401311

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
308272	CS-1 North Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308273	CS-1 East Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308274	CS-1 West Wall (AH-1)	soil	2012-08-28	00:00	2012-08-31
308275	CS-1 BH-3'(AH-1)	soil	2012-08-28	00:00	2012-08-31
308276	CS-2 South Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308277	CS-2 East Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308278	CS-2 West Wall (AH-2)	soil	2012-08-28	00:00	2012-08-31
308279	CS-2 BH-3'(AH-2)	soil	2012-08-28	00:00	2012-08-31
308280	CS-3 North Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308281	CS-3 East Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308282	CS-3 West Wall (AH-3)	soil	2012-08-28	00:00	2012-08-31
308283	CS-3 BH-3'(AH-3)	soil	2012-08-28	00:00	2012-08-31
308284	CS-4 South Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308285	CS-4 East Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308286	CS-4 West Wall (AH-4)	soil	2012-08-28	00:00	2012-08-31
308287	CS-4 BH-3' (AH-4)	soil	2012-08-28	00:00	2012-08-31

Report Corrections (Work Order 12083125)

- 9-12-12: Corrected Field Codes for samples 308275, 308279 and 308283.

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.

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

Report Contents

Case Narrative

Samples for project COG/Fir Federal Tank Battery were received by TraceAnalysis, Inc. on 2012-08-31 and assigned to work order 12083125. Samples for work order 12083125 were received intact at a temperature of 3.7 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	80079	2012-09-05 at 12:37	94623	2012-09-10 at 09:58
Chloride (Titration)	SM 4500-Cl B	80123	2012-09-06 at 11:23	94624	2012-09-10 at 09:59

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 12083125 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: 308272 - CS-1 North Wall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**287**	mg/Kg	5	4.00

Sample: 308273 - CS-1 East Wall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**488**	mg/Kg	5	4.00

Sample: 308274 - CS-1 West Wall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1640**	mg/Kg	5	4.00

Sample: 308275 - CS-1 BH-3'(AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**301**	mg/Kg	5	4.00

Sample: 308276 - CS-2 South Wall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**488**	mg/Kg	5	4.00

Sample: 308277 - CS-2 East Wall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**179**	mg/Kg	5	4.00

Sample: 308278 - CS-2 West Wall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**151**	mg/Kg	5	4.00

Sample: 308279 - CS-2 BH-3'(AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	Sample Preparation:	2012-09-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**273**	mg/Kg	5	4.00

Sample: 308280 - CS-3 North Wall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**451**	mg/Kg	5	4.00

Sample: 308281 - CS-3 East Wall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1900**	mg/Kg	5	4.00

Sample: 308282 - CS-3 West Wall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**437**	mg/Kg	5	4.00

Sample: 308283 - CS-3 BH-3'(AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**366**	mg/Kg	5	4.00

Sample: 308284 - CS-4 South Wall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**409**	mg/Kg	5	4.00

Sample: 308285 - CS-4 East Wall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1460**	mg/Kg	5	4.00

Sample: 308286 - CS-4 West Wall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**486**	mg/Kg	5	4.00

Sample: 308287 - CS-4 BH-3' (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	Sample Preparation:	2012-09-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**550**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 94623

QC Batch:	94623	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80079	QC Preparation:	2012-09-05	Prepared By:	AR

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

Method Blank (1) QC Batch: 94624

QC Batch:	94624	Date Analyzed:	2012-09-10	Analyzed By:	AR
Prep Batch:	80123	QC Preparation:	2012-09-06	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 94623 | Date Analyzed: 2012-09-10 | Analyzed By: AR
Prep Batch: 80079 | QC Preparation: 2012-09-05 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2800	mg/Kg	1	2500	<3.85	112	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2680	mg/Kg	1	2500	<3.85	107	85 - 115	4	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: 94624 | Date Analyzed: 2012-09-10 | Analyzed By: AR
Prep Batch: 80123 | QC Preparation: 2012-09-06 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2590	mg/Kg	1	2500	<3.85	104	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2640	mg/Kg	1	2500	<3.85	106	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: 308279

QC Batch: 94623 | Date Analyzed: 2012-09-10 | Analyzed By: AR
Prep Batch: 80079 | QC Preparation: 2012-09-05 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2940	mg/Kg	5	2500	273	107	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2760	mg/Kg	5	2500	273	99	78.9 - 121	6	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: 308293

QC Batch: 94624 | Date Analyzed: 2012-09-10 | Analyzed By: AR
Prep Batch: 80123 | QC Preparation: 2012-09-06 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2940	mg/Kg	5	2500	486	98	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3040	mg/Kg	5	2500	486	102	78.9 - 121	3	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 94623 | Date Analyzed: 2012-09-10 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.6	100	85 - 115	2012-09-10

Standard (CCV-2)

QC Batch: 94623 | Date Analyzed: 2012-09-10 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-09-10

Standard (CCV-1)

QC Batch: 94624 | Date Analyzed: 2012-09-10 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2012-09-10

Standard (CCV-2)

QC Batch: 94624 | Date Analyzed: 2012-09-10 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-09-10

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

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

Standard Flags

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

Attachments

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

12089125

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

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401311
PROJECT NAME: COG / Firefall TB — Eddy Co NM

ANALYSIS REQUEST (Circle or Specify Method No.): BTEX 8021B; TPH 8015 MOD. TX1005 (Ext. to C35); PAH 8270; RCRA Metals Ag As Ba Cd Cr Pb Hg Se; TCLP Metals Ag As Ba Cd Vr Pd Hg Se; TCLP Volatiles; TCLP Semi Volatiles; RCI; GC.MS Vol. 8240/8260/624; GC.MS Semi. Vol. 8270/625; PCB's 8080/608; Pest. 808/608; Chloride; Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	Chloride
508272	8/28		S		X	CS-1 North wall (AH-1)	1				X		X
273	↓		↓		↓	CS-1 East wall (AH-1)	↓				↓		↓
274						CS-1 West wall (AH-1)							
275						CS-1 BH-3' (AH-1)							
276						CS-2 South wall (AH-2)							
277						CS-2 East wall (AH-2)							
278						CS-2 West wall (AH-2)							
279						CS-2 BH-3' (AH-2)							
280						CS-3 North wall (AH-3)							
281	↓		↓		↓	CS-3 East wall (AH-3)	↓				↓		↓

RELINQUISHED BY: (Signature) [signature] Date: 8-30-12 Time: 1500
RECEIVED BY: (Signature) Jeanne Fitch Date: 08-31-12 Time: 1300
SAMPLED BY: (Print & Initial) Robert Grubbs Jr. Date: 8-30-12 Time: 1450

RELINQUISHED BY: (Signature) Jeanne Fitch Date: 08-31-12 Time: 1400
RECEIVED BY: (Signature) A. Hernandez Date: 8/31/12 Time: 14:00
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: Trace
RECEIVED BY: (Signature)
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: Mark PHONE: DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 3.7 intact
REMARKS: Midland all

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

12083100

Analysis Request of Chain of Custody Record

PAGE: 2 OF 2

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401381

PROJECT NAME: COG/ [illegible] TB Eddy Co, NM

ANALYSIS REQUEST (Circle or Specify Method No.): BTEX 8021B; TPH 8015 MOD. TX1005 (Ext. to C35); PAH 8270; RCRA Metals Ag As Ba Cd Cr Pb Hg Se; TCLP Metals Ag As Ba Cd Vr Pd Hg Se; TCLP Volatiles; TCLP Semi Volatiles; RCI; GC.MS Vol. 8240/8260/624; GC.MS Semi. Vol. 8270/625; PCB's 8080/608; Pest. 808/608; Chloride; Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	Chloride
282	8/28		S		X	CS-3 West wall (AH-3)	1				X		X
283	↓		↓		↓	CS-3 BH-3' (AH-3)	↓				↓		↓
284	↓		↓		↓	CS-4 South wall (AH-4)	↓				↓		↓
285	↓		↓		↓	CS-4 East wall (AH-4)	↓				↓		↓
286	↓		↓		↓	CS-4 West wall (AH-4)	↓				↓		↓
287	↓		↓		↓	CS-4 BH-3' (AH-4)	↓				↓		↓

RELINQUISHED BY: (Signature) [signature] Date: 8-30-12 Time: 1500
RECEIVED BY: (Signature) Jeanne Fitch Date: 08-31-12 Time: 1300

RELINQUISHED BY: (Signature) Jeanne Fitch Date: 08-31-12 Time: 1400
RECEIVED BY: (Signature) A Hernandez Date: 8/31/12 Time: 14:00

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

SAMPLED BY: (Print & Initial) Robert Gobbs Jr Date: 8-30-12 Time: 1500

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

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

SAMPLE CONDITION WHEN RECEIVED: 3.7 intact

REMARKS:

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