SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	**Choctaw State #1 Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit A**	**Sec. 16**	**T-17-S**	**R-31-E**		
Lease Number:	**API 30-015-24011**					
County:	**Eddy County**					
GPS:	**32.83896° N**			**103.86962° W**		
Surface Owner:	**State**					
Mineral Owner:						
Directions:	Intersection of 529 and Hwy 82, travel east on Hwy 82 1.0 mi (CR-233), left 0.8 mi, right at Y 0.4 mi, pass building on right 0.1 mi, turn left 0.5 mi to location					

Release Data:	
Date Released:	2/21/2012
Type Release:	Produced Fluids
Source of Contamination:	Gasket on vic clamp failed
Fluid Released:	17 bbls
Fluids Recovered:	15 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

TETRA TECH

July 26, 2012

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

Re: Closure Report for the COG Operating LLC., Choctaw State #1 Tank Battery, Unit A, 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 located at the Choctaw State #1 Tank Battery, Unit A, Section 16, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.83896°, W 103.86962°. 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 February 21, 2012, and released approximately seventeen (17) barrels of produced water due to a ruptured gasket on a vic clamp. To alleviate the problem, COG replaced the gasket. Approximately 15 barrels of produced fluids were recovered. The entire spill remained within the firewalls of the facility and impacted area measuring approximately 10' x 120' and 15' x 55'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 16. One well was listed in Section 34 with a recorded depth of 271' bgs by the *Geology and Groundwater Resources of Eddy County, New Mexico (Report 3).* According to the NMOCD groundwater map, the average depth to

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

groundwater in this area is 300' below surface. The groundwater well report data is shown in Appendix B.

Regulatory

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

Soil Assessment and Analytical Results

On March 7, 2012, Tetra Tech personnel inspected and sampled the spill area. Five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix 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 submitted samples were below the RRAL for TPH and BTEX. A shallow chloride impact was detected at the site ranging from 1,360 mg/kg to 14,400 mg/kg at depths from 0-1' to 1-1.5' below surface. The deeper samples showed a significant chloride decline with depth.

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The final excavation depth of the soil remediation was met as stated in the approved work plan. The excavation depths ranged from 1.0' to 1.5' below surface.

A total of 120 cubic yards of soil were excavated and hauled to R 360 for proper disposal. The excavated area and depths are highlighted in Table 1 and shown on Figure 4.

TETRA TECH

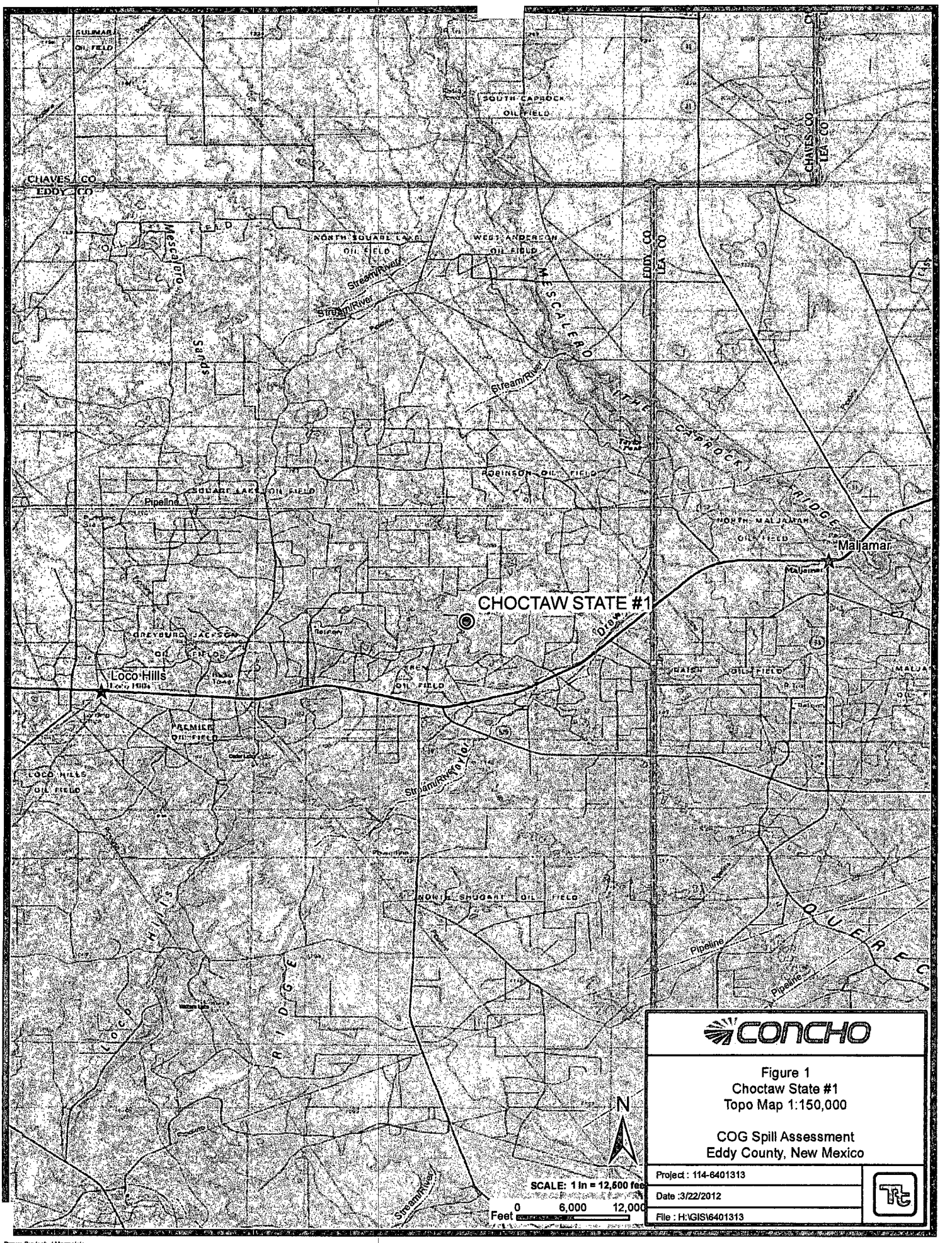
Based on the remedial activities performed, COG requests closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Sr. Project Manager

cc: Pat Ellis – COG

FIGURES



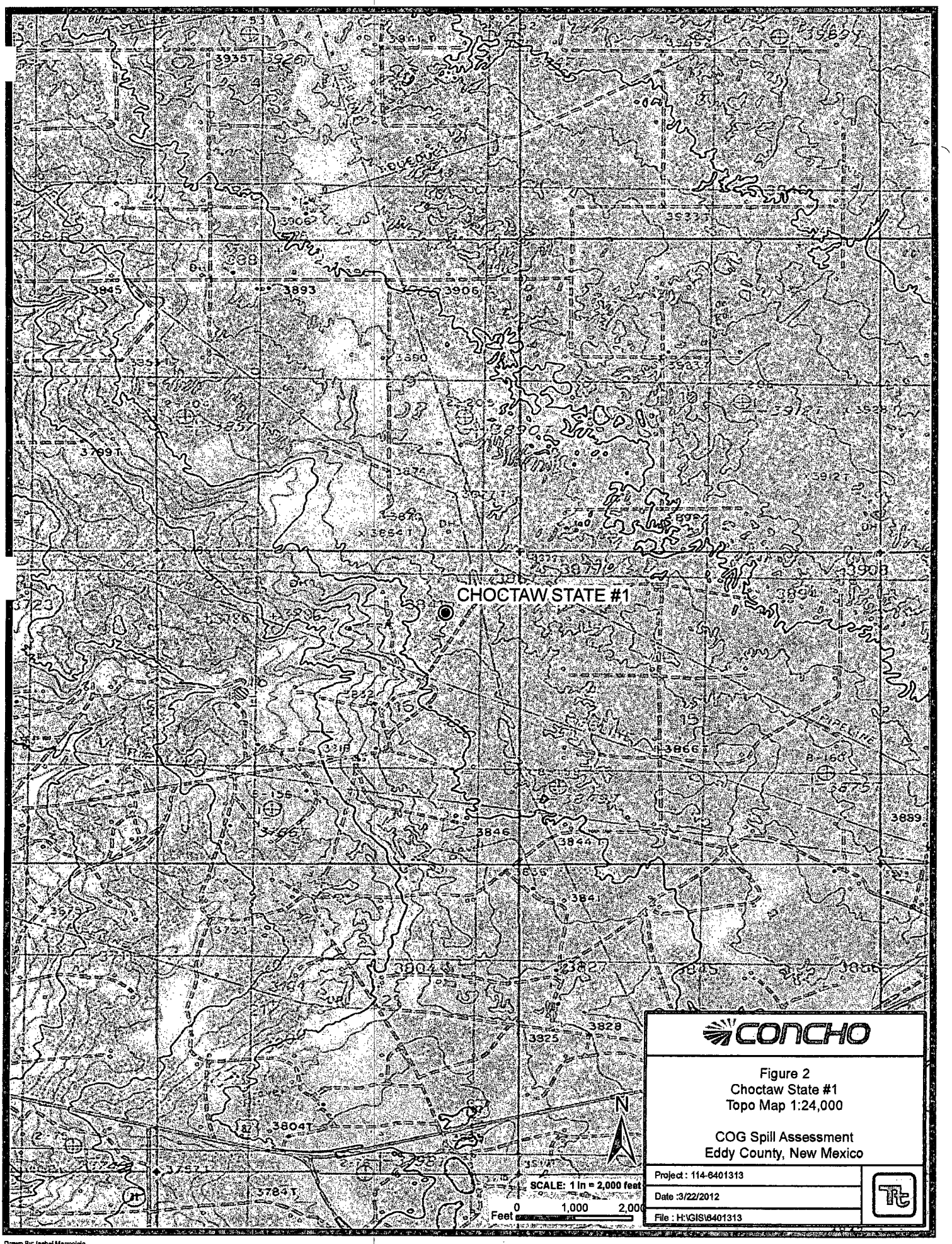
CONCHO

Figure 1
Choctaw State #1
Topo Map 1:150,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401313	
Date :3/22/2012	
File : H:\GIS\6401313	

Drawn By: Isabel Marmolejo



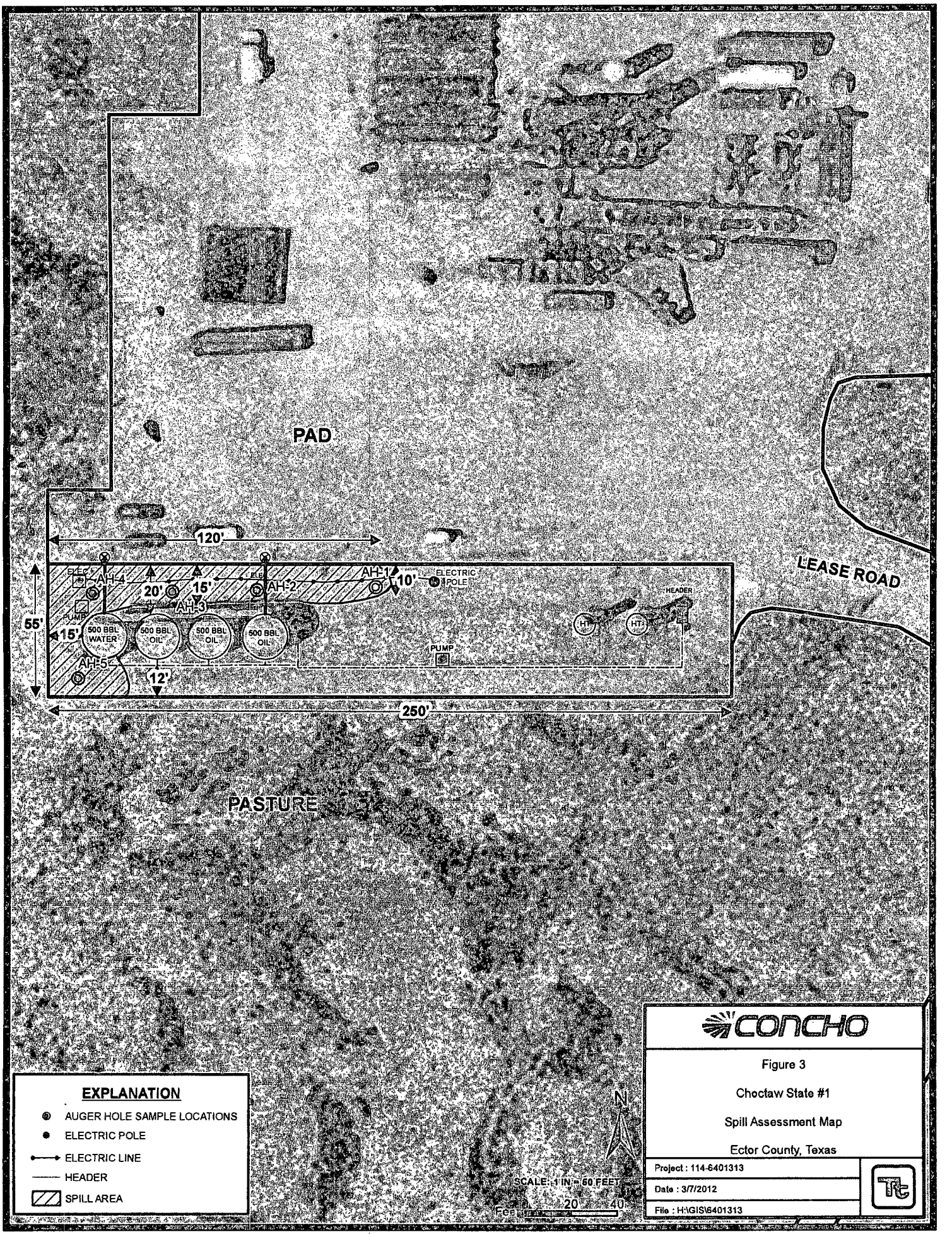
CONCHO

Figure 2
Choctaw State #1
Topo Map 1:24,000

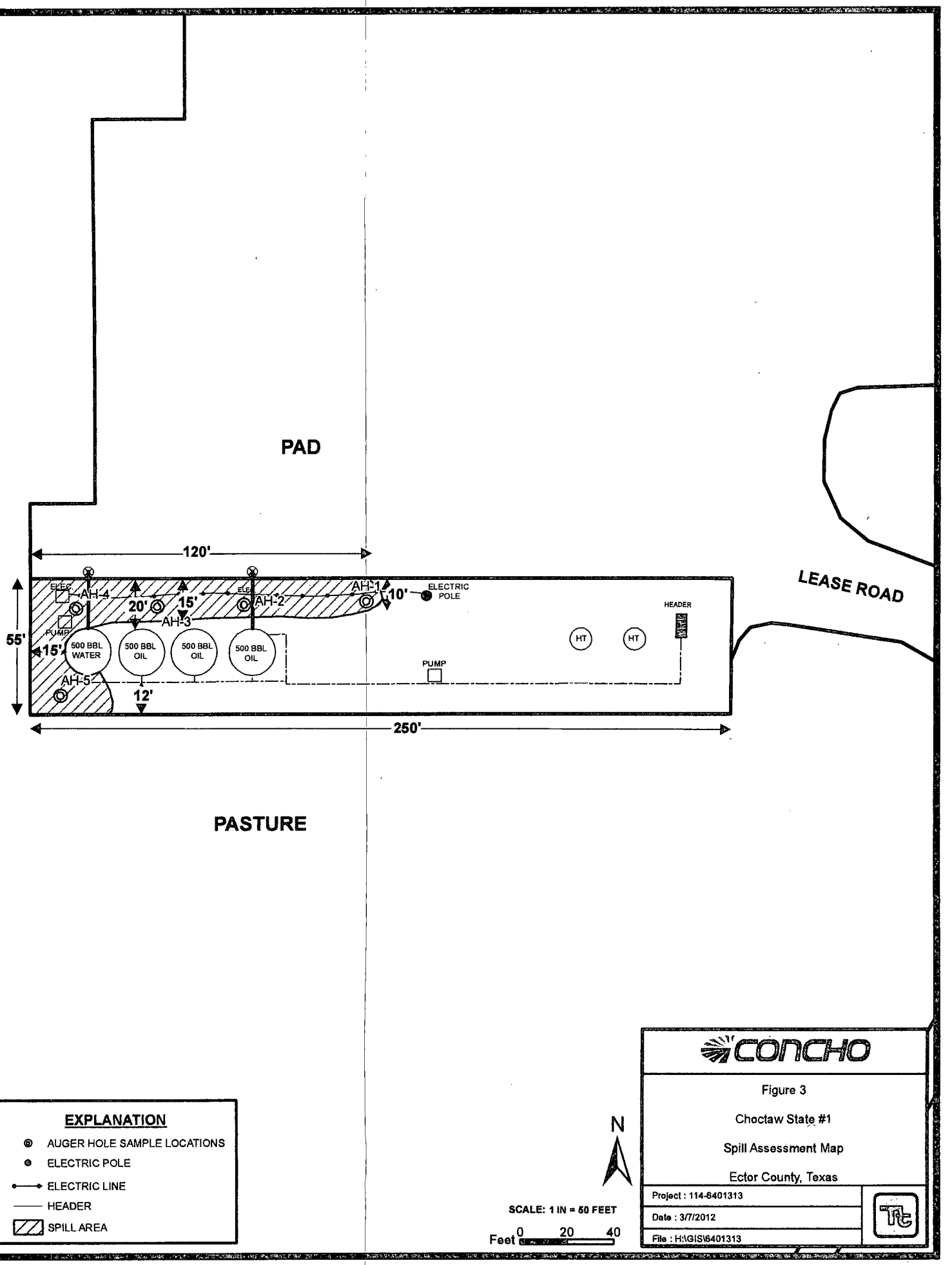
COG Spill Assessment
Eddy County, New Mexico

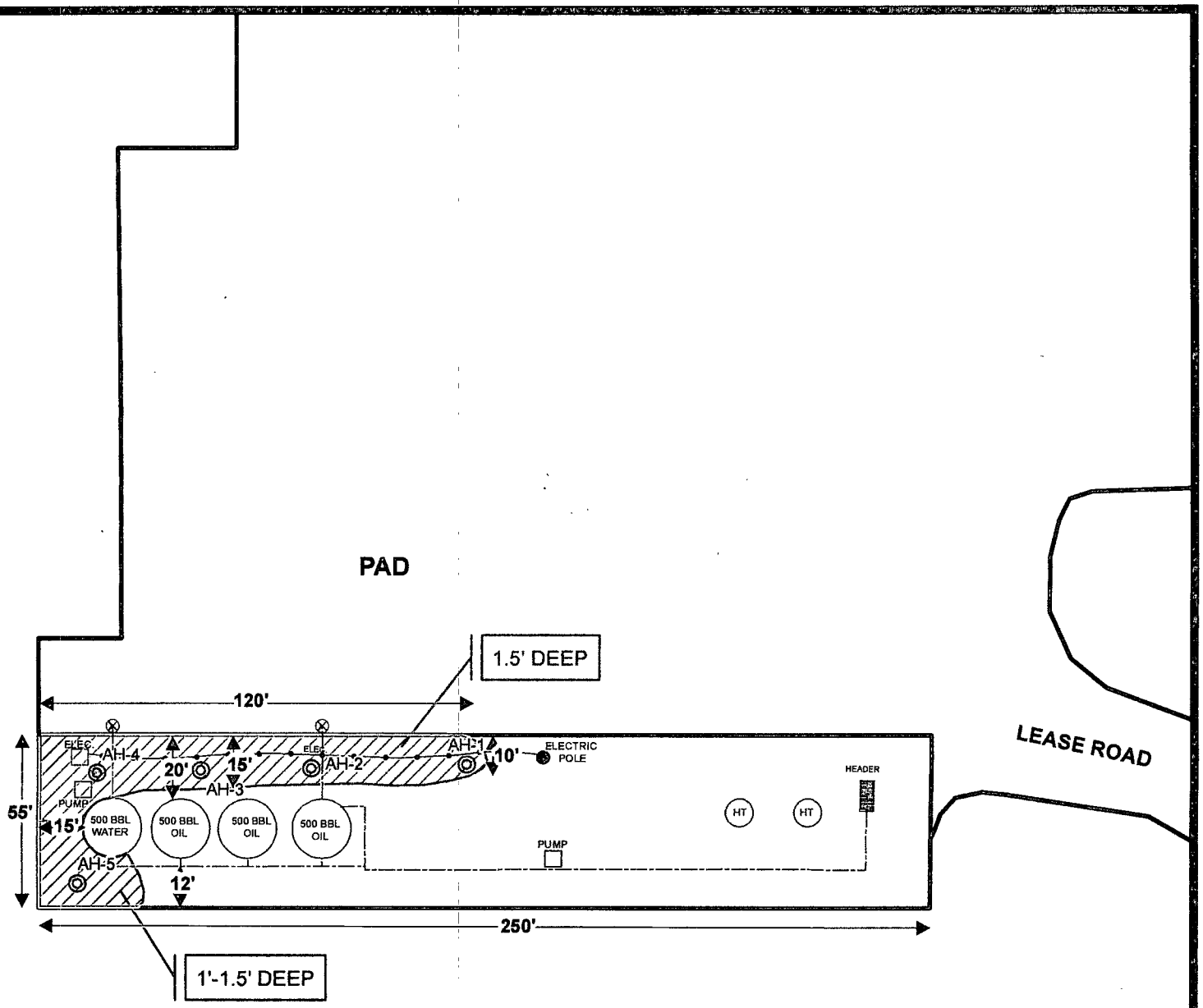
Project : 114-6401313	
Date :3/22/2012	
File : H:\GIS\6401313	

Drawn By: Isabel Mamolejo



Drawn By: Isabel Manrriquejo


PAD
120'
55'
15'
20'
15'
10'
12'
250'
AH-1
AH-2
AH-3
AH-4
AH-5
ELEC
ELE
PUMP
ELECTRIC POLE
HEADER
HT
HT
500 BBL WATER
500 BBL OIL
500 BBL OIL
500 BBL OIL
PUMP
LEASE ROAD
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
ELECTRIC POLE
ELECTRIC LINE
HEADER
SPILL AREA
N
SCALE: 1 IN = 50 FEET
Feet 0 20 40
CONCHO
Figure 3
Choctaw State #1
Spill Assessment Map
Ector County, Texas
Project : 114-6401313
Date : 3/7/2012
File : H:\GIS\6401313
Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ELECTRIC POLE
- ELECTRIC LINE
- HEADER
- EXCAVATED AREAS

N

SCALE: 1 IN = 50 FEET

Feet 0 20 40

CONCHO

Figure 4

Choctaw State #1

Excavated Areas & Depths Map

Ector County, Texas

Project : 114-6401313

Date : 3/7/2012

File : H:\GIS\6401313

Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Choctaw State #1
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	3/7/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,830
	"	1-1.5		X	-	-	-	-	-	-	-	-	<200
	"	2-2.5	X		-	-	-	-	-	-	-	-	<200
	"	3-3.5	X		-	-	-	-	-	-	-	-	654
AH-2	3/7/2012	0-1		X	31.2	2,260	2,291	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,670
	"	1-1.5		X	-	-	-	-	-	-	-	-	1,610
	"	2-2.5	X		-	-	-	-	-	-	-	-	459
	"	3-3.5	X		-	-	-	-	-	-	-	-	235
AH-3	3/7/2012	0-1		X	14.0	645	659	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,530
	"	1-1.5		X	-	-	-	-	-	-	-	-	<200
	"	2-2.5	X		-	-	-	-	-	-	-	-	285
	"	3-3.5	X		-	-	-	-	-	-	-	-	230
AH-4	3/7/2012	0-1		X	36.4	506	542	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,360
	"	1-1.5		X	-	-	-	-	-	-	-	-	420
	"	2-2.5	X		-	-	-	-	-	-	-	-	440
	"	3-3.5	X		-	-	-	-	-	-	-	-	330
AH-5	3/7/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	14,400
	"	1-1.5		X	-	-	-	-	-	-	-	-	5,990
	"	2-2.5	X		-	-	-	-	-	-	-	-	<200
	"	3-3.5	X		-	-	-	-	-	-	-	-	<200

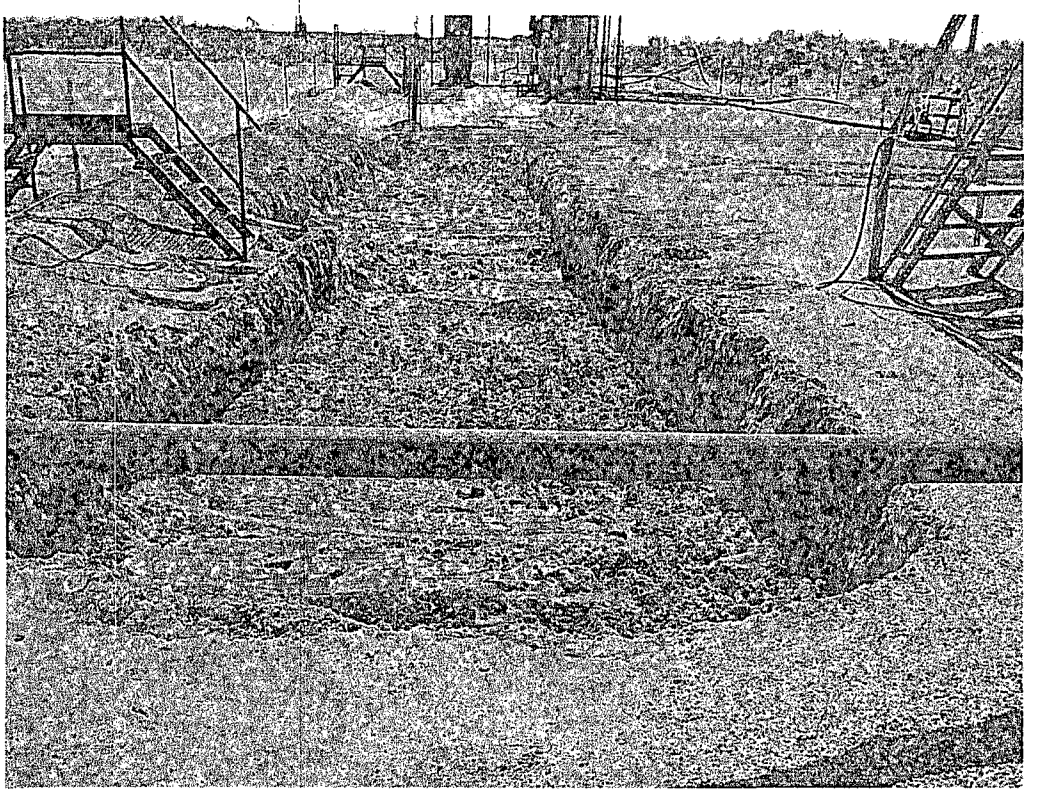
(-) Not Analyzed

Excavation Depths

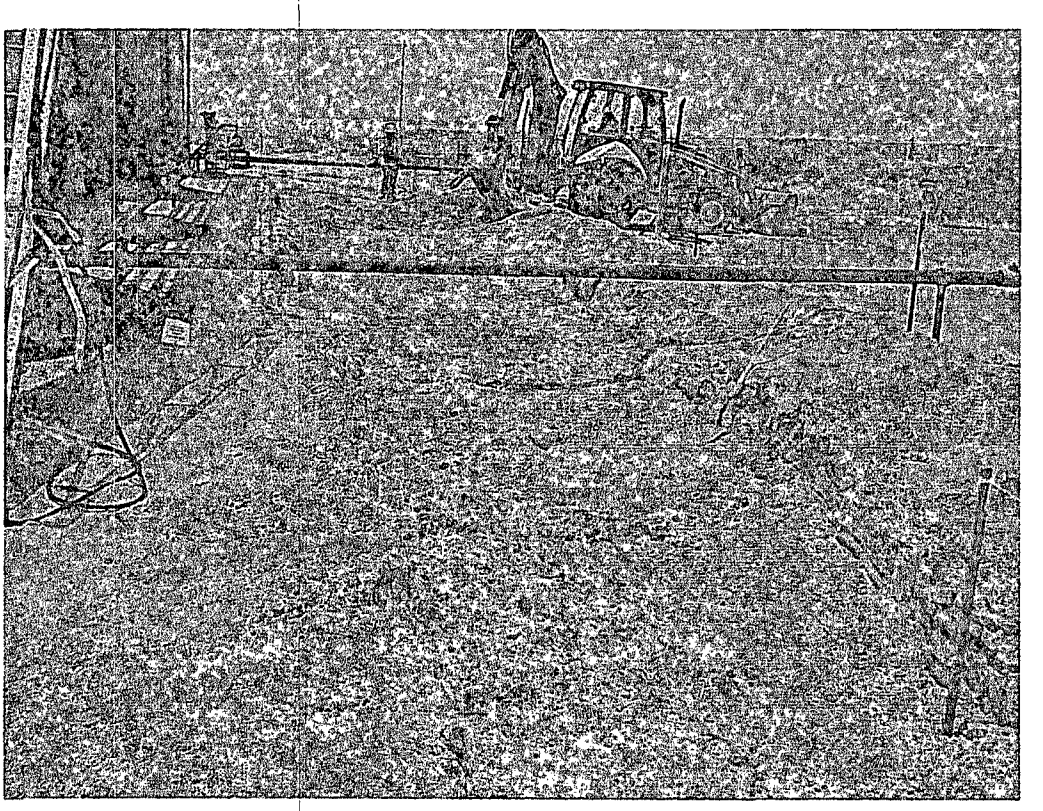
Photos

COG Operating LLC
Choctaw State #1 Tank Battery
Eddy County, New Mexico

TETRA TECH



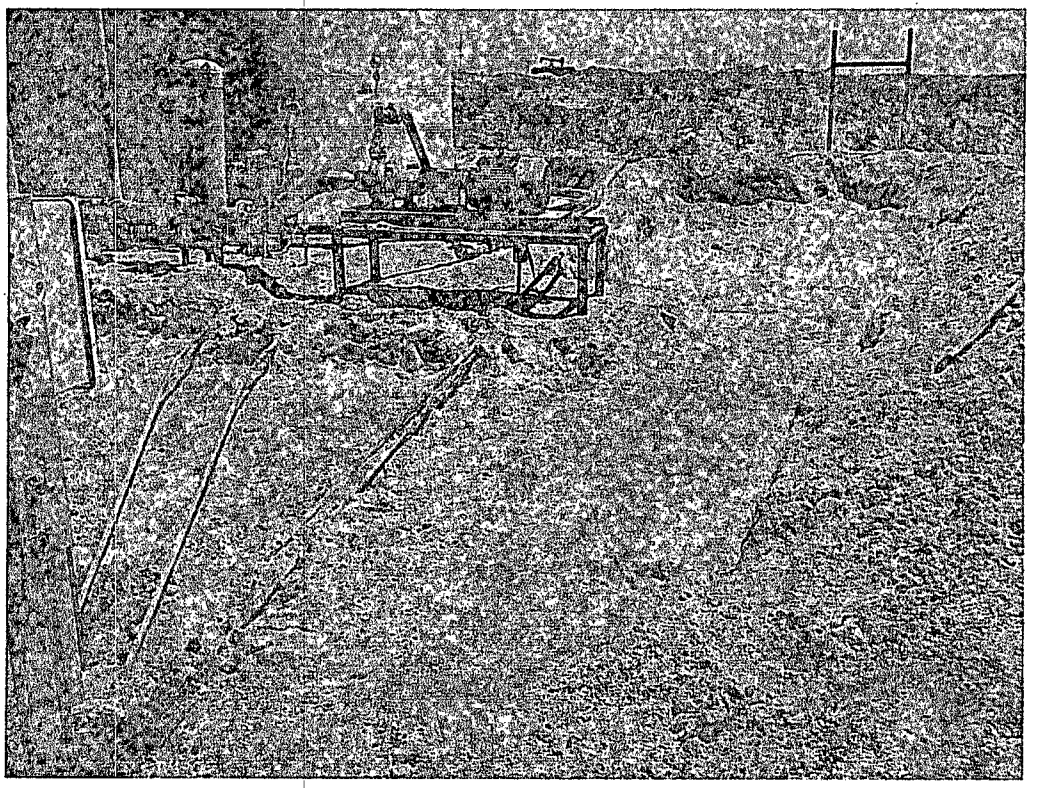
View East – Area of AH-2 and AH-1



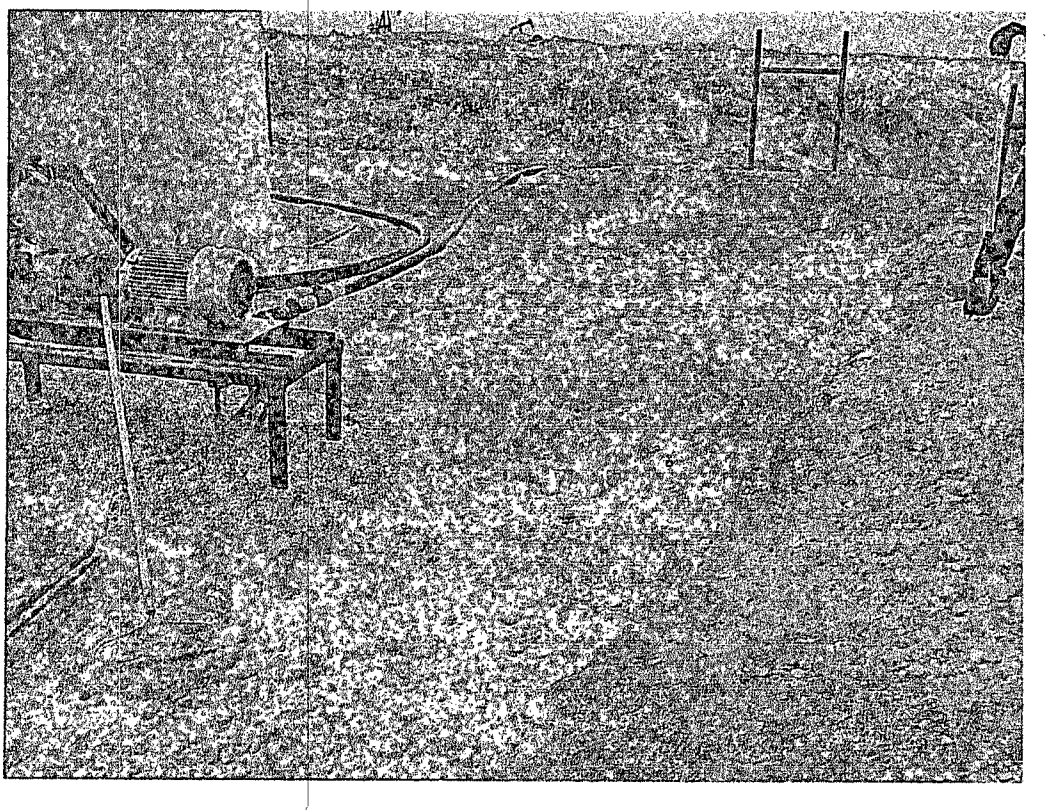
View West – AH-3 and AH-4

COG Operating LLC
Choctaw State #1 Tank Battery
Eddy County, New Mexico

TETRA TECH



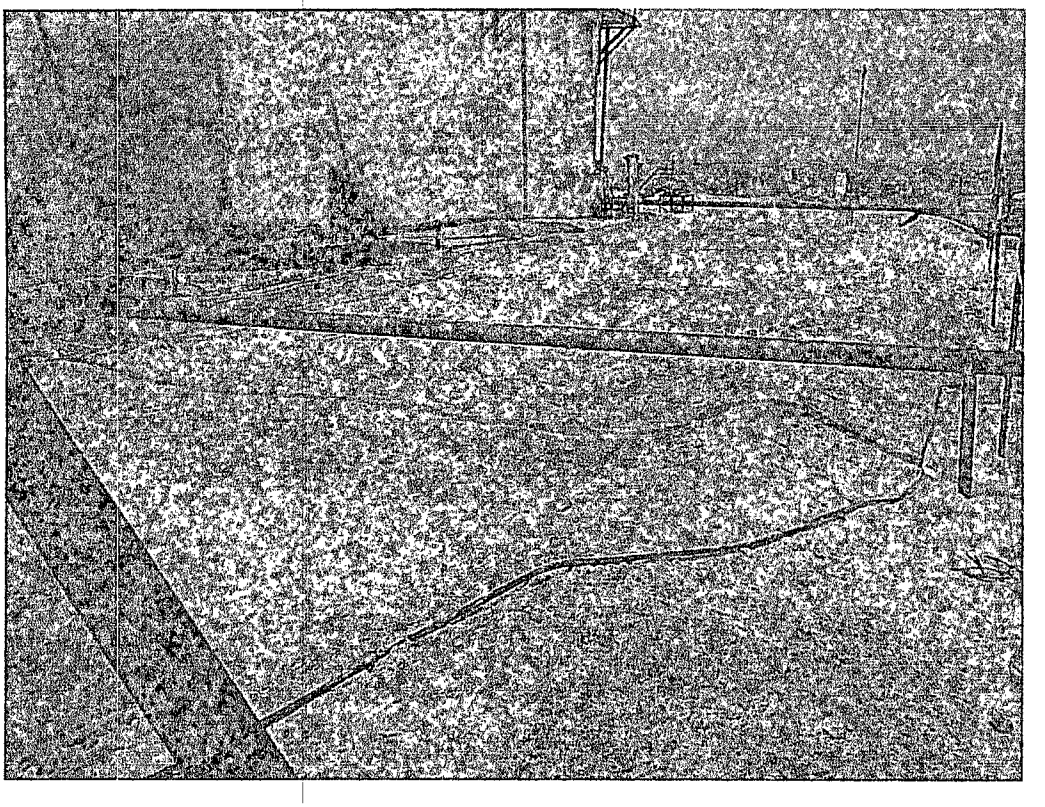
View South – Area of AH-5



Backfill

COG Operating LLC
Choctaw State #1 Tank Battery
Eddy County, New Mexico

TETRA TECH



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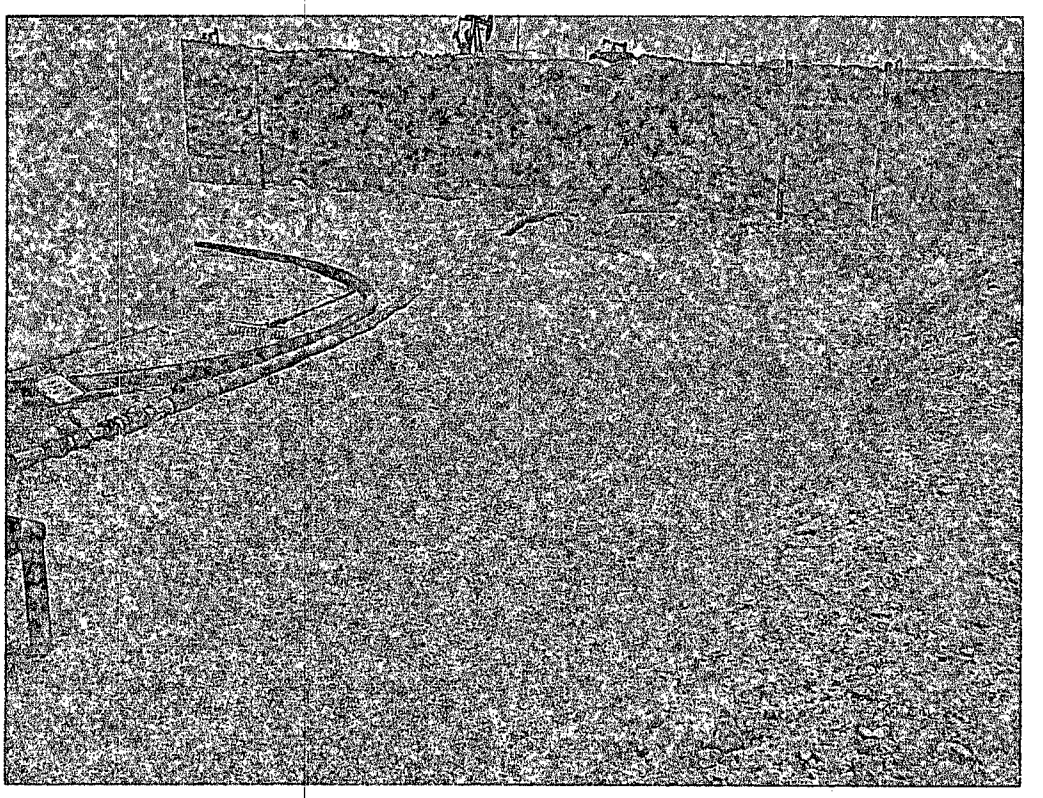

Backfill

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final 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 Choctaw State #1	Facility Type **Tank Battery**

Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-24011

LOCATION OF RELEASE

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

Latitude N 32.83896° **Longitude** W 103.86962°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 17 bbls	Volume Recovered 15 bbls
Source of Release: Vic Clamp ruptured	Date and Hour of Occurrence 02/21/2012	Date and Hour of Discovery 02/21/2012 7:00a.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. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The gasket on vic clamp ruptured causing the release of fluid. A new gasket has been installed.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech 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 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: 7-26-12 Phone: (432) 682-4559		

Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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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	Choctaw State #1	Facility Type	Tank Battery

Surface Owner State	Mineral Owner	Lease No. (API#) 30-015-24011

LOCATION OF RELEASE

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

Latitude 32 50.335 **Longitude** 103 52.183

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 17bbls	Volume Recovered 15bbls
Source of Release vic clamp ruptured	Date and Hour of Occurrence 02/21/2012	Date and Hour of Discovery 02/21/2012 7:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The gasket on vic clamp ruptured causing the release of fluid. A new gasket has been installed.

Describe Area Affected and Cleanup Action Taken.*

Initially 17bbls of produced water were released from the vic clamp and we were able to recover 15bbls with a vacuum truck. The spill area was contained inside the facility walls and measured roughly 120' long. 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: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 03/05/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG -Choctaw State #1
Eddy County, New Mexico

16 South 30 East

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

16 South 31 East

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

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

17 South 30 East

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

17 South 31 East

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

17 South 32 East

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

18 South 30 East

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

18 South 31 East

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

18 South 32 East

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

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- SITE

Appendix C

Summary Report

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

Report Date: March 23, 2012

Work Order: 12031201

Project Location: Eddy Co., NM
Project Name: COG/Choctaw State #1
Project Number: 114-6401313

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
291027	AH-1 0-1'	soil	2012-03-07	00:00	2012-03-09
291028	AH-1 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291029	AH-1 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291030	AH-1 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291037	AH-2 0-1'	soil	2012-03-07	00:00	2012-03-09
291038	AH-2 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291039	AH-2 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291040	AH-2 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291047	AH-3 0-1'	soil	2012-03-07	00:00	2012-03-09
291048	AH-3 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291049	AH-3 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291050	AH-3 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291057	AH-4 0-1'	soil	2012-03-07	00:00	2012-03-09
291058	AH-4 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291059	AH-4 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291060	AH-4 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291067	AH-5 0-1'	soil	2012-03-07	00:00	2012-03-09
291068	AH-5 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291069	AH-5 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291070	AH-5 3-3.5'	soil	2012-03-07	00:00	2012-03-09

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
291027 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
291037 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**2260**	**31.2**
291047 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**645**	**14.0**
291057 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**506**	**36.4**
291067 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 291027 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**2830**	mg/Kg	4

Sample: 291028 - AH-1 1-1.5'

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

Sample: 291029 - AH-1 2-2.5'

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

Sample: 291030 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**654**	mg/Kg	4

Sample: 291037 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**2670**	mg/Kg	4

Sample: 291038 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1610**	mg/Kg	4

Sample: 291039 - AH-2 2-2.5'

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

Sample: 291040 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**235**	mg/Kg	4

Sample: 291047 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**2530**	mg/Kg	4

Sample: 291048 - AH-3 1-1.5'

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

Sample: 291049 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**285**	mg/Kg	4

Sample: 291050 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**230**	mg/Kg	4

Sample: 291057 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**1360**	mg/Kg	4

Sample: 291058 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**420**	mg/Kg	4

Sample: 291059 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**440**	mg/Kg	4

Sample: 291060 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**330**	mg/Kg	4

Sample: 291067 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**14400**	mg/Kg	4

Sample: 291068 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5990**	mg/Kg	4

Sample: 291069 - AH-5 2-2.5'

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

Sample: 291070 - AH-5 3-3.5'

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

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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: March 23, 2012

Work Order: 12031201

Project Location: Eddy Co., NM
Project Name: COG/Choctaw State #1
Project Number: 114-6401313

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
291027	AH-1 0-1'	soil	2012-03-07	00:00	2012-03-09
291028	AH-1 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291029	AH-1 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291030	AH-1 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291037	AH-2 0-1'	soil	2012-03-07	00:00	2012-03-09
291038	AH-2 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291039	AH-2 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291040	AH-2 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291047	AH-3 0-1'	soil	2012-03-07	00:00	2012-03-09
291048	AH-3 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291049	AH-3 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291050	AH-3 3-3.5'	soil	2012-03-07	00:00	2012-03-09
291057	AH-4 0-1'	soil	2012-03-07	00:00	2012-03-09
291058	AH-4 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291059	AH-4 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291060	AH-4 3-3.5'	soil	2012-03-07	00:00	2012-03-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
291067	AH-5 0-1'	soil	2012-03-07	00:00	2012-03-09
291068	AH-5 1-1.5'	soil	2012-03-07	00:00	2012-03-09
291069	AH-5 2-2.5'	soil	2012-03-07	00:00	2012-03-09
291070	AH-5 3-3.5'	soil	2012-03-07	00:00	2012-03-09

Report Corrections (Work Order 12031201)

- Re-ran sample 291030 for Cl. 3-23-12

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 32 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/Choctaw State #1 were received by TraceAnalysis, Inc. on 2012-03-09 and assigned to work order 12031201. Samples for work order 12031201 were received intact at a temperature of 0.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	75875	2012-03-14 at 11:37	89384	2012-03-14 at 12:29
Chloride (Titration)	SM 4500-Cl B	75918	2012-03-16 at 08:55	89562	2012-03-21 at 14:47
Chloride (Titration)	SM 4500-Cl B	75918	2012-03-16 at 08:55	89563	2012-03-21 at 14:48
Chloride (Titration)	SM 4500-Cl B	76090	2012-03-22 at 10:11	89635	2012-03-22 at 14:11
TPH DRO - NEW	S 8015 D	75807	2012-03-12 at 12:24	89298	2012-03-12 at 12:29
TPH DRO - NEW	S 8015 D	75832	2012-03-13 at 11:00	89329	2012-03-13 at 11:03
TPH GRO	S 8015 D	75875	2012-03-14 at 11:37	89385	2012-03-14 at 12:56

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 12031201 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: 291027 - AH-1 0-1'

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

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		3.13	mg/Kg	1	2.00	156	75 - 135.4
4-Bromofluorobenzene (4-BFB)				2.10	mg/Kg	1	2.00	105	63.6 - 158.9

Sample: 291027 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2830**	mg/Kg	100	4.00

Sample: 291027 - AH-1 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	49.3 - 157.5

Sample: 291027 - AH-1 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.96	mg/Kg	1	2.00	148	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	45.1 - 162.2

Sample: 291028 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

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

Sample: 291029 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

continued ...

sample 291029 continued ...

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

Sample: 291030 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89635	Date Analyzed:	2012-03-22	Analyzed By:	AR
Prep Batch:	76090	Sample Preparation:	2012-03-22	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**654**	mg/Kg	50	4.00

Sample: 291037 - AH-2 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.55	mg/Kg	1	2.00	128	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	63.6 - 158.9

Sample: 291037 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**2670**		mg/Kg	100	4.00

Sample: 291037 - AH-2 0-1'

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

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		1	**2260**		mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr Qsr		514	mg/Kg	5	100	514	49.3 - 157.5

Sample: 291037 - AH-2 0-1'

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

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO		1	**31.2**		mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.44	mg/Kg	1	2.00	122	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	45.1 - 162.2

Sample: 291038 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1610**	mg/Kg	50	4.00

Sample: 291039 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**459**	mg/Kg	50	4.00

Sample: 291040 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**235**	mg/Kg	50	4.00

Sample: 291047 - AH-3 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.04	mg/Kg	1	2.00	152	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	63.6 - 158.9

Sample: 291047 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**2530**		mg/Kg	100	4.00

Sample: 291047 - AH-3 0-1'

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

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		1	**645**		mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	184	mg/Kg	1	100	184	49.3 - 157.5

Sample: 291047 - AH-3 0-1'

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**14.0**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.91	mg/Kg	1	2.00	146	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	45.1 - 162.2

Sample: 291048 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89562	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

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

Sample: 291049 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**285**	mg/Kg	50	4.00

Sample: 291050 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**230**	mg/Kg	50	4.00

Sample: 291057 - AH-4 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.57	mg/Kg	1	2.00	128	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	63.6 - 158.9

Sample: 291057 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1360**	mg/Kg	100	4.00

Sample: 291057 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89329	Date Analyzed:	2012-03-13	Analyzed By:	DA
Prep Batch:	75832	Sample Preparation:	2012-03-13	Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**506**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			139	mg/Kg	5	100	139	49.3 - 157.5

Sample: 291057 - AH-4 0-1'

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**36.4**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.47	mg/Kg	1	2.00	124	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	45.1 - 162.2

Sample: 291058 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**420**	mg/Kg	50	4.00

Sample: 291059 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**440**	mg/Kg	50	4.00

Sample: 291060 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**330**	mg/Kg	50	4.00

Sample: 291067 - AH-5 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.62	mg/Kg	1	2.00	131	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	63.6 - 158.9

Sample: 291067 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**14400**	mg/Kg	100	4.00

Sample: 291067 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	89329	Date Analyzed:	2012-03-13	Analyzed By:	DA
Prep Batch:	75832	Sample Preparation:	2012-03-13	Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.2	mg/Kg	1	100	94	49.3 - 157.5

Sample: 291067 - AH-5 0-1'

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.54	mg/Kg	1	2.00	127	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	45.1 - 162.2

Sample: 291068 - AH-5 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5990**	mg/Kg	100	4.00

Sample: 291069 - AH-5 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

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

Sample: 291070 - AH-5 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	89563	Date Analyzed:	2012-03-21	Analyzed By:	AR
Prep Batch:	75918	Sample Preparation:	2012-03-16	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 89298

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

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

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

Method Blank (1) QC Batch: 89329

QC Batch: 89329 | Date Analyzed: 2012-03-13 | Analyzed By: DA
Prep Batch: 75832 | QC Preparation: 2012-03-13 | Prepared By: DA

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	33.1	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	52 - 140.8

Method Blank (1) QC Batch: 89384

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

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

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method blank continued ...

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

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

Method Blank (1) QC Batch: 89385

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

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

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

Method Blank (1) QC Batch: 89562

QC Batch: 89562 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

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

Method Blank (1) QC Batch: 89563

QC Batch: 89563 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

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

Method Blank (1) QC Batch: 89635

QC Batch: 89635 | Date Analyzed: 2012-03-22 | Analyzed By: AR
Prep Batch: 76090 | QC Preparation: 2012-03-22 | 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: 89298 | Date Analyzed: 2012-03-12 | Analyzed By: DA
Prep Batch: 75807 | QC Preparation: 2012-03-12 | Prepared By: DA

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	245	mg/Kg	1	250	<14.5	98	62 - 128.3	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	95.5	97.4	mg/Kg	1	100	96	97	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89329 | Date Analyzed: 2012-03-13 | Analyzed By: DA
Prep Batch: 75832 | QC Preparation: 2012-03-13 | Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	250	mg/Kg	1	250	<14.5	100	62 - 128.3

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	252	mg/Kg	1	250	<14.5	101	62 - 128.3	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	93.3	93.0	mg/Kg	1	100	93	93	58.6 - 149.6

Laboratory Control Spike (LCS-1)

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

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.05	mg/Kg	1	2.00	<0.00470	102	86.5 - 124.9	2	20
Toluene		1	2.07	mg/Kg	1	2.00	<0.00980	104	84.7 - 122.5	1	20
Ethylbenzene		1	2.05	mg/Kg	1	2.00	<0.00500	102	79.4 - 118.9	2	20
Xylene		1	6.16	mg/Kg	1	6.00	<0.0170	103	79.5 - 118.9	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.28	2.08	mg/Kg	1	2.00	114	104	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.38	2.15	mg/Kg	1	2.00	119	108	70.4 - 119.9

Laboratory Control Spike (LCS-1)

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

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	19.7	mg/Kg	1	20.0	<1.22	98	68.3 - 105.7	11	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.92	2.18	mg/Kg	1	2.00	96	109	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.70	2.02	mg/Kg	1	2.00	85	101	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 89562 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.5	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 89563 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.8	mg/Kg	1	100	<3.85	97	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	8	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: 89635 | Date Analyzed: 2012-03-22 | Analyzed By: AR
Prep Batch: 76090 | QC Preparation: 2012-03-22 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.1	mg/Kg	1	100	<3.85	97	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	8	20

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

Matrix Spike (MS-1) Spiked Sample: 290978

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

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

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	259	mg/Kg	1	250	<14.5	104	45.5 - 127	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	91.0	94.2	mg/Kg	1	100	91	94	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 291067

QC Batch: 89329 | Date Analyzed: 2012-03-13 | Analyzed By: DA
Prep Batch: 75832 | QC Preparation: 2012-03-13 | Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	254	mg/Kg	1	250	<14.5	102	45.5 - 127

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	246	mg/Kg	1	250	<14.5	98	45.5 - 127	3	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	95.7	94.8	mg/Kg	1	100	96	95	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 290978

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

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

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.40	mg/Kg	1	2.00	<0.00470	120	69.3 - 159.2	14	20
Toluene		1	2.50	mg/Kg	1	2.00	<0.00980	125	68.7 - 157	13	20
Ethylbenzene		1	2.56	mg/Kg	1	2.00	<0.00500	128	71.6 - 158.2	14	20
Xylene		1	7.52	mg/Kg	1	6.00	<0.0170	125	70.8 - 159.8	15	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.61	3.07	mg/Kg	1	2	130	154	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.15	2.52	mg/Kg	1	2	108	126	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 290982

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

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

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	22.0	mg/Kg	1	20.0	1.8991	100	28.2 - 157.2	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.44	2.48	mg/Kg	1	2	122	124	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	1.93	1.97	mg/Kg	1	2	96	98	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 291048

QC Batch: 89562 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10500	mg/Kg	100	10000	<385	105	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11000	mg/Kg	100	10000	<385	110	79.4 - 120.6	5	20

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

Matrix Spike (MS-1) Spiked Sample: 291070

QC Batch: 89563 | Date Analyzed: 2012-03-21 | Analyzed By: AR
Prep Batch: 75918 | QC Preparation: 2012-03-16 | Prepared By: AR

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

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11100	mg/Kg	100	10000	<385	111	79.4 - 120.6	6	20

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

Matrix Spike (MS-1) Spiked Sample: 291030

QC Batch: 89635 | Date Analyzed: 2012-03-22 | Analyzed By: AR
Prep Batch: 76090 | QC Preparation: 2012-03-22 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10700	mg/Kg	100	10000	654	100	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11000	mg/Kg	100	10000	654	103	79.4 - 120.6	3	20

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

Calibration Standards

Standard (CCV-3)

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

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

Standard (CCV-4)

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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	258	103	80 - 120	2012-03-12

Standard (CCV-3)

QC Batch: 89329 | Date Analyzed: 2012-03-13 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	273	109	80 - 120	2012-03-13

Standard (CCV-4)

QC Batch: 89329 | Date Analyzed: 2012-03-13 | Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	299	120	80 - 120	2012-03-13

Standard (CCV-2)

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

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

Standard (CCV-3)

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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0946	95	80 - 120	2012-03-14
Toluene		1	mg/kg	0.100	0.0932	93	80 - 120	2012-03-14
Ethylbenzene		1	mg/kg	0.100	0.0874	87	80 - 120	2012-03-14
Xylene		1	mg/kg	0.300	0.254	85	80 - 120	2012-03-14

Standard (CCV-2)

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

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

Standard (CCV-3)

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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.992	99	80 - 120	2012-03-14

Standard (ICV-1)

QC Batch: 89562 | Date Analyzed: 2012-03-21 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.2	99	85 - 115	2012-03-21

Standard (CCV-1)

QC Batch: 89562 | Date Analyzed: 2012-03-21 | 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	2012-03-21

Standard (ICV-1)

QC Batch: 89563 | Date Analyzed: 2012-03-21 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-03-21

Standard (CCV-1)

QC Batch: 89563 | Date Analyzed: 2012-03-21 | 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	99.0	99	85 - 115	2012-03-21

Standard (ICV-1)

QC Batch: 89635 | Date Analyzed: 2012-03-22 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-03-22

Standard (CCV-1)

QC Batch: 89635 | Date Analyzed: 2012-03-22 | 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	99.0	99	85 - 115	2012-03-22

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

Attachments

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

#12051201

Analysis Request of Chain of Custody Record

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

PAGE: 1 OF: 5

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6401313

PROJECT NAME: Choctaw State #1 Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
21027	3/7		S		X	AH-1 0-1'	1					X	X	X											X				
028						1-1.5'																			X				
029						2-2.5'																			X				
030						3-3.5'																			X				
031						4-4.5'																							
032						5-5.5'																							
033						6-6.5'																							
034						7-7.5'																							
035						8-8.5'																							
036	↓		↓		↓	9-9.5'	↓					↓																	

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

SAMPLED BY: (Print & Initial) IE — Date: 3-7-12 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:

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

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

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 8°

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

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 deeper samples if benzene exceed 10 mg/kg or total ~~BTEX~~ BTEX Exceeds 50 mg/kg.
Run deeper samples if Chloride Level exceed 1,000 mg/kg.

1203101

Analysis Request of Chain of Custody Record

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640313

PROJECT NAME: Choctaw State #1 Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
037	3/7		S		X	AH-2 0-1'	1				X		X	X											X				
038						1-1.5'																			X				
039						2-2.5'																			X				
040						3-3.5'																			X				
041						4-4.5'																							
042						5-5.5'																							
043						6-6.5'																							
044						7-7.5'																							
045						8-8.5'																							
046						9-9.5'																							

RELINQUISHED BY: (Signature) Date: 3/8/12 Time: 3/8/12

RECEIVED BY: (Signature) Date: 3/8/12 Time: 1:30

SAMPLED BY: (Print & Initial) TF Date: 3-7-12 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:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RECEIVING LABORATORY: Xenco

ADDRESS:

CITY: Midland STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 80

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.

12031201

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 5

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.: 114-6401313

PROJECT NAME: Choctaw State #1 Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
047	3/7		S		X	AH-3 0-1'	1				X		X	X											X				
048						1-1.5'																			X				
049						2-2.5'																			X				
050						3-3.5'																			X				
051						4-4.5'																							
052						5-5.5'																							
053						6-6.5'																							
054						7-7.5'																							
055						8-8.5'																							
056						9-9.5'																							

RELINQUISHED BY: (Signature)	Date: 3/8/12 Time: 3/9/12	RECEIVED BY: (Signature)	Date: 3/9/12 Time: 15:05
SAMPLED BY: (Print & Initial) TF	Date: 3-7-12 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:
TETRA TECH CONTACT PERSON: Ike Tavarez	Results by: RUSH Charges Authorized: Yes No		
RECEIVING LABORATORY: Trace ADDRESS: CITY: Midland STATE: TX ZIP: CONTACT: PHONE:	RECEIVED BY: (Signature) DATE: TIME:		
SAMPLE CONDITION WHEN RECEIVED: 10 °C	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.

TT 126/1201

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 5

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.: 114-6401313

PROJECT NAME: Choctaw State #1

Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
057	3/7		S	X		AH-4 0-1'	1				X	
058						1-1.5'						
059						2-2.5'						
060						3-3.5'						
061						4-4.5'						
062						5-5.5'						
063						6-6.5'						
064						7-7.5'						
065						8-8.5'						
066						9-9.5'						

BTEX 8021B	TX1005 MOD. (Ext. to C35)	8015	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
X	X												X				
													X				
													X				
													X				

RELINQUISHED BY: (Signature) Date: 3/8/12 Time: 3:00 PM — RECEIVED BY: (Signature) Date: 3/9/12 Time: 15:00

SAMPLED BY: (Print & Initial) TF Date: 3-7-12 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:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RECEIVING LABORATORY: Trace

ADDRESS:

CITY: Midland STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME: — RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 8 deg

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

PAGE: 5 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640 1313
PROJECT NAME: Choctaw State #1
Eddy Co NM

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TRH 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
067	3/7		S	X		AH-5 0-1'	1				X		X	X											X				
068						1-1.5'																			X				
069						2-2.5'																			X				
070						3-3.5'																			X				
071						4-4.5'																							
072						5-5.5'																							
073						6-6.5'																							
074						7-7.5'																							
075						8-8.5'																							
076	↓		↓	↓		9-9.5'	↓				↓																		

RELINQUISHED BY: (Signature) Date: 3/8/12 Time: 3:07 PM
RECEIVED BY: (Signature) Date: 3/9/12 Time: 15:07
SAMPLED BY: (Print & Initial) TF Date: 3-7-12 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:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 18
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.