pJXK1600433258
4063

HOBBS OCD

APR 23 2013

RECEIVED

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	Prohibition Federal Unit #2 SWD	Facility Type	SWD

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-025-31716

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	11	22S	32E					Lea

Latitude 32 24.253 **Longitude** 103 38.826

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 20bbls	Volume Recovered 19bbls
Source of Release Produced water tank	Date and Hour of Occurrence 08/14/2012	Date and Hour of Discovery 08/14/2012 3:00 p.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The produced water was entering the facility faster than the equalizer could handle which ultimately caused the release of fluid.

Describe Area Affected and Cleanup Action Taken.*

Initially 20bbls were released from the water tank and we were able to recover 19bbls with a vacuum truck. The released fluid was contained inside the dike walls of the facility. All free fluids have been recovered and the tank has been cleaned. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 08/22/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

pJXK1600433258
4003

HOBBS OCD

APR 23 2013

RECEIVED

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, Texas 79701**	Telephone No. **(432) 230-0077**
Facility Name **Prohibition Federal Unit #2 SWD**	Facility Type **SWD**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-31716

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	11	22S	32E	1980	South	2080	West	Lea

Latitude N 32.40408 ° **Longitude** W 103.64719 °

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 20 bbls	Volume Recovered 19 bbls
Source of Release: produced water tank	Date and Hour of Occurrence 08/14/2012	Date and Hour of Discovery 08/14/2012 10:00a.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.*
N/A

Describe Cause of Problem and Remedial Action Taken.*

The produced water was entering the facility faster than the equalizer could handle which ultimately caused the release of fluids.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected and collected samples to define spill extents. Impacted soil that exceeded RRAL was removed and transported to proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared 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:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval:	Attached ☐
Date: 4-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	**Prohibition Federal Unit #2 SWD**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit K**	**Sec 11**	**T22S**	**R32E**		
Lease Number:	**API-30-025-31716**					
County:	**Lea County**					
GPS:	**32.822267° N**			**104.069467° W**		
Surface Owner:	**Federal**					
Mineral Owner:						
Directions:	East of Loving at the intersection of Hwy 31 and Hwy 128 (Jal Hwy), travel east on Hwy 128 for 17.8 miles, turn left onto Red Rd and travel for 7.32 miles, turn right (Mills Ranch Rd) and travel for 7.1 miles, turn left and travel 1.2 miles to site.					

Release Data:	
Date Released:	8/14/2012
Type Release:	Produced Water
Source of Contamination:	Produced Water Tank
Fluid Released:	20 bbls
Fluids Recovered:	19 bbls

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

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

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

HOBBS OCD

APR 23 2013

RECEIVED

TETRA TECH

April 17, 2013

HOBBS OCD

APR 23 2013

RECEIVED

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

Re: Closure Report for the COG Operating LLC., Prohibition Federal Unit #2 SWD, Unit K, Section 11, Township 22 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Prohibition Federal Unit #2 SWD, Unit K, Section 11, Township 22 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.40408°, W 103.64719°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on August 14, 2012, and released approximately twenty (20) barrels of produced water from the water tank with nineteen (19) barrels of standing fluids recovered. The spill was completely contained inside the firewalls of the tank battery and measured approximately 20' x 85'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 11. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 350' below surface. The USGS and the New Mexico State Engineers have wells listed in Section 14 at depths to groundwater of 382' and 350', respectively. The average depth to groundwater map is shown in Appendix B.

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

Regulatory

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

Soil Assessment and Analytical Results

On September 6, 2012, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) 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. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the area of AH-4 showed elevated concentrations above the RRAL for TPH and BTEX at a depth of 0 to 1.0'. The TPH concentration declined below the RRAL at 1.5' below surface, but the total BTEX concentration of 76.7 mg/kg was not vertically defined. Auger holes (AH-1, AH-2 and AH-3) showed elevated chloride concentrations and AH-1 and AH-2 were not vertically defined, with bottom hole samples of 9,550 mg/kg (2-2.5') and 6,360 mg/kg (1-1.5'), respectively. Auger hole (AH-3) did show a significant decline with depth to 617 mg/kg at 2-2.5' below surface.

Closure Activities

Prior to excavating the impacted areas, two (2) backhoe trenches were installed in the areas of AH-1 and AH-2 to attempt to vertically define the chloride impact. The sampling results are shown in Table 1. Referring to Table 1, the area of AH-2 did not show a significant chloride impact to the area. However, the area of AH-1 showed elevated chlorides down to 8.0' below surface. Deeper samples were not collected due to the backhoe limitation.

Based on the field data, the impacted areas were excavated to depth of 1.5' to 3.0' below surface. Deeper excavation could not be achieved due to equipment and safety concerns. As such, Tetra Tech excavated the soils to the maximum extent practicable and any remaining soils were deferred until abandonment of the facility.

TETRA TECH

The excavation areas and depths are highlighted in Table 1 and shown on Figure 4. Once excavated, a confirmation sample was collected from the area of AH-4 for BTEX analysis and showed concentrations below the RRAL. In addition, the area of AH-1 was excavated to a depth of 3.0' below surface and placed clay material in the excavation bottom to cap the remaining impact. Prior to backfilling the excavation, the BLM and NMOCD were contacted and met onsite to discuss the remedial activities. Both agencies approved the backfilling with no further sampling or drilling.

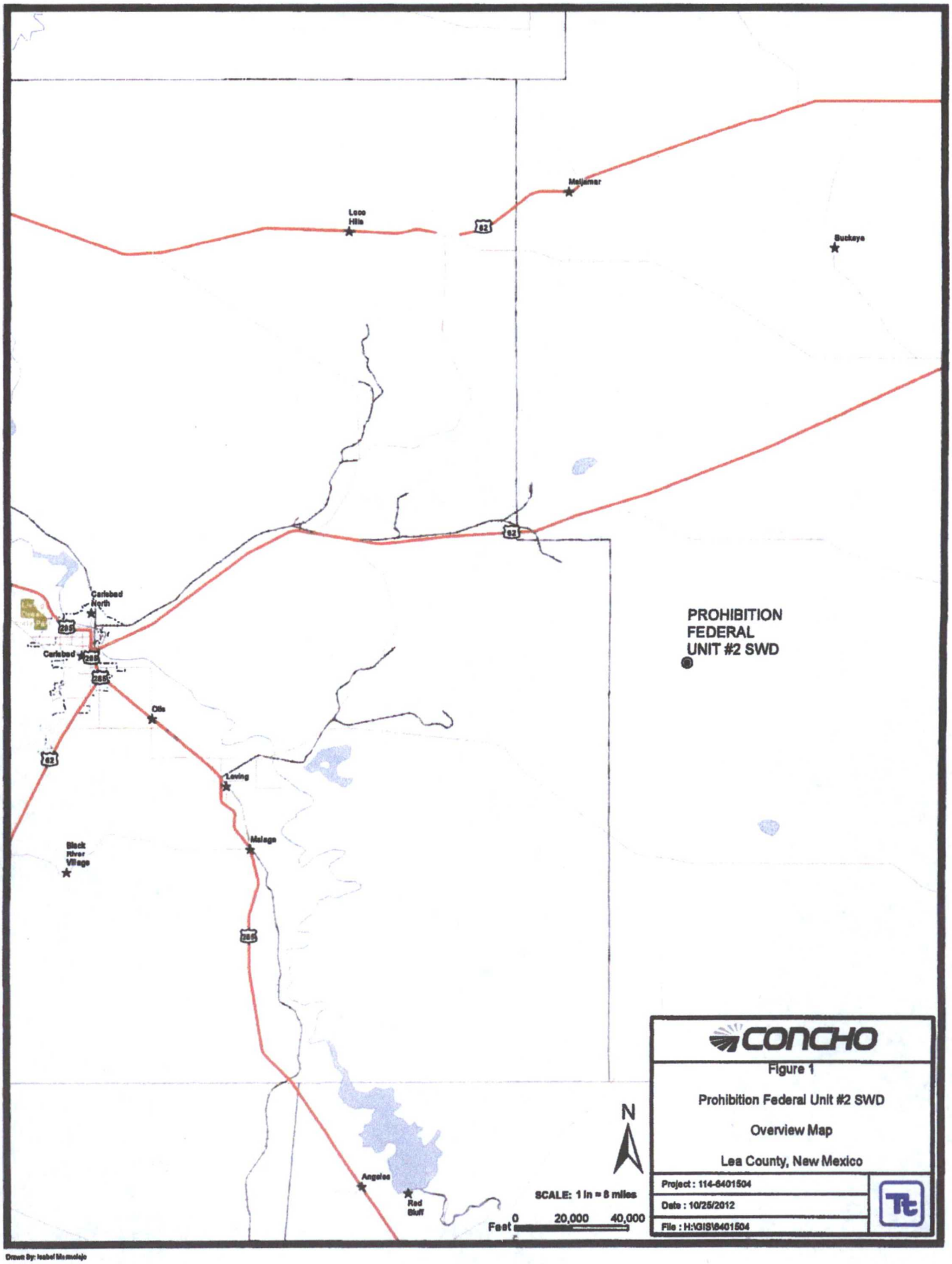
Approximately 20 cubic yards were transported offsite for proper disposal. Once final excavation depths were achieved and approved, the site will be backfilled with clean material and brought to grade.

Based on the remedial activities performed, COG requests 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, PG
Senior Project Manager

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



CONCHO

Figure 1

Prohibition Federal Unit #2 SWD

Overview Map

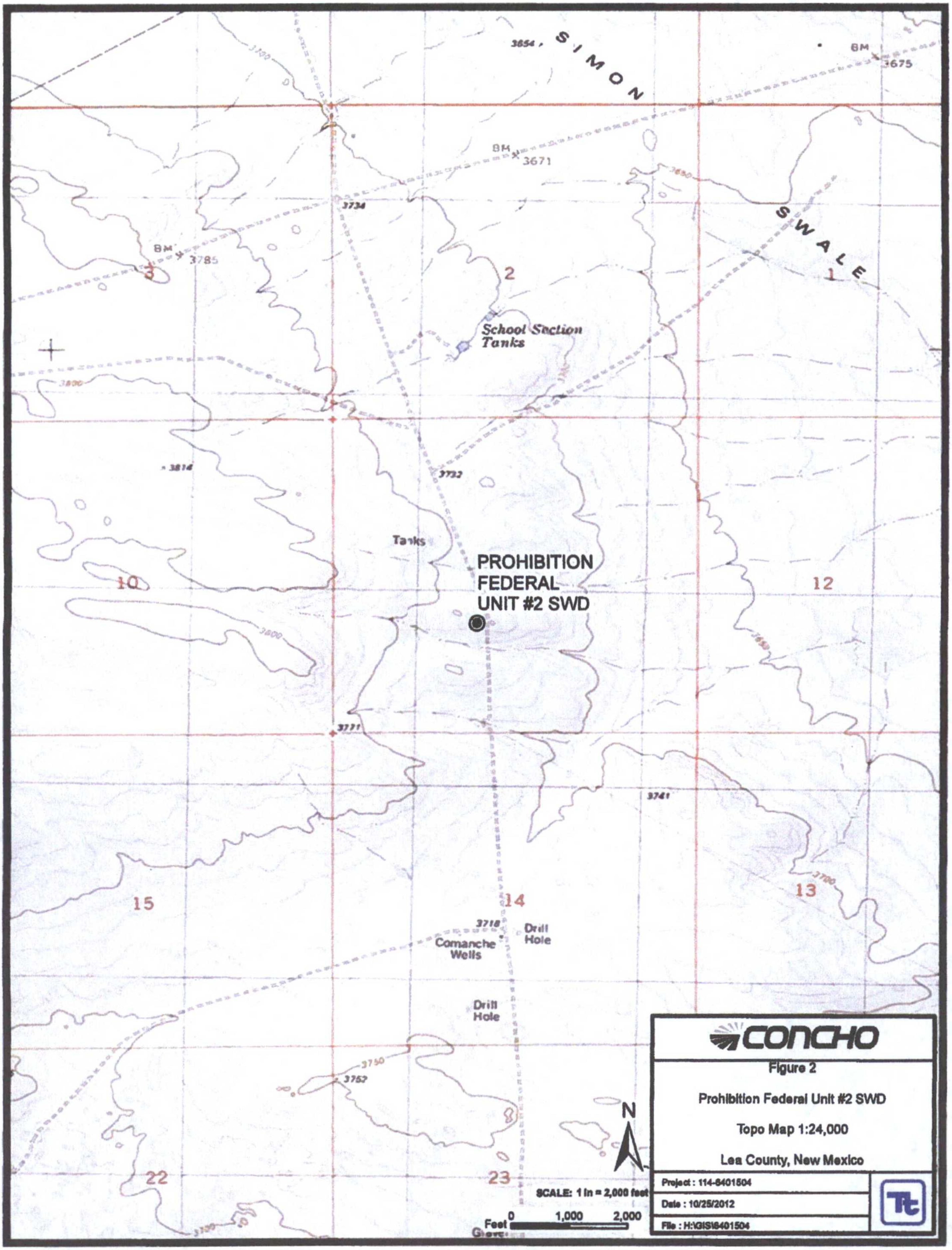
Lea County, New Mexico

Project : 114-6401504

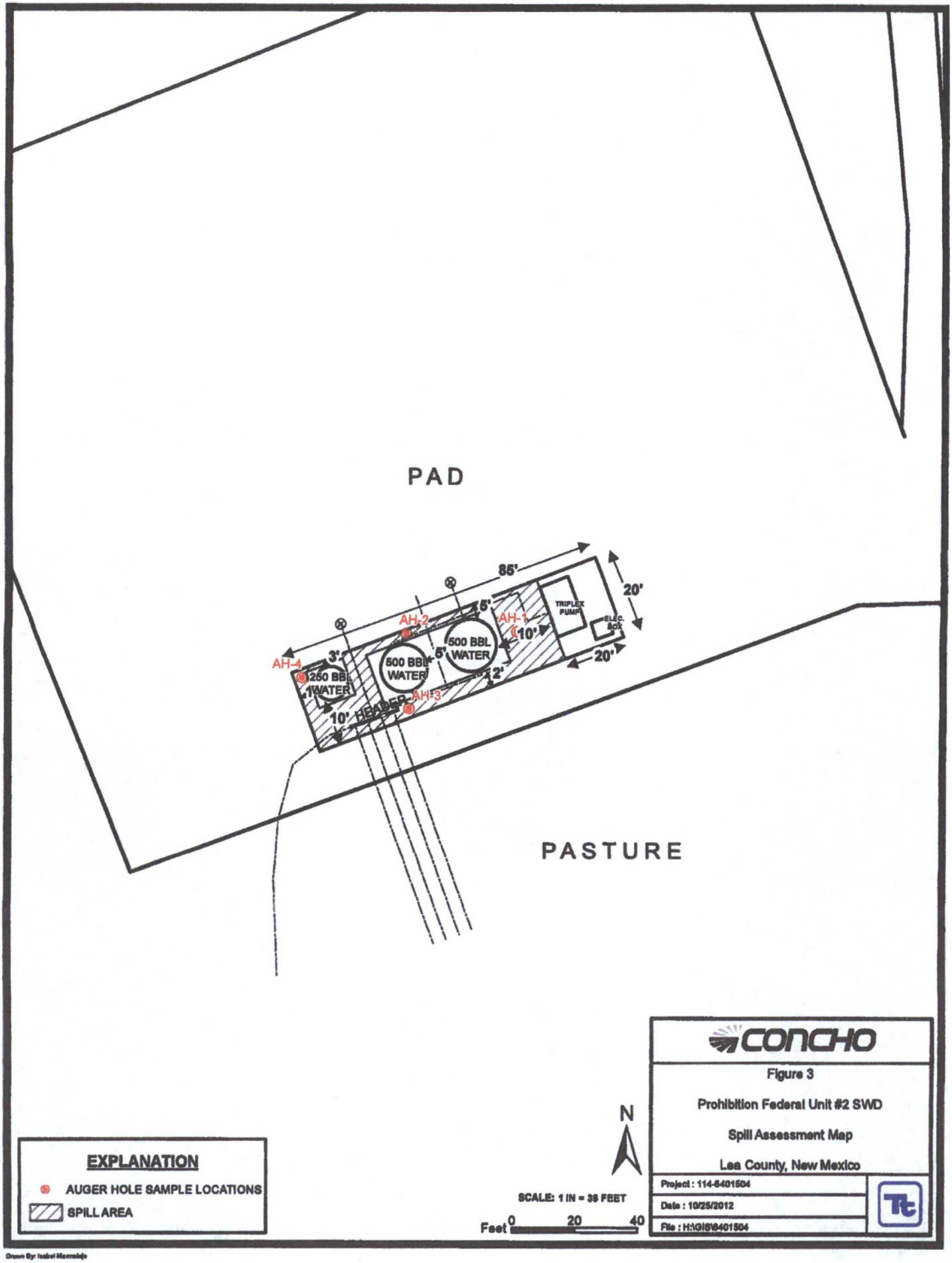
Date : 10/25/2012

File : H:\GIS\6401504

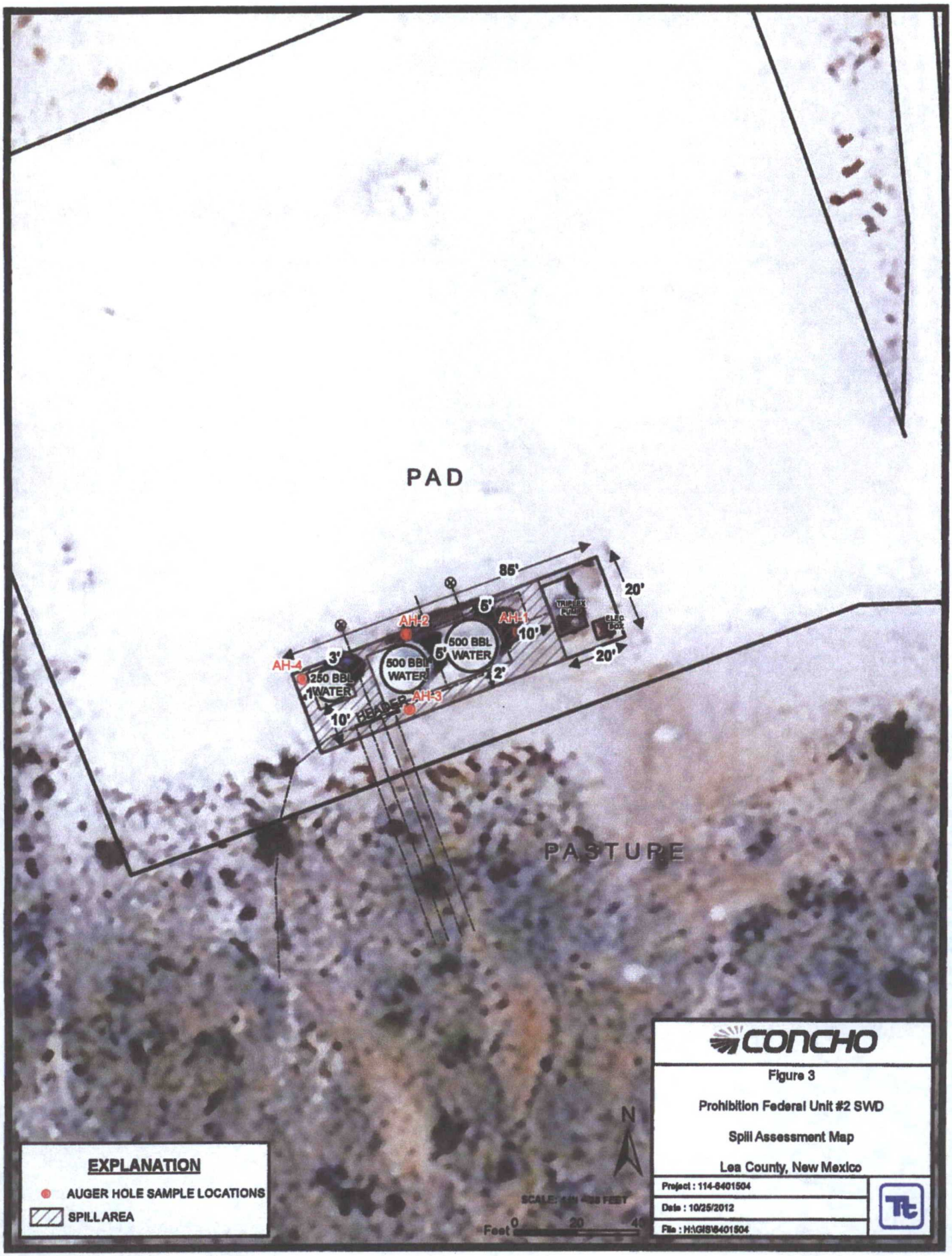
Drawn By: Isabel Manuelejo



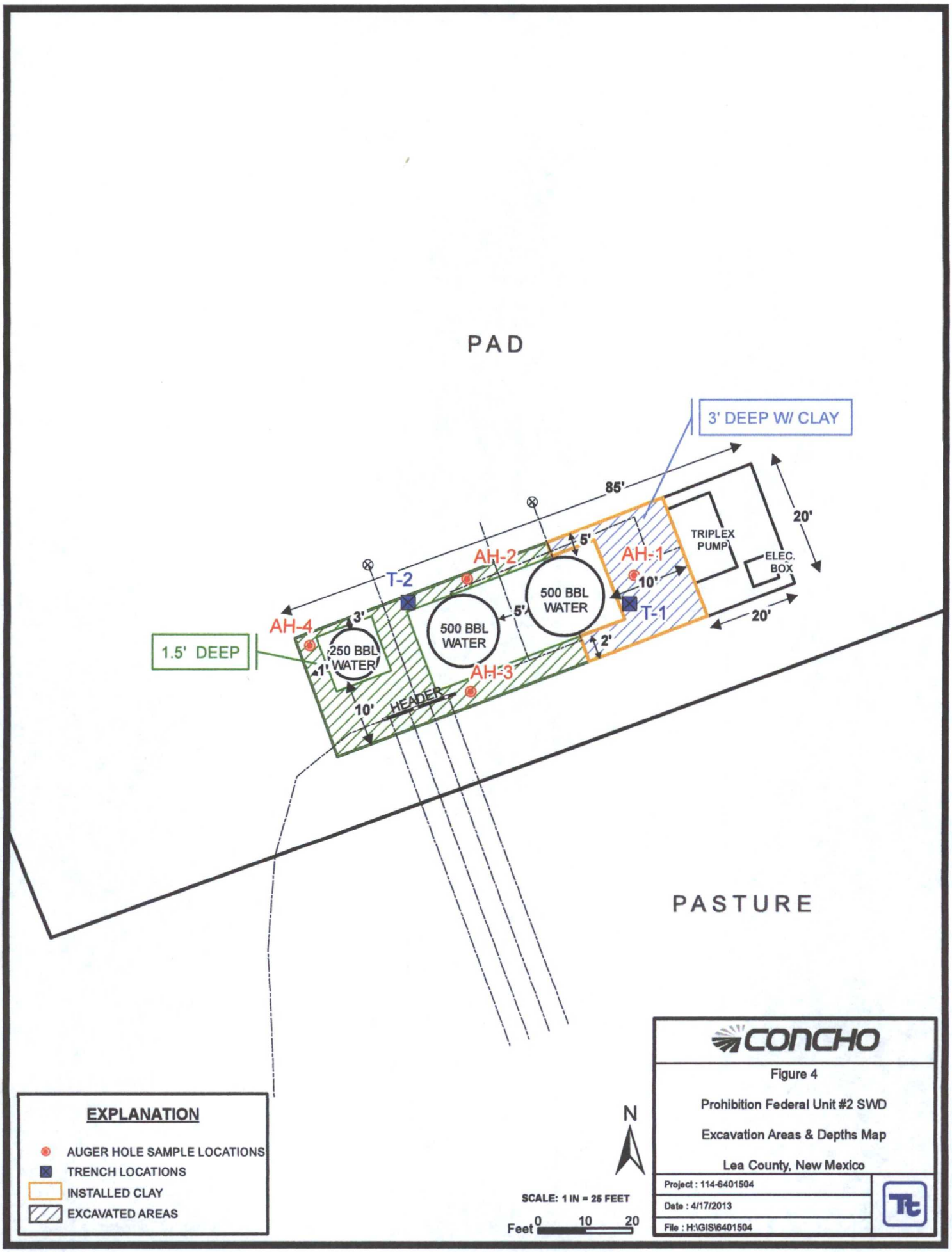
Drawn By: Isabel Mamaleje



Drawn By: Isabel Manriquez



Drawn By: Isabel Mazmudjo



Drawn By: Isabel Marmolejo

Table 1
COG Operating LLC.
Prohibition Federal #2 Salt Water Disposal
Lea 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	9/6/2012	0-1		X	1,010	<50.0	1,010	<1.00	6.70	3.57	16.4	26.7	19,100
	"	1-1.5		X	-	-	-	-	-	-	-	-	10,900
	"	2-2.5		X	-	-	-	-	-	-	-	-	9,550
Trench-1	12/11/2012	2			-	-	-	-	-	-	-	-	4,380
excavated 3' deep	"	4	X		-	-	-	-	-	-	-	-	2,140
	"	6	X		-	-	-	-	-	-	-	-	2,500
	"	8	X		-	-	-	-	-	-	-	-	2,400
AH-2	9/6/2012	0-1		X	1,050	<50.0	1,050	<1.00	4.20	4.22	15.6	24.0	18,000
	"	1-1.5		X	-	-	-	-	-	-	-	-	6,360
Trench-2	12/11/2012	1	X		-	-	-	-	-	-	-	-	825
	"	3	X		-	-	-	-	-	-	-	-	305
	"	5	X		-	-	-	-	-	-	-	-	175
AH-3	9/6/2012	0-1		X	22.9	<50.0	22.9	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,340
	"	1-1.5		X	-	-	-	-	-	-	-	-	1,560
	"	2-2.5	X		-	-	-	-	-	-	-	-	617
AH-4	9/6/2012	0-1		X	3,530	2,280	**5,810**	3.91	44.2	24.0	83.2	**155**	<20.0
	"	1-1.5		X	360	60.7	421	5.08	24.9	12.4	34.3	**76.7**	74.1
CS-1 Composite	12/11/2012	1.5 bottom	X		-	-	-	<0.0400	4.93	<0.400	11.8	16.7	-

(-) Not Analyzed

Clay Cap

COG Operating LLC
Prohibition Federal Unit #2 SWD
Eddy County, New Mexico

TETRA TECH

Area of AH-1 excavation

Area of AH-1 clay cap

COG Operating LLC
Prohibition Federal Unit #2 SWD
Eddy County, New Mexico

TETRA TECH

Area of AH-2 excavation

Area of AH-3 excavation

COG Operating LLC
Prohibition Federal Unit #2 SWD
Eddy County, New Mexico

TETRA TECH

Excavation area SW of facility, near header

Area of AH-4 excavation

Water Well Data
Average Depth to Groundwater (ft)
COG - Prohibition Federal Unit #2 SWD
Lea County, New Mexico

21 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 630	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 SITE	34	35	36

21 South 32 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

21 South 33 East

6	5	4	3	2 79 107	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 179	27	26	25
31	32	33	34	35	36

22 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 448	15	14	13
19	20 47	21	22	23	24
30	29 413	28 444	27	26	25
31	32	33	34	35	36

22 South 32 East

6	5	4	3	2	1
7	8	9	10	11 SITE	12
18	17	16	15	14 382 350	13
19 (S) 280	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South 31 East

6 85	5 354	4 168	3	2	1
7 140	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

23 South 32 East

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

23 South 33 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

- 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

USGS
science for a changing world

National Water Information System: Web Interface

USGS Water Resources | Data Category: Groundwater | Geographic Area: United States | GO

News - updated September 2012

Groundwater levels for the Nation

Search Results -- 1 sites found

Search Criteria

Agency code = usgs
site_no list =
- 322314103384301

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

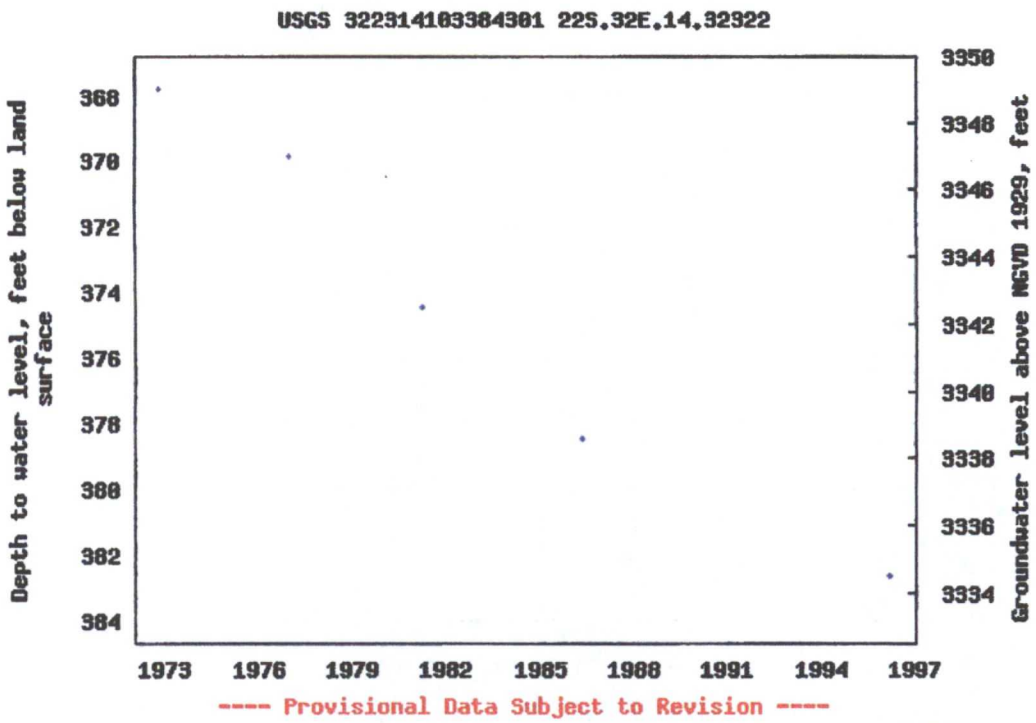
USGS 322314103384301 22S.32E.14.32322

Available data for this site Groundwater: Field measurements GO

Lea County, New Mexico
Hydrologic Unit Code --
Latitude 32°23'23", Longitude 103°38'53" NAD27
Land-surface elevation 3,717.00 feet above NGVD29
The depth of the well is 435 feet below land surface.
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help

Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: http://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2012-10-24 11:05:49 EDT
0.33 0.31 nadww01

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Code	Subbasin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02096			ED		2	3	14	22S	32E	627204	3584464*	435	360	75
C 02821		C	LE	2	2	3	14	22S	32E	627303	3584563*	540	340	200

Average Depth to Water: **350 feet**

Minimum Depth: **340 feet**

Maximum Depth: **360 feet**

Record Count: 2

PLSS Search:

Section(s): 14 Township: 22S Range: 32E

***UTM location was derived from PLSS - see Help**

10/24/12 9:20 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Summary Report

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

Report Date: September 26, 2012

Work Order: 12091203

Project Location: NM
Project Name: COG/Prohibition Fed. #2 SWD
Project Number: 114-6401504

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
308953	AH-1 0-1'	soil	2012-09-06	00:00	2012-09-11
308954	AH-1 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308955	AH-1 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308956	AH-2 0-1'	soil	2012-09-06	00:00	2012-09-11
308957	AH-2 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308958	AH-3 0-1'	soil	2012-09-06	00:00	2012-09-11
308959	AH-3 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308960	AH-3 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308961	AH-4 0-1'	soil	2012-09-06	00:00	2012-09-11
308962	AH-4 1-1.5'	soil	2012-09-06	00:00	2012-09-11

	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)
308953 - AH-1 0-1'	<1.00 Qs	**6.70** Qs	**3.57** Qs	**16.4** Qs	<50.0	**1010**
308956 - AH-2 0-1'	<1.00 Qs	**4.20** Qs	**4.22** Qs	**15.6** Qs	<50.0	**1050**
308958 - AH-3 0-1'	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<50.0	**22.9**
308961 - AH-4 0-1'	**3.91** Qs	**44.2** Qs	**24.0** Qs	**83.2** Qs	**2280**	**3530**
308962 - AH-4 1-1.5'	**5.08** H	**24.9**	**12.4**	**34.3**	**60.7**	**360** H

Sample: 308953 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**19100**	mg/Kg	4

Sample: 308954 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**10900**	mg/Kg	4

Sample: 308955 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**9550**	mg/Kg	4

Sample: 308956 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**18000**	mg/Kg	4

Sample: 308957 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**6360**	mg/Kg	4

Sample: 308958 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**4340**	mg/Kg	4

Sample: 308959 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1560**	mg/Kg	4

Sample: 308960 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**617**	mg/Kg	4

Sample: 308961 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 308962 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**74.1**	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 26, 2012

Work Order: 12091203 [redacted]

Project Location: NM
Project Name: COG/Prohibition Fed. #2 SWD
Project Number: 114-6401504

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
308953	AH-1 0-1'	soil	2012-09-06	00:00	2012-09-11
308954	AH-1 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308955	AH-1 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308956	AH-2 0-1'	soil	2012-09-06	00:00	2012-09-11
308957	AH-2 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308958	AH-3 0-1'	soil	2012-09-06	00:00	2012-09-11
308959	AH-3 1-1.5'	soil	2012-09-06	00:00	2012-09-11
308960	AH-3 2-2.5'	soil	2012-09-06	00:00	2012-09-11
308961	AH-4 0-1'	soil	2012-09-06	00:00	2012-09-11
308962	AH-4 1-1.5'	soil	2012-09-06	00:00	2012-09-11

Report Corrections (Work Order 12091203)

- Re-issued report due to a sample comment added on sample 308962 for GRO and BTEX. 9-26-12

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 30 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/Prohibition Fed. #2 SWD were received by TraceAnalysis, Inc. on 2012-09-11 and assigned to work order 12091203. Samples for work order 12091203 were received intact at a temperature of 2.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	80534	2012-09-20 at 16:45	95043	2012-09-20 at 16:45
BTEX	S 8021B	80605	2012-09-18 at 09:18	95117	2012-09-24 at 09:18
Chloride (Titration)	SM 4500-Cl B	80432	2012-09-17 at 11:26	94941	2012-09-18 at 18:11
TPH DRO - NEW	S 8015 D	80415	2012-09-17 at 08:00	94898	2012-09-18 at 08:30
TPH DRO - NEW	S 8015 D	80512	2012-09-18 at 08:00	95015	2012-09-20 at 15:10
TPH DRO - NEW	S 8015 D	80556	2012-09-18 at 08:00	95065	2012-09-24 at 08:36
TPH GRO	S 8015 D	80534	2012-09-20 at 16:45	95048	2012-09-20 at 16:45
TPH GRO	S 8015 D	80605	2012-09-18 at 09:18	95118	2012-09-18 at 09:18

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 12091203 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: 308953 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95043	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	Qs	1	<1.00	mg/Kg	50	0.0200
Toluene	Qs	1	**6.70**	mg/Kg	50	0.0200
Ethylbenzene	Qs	1	**3.57**	mg/Kg	50	0.0200
Xylene	Qs	1	**16.4**	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/Kg	1	0.100	100	70 - 130

Sample: 308953 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**19100**	mg/Kg	10	4.00

Sample: 308953 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	95015	Date Analyzed:	2012-09-20	Analyzed By:	CW
Prep Batch:	80512	Sample Preparation:	2012-09-18	Prepared By:	CW

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			121	mg/Kg	1	100	121	70 - 130

Sample: 308953 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95048	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1010**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0942	mg/Kg	50	0.100	94	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0858	mg/Kg	50	0.100	86	70 - 130

Sample: 308954 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10900**	mg/Kg	10	4.00

Sample: 308955 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

continued ...

sample 308955 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9550**	mg/Kg	10	4.00

Sample: 308956 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95043	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs	1	<1.00	mg/Kg	50	0.0200
Toluene	Qs	1	**4.20**	mg/Kg	50	0.0200
Ethylbenzene	Qs	1	**4.22**	mg/Kg	50	0.0200
Xylene	Qs	1	**15.6**	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.109	mg/Kg	1	0.100	109	70 - 130

Sample: 308956 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**18000**	mg/Kg	10	4.00

Sample: 308956 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	95015	Date Analyzed:	2012-09-20	Analyzed By:	CW
Prep Batch:	80512	Sample Preparation:	2012-09-18	Prepared By:	CW

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			118	mg/Kg	1	100	118	70 - 130

Sample: 308956 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95048	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1050**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0949	mg/Kg	50	0.100	95	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0828	mg/Kg	50	0.100	83	70 - 130

Sample: 308957 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6360**	mg/Kg	10	4.00

Sample: 308958 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95043	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.29	mg/Kg	1	2.00	114	70 - 130

Sample: 308958 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4340**	mg/Kg	10	4.00

Sample: 308958 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			121	mg/Kg	1	100	121	70 - 130

Sample: 308958 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95048	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**22.9**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0962	mg/Kg	1	0.100	96	70 - 130
4-Bromofluorobenzene (4-BFB)			0.115	mg/Kg	1	0.100	115	70 - 130

Sample: 308959 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1560**	mg/Kg	5	4.00

Sample: 308960 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**617**	mg/Kg	5	4.00

Sample: 308961 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95043	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene	Qs	1	**3.91**		mg/Kg	50	0.0200
Toluene	Qs	1	**44.2**		mg/Kg	50	0.0200
Ethylbenzene	Qs	1	**24.0**		mg/Kg	50	0.0200
Xylene	Qs	1	**83.2**		mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0990	mg/Kg	1	0.100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0800	mg/Kg	1	0.100	80	70 - 130

Sample: 308961 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride	U		<20.0		mg/Kg	5	4.00

Sample: 308961 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		1	**2280**		mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	5	100	104	70 - 130

Sample: 308961 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95048	Date Analyzed:	2012-09-20	Analyzed By:	YG
Prep Batch:	80534	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
GRO		1		**3530**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0948	mg/Kg	50	0.100	95	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0823	mg/Kg	50	0.100	82	70 - 130

Sample: 308962 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95117	Date Analyzed:	2012-09-24	Analyzed By:	YG
Prep Batch:	80605	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Benzene	H	1		**5.08**	mg/Kg	20	0.0200
Toluene		1		**24.9**	mg/Kg	20	0.0200
Ethylbenzene		1		**12.4**	mg/Kg	20	0.0200
Xylene		1		**34.3**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.103	mg/Kg	1	0.100	103	70 - 130
4-Bromofluorobenzene (4-BFB)			0.115	mg/Kg	1	0.100	115	70 - 130

Sample: 308962 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	94941	Date Analyzed:	2012-09-18	Analyzed By:	AR
Prep Batch:	80432	Sample Preparation:	2012-09-17	Prepared By:	AR

continued ...

sample 308962 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**74.1**	mg/Kg	5	4.00

Sample: 308962 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	95065	Date Analyzed:	2012-09-24	Analyzed By:	CW
Prep Batch:	80556	Sample Preparation:	2012-09-18	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**60.7**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	152	mg/Kg	1	100	152	70 - 130

Sample: 308962 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95118	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80605	Sample Preparation:		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	H	1	**360**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0977	mg/Kg	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0896	mg/Kg	1	0.100	90	70 - 130

Method Blanks

Method Blank (1) QC Batch: 94898

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW
Prep Batch: 80415 | QC Preparation: 2012-09-17 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<9.09	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	70 - 130

Method Blank (1) QC Batch: 94941

QC Batch: 94941 | Date Analyzed: 2012-09-18 | Analyzed By: AR
Prep Batch: 80432 | QC Preparation: 2012-09-17 | Prepared By: AR

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

Method Blank (1) QC Batch: 95015

QC Batch: 95015 | Date Analyzed: 2012-09-20 | Analyzed By: CW
Prep Batch: 80512 | QC Preparation: 2012-09-18 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<9.09	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			116	mg/Kg	1	100	116	70 - 130

Method Blank (1) QC Batch: 95043

QC Batch: 95043 | Date Analyzed: 2012-09-20 | Analyzed By: YG
Prep Batch: 80534 | QC Preparation: 2012-09-20 | Prepared By: YG

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)			0.103	mg/Kg	1	0.100	103	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	mg/Kg	1	0.100	108	70 - 130

Method Blank (1) QC Batch: 95048

QC Batch: 95048 | Date Analyzed: 2012-09-20 | Analyzed By: YG
Prep Batch: 80534 | QC Preparation: 2012-09-20 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.101	mg/Kg	1	0.100	101	70 - 130
4-Bromofluorobenzene (4-BFB)			0.103	mg/Kg	1	0.100	103	70 - 130

Method Blank (1) QC Batch: 95065

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW
Prep Batch: 80556 | QC Preparation: 2012-09-18 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<9.09	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	70 - 130

Method Blank (1) QC Batch: 95117

QC Batch: 95117 | Date Analyzed: 2012-09-24 | Analyzed By: YG
Prep Batch: 80605 | QC Preparation: 2012-09-18 | Prepared By: YG

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)			2.12	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	70 - 130

Method Blank (1) QC Batch: 95118

QC Batch: 95118 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80605 | QC Preparation: 2012-09-18 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW
Prep Batch: 80415 | QC Preparation: 2012-09-17 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	293	mg/Kg	1	250	<9.09	117	70 - 130

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	289	mg/Kg	1	250	<9.09	116	70 - 130	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	110	103	mg/Kg	1	100	110	103	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94941 | Date Analyzed: 2012-09-18 | Analyzed By: AR
Prep Batch: 80432 | QC Preparation: 2012-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2610	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			2690	mg/Kg	1	2500	<3.85	108	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 95015 | Date Analyzed: 2012-09-20 | Analyzed By: CW
Prep Batch: 80512 | QC Preparation: 2012-09-18 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	295	mg/Kg	1	250	<9.09	118	70 - 130

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	288	mg/Kg	1	250	<9.09	115	70 - 130	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	117	118	mg/Kg	1	100	117	118	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95043 | Date Analyzed: 2012-09-20 | Analyzed By: YG
Prep Batch: 80534 | QC Preparation: 2012-09-20 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.90	mg/Kg	1	2.00	<0.00470	95	70 - 130
Toluene		1	1.91	mg/Kg	1	2.00	<0.00980	96	70 - 130
Ethylbenzene		1	1.93	mg/Kg	1	2.00	<0.00500	96	70 - 130
Xylene		1	5.83	mg/Kg	1	6.00	<0.0170	97	70 - 130

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	1.88	mg/Kg	1	2.00	<0.00470	94	70 - 130	1	20
Toluene		1	1.89	mg/Kg	1	2.00	<0.00980	94	70 - 130	1	20
Ethylbenzene		1	1.88	mg/Kg	1	2.00	<0.00500	94	70 - 130	3	20
Xylene		1	5.74	mg/Kg	1	6.00	<0.0170	96	70 - 130	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)	2.11	2.10	mg/Kg	1	2.00	106	105	70 - 130

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.29	2.30	mg/Kg	1	2.00	114	115	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95048 | Date Analyzed: 2012-09-20 | Analyzed By: YG
Prep Batch: 80534 | QC Preparation: 2012-09-20 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	21.5	mg/Kg	1	20.0	<1.22	108	70 - 130

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	21.4	mg/Kg	1	20.0	<1.22	107	70 - 130	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.101	0.100	mg/Kg	1	0.100	101	100	70 - 130
4-Bromofluorobenzene (4-BFB)	0.109	0.110	mg/Kg	1	0.100	109	110	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW
Prep Batch: 80556 | QC Preparation: 2012-09-18 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	269	mg/Kg	1	250	<9.09	108	70 - 130

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	263	mg/Kg	1	250	<9.09	105	70 - 130	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	114	116	mg/Kg	1	100	114	116	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95117 | Date Analyzed: 2012-09-24 | Analyzed By: YG
Prep Batch: 80605 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.76	mg/Kg	1	2.00	<0.00470	88	70 - 130
Toluene		1	1.74	mg/Kg	1	2.00	<0.00980	87	70 - 130
Ethylbenzene		1	1.70	mg/Kg	1	2.00	<0.00500	85	70 - 130
Xylene		1	5.16	mg/Kg	1	6.00	<0.0170	86	70 - 130

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	1.82	mg/Kg	1	2.00	<0.00470	91	70 - 130	3	20
Toluene		1	1.78	mg/Kg	1	2.00	<0.00980	89	70 - 130	2	20
Ethylbenzene		1	1.77	mg/Kg	1	2.00	<0.00500	88	70 - 130	4	20
Xylene		1	5.33	mg/Kg	1	6.00	<0.0170	89	70 - 130	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)	2.08	2.10	mg/Kg	1	2.00	104	105	70 - 130
4-Bromofluorobenzene (4-BFB)	2.25	2.30	mg/Kg	1	2.00	112	115	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95118 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80605 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	22.1	mg/Kg	1	20.0	<1.22	110	70 - 130

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	21.1	mg/Kg	1	20.0	<1.22	106	70 - 130	5	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)	2.03	2.07	mg/Kg	1	2.00	102	104	70 - 130
4-Bromofluorobenzene (4-BFB)	2.20	2.19	mg/Kg	1	2.00	110	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 309041

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW
Prep Batch: 80415 | QC Preparation: 2012-09-17 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	263	mg/Kg	1	250	<9.09	105	70 - 130

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
DRO		1	268	mg/Kg	1	250	<9.09	107	70 - 130	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	114	120	mg/Kg	1	100	114	120	70 - 130

Matrix Spike (MS-1) Spiked Sample: 308962

QC Batch: 94941 | Date Analyzed: 2012-09-18 | Analyzed By: AR
Prep Batch: 80432 | QC Preparation: 2012-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2540	mg/Kg	5	2500	74.1	99	78.9 - 121

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
Chloride			2650	mg/Kg	5	2500	74.1	103	78.9 - 121	4	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: 308956

QC Batch: 95015 | Date Analyzed: 2012-09-20 | Analyzed By: CW
Prep Batch: 80512 | QC Preparation: 2012-09-18 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	292	mg/Kg	1	250	<9.09	117	70 - 130

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
DRO		1	262	mg/Kg	1	250	<9.09	105	70 - 130	11	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	126	120	mg/Kg	1	100	126	120	70 - 130

Matrix Spike (MS-1) Spiked Sample: 309017

QC Batch: 95043 | Date Analyzed: 2012-09-20 | Analyzed By: YG
Prep Batch: 80534 | QC Preparation: 2012-09-20 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1 <0.00470	mg/Kg	1	2.00	<0.00470	0	70 - 130
Toluene	Qs	Qs	1 <0.00980	mg/Kg	1	2.00	<0.00980	0	70 - 130
Ethylbenzene	Qs	Qs	1 <0.00500	mg/Kg	1	2.00	<0.00500	0	70 - 130
Xylene	Qs	Qs	1 <0.0170	mg/Kg	1	6.00	<0.0170	0	70 - 130

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	<0.00470	mg/Kg	1	2.00	<0.00470		70 - 130		20
Toluene		1	<0.00980	mg/Kg	1	2.00	<0.00980		70 - 130		20
Ethylbenzene		1	<0.00500	mg/Kg	1	2.00	<0.00500		70 - 130		20
Xylene		1	<0.0170	mg/Kg	1	6.00	<0.0170		70 - 130		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	0.00	0.00	mg/Kg	1	2	0		70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	0.00	0.00	mg/Kg	1	2	0		70 - 130

Matrix Spike (MS-1) Spiked Sample: 308962

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW
Prep Batch: 80556 | QC Preparation: 2012-09-18 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	317	mg/Kg	1	250	60.7	102	70 - 130

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
DRO		1	306	mg/Kg	1	250	60.7	98	70 - 130	4	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	135	130	mg/Kg	1	100	135	130	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	278	111	80 - 120	2012-09-18

Standard (CCV-2)

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	288	115	80 - 120	2012-09-18

Standard (CCV-3)

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	256	102	80 - 120	2012-09-18

Standard (CCV-1)

QC Batch: 94941 | Date Analyzed: 2012-09-18 | 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	2012-09-18

Standard (CCV-2)

QC Batch: 94941 | Date Analyzed: 2012-09-18 | 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	99.9	100	85 - 115	2012-09-18

Standard (CCV-1)

QC Batch: 95015 | Date Analyzed: 2012-09-20 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	275	110	80 - 120	2012-09-20

Standard (CCV-2)

QC Batch: 95015 | Date Analyzed: 2012-09-20 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	251	100	80 - 120	2012-09-20

Standard (CCV-1)

QC Batch: 95043 | Date Analyzed: 2012-09-20 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0999	100	80 - 120	2012-09-20
Toluene		1	mg/kg	0.100	0.0985	98	80 - 120	2012-09-20
Ethylbenzene		1	mg/kg	0.100	0.0929	93	80 - 120	2012-09-20
Xylene		1	mg/kg	0.300	0.281	94	80 - 120	2012-09-20

Standard (CCV-2)

QC Batch: 95043 | Date Analyzed: 2012-09-20 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0977	98	80 - 120	2012-09-20
Toluene		1	mg/kg	0.100	0.0952	95	80 - 120	2012-09-20
Ethylbenzene		1	mg/kg	0.100	0.0892	89	80 - 120	2012-09-20
Xylene		1	mg/kg	0.300	0.271	90	80 - 120	2012-09-20

Standard (CCV-1)

QC Batch: 95048 | Date Analyzed: 2012-09-20 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.990	99	80 - 120	2012-09-20

Standard (CCV-2)

QC Batch: 95048 | Date Analyzed: 2012-09-20 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.933	93	80 - 120	2012-09-20

Standard (CCV-1)

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	271	108	80 - 120	2012-09-24

Standard (CCV-2)

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	281	112	80 - 120	2012-09-24

Standard (CCV-3)

QC Batch: 95065 | Date Analyzed: 2012-09-24 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	268	107	80 - 120	2012-09-24

Standard (CCV-1)

QC Batch: 95117 | Date Analyzed: 2012-09-24 | Analyzed By: YG

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	2012-09-24
Toluene		1	mg/kg	0.100	0.102	102	80 - 120	2012-09-24
Ethylbenzene		1	mg/kg	0.100	0.0947	95	80 - 120	2012-09-24
Xylene		1	mg/kg	0.300	0.285	95	80 - 120	2012-09-24

Standard (CCV-2)

QC Batch: 95117 | Date Analyzed: 2012-09-24 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-09-24
Toluene		1	mg/kg	0.100	0.101	101	80 - 120	2012-09-24
Ethylbenzene		1	mg/kg	0.100	0.0927	93	80 - 120	2012-09-24
Xylene		1	mg/kg	0.300	0.280	93	80 - 120	2012-09-24

Standard (CCV-1)

QC Batch: 95118 | Date Analyzed: 2012-09-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.995	100	80 - 120	2012-09-18

Standard (CCV-2)

QC Batch: 95118 | Date Analyzed: 2012-09-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2012-09-18

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	T104704392-12-4	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.

12091203

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.: 114-6401504
PROJECT NAME: COG - Prohibition Fed #2 SWD

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
308953	9/6		S		X	AH-1 0-1	1				X		X	X											X				
954						AH-1 1-1.5	1																		X				
955						AH-1 2-2.5	1																		X				
956						AH-2 0-1	1						X	X											X				
957						AH-2 1-1.5	1																		X				
958						AH-3 0-1	1						X	X											X				
959						AH-3 1-1.5	1																		X				
960						AH-3 2-2.5	1																		X				
961						AH-4 0-1	1						X	X											X				
962						AH-4 1-1.5	1																		X				

RELINQUISHED BY: (Signature) [signature] Date: 9-11-12 Time: 1645
RECEIVED BY: (Signature) [signature] Date: 9/11/12 Time: 16:45
SAMPLED BY: (Print & Initial) Marcus Kujawski / Ryan Reish Date: 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: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 2.1
REMARKS: Run deeper samples if TPH exceeds 5,000 mg/kg AH

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

Midland-Ike
Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

1209203

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640504

PROJECT NAME: COG - Prohibition Fed #2 SWD

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH TX1005 (Ext. to C35)	TPH 8015 Mod.	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
308953	9/6		S		X	AH-1 0-1	1				X		X	X		X										X				
954						AH-1 1-1.5	1																			X				
955						AH-1 2-2.5	1																			X				
956						AH-2 0-1	1						X	X												X				
957						AH-2 1-1.5	1																			X				
958						AH-3 0-1	1						X	X												X				
959						AH-3 1-1.5	1																			X				
960						AH-3 2-3.5	1																			X				
961						AH-4 0-1	1						X	X												X				
962						AH-4 1-1.5	1																			X				

RELINQUISHED BY: (Signature) — Date: 9-11-12 Time: 1645
RECEIVED BY: (Signature) — Date: 9/11/12 Time: 16:45
SAMPLED BY: (Print & Initial) Marcus Kirkendall / Ryan Reich — Date: — Time:

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: — Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS OTHER: — AIRBILL #:

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: — Time:
SEP 25 2012

RECEIVING LABORATORY: Trace
ADDRESS: — CITY: — STATE: — ZIP: — CONTACT: — PHONE:
RECEIVED BY: (Signature) — DATE: — TIME:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 2

REMARKS: Turn Around 24 hrs if TPH Exceeds 5,000 mg/kg AH

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

Midland Lab Turn Around 24 hrs if benzene exceed 10 mg/kg or total BTEX exceed 50 mg/kg

Summary Report

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

Report Date: December 21, 2012

Work Order: 12121335

Project Location: Lea Co., NM
Project Name: COG/Prohibition Fed. #2 SWD
Project Number: 114-6401504

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316605	Trench-1 2' AH-1	soil	2012-12-11	00:00	2012-12-13
316606	Trench-1 4' AH-1	soil	2012-12-11	00:00	2012-12-13
316607	Trench-1 6' AH-1	soil	2012-12-11	00:00	2012-12-13
316608	Trench-1 8' AH-1	soil	2012-12-11	00:00	2012-12-13
316609	Trench-2 1' AH-2	soil	2012-12-11	00:00	2012-12-13
316610	Trench-2 3' AH-2	soil	2012-12-11	00:00	2012-12-13
316611	Trench-2 5' AH-2	soil	2012-12-11	00:00	2012-12-13
316612	CS-1 (Composite) 1.5' Bottom	soil	2012-12-11	00:00	2012-12-13

	BTEX			
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)
316612 - CS-1 (Composite) 1.5' Bottom	<0.400 [1] Qr,Qs	**4.93** Qs	<0.400 Qs	**11.8** Qs

Sample: 316605 - Trench-1 2' AH-1

Param	Flag	Result	Units	RL
Chloride		**4380**	mg/Kg	4

Sample: 316606 - Trench-1 4' AH-1

Param	Flag	Result	Units	RL
Chloride		**2140**	mg/Kg	4

[1] Dilution due to excessive hydrocarbons.

Sample: 316607 - Trench-1 6' AH-1

Param	Flag	Result	Units	RL
Chloride		**2500**	mg/Kg	4

Sample: 316608 - Trench-1 8' AH-1

Param	Flag	Result	Units	RL
Chloride		**2400**	mg/Kg	4

Sample: 316609 - Trench-2 1' AH-2

Param	Flag	Result	Units	RL
Chloride		**825**	mg/Kg	4

Sample: 316610 - Trench-2 3' AH-2

Param	Flag	Result	Units	RL
Chloride		**305**	mg/Kg	4

Sample: 316611 - Trench-2 5' AH-2

Param	Flag	Result	Units	RL
Chloride		**175**	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: December 21, 2012

Work Order: 12121335

Project Location: Lea Co., NM
Project Name: COG/Prohibition Fed. #2 SWD
Project Number: 114-6401504

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
316605	Trench-1 2' AH-1	soil	2012-12-11	00:00	2012-12-13
316606	Trench-1 4' AH-1	soil	2012-12-11	00:00	2012-12-13
316607	Trench-1 6' AH-1	soil	2012-12-11	00:00	2012-12-13
316608	Trench-1 8' AH-1	soil	2012-12-11	00:00	2012-12-13
316609	Trench-2 1' AH-2	soil	2012-12-11	00:00	2012-12-13
316610	Trench-2 3' AH-2	soil	2012-12-11	00:00	2012-12-13
316611	Trench-2 5' AH-2	soil	2012-12-11	00:00	2012-12-13
316612	CS-1 (Composite) 1.5' Bottom	soil	2012-12-11	00:00	2012-12-13

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

Michael Abel

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

Case Narrative

Samples for project COG/Prohibition Fed. #2 SWD were received by TraceAnalysis, Inc. on 2012-12-13 and assigned to work order 12121335. Samples for work order 12121335 were received intact at a temperature of 1.3 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	82578	2012-12-13 at 12:00	97443	2012-12-13 at 12:00
Chloride (Titration)	SM 4500-Cl B	82663	2012-12-19 at 09:02	97614	2012-12-20 at 14:11

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 12121335 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: 316605 - Trench-1 2' AH-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**4380**	mg/Kg	10	4.00

Sample: 316606 - Trench-1 4' AH-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2140**	mg/Kg	10	4.00

Sample: 316607 - Trench-1 6' AH-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2500**	mg/Kg	10	4.00

Sample: 316608 - Trench-1 8' AH-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2400**	mg/Kg	10	4.00

Sample: 316609 - Trench-2 1' AH-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**825**	mg/Kg	5	4.00

Sample: 316610 - Trench-2 3' AH-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**305**	mg/Kg	5	4.00

Sample: 316611 - Trench-2 5' AH-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97614	Date Analyzed:	2012-12-20	Analyzed By:	AR
Prep Batch:	82663	Sample Preparation:	2012-12-19	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**175**	mg/Kg	5	4.00

Sample: 316612 - CS-1 (Composite) 1.5' Bottom

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97443	Date Analyzed:	2012-12-13	Analyzed By:	YG
Prep Batch:	82578	Sample Preparation:	2012-12-13	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr,Qs,U	1	<0.400	mg/Kg	20	0.0200
Toluene	Qs	1	**4.93**	mg/Kg	20	0.0200
Ethylbenzene	Qs,U	1	<0.400	mg/Kg	20	0.0200
Xylene	Qs	1	**11.8**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			39.8	mg/Kg	20	40.0	100	79.5 - 108
4-Bromofluorobenzene (4-BFB)			43.3	mg/Kg	20	40.0	108	71.4 - 108

Method Blanks

Method Blank (1) QC Batch: 97443

QC Batch: 97443 | Date Analyzed: 2012-12-13 | Analyzed By: YG
Prep Batch: 82578 | QC Preparation: 2012-12-13 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 97614

QC Batch: 97614 | Date Analyzed: 2012-12-20 | Analyzed By: AR
Prep Batch: 82663 | QC Preparation: 2012-12-19 | 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: 97443 | Date Analyzed: 2012-12-13 | Analyzed By: YG
Prep Batch: 82578 | QC Preparation: 2012-12-13 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.66	mg/Kg	1	2.00	<0.00810	83	70 - 130
Toluene		1	1.82	mg/Kg	1	2.00	<0.00750	91	70 - 130
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00730	98	70 - 130
Xylene		1	5.76	mg/Kg	1	6.00	<0.00700	96	70 - 130

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	1.58	mg/Kg	1	2.00	<0.00810	79	70 - 130	5	20
Toluene		1	1.77	mg/Kg	1	2.00	<0.00750	88	70 - 130	3	20
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00730	96	70 - 130	3	20
Xylene		1	5.65	mg/Kg	1	6.00	<0.00700	94	70 - 130	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)	2.01	2.02	mg/Kg	1	2.00	100	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.95	1.90	mg/Kg	1	2.00	98	95	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97614 | Date Analyzed: 2012-12-20 | Analyzed By: AR
Prep Batch: 82663 | QC Preparation: 2012-12-19 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	mg/Kg	1	2500	<3.85	105	85 - 115

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2750	mg/Kg	1	2500	<3.85	110	85 - 115	5	20

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

Matrix Spike (MS-1) Spiked Sample: 316612

QC Batch: 97443 | Date Analyzed: 2012-12-13 | Analyzed By: YG
Prep Batch: 82578 | QC Preparation: 2012-12-13 | Prepared By: YG

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1	4.02	mg/Kg	20	2.00	<0.162	201	70 - 130
Toluene	Qs	Qs	1	7.88	mg/Kg	20	2.00	4.93	148	70 - 130
Ethylbenzene	Qs	Qs	1	6.41	mg/Kg	20	2.00	<0.146	320	70 - 130
Xylene	Qs	Qs	1	20.6	mg/Kg	20	6.00	11.8	147	70 - 130

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	Qr,Qs	Qr,Qs	1	2.92	mg/Kg	20	2.00	<0.162	146	70 - 130	32	20
Toluene	Qs	Qs	1	7.68	mg/Kg	20	2.00	4.93	138	70 - 130	3	20
Ethylbenzene	Qs	Qs	1	6.62	mg/Kg	20	2.00	<0.146	331	70 - 130	3	20
Xylene			1	19.5	mg/Kg	20	6.00	11.8	128	70 - 130	6	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	38.8	39.0	mg/Kg	20	2	1940	1950	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	45.9	44.0	mg/Kg	20	2	2295	2200	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316611

QC Batch: 97614 | Date Analyzed: 2012-12-20 | Analyzed By: AR
Prep Batch: 82663 | QC Preparation: 2012-12-19 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2790	mg/Kg	5	2500	175	105	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			2930	mg/Kg	5	2500	175	110	78.9 - 121	5	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: 97443 | Date Analyzed: 2012-12-13 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0921	92	80 - 120	2012-12-13
Toluene		1	mg/kg	0.100	0.0935	94	80 - 120	2012-12-13
Ethylbenzene		1	mg/kg	0.100	0.0944	94	80 - 120	2012-12-13
Xylene		1	mg/kg	0.300	0.282	94	80 - 120	2012-12-13

Standard (CCV-2)

QC Batch: 97443 | Date Analyzed: 2012-12-13 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0931	93	80 - 120	2012-12-13
Toluene		1	mg/kg	0.100	0.0936	94	80 - 120	2012-12-13
Ethylbenzene		1	mg/kg	0.100	0.0961	96	80 - 120	2012-12-13
Xylene		1	mg/kg	0.300	0.281	94	80 - 120	2012-12-13

Standard (CCV-1)

QC Batch: 97614 | Date Analyzed: 2012-12-20 | 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	2012-12-20

Standard (CCV-2)

QC Batch: 97614 | Date Analyzed: 2012-12-20 | 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	2012-12-20

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	T104704392-12-4	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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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

Result Comments

1 Dilution due to excessive hydrocarbons.

Attachments

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

12121335

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

ANALYSIS REQUEST (Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: M.E. Tavarez
PROJECT NO.: 114-640 1504
PROJECT NAME: COG - Prohibition Fed #2 Lea Co. NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
316605	12-11-12		S		X	Trench - 1 2' AH-1	1				✓														X				
606					Y	" 4' AH-1	1				✓														X				
607					Y	" 6' AH-1	1				✓														X				
608					Y	" 8' AH-1	1				✓														X				
609					Y	Trench-2 1' AH-2	1				✓														X				
610					Y	" 3' AH-2	1				✓														X				
611					X	" MF 5' AH-2	1				✓														X				
612				X		CS-1 (Composite) 1.5' bottom	1				✓		X																	

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Jaime Fitch Date: 12-13-12 Time: 0900
SAMPLED BY: (Print & Initial) Robert Cobbs. Date: 12-11-12 Time:

RELINQUISHED BY: (Signature) Jaime Fitch Date: 12-13-12 Time: 1412
RECEIVED BY: (Signature) Date: 12/13/12 Time: 14:12
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: M.E. Tavarez
Results by: 12/14 P.M.
RUSH Charges Authorized: Yes / No
45-1 only

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

SAMPLE CONDITION WHEN RECEIVED: 1.3°
REMARKS: Midland all 316611 - SW 5' - J.F. AH

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