SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	**Willow State Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit O**	**Sec 16**	**T17S**	**R31E**		
Lease Number:	**API-30-015-28880**					
County:	**Eddy County**					
GPS:	**32.82796° N**			**103.87553° W**		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 529 and Hwy 82 (east of Loco Hills) travel east 0.3 miles and turn north on CR 223. Travel north on CR 223 for 1.1 miles. Turn right on a caliche road and continue 100 feet to the tank battery.					

Release Data:	
Date Released:	11/7/2012
Type Release:	Produced water with Skim Oil
Source of Contamination:	Water Pump Swedge
Fluid Released:	200 bbls
Fluids Recovered:	190 bbls

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NMOCD ARTESIA

Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
P.O. Box	600 W. Illinois Ave.		
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

February 14, 2013

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., Willow State Tank Battery, Unit 0, Section 16, Township 17 South, Range 31 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Willow State Tank Battery located in Unit O, Section 16, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82796°, W 103.87553°. 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 November 7, 2012 and released approximately two hundred (200) barrels of produced water with skim oil from a swedge on a water pump. Approximately 190 barrels were recovered. The spill was entirely contained within the firewalls of the tank battery. In addition, the spill migrated west into the adjacent oil tanks, which this area was lined with a plastic liner. The final C-141 form is enclosed in Appendix A.

Groundwater

According to the New Mexico State Engineers Office no water wells were listed within Section 16. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 150' below surface. The groundwater data 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 5000 mg/kg.

Soil Assessment and Analytical Results

On December 12, 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 spill area and auger hole locations are shown on Figure 3.

Referring to Table 1, all of the auger hole samples were below the RRAL for BTEX and TPH. A shallow chloride impact was detected at the site and all of the auger holes were vertically defined. The area of AH-3 did not show a significant impact to the soils, with chlorides of 1,260 mg/kg (0-1') and 1,050 mg/kg (1-1.5') below surface. The areas of AH-2 and AH-4 showed impact soils from 0-1' to 1-.1.5', which significantly declined with depth. The deepest impact was encountered in the area of AH-1, which detected a chloride high of 9,800 mg/kg (0-1') and significantly declined with depth to 810 mg/kg at 6-6.5' below surface.

TETRA TECH

Remediation and Conclusion

On January 22, 2013, Tetra Tech personnel supervised the remediation at the site. Due to access issues, all of the excavated areas were hand dug inside the tank battery. The excavation depths were achieved as stated in the approved work plan and highlighted in Table 1 and on Figure 4. Once the excavated depths were completed, the area of AH-1 was capped with clay material at approximately 3.0' below surface. The excavations were then brought to grade with additional clean soil. Approximately 25 cubic yards of soil were excavated and transported to the R360 facility for proper disposal.

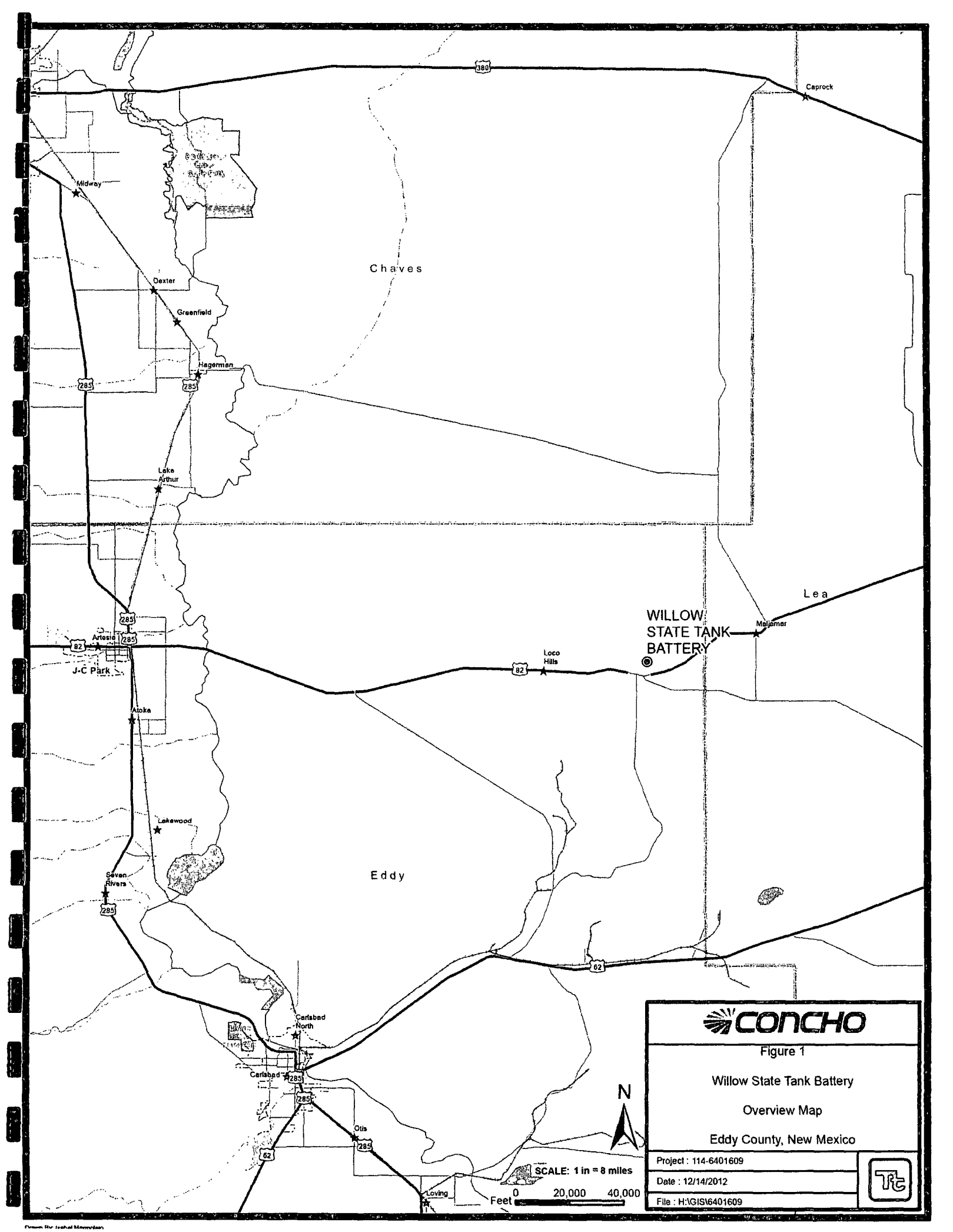
Based on the remedial activities performed, COG request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

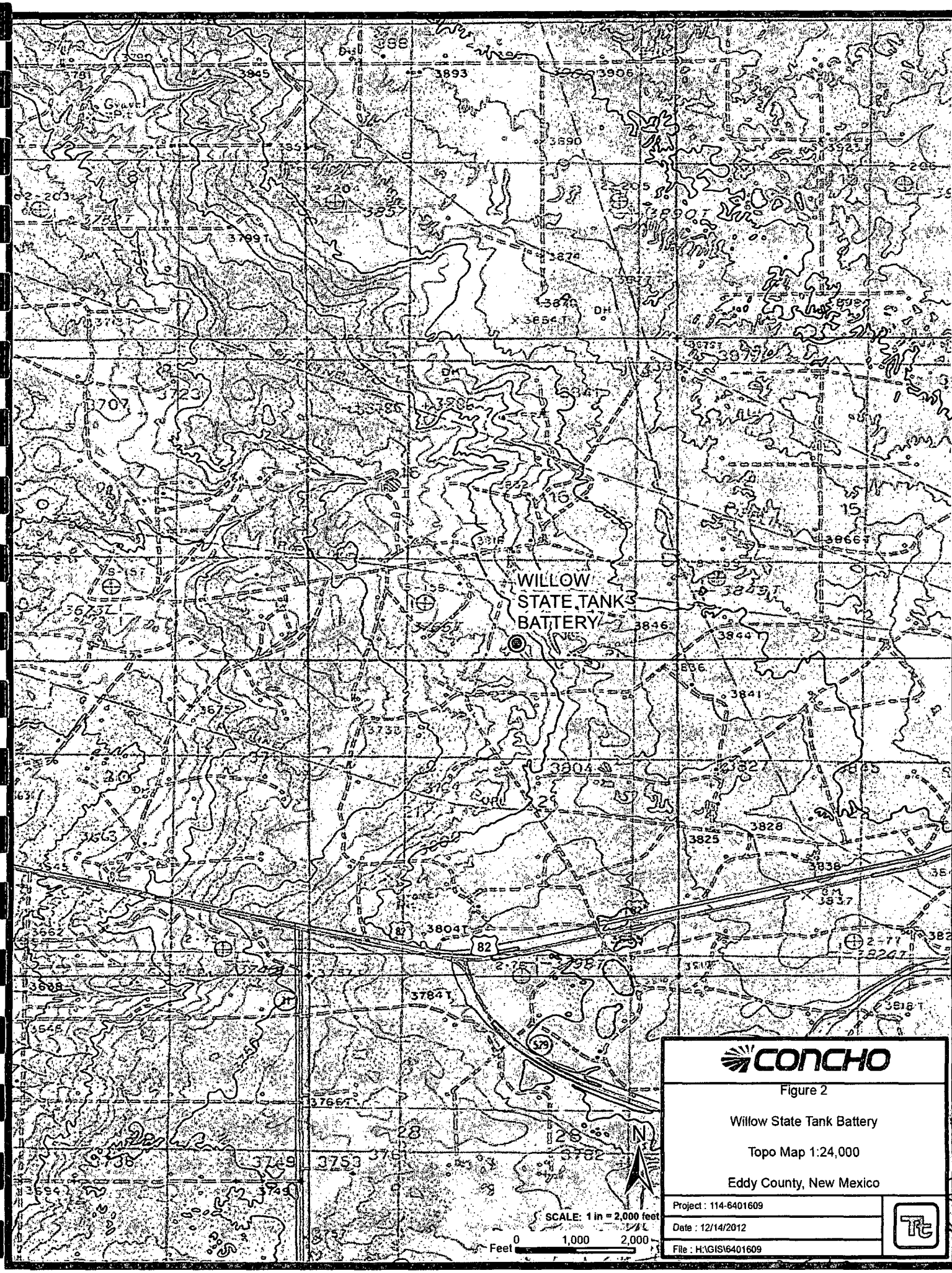
Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG

FIGURES


Caprock
Midway
Chaves
Dexter
Greenfield
Hagerman
Lake Arthur
Lea
WILLOW STATE TANK BATTERY
Maljamar
Artesia
J-C Park
Loco Hills
Atoka
Lakewood
Eddy
Seven Rivers
Carlsbad North
Carlsbad
Otis
Loving
N
SCALE: 1 in = 8 miles
0 20,000 40,000
Feet
CONCHO
Figure 1
Willow State Tank Battery
Overview Map
Eddy County, New Mexico
Project : 114-6401609
Date : 12/14/2012
File : H:\GIS\6401609



CONCHO

Figure 2

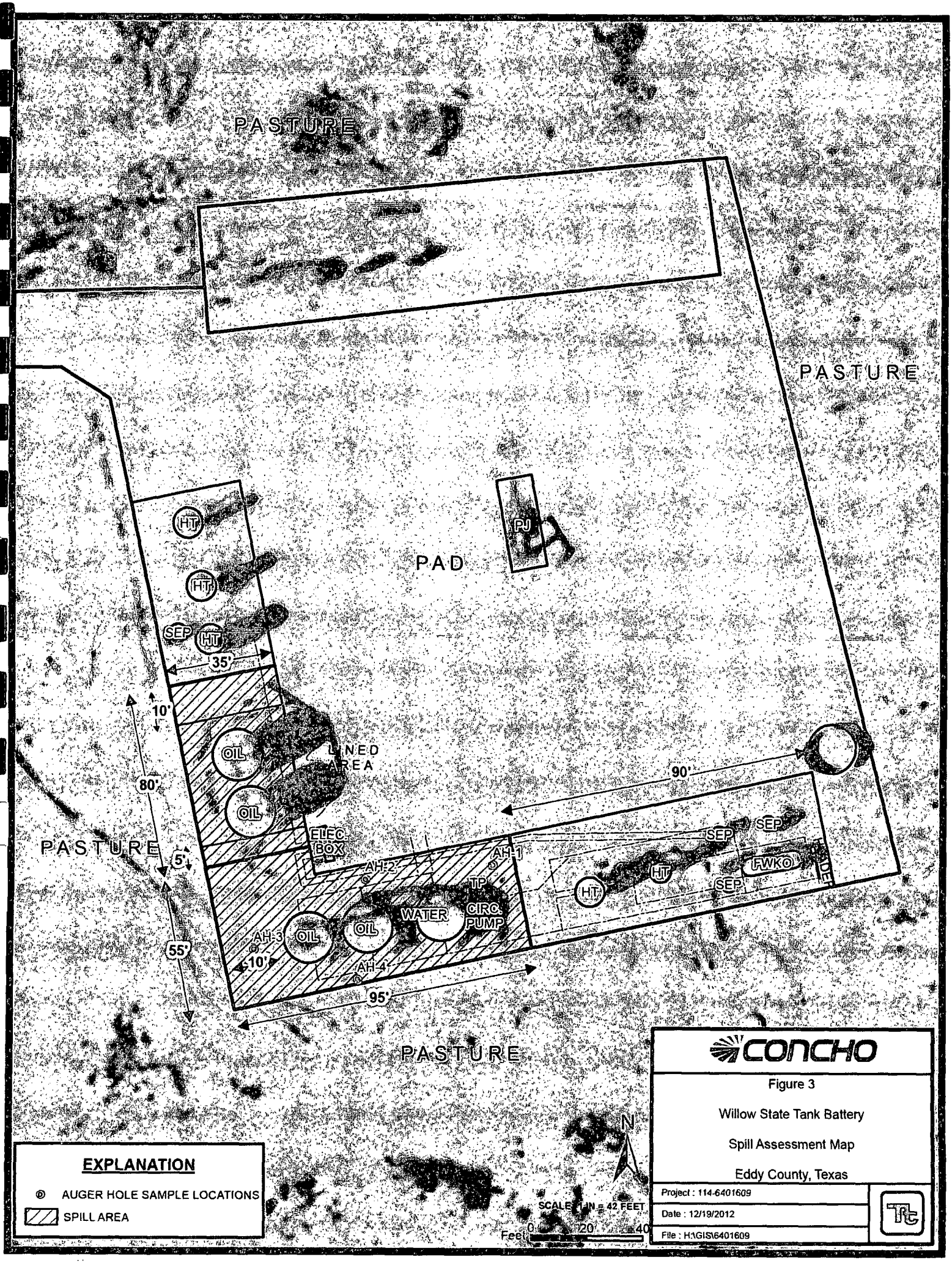
Willow State Tank Battery

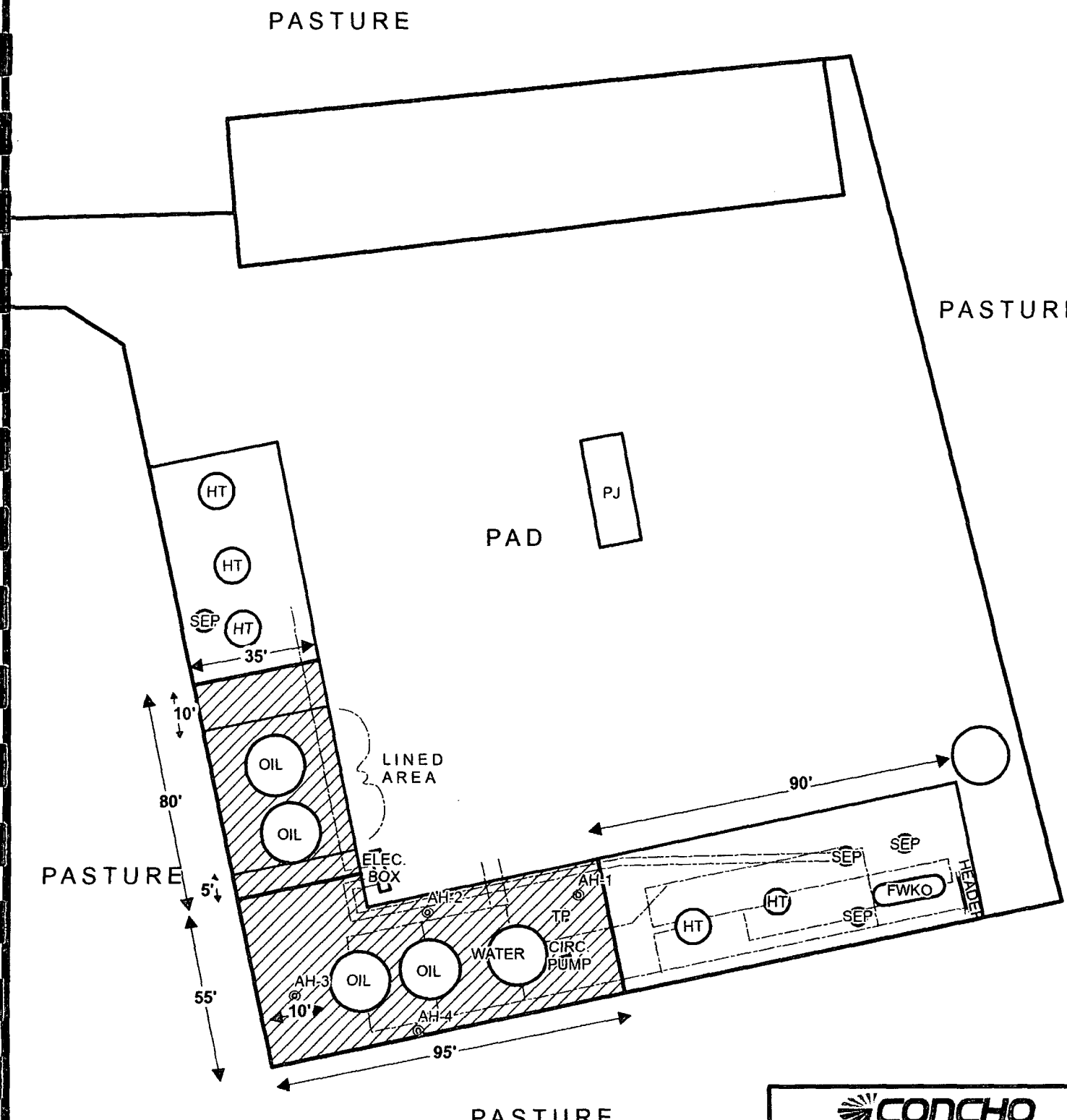
Topo Map 1:24,000

Eddy County, New Mexico

Project : 114-6401609	
Date : 12/14/2012	
File : H:\GIS\6401609	

Drawn By: Isabel Marmolejo


PASTURE
PASTURE
PAD
PJ
HT
HT
SEP
HT
35'
10'
80'
OIL
OIL
LINED AREA
ELEC. BOX
PASTURE
5'
55'
AH-1
AH-2
AH-3
AH-4
10'
TP
WATER
CIRC. PUMP
OIL
OIL
90'
SEP
SEP
FWKO
HT
HT
SEP
95'
PASTURE
N
SCALE: 1IN = 42 FEET
0
20'
40
Feet
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
CONCHO
Figure 3
Willow State Tank Battery
Spill Assessment Map
Eddy County, Texas
Project : 114-6401609
Date : 12/19/2012
File : H:\GIS\6401609



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 42 FEET

Feet 0 20 40

CONCHO

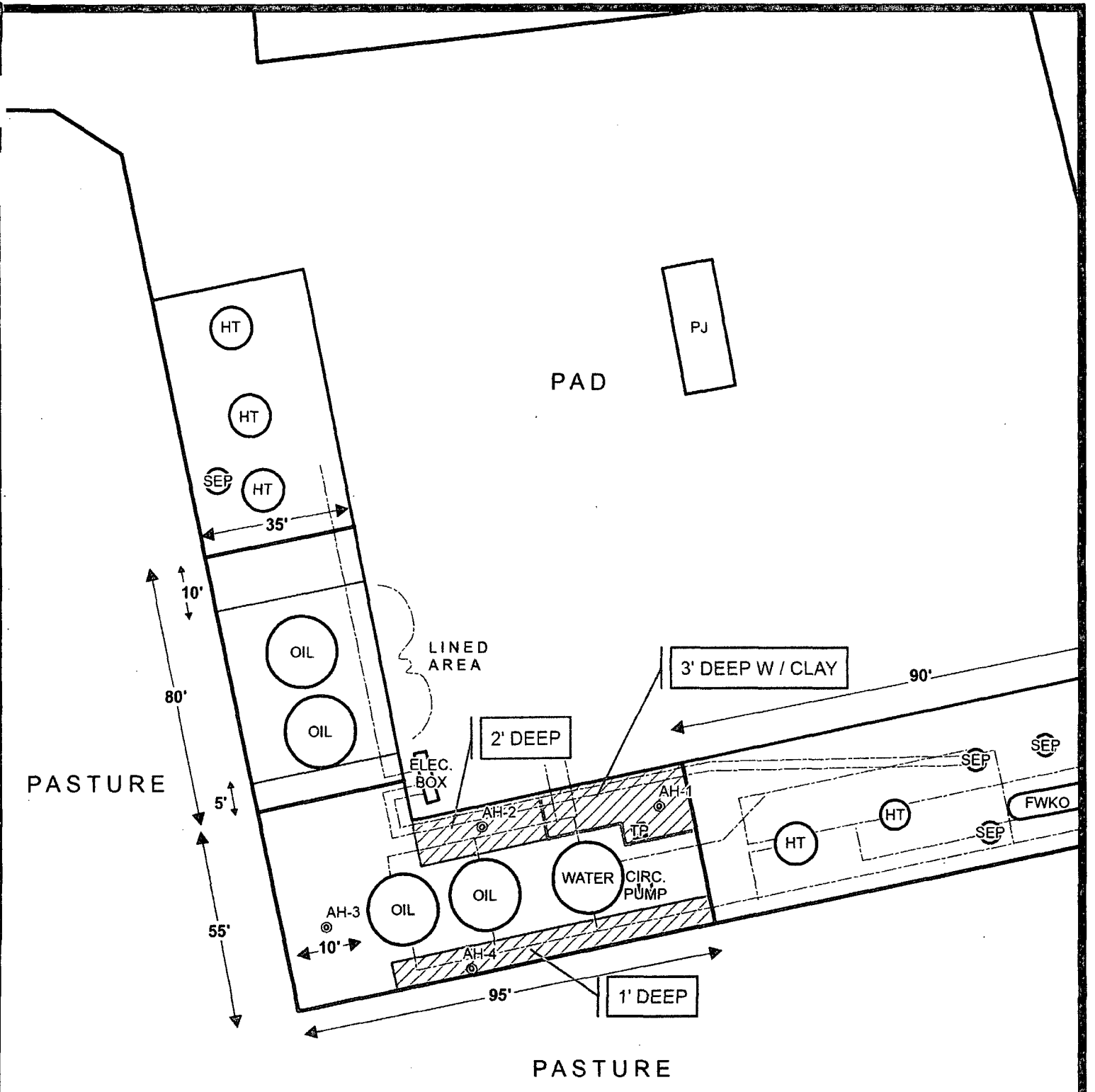
Figure 3

Willow State Tank Battery

Spill Assessment Map

Eddy County, Texas

Project : 114-6401609	
Date : 12/19/2012	
File : H:\GIS\6401609	



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- INSTALLED CLAY LINER
- EXCAVATED AREAS

N

SCALE: 1 IN = 35 FEET

Feet 0 10 20

CONCHO

Figure 4

Willow State Tank Battery

Excavation Areas & Depths Map

Eddy County, Texas

Project : 114-6401609	
Date : 2/4/2013	
File : H:\GIS\6401609	

Drawn By: Isabel Marmolejo

TABLES

Table 1
COG Operating LLC.
Willow State 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	12/7/2012	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,800
	"	1-1.5		X	-	-	-	-	-	-	-	-	3,900
	"	2-2.5		X	-	-	-	-	-	-	-	-	3,260
	"	3-3.5	X		-	-	-	-	-	-	-	-	4,530
	"	4-4.5	X		-	-	-	-	-	-	-	-	1,650
	"	5-5.5	X		-	-	-	-	-	-	-	-	1,830
	"	6-6.5	X		-	-	-	-	-	-	-	-	810
	"	7-7.5	X		-	-	-	-	-	-	-	-	952
	"	8-8.5	X		-	-	-	-	-	-	-	-	459
	"	9-9.5	X		-	-	-	-	-	-	-	-	<20.0
AH-2	12/7/2012	0-1		X	<20.0	1,650	1,650	<0.100	<0.100	<0.100	<0.100	<0.100	3,860
	"	1-1.5		X	-	-	-	-	-	-	-	-	5,540
	"	2-2.5	X		-	-	-	-	-	-	-	-	465
	"	3-3.5	X		-	-	-	-	-	-	-	-	674
	"	4-4.5	X		-	-	-	-	-	-	-	-	48.5
	"	5-5.5	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	X		-	-	-	-	-	-	-	-	<20.0
	"	7-7.5	X		-	-	-	-	-	-	-	-	<20.0
	"	8-8.5	X		-	-	-	-	-	-	-	-	<20.0
	"	9-9.5	X		-	-	-	-	-	-	-	-	<20.0

Table 1
COG Operating LLC.
Willow State 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	12/7/2012	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,260
	"	1-1.5	X		-	-	-	-	-	-	-	-	1,050
	"	2-2.5	X		-	-	-	-	-	-	-	-	575
	"	3-3.5	X		-	-	-	-	-	-	-	-	928
	"	4-4.5	X		-	-	-	-	-	-	-	-	570
	"	5-5.5	X		-	-	-	-	-	-	-	-	338
	"	6-6.5	X		-	-	-	-	-	-	-	-	483
	"	7-7.5	X		-	-	-	-	-	-	-	-	445
	"	8-8.5	X		-	-	-	-	-	-	-	-	474
	"	9-9.5	X		-	-	-	-	-	-	-	-	536
AH-4	12/7/2012	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	8,220
	"	1-1.5	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	<20.0
	"	5-5.5	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	X		-	-	-	-	-	-	-	-	<20.0
	"	7-7.5	X		-	-	-	-	-	-	-	-	<20.0
	"	8-8.5	X		-	-	-	-	-	-	-	-	<20.0
	"	9-9.5	X		-	-	-	-	-	-	-	-	<20.0

(-) Not Analyzed

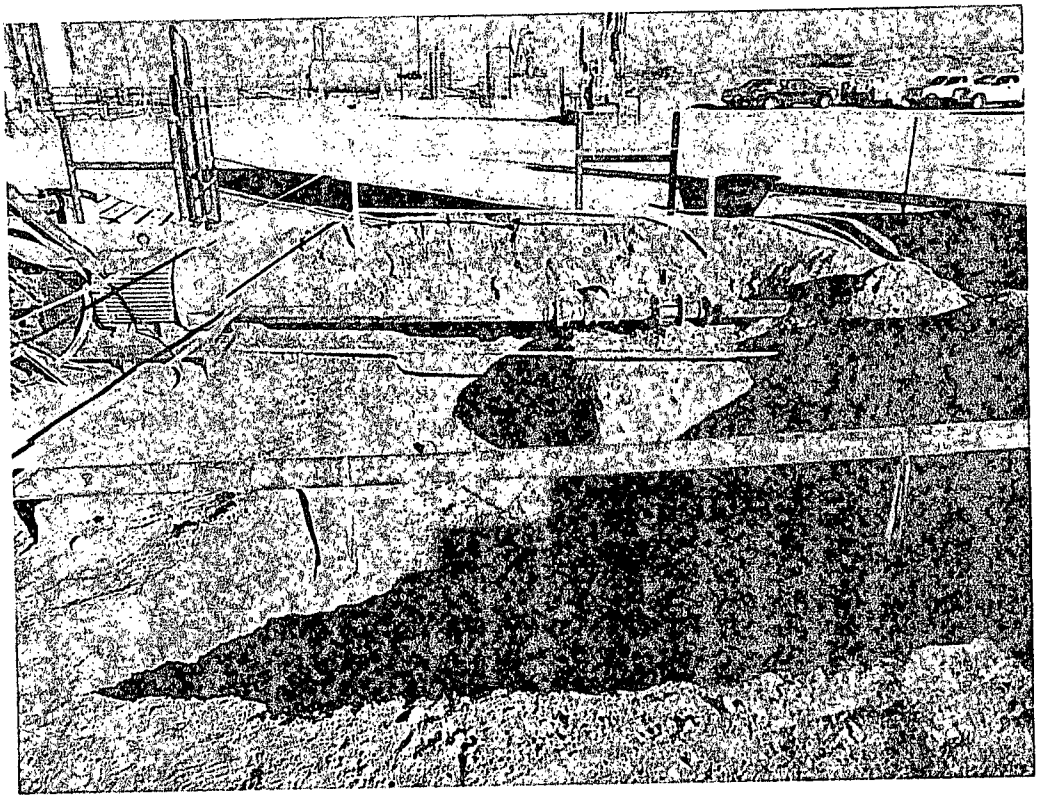
Excavated Depths

Clay Material Installed

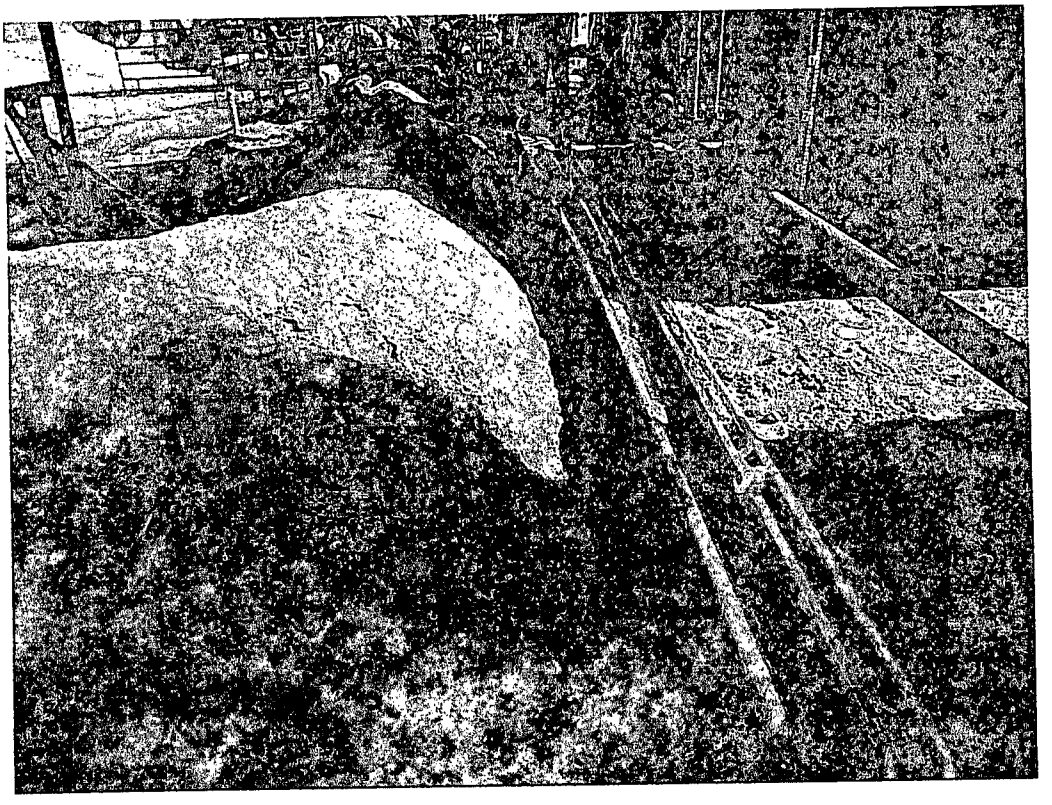
PHOTOGRAPHS

COG Operating LLC
Willow State TB
Eddy County, New Mexico

TETRA TECH



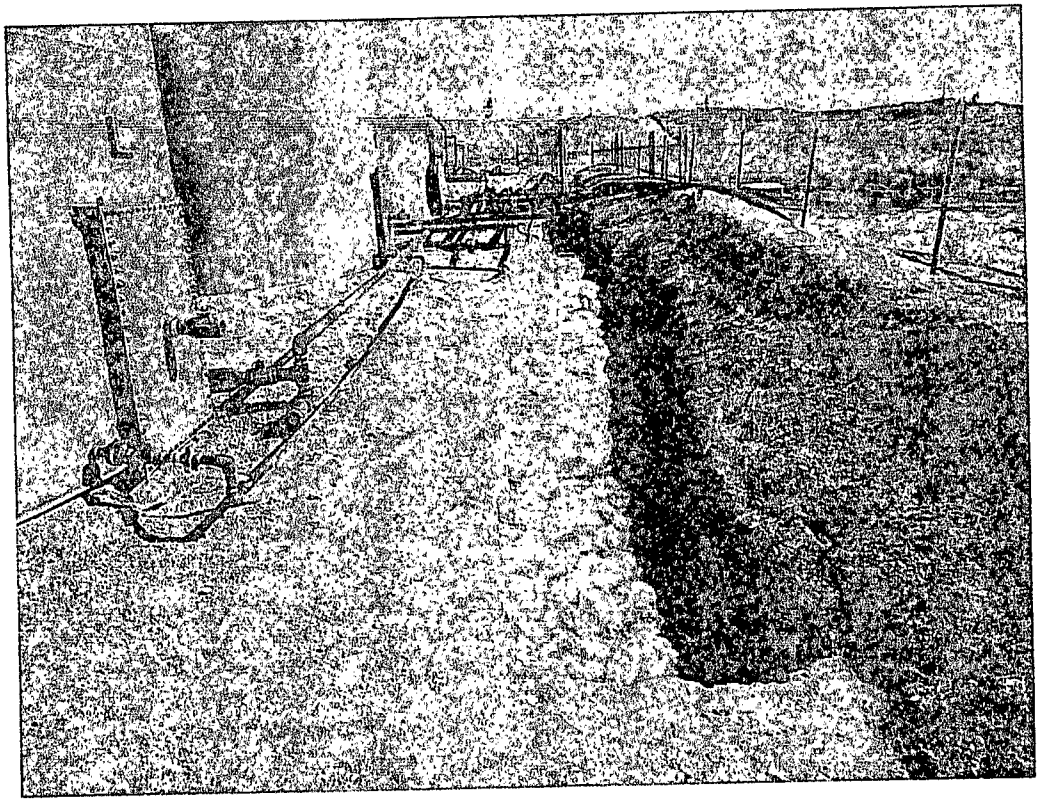
View North – Excavation of AH-1.



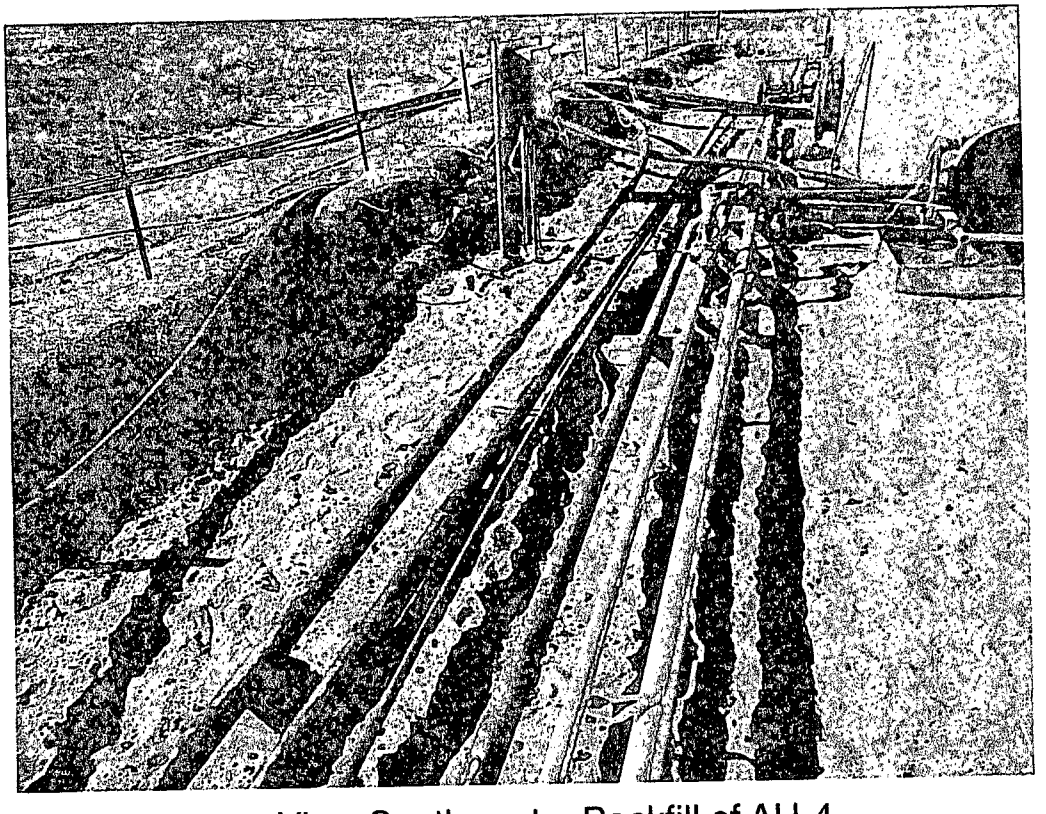
View East – Excavation of AH-2.

COG Operating LLC
Willow State TB
Eddy County, New Mexico

TETRA TECH



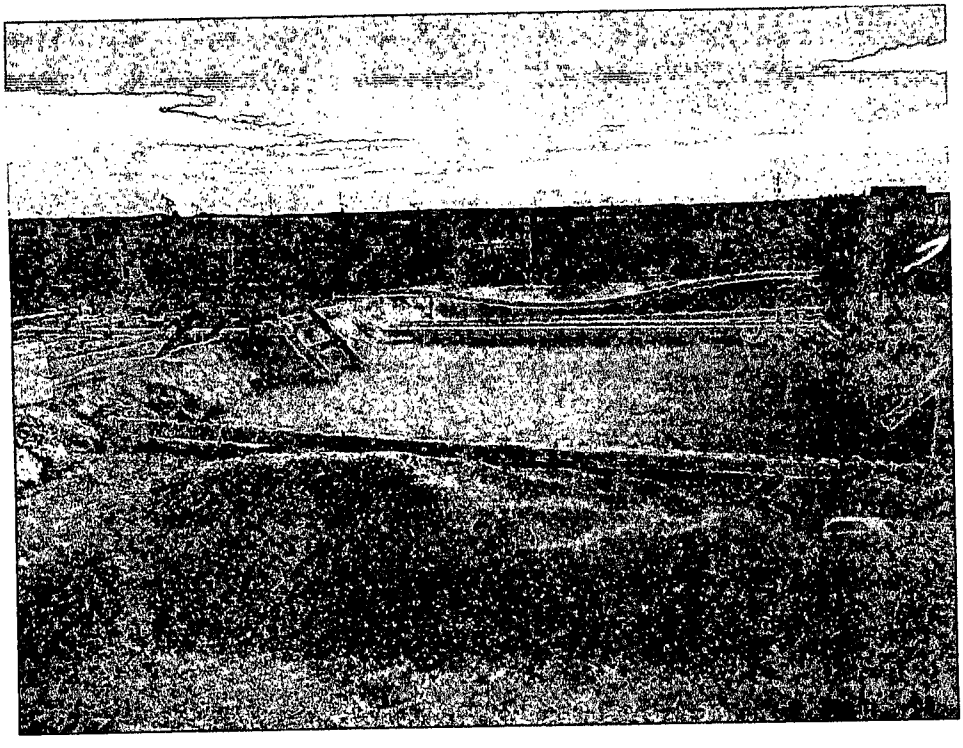
View East – Excavation of AH-4.



View Southwest – Backfill of AH-4.

COG Operating LLC
Willow State TB
Eddy County, New Mexico

TETRA TECH



View Southeast – Backfill and gravel.

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

RECEIVED
MAR 13 2013
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	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Willow State	Facility Type	Tank Battery

Surface Owner State	Mineral Owner	Lease No. (API#) 30-015-28880

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	16	17S	31E					Eddy

Latitude 32 49.693 **Longitude** 103 52.411

NATURE OF RELEASE

Type of Release Produced water w/ skim oil	Volume of Release 200bbls	Volume Recovered 190bbls
Source of Release Water pump swedge	Date and Hour of Occurrence 11/07/2012	Date and Hour of Discovery 11/07/2012 7:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins	Date and Hour 11/07/2012 12:12 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The swedge at the water pump parted at the threads allowing the release of fluid into the facility. The swedge has been replaced.

Describe Area Affected and Cleanup Action Taken.*

Initially 200bbls were released from the swedge at the water pump and we were able to recover 190bbls with vacuum trucks. All free fluid has been recovered. 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 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: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@concho.com	Conditions of Approval:	Attached ☐
Date: 11/14/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
301 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

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MAR 13 2013
NMOCD ARTESIA

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
MAR 18 2013
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 1300 Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	Willow State	Facility Type	Tank Battery

Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-28880 Closest well location

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	16	17S	31E					Eddy

Latitude 32.82796 **Longitude** 103.87353

NATURE OF RELEASE

Type of Release: Produced Water with Skim Oil	Volume of Release 200 bbls oil	Volume Recovered 190 bbls
Source of Release: Water Pump Swedge	Date and Hour of Occurrence 11/07/2012	Date and Hour of Discovery 11/07/2012 7:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins	Date and Hour 11/07/12 12:12 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The swedge at the water pump parted at the threads allowing for a release of fluid into the facility.

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:	OIL CONSERVATION DIVISION
Printed Name: Ike Tavarez (agent fort COG)	Approved by District Supervisor:
Title: Project Manager	Approval Date: / Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval: / Attached ☐
Date: 2-14-13 Phone: (432) 682-4559	

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
Willow State
Eddy County, New Mexico

16 South 30 East

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

16 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

16 South 32 East

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

17 South 30 East

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

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 *SITE*	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36 SITE

17 South 32 East

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

18 South 30 East

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

18 South 31 East

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

18 South 32 East

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

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

APPENDIX C

Summary Report

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

Report Date: December 19, 2012

Work Order: 12120718

Project Location: Eddy Co., NM
Project Name: COG/Willow State TB
Project Number: 114-6401609

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316050	AH-1 (0-1')	soil	2012-12-07	00:00	2012-12-07
316051	AH-1 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316052	AH-1 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316053	AH-1 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316054	AH-1 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316055	AH-1 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316056	AH-1 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316057	AH-1 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316058	AH-1 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316059	AH-1 (9-9.5')	soil	2012-12-07	00:00	2012-12-07
316060	AH-2 (0-1')	soil	2012-12-07	00:00	2012-12-07
316061	AH-2 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316062	AH-2 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316063	AH-2 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316064	AH-2 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316065	AH-2 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316066	AH-2 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316067	AH-2 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316068	AH-2 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316069	AH-2 (9-9.5')	soil	2012-12-07	00:00	2012-12-07
316070	AH-3 (0-1')	soil	2012-12-07	00:00	2012-12-07
316071	AH-3 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316072	AH-3 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316073	AH-3 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316074	AH-3 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316075	AH-3 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316076	AH-3 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316077	AH-3 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316078	AH-3 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316079	AH-3 (9-9.5')	soil	2012-12-07	00:00	2012-12-07

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316080	AH-4 (0-1')	soil	2012-12-07	00:00	2012-12-07
316081	AH-4 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316082	AH-4 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316083	AH-4 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316084	AH-4 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316085	AH-4 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316086	AH-4 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316087	AH-4 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316088	AH-4 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316089	AH-4 (9-9.5')	soil	2012-12-07	00:00	2012-12-07

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
316050 - AH-1 (0-1')	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<4.00
316060 - AH-2 (0-1')	<0.100 [1]	<0.100	<0.100	<0.100	**1650** Qs	<20.0 [2]
316070 - AH-3 (0-1')	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<4.00
316080 - AH-4 (0-1')	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<4.00

Sample: 316050 - AH-1 (0-1')

Param	Flag	Result	Units	RL
Chloride		**9800**	mg/Kg	4

Sample: 316051 - AH-1 (1-1.5')

Param	Flag	Result	Units	RL
Chloride		**3900**	mg/Kg	4

Sample: 316052 - AH-1 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**3260**	mg/Kg	4

Sample: 316053 - AH-1 (3-3.5')

Param	Flag	Result	Units	RL
Chloride		**4530**	mg/Kg	4

[1]Dilution due to surfactants.
[2]Dilution due to surfactants.

Sample: 316054 - AH-1 (4-4.5')

Param	Flag	Result	Units	RL
Chloride		**1650**	mg/Kg	4

Sample: 316055 - AH-1 (5-5.5')

Param	Flag	Result	Units	RL
Chloride		**1830**	mg/Kg	4

Sample: 316056 - AH-1 (6-6.5')

Param	Flag	Result	Units	RL
Chloride		**810**	mg/Kg	4

Sample: 316057 - AH-1 (7-7.5')

Param	Flag	Result	Units	RL
Chloride		**952**	mg/Kg	4

Sample: 316058 - AH-1 (8-8.5')

Param	Flag	Result	Units	RL
Chloride		**459**	mg/Kg	4

Sample: 316059 - AH-1 (9-9.5')

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

Sample: 316060 - AH-2 (0-1')

Param	Flag	Result	Units	RL
Chloride		**3860**	mg/Kg	4

Sample: 316061 - AH-2 (1-1.5')

Param	Flag	Result	Units	RL
Chloride		**5540**	mg/Kg	4

Sample: 316062 - AH-2 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**465**	mg/Kg	4

Sample: 316063 - AH-2 (3-3.5')

Param	Flag	Result	Units	RL
Chloride		**674**	mg/Kg	4

Sample: 316064 - AH-2 (4-4.5')

Param	Flag	Result	Units	RL
Chloride		**48.5**	mg/Kg	4

Sample: 316065 - AH-2 (5-5.5')

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

Sample: 316066 - AH-2 (6-6.5')

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

Sample: 316067 - AH-2 (7-7.5')

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

Sample: 316068 - AH-2 (8-8.5')

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

Sample: 316069 - AH-2 (9-9.5')

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

Sample: 316070 - AH-3 (0-1')

Param	Flag	Result	Units	RL
Chloride		**1260**	mg/Kg	4

Sample: 316071 - AH-3 (1-1.5')

Param	Flag	Result	Units	RL
Chloride		**1050**	mg/Kg	4

Sample: 316072 - AH-3 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**575**	mg/Kg	4

Sample: 316073 - AH-3 (3-3.5')

Param	Flag	Result	Units	RL
Chloride		**928**	mg/Kg	4

Sample: 316074 - AH-3 (4-4.5')

Param	Flag	Result	Units	RL
Chloride		**570**	mg/Kg	4

Sample: 316075 - AH-3 (5-5.5')

Param	Flag	Result	Units	RL
Chloride		**338**	mg/Kg	4

Sample: 316076 - AH-3 (6-6.5')

Param	Flag	Result	Units	RL
Chloride		**483**	mg/Kg	4

Sample: 316077 - AH-3 (7-7.5')

Param	Flag	Result	Units	RL
Chloride		**445**	mg/Kg	4

Sample: 316078 - AH-3 (8-8.5')

Param	Flag	Result	Units	RL
Chloride		**474**	mg/Kg	4

Sample: 316079 - AH-3 (9-9.5')

Param	Flag	Result	Units	RL
Chloride		**536**	mg/Kg	4

Sample: 316080 - AH-4 (0-1')

Param	Flag	Result	Units	RL
Chloride		**8220**	mg/Kg	4

Sample: 316081 - AH-4 (1-1.5')

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

Sample: 316082 - AH-4 (2-2.5')

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

Sample: 316083 - AH-4 (3-3.5')

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

Sample: 316084 - AH-4 (4-4.5')

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

Sample: 316085 - AH-4 (5-5.5')

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

Sample: 316086 - AH-4 (6-6.5')

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

Sample: 316087 - AH-4 (7-7.5')

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

Sample: 316088 - AH-4 (8-8.5')

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

Sample: 316089 - AH-4 (9-9.5')

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

TRACEANALYSIS, INC.

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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 19, 2012

Work Order: 12120718

Project Location: Eddy Co., NM
Project Name: COG/Willow State TB
Project Number: 114-6401609

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
316050	AH-1 (0-1')	soil	2012-12-07	00:00	2012-12-07
316051	AH-1 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316052	AH-1 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316053	AH-1 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316054	AH-1 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316055	AH-1 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316056	AH-1 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316057	AH-1 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316058	AH-1 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316059	AH-1 (9-9.5')	soil	2012-12-07	00:00	2012-12-07
316060	AH-2 (0-1')	soil	2012-12-07	00:00	2012-12-07
316061	AH-2 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316062	AH-2 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316063	AH-2 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316064	AH-2 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316065	AH-2 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316066	AH-2 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316067	AH-2 (7-7.5')	soil	2012-12-07	00:00	2012-12-07

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316068	AH-2 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316069	AH-2 (9-9.5')	soil	2012-12-07	00:00	2012-12-07
316070	AH-3 (0-1')	soil	2012-12-07	00:00	2012-12-07
316071	AH-3 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316072	AH-3 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316073	AH-3 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316074	AH-3 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316075	AH-3 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316076	AH-3 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316077	AH-3 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316078	AH-3 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316079	AH-3 (9-9.5')	soil	2012-12-07	00:00	2012-12-07
316080	AH-4 (0-1')	soil	2012-12-07	00:00	2012-12-07
316081	AH-4 (1-1.5')	soil	2012-12-07	00:00	2012-12-07
316082	AH-4 (2-2.5')	soil	2012-12-07	00:00	2012-12-07
316083	AH-4 (3-3.5')	soil	2012-12-07	00:00	2012-12-07
316084	AH-4 (4-4.5')	soil	2012-12-07	00:00	2012-12-07
316085	AH-4 (5-5.5')	soil	2012-12-07	00:00	2012-12-07
316086	AH-4 (6-6.5')	soil	2012-12-07	00:00	2012-12-07
316087	AH-4 (7-7.5')	soil	2012-12-07	00:00	2012-12-07
316088	AH-4 (8-8.5')	soil	2012-12-07	00:00	2012-12-07
316089	AH-4 (9-9.5')	soil	2012-12-07	00:00	2012-12-07

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

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

Report Contents

Case Narrative

Samples for project COG/Willow State TB were received by TraceAnalysis, Inc. on 2012-12-07 and assigned to work order 12120718. Samples for work order 12120718 were received intact at a temperature of 8.7 C. Samples were received on ice.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	82439	2012-12-10 at 09:59	97270	2012-12-10 at 09:59
Chloride (Titration)	SM 4500-Cl B	82558	2012-12-13 at 10:08	97523	2012-12-18 at 12:03
Chloride (Titration)	SM 4500-Cl B	82558	2012-12-13 at 10:08	97524	2012-12-18 at 12:05
Chloride (Titration)	SM 4500-Cl B	82558	2012-12-13 at 10:08	97525	2012-12-18 at 12:06
Chloride (Titration)	SM 4500-Cl B	82558	2012-12-13 at 10:08	97526	2012-12-18 at 12:07
TPH DRO - NEW	S 8015 D	82442	2012-12-10 at 11:00	97274	2012-12-11 at 09:50
TPH GRO	S 8015 D	82441	2012-12-10 at 09:59	97272	2012-12-10 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 12120718 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: 316050 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97270	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82439	Sample Preparation:	2012-12-10	Prepared By:	YG

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)			1.99	mg/Kg	1	2.00	100	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.93	mg/Kg	1	2.00	96	71.4 - 108

Sample: 316050 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**9800**	mg/Kg	10	4.00

Sample: 316050 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97274	Date Analyzed:	2012-12-11	Analyzed By:	CW
Prep Batch:	82442	Sample Preparation:	2012-12-10	Prepared By:	CW

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		136	mg/Kg	1	100	136	70 - 130

Sample: 316050 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97272	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82441	Sample Preparation:	2012-12-10	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Sample: 316051 - AH-1 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3900**	mg/Kg	10	4.00

Sample: 316052 - AH-1 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

continued ...

sample 316052 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3260**	mg/Kg	10	4.00

Sample: 316053 - AH-1 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4530**	mg/Kg	10	4.00

Sample: 316054 - AH-1 (4-4.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1650**	mg/Kg	10	4.00

Sample: 316055 - AH-1 (5-5.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1830**	mg/Kg	10	4.00

Sample: 316056 - AH-1 (6-6.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**810**	mg/Kg	5	4.00

Sample: 316057 - AH-1 (7-7.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**952**	mg/Kg	5	4.00

Sample: 316058 - AH-1 (8-8.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**459**	mg/Kg	5	4.00

Sample: 316059 - AH-1 (9-9.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97523	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316060 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97270	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82439	Sample Preparation:	2012-12-10	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	U	1	<0.100	mg/Kg	5	0.0200
Xylene	U	1	<0.100	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.82	mg/Kg	5	10.0	98	79.5 - 108
4-Bromofluorobenzene (4-BFB)			9.33	mg/Kg	5	10.0	93	71.4 - 108

Sample: 316060 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3860**	mg/Kg	10	4.00

Sample: 316060 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97274	Date Analyzed:	2012-12-11	Analyzed By:	CW
Prep Batch:	82442	Sample Preparation:	2012-12-10	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**1650**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		367	mg/Kg	5	100	367	70 - 130

Sample: 316060 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97272	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82441	Sample Preparation:	2012-12-10	Prepared By:	YG

Parameter		Flag	Cert	Result	RL Units	Dilution	RL
GRO	2	U	1	<20.0	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			8.94	mg/Kg	5	10.0	89	70 - 130
4-Bromofluorobenzene (4-BFB)			9.16	mg/Kg	5	10.0	92	70 - 130

Sample: 316061 - AH-2 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5540**	mg/Kg	10	4.00

Sample: 316062 - AH-2 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**465**	mg/Kg	5	4.00

Sample: 316063 - AH-2 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**674**	mg/Kg	5	4.00

Sample: 316064 - AH-2 (4-4.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**48.5**	mg/Kg	5	4.00

Sample: 316065 - AH-2 (5-5.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316066 - AH-2 (6-6.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316067 - AH-2 (7-7.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316068 - AH-2 (8-8.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316069 - AH-2 (9-9.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97524	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316070 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97270	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82439	Sample Preparation:	2012-12-10	Prepared By:	YG

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)			1.99	mg/Kg	1	2.00	100	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	71.4 - 108

Sample: 316070 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1260**	mg/Kg	10	4.00

Sample: 316070 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97274	Date Analyzed:	2012-12-11	Analyzed By:	CW
Prep Batch:	82442	Sample Preparation:	2012-12-10	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	70 - 130

Sample: 316070 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97272	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82441	Sample Preparation:	2012-12-10	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	70 - 130

Sample: 316071 - AH-3 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1050**	mg/Kg	10	4.00

Sample: 316072 - AH-3 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**575**	mg/Kg	5	4.00

Sample: 316073 - AH-3 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**928**	mg/Kg	5	4.00

Sample: 316074 - AH-3 (4-4.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**570**	mg/Kg	5	4.00

Sample: 316075 - AH-3 (5-5.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**338**	mg/Kg	5	4.00

Sample: 316076 - AH-3 (6-6.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**483**	mg/Kg	5	4.00

Sample: 316077 - AH-3 (7-7.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**445**	mg/Kg	5	4.00

Sample: 316078 - AH-3 (8-8.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**474**	mg/Kg	5	4.00

Sample: 316079 - AH-3 (9-9.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97525	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**536**	mg/Kg	5	4.00

Sample: 316080 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97270	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82439	Sample Preparation:	2012-12-10	Prepared By:	YG

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)			1.94	mg/Kg	1	2.00	97	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	71.4 - 108

Sample: 316080 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8220**	mg/Kg	10	4.00

Sample: 316080 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97274	Date Analyzed:	2012-12-11	Analyzed By:	CW
Prep Batch:	82442	Sample Preparation:	2012-12-10	Prepared By:	CW

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		136	mg/Kg	1	100	136	70 - 130

Sample: 316080 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97272	Date Analyzed:	2012-12-10	Analyzed By:	YG
Prep Batch:	82441	Sample Preparation:	2012-12-10	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			1.86	mg/Kg	1	2.00	93	70 - 130

Sample: 316081 - AH-4 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316082 - AH-4 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316083 - AH-4 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316084 - AH-4 (4-4.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316085 - AH-4 (5-5.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316086 - AH-4 (6-6.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316087 - AH-4 (7-7.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316088 - AH-4 (8-8.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Sample: 316089 - AH-4 (9-9.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	Sample Preparation:	2012-12-13	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 97270

QC Batch: 97270 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82439 | QC Preparation: 2012-12-10 | 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)			1.98	mg/Kg	1	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	70 - 130

Method Blank (1) QC Batch: 97272

QC Batch: 97272 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82441 | QC Preparation: 2012-12-10 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	70 - 130

Method Blank (1) QC Batch: 97274

QC Batch: 97274 | Date Analyzed: 2012-12-11 | Analyzed By: CW
Prep Batch: 82442 | QC Preparation: 2012-12-10 | 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			112	mg/Kg	1	100	112	70 - 130

Method Blank (1) QC Batch: 97523

QC Batch: 97523 Date Analyzed: 2012-12-18 Analyzed By: AR
Prep Batch: 82558 QC Preparation: 2012-12-13 Prepared By: AR

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

Method Blank (1) QC Batch: 97524

QC Batch: 97524 Date Analyzed: 2012-12-18 Analyzed By: AR
Prep Batch: 82558 QC Preparation: 2012-12-13 Prepared By: AR

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

Method Blank (1) QC Batch: 97525

QC Batch: 97525 Date Analyzed: 2012-12-18 Analyzed By: AR
Prep Batch: 82558 QC Preparation: 2012-12-13 Prepared By: AR

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

Method Blank (1) QC Batch: 97526

QC Batch:	97526	Date Analyzed:	2012-12-18	Analyzed By:	AR
Prep Batch:	82558	QC Preparation:	2012-12-13	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: 97270 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82439 | QC Preparation: 2012-12-10 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.87	mg/Kg	1	2.00	<0.00810	94	70 - 130
Toluene		1	1.91	mg/Kg	1	2.00	<0.00750	96	70 - 130
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00730	100	70 - 130
Xylene		1	5.92	mg/Kg	1	6.00	<0.00700	99	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	<0.00810	91	70 - 130	3	20
Toluene		1	1.87	mg/Kg	1	2.00	<0.00750	94	70 - 130	2	20
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00730	98	70 - 130	2	20
Xylene		1	5.75	mg/Kg	1	6.00	<0.00700	96	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)	2.05	1.99	mg/Kg	1	2.00	102	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.07	1.98	mg/Kg	1	2.00	104	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97272 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82441 | QC Preparation: 2012-12-10 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	21.8	mg/Kg	1	20.0	<2.32	109	70 - 130

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
GRO		1	22.4	mg/Kg	1	20.0	<2.32	112	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)	1.85	1.88	mg/Kg	1	2.00	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)	2.00	1.93	mg/Kg	1	2.00	100	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97274 | Date Analyzed: 2012-12-11 | Analyzed By: CW
Prep Batch: 82442 | QC Preparation: 2012-12-10 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	277	mg/Kg	1	250	<9.09	111	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	269	mg/Kg	1	250	<9.09	108	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
n-Tricosane	123	122	mg/Kg	1	100	123	122	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97523 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2720	mg/Kg	1	2500	<3.85	109	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	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: 97524 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2440	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			2590	mg/Kg	1	2500	<3.85	104	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: 97525 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2600	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			2420	mg/Kg	1	2500	<3.85	97	85 - 115	7	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: 97526 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2720	mg/Kg	1	2500	<3.85	109	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			2590	mg/Kg	1	2500	<3.85	104	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: 316050

QC Batch: 97270 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82439 | QC Preparation: 2012-12-10 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.79	mg/Kg	1	2.00	<0.00810	90	70 - 130
Toluene		1	1.82	mg/Kg	1	2.00	<0.00750	91	70 - 130
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00730	94	70 - 130
Xylene		1	5.57	mg/Kg	1	6.00	<0.00700	93	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	1.83	mg/Kg	1	2.00	<0.00810	92	70 - 130	2	20
Toluene		1	1.85	mg/Kg	1	2.00	<0.00750	92	70 - 130	2	20
Ethylbenzene		1	1.94	mg/Kg	1	2.00	<0.00730	97	70 - 130	3	20
Xylene		1	5.68	mg/Kg	1	6.00	<0.00700	95	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
Trifluorotoluene (TFT)	2.03	1.98	mg/Kg	1	2	102	99	70 - 130
4-Bromofluorobenzene (4-BFB)	2.05	1.98	mg/Kg	1	2	102	99	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316050

QC Batch: 97272 | Date Analyzed: 2012-12-10 | Analyzed By: YG
Prep Batch: 82441 | QC Preparation: 2012-12-10 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.6	mg/Kg	1	20.0	<2.32	88	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
GRO		1	19.8	mg/Kg	1	20.0	<2.32	99	70 - 130	12	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.89	mg/Kg	1	2	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.99	1.99	mg/Kg	1	2	100	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316050

QC Batch: 97274 | Date Analyzed: 2012-12-11 | Analyzed By: CW
Prep Batch: 82442 | QC Preparation: 2012-12-10 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	302	mg/Kg	1	250	<9.09	121	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	Qs Qs	1	329	mg/Kg	1	250	<9.09	132	70 - 130	9	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	137	141	mg/Kg	1	100	137	141	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316059

QC Batch: 97523 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2500	mg/Kg	5	2500	<19.2	100	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			2610	mg/Kg	5	2500	<19.2	104	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: 316069

QC Batch: 97524 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2500	mg/Kg	5	2500	<19.2	100	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			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121	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: 316079

QC Batch: 97525 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3020	mg/Kg	5	2500	536	99	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			3150	mg/Kg	5	2500	536	104	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: 316089

QC Batch: 97526 | Date Analyzed: 2012-12-18 | Analyzed By: AR
Prep Batch: 82558 | QC Preparation: 2012-12-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2520	mg/Kg	5	2500	<19.2	101	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			2690	mg/Kg	5	2500	<19.2	108	78.9 - 121	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: 97270 | Date Analyzed: 2012-12-10 | 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	0.102	102	80 - 120	2012-12-10
Toluene		1	mg/kg	0.100	0.102	102	80 - 120	2012-12-10
Ethylbenzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-12-10
Xylene		1	mg/kg	0.300	0.302	101	80 - 120	2012-12-10

Standard (CCV-2)

QC Batch: 97270 | Date Analyzed: 2012-12-10 | 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	0.0966	97	80 - 120	2012-12-10
Toluene		1	mg/kg	0.100	0.0963	96	80 - 120	2012-12-10
Ethylbenzene		1	mg/kg	0.100	0.0965	96	80 - 120	2012-12-10
Xylene		1	mg/kg	0.300	0.284	95	80 - 120	2012-12-10

Standard (CCV-3)

QC Batch: 97270 | Date Analyzed: 2012-12-10 | 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	0.0986	99	80 - 120	2012-12-10
Toluene		1	mg/kg	0.100	0.0978	98	80 - 120	2012-12-10
Ethylbenzene		1	mg/kg	0.100	0.0981	98	80 - 120	2012-12-10
Xylene		1	mg/kg	0.300	0.287	96	80 - 120	2012-12-10

Standard (CCV-1)

QC Batch: 97272 | Date Analyzed: 2012-12-10 | 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	1.15	115	80 - 120	2012-12-10

Standard (CCV-2)

QC Batch: 97272 | Date Analyzed: 2012-12-10 | 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	0.948	95	80 - 120	2012-12-10

Standard (CCV-3)

QC Batch: 97272 | Date Analyzed: 2012-12-10 | 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	1.19	119	80 - 120	2012-12-10

Standard (CCV-1)

QC Batch: 97274 | Date Analyzed: 2012-12-11 | 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	2012-12-11

Standard (CCV-2)

QC Batch: 97274 | Date Analyzed: 2012-12-11 | 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	262	105	80 - 120	2012-12-11

Standard (CCV-3)

QC Batch: 97274 Date Analyzed: 2012-12-11 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	266	106	80 - 120	2012-12-11

Standard (CCV-1)

QC Batch: 97523 Date Analyzed: 2012-12-18 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	2012-12-18

Standard (CCV-2)

QC Batch: 97523 Date Analyzed: 2012-12-18 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	99.6	100	85 - 115	2012-12-18

Standard (CCV-1)

QC Batch: 97524 Date Analyzed: 2012-12-18 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	98.9	99	85 - 115	2012-12-18

Standard (CCV-2)

QC Batch: 97524 Date Analyzed: 2012-12-18 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	101	101	85 - 115	2012-12-18

Standard (CCV-1)

QC Batch: 97525 Date Analyzed: 2012-12-18 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	101	101	85 - 115	2012-12-18

Standard (CCV-2)

QC Batch: 97525 Date Analyzed: 2012-12-18 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	99.4	99	85 - 115	2012-12-18

Standard (CCV-1)

QC Batch: 97526 Date Analyzed: 2012-12-18 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	99.6	100	85 - 115	2012-12-18

Standard (CCV-2)

QC Batch: 97526 Date Analyzed: 2012-12-18 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	2012-12-18

12120718

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

CLIENT NAME: (06

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401609

PROJECT NAME: (06 - Willow State TB

Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
316050	12/7		S		X	AH1 (0-1')	1				X		X	X											X				
051			S		X	AH1 (1-1.5')	1				X														X				
052			S		X	AH1 (2-2.5')	1				X														X				
053			S		X	AH1 (3-3.5')	1				X														X				
054			S		X	AH1 (4-4.5')	1				X														X				
055			S		X	AH1 (5-5.5')	1				X														X				
056			S		X	AH1 (6-6.5')	1				X														X				
057			S		X	AH1 (7-7.5')	1				X														X				
058			S		X	AH1 (8-8.5')	1				X														X				
059			S		X	AH1 (9-9.5')	1				X														X				

RELINQUISHED BY: (Signature)	Date: 12/7/12 Time: 1530	RECEIVED BY: (Signature)	Date: 12/11/12 Time: 15:30
SAMPLED BY: (Print & Initial) Ryan Reich	Date: 12/7/12 Time: 1530		
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: ZIP: CONTACT: PHONE:	RECEIVED BY: (Signature) DATE: TIME: Received by VK		RUSH Charges Authorized: Yes No
SAMPLE CONDITION WHEN RECEIVED: 8.7°	REMARKS: Run deepest sample if TPH exceed 5,000 mg/kg 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.

Run deepest sample of benzene exceed 10 mg/kg or total BTEX exceeds 50 mg/kg.

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: 2 OF: 4

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640 1609
PROJECT NAME: COG - Willow State TB Eddy Co. NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	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. 8081/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
060	12/7		S		X	AH2 (0-1')	1				X		X	X											X				
061			S		X	AH2 (1-1.5')	1				X														X				
062			S		X	AH2 (2-2.5')	1				X														X				
063			S		X	AH2 (3-3.5')	1				X														X				
064			S		X	AH2 (4-4.5')	1				X														X				
065			S		X	AH2 (5-5.5')	1				X														X				
066			S		X	AH2 (6-6.5')	1				X														X				
067			S		X	AH2 (7-7.5')	1				X														X				
068			S		X	AH2 (8-8.5')	1				X														X				
069			S		X	AH2 (9-9.5')	1				X														X				

RELINQUISHED BY: (Signature) Date: 12/7/12 Time: 1550
RECEIVED BY: (Signature) Date: 12/7/12 Time: 1550

SAMPLED BY: (Print & Initial) Ryan Reich Date: 12/7/12 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: Xenco
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME: overnighted by us

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 8.7C
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.

12120718

Analysis Request of Chain of Custody Record

PAGE: 3 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: (06) SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640609 PROJECT NAME: (06' Willow State YB Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 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. 8081/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
070	12/7		S		X	AH3 (0-1')	1				X		X	X												X				
071			S		X	AH3 (1-1.5')	1				X															X				
072			S		X	AH3 (2-2.5')	1				X															X				
073			S		X	AH3 (3-3.5')	1				X															X				
074			S		X	AH3 (4-4.5')	1				X															X				
075			S		X	AH3 (5-5.5')	1				X															X				
076			S		X	AH3 (6-6.5')	1				X															X				
077			S		X	AH3 (7-7.5')	1				X															X				
078			S		X	AH3 (8-8.5')	1				X															X				
079			S		X	AH3 (9-9.5')	1				X															X				

RELINQUISHED BY: (Signature) Date: 12/7/12 Time: 1533 RECEIVED BY: (Signature) Date: 12/7/12 Time: 15:30

SAMPLED BY: (Print & Initial) Russ Reich Date: 12/7/12 Time: 1533

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez Results by:

RECEIVING LABORATORY: Trace RECEIVED BY: (Signature)
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE: DATE: TIME: Wednesday 4pm

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 8.70

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.

Analysis Request of Chain of Custody Record

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401609
PROJECT NAME: COG - Willow State TB Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TX1005 (Ext. to C35)	8015 MOD. GRO	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
080	12/7		S		X	AH4 (0-1')	1				X		X	X												X				
081			S		X	AH4 (1-1.5')	1				X															X				
082			S		X	AH4 (2-2.5')	1				X															X				
083			S		X	AH4 (3-3.5')	1				X															X				
084			S		X	AH4 (4-4.5')	1				X															X				
085			S		X	AH4 (5-5.5')	1				X															X				
086			S		X	AH4 (6-6.5')	1				X															X				
087			S		X	AH4 (7-7.5')	1				X															X				
088			S		X	AH4 (8-8.5')	1				X															X				
089	↓		S		X	AH4 (9-9.5')	1				X															X				

RELINQUISHED BY: (Signature) — Date: 12/7/12 Time: 1530 — RECEIVED BY: (Signature) — Date: 12/7/12 Time: 15:30
SAMPLED BY: (Print & Initial) Ryan Reich — Date: 12/7/12 Time: 1532
RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:
RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:
RECEIVING LABORATORY: Trace — RECEIVED BY: (Signature)
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE: DATE: TIME: checked by VS
RUSH Charges Authorized: Yes No
SAMPLE CONDITION WHEN RECEIVED: 8.70
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.