SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	Dodd Federal Unit Water Flood					
Company:	COG Operating LLC					
Section, Township and Range	Unit I	Sec 15	T17S	R29E		
Lease Number:	API-30-015-02987					
County:	Eddy County					
GPS:	32.83275° N			104.05684° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Loco Hills, from the intersection of Hwy 82 and CR 217 travel west on Hwy 82 for 4.3 miles, turn right and travel 100 feet, turn right and travel 0.4 miles, turn left and travel 0.6 miles to site.					

Release Data:	
Date Released:	5/6/2011
Type Release:	Produced Water
Source of Contamination:	Produced water overflow tank
Fluid Released:	100 bbls
Fluids Recovered:	98 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	10
>100 ft.	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:	**10**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	1,000

TETRA TECH

May 10, 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., Dodd Federal Unit Water Flood, Unit I, Section 15, Township 17 South, Range 29 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 Dodd Federal Unit Water Flood located in Unit I, Section 15, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.83275°, W 104.05684°. 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 May 6, 2011, and released approximately one hundred (100) barrels of produced fluid from the produced water overflow tank. Ninety Eight (98) barrels of standing fluids were recovered. The spill measured approximately 45' x 85' and was completely contained inside the firewall of the facility. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 17. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 75' below surface. The average depth to groundwater map is shown in Appendix B.

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

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

On May 31, 2011, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1, AH-2, AH-3 and AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Due to the tanks, lines and structures, additional auger holes were not installed at the site. 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the auger holes were below the RRAL for TPH and BTEX. The area of AH-4 showed a shallow chloride impact to the soils, which declined to 237 mg/kg at 2-2.5' below surface. The chloride impact was not vertically defined in auger holes (AH-1, AH-2 and AH-3), with bottom hole samples of 10,100 mg/kg at 1-1.5', 1,560 mg/kg at 9-9.5' and 2,060 mg/kg at 9-9.5', respectively.

On September 23, 2011, Tetra Tech personnel supervised the installation of soil borings (SB-1, SB-2 and SB-3) utilizing an air rotary drilling rig. Soil samples were collected to a depth of 60.0' below surface to define the chloride impact. Referring to Table 1, chloride concentrations declined with depth to <200 mg/kg at 60.0' (SB-1) and <200 mg/kg at 40.0' (SB-2) and <200 mg/kg at 40.0' (SB-3). The soil boring locations are shown on Figure 3.

TETRA TECH

Site Remediation

On March 2012, Tetra Tech personnel supervised the excavation of the site. The proposed excavation depths proposed in work plan were met as stated in the approved work plan. Approximately 240 yards^3 were removed and disposed of at CRI.

Once excavated to the appropriate depths, confirmation samples were collected from the excavation. Tetra Tech collected (14) fourteen sidewall and four (4) bottom hole confirmation samples for chloride evaluation. The sampling results are summarized in Table 1. Referring to Table 1, all of the confirmation samples showed chloride concentrations ranging from <200 mg/kg to 682 mg/kg, with the exceptions of CS-3, CS-7, CS-9, CS-11 and CS-12, which showed chloride concentrations of 14,300 mg/kg, 26,500 mg/kg, 7,450 mg/kg, 15,200 mg/kg, and 24,600 mg/kg, respectively. These locations were not accessible due to the facility equipment and lines. COG requested to defer the remaining impact until the abandonment of the facility.

Once completed, the excavation bottoms in the areas of BH-1, BH-2, and BH-3 were lined with clay (approximately 0.5' thick). On March 4, 2012, BLM representative inspected the excavations and approved the remediation activities. The excavations were backfilled with clean soil and to grade.

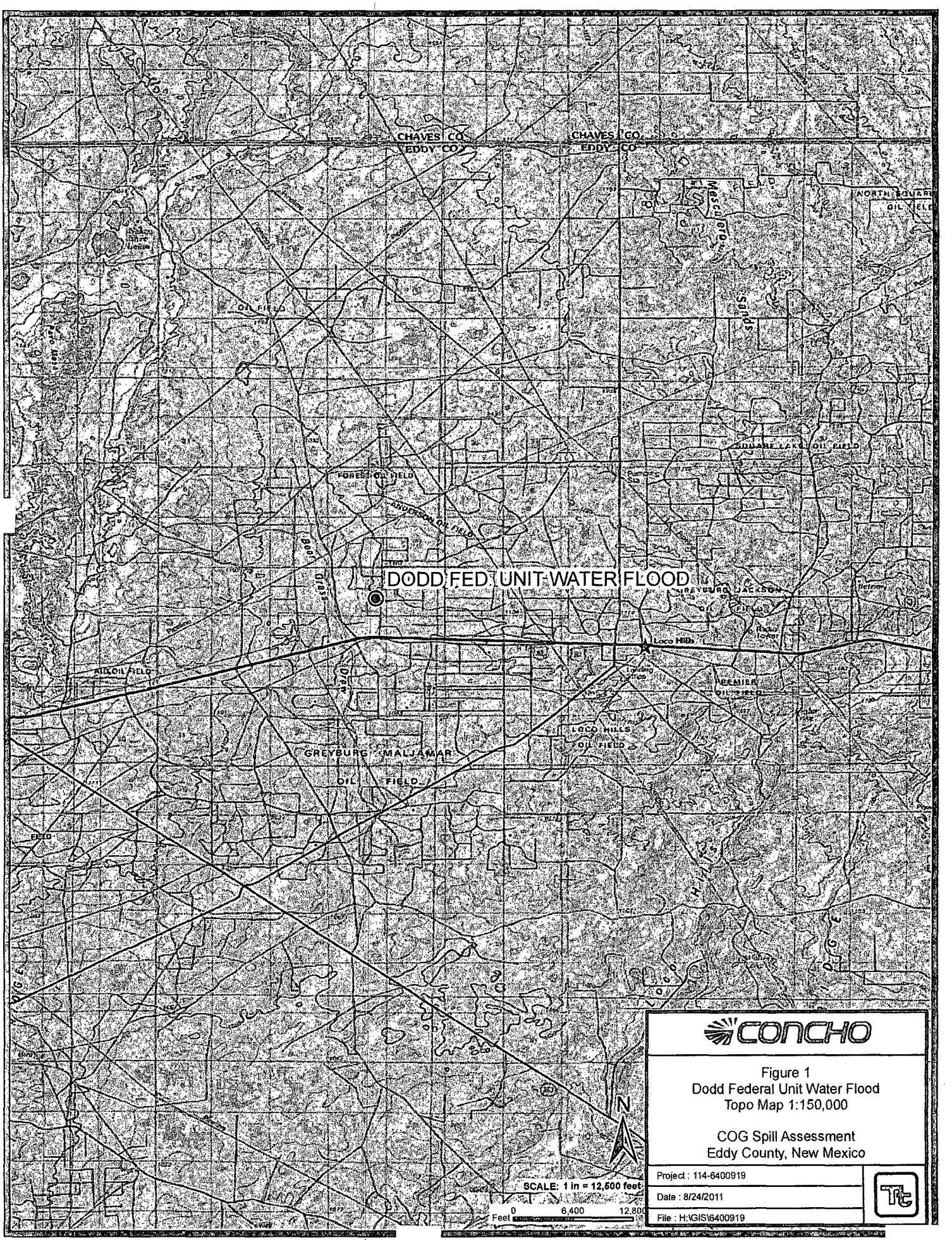
Based on the remediation activities performed at this location, COG request closure for site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez. PG
Senior Project Manager

cc: Pat Ellis – COG
cc: Terry Gregston - BLM

FIGURES



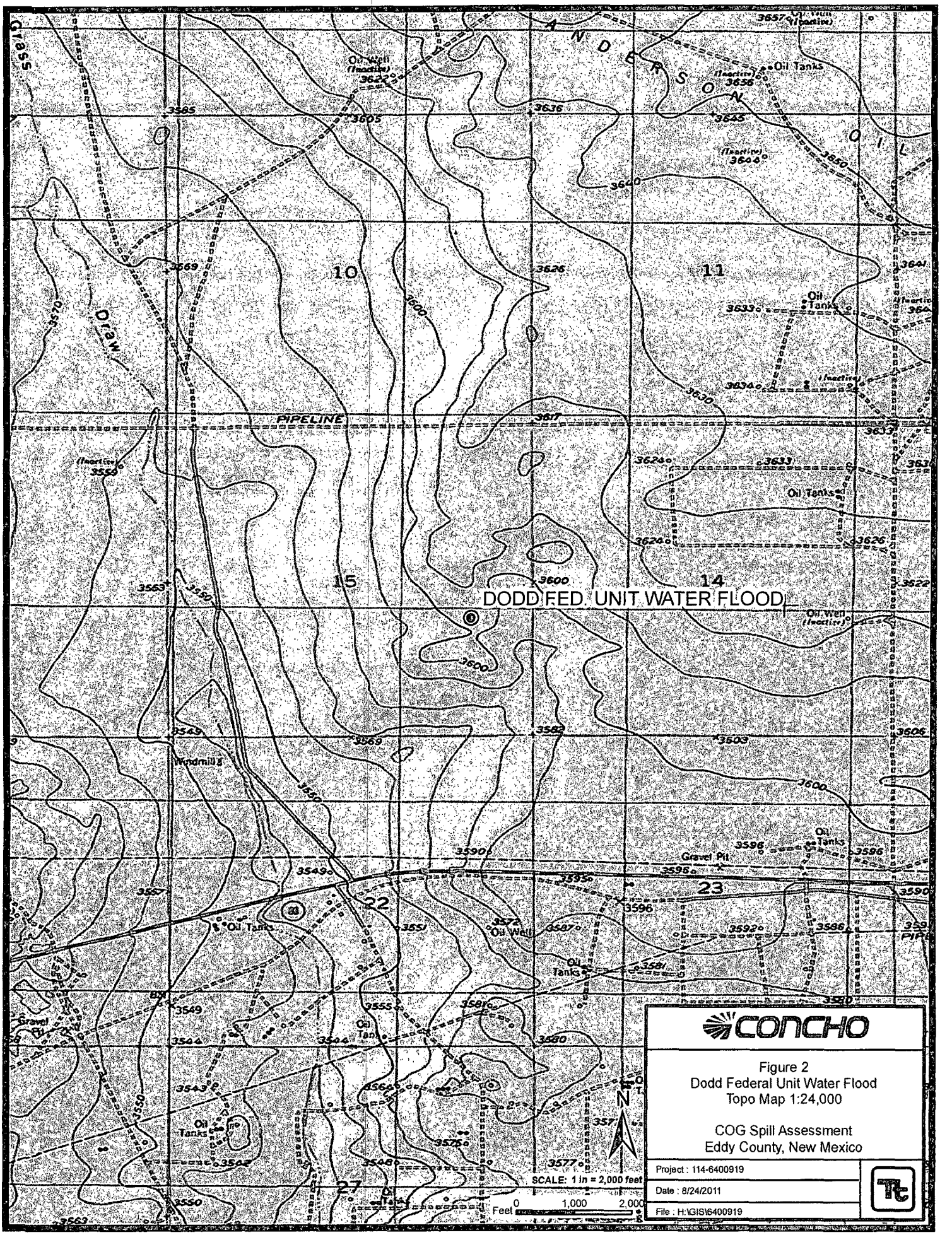
CONCHO

Figure 1
Dodd Federal Unit Water Flood
Topo Map 1:150,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6400919	
Date : 8/24/2011	
File : H:\GIS\6400919	

Drawn By: Isabel Marmolejo



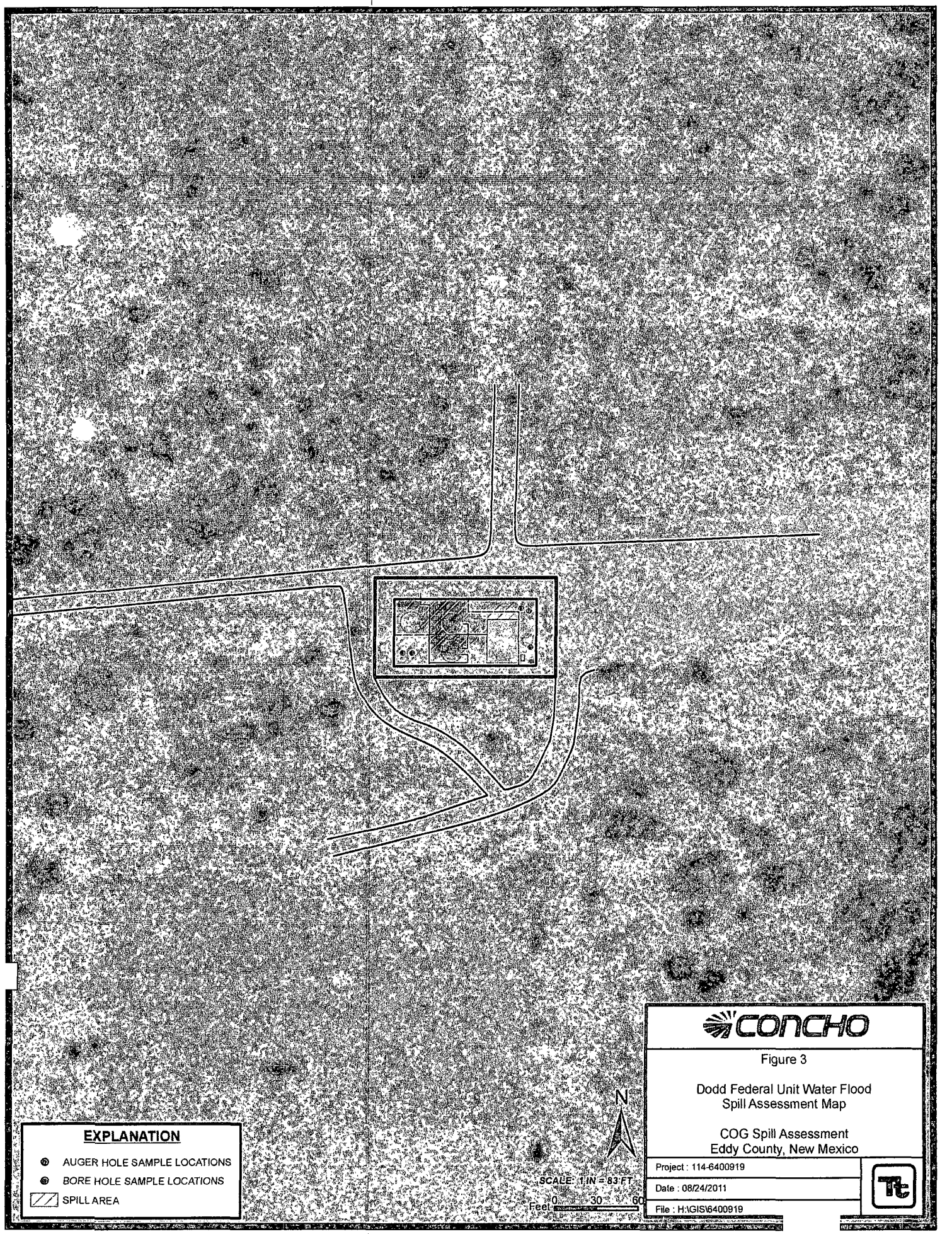
CONCHO

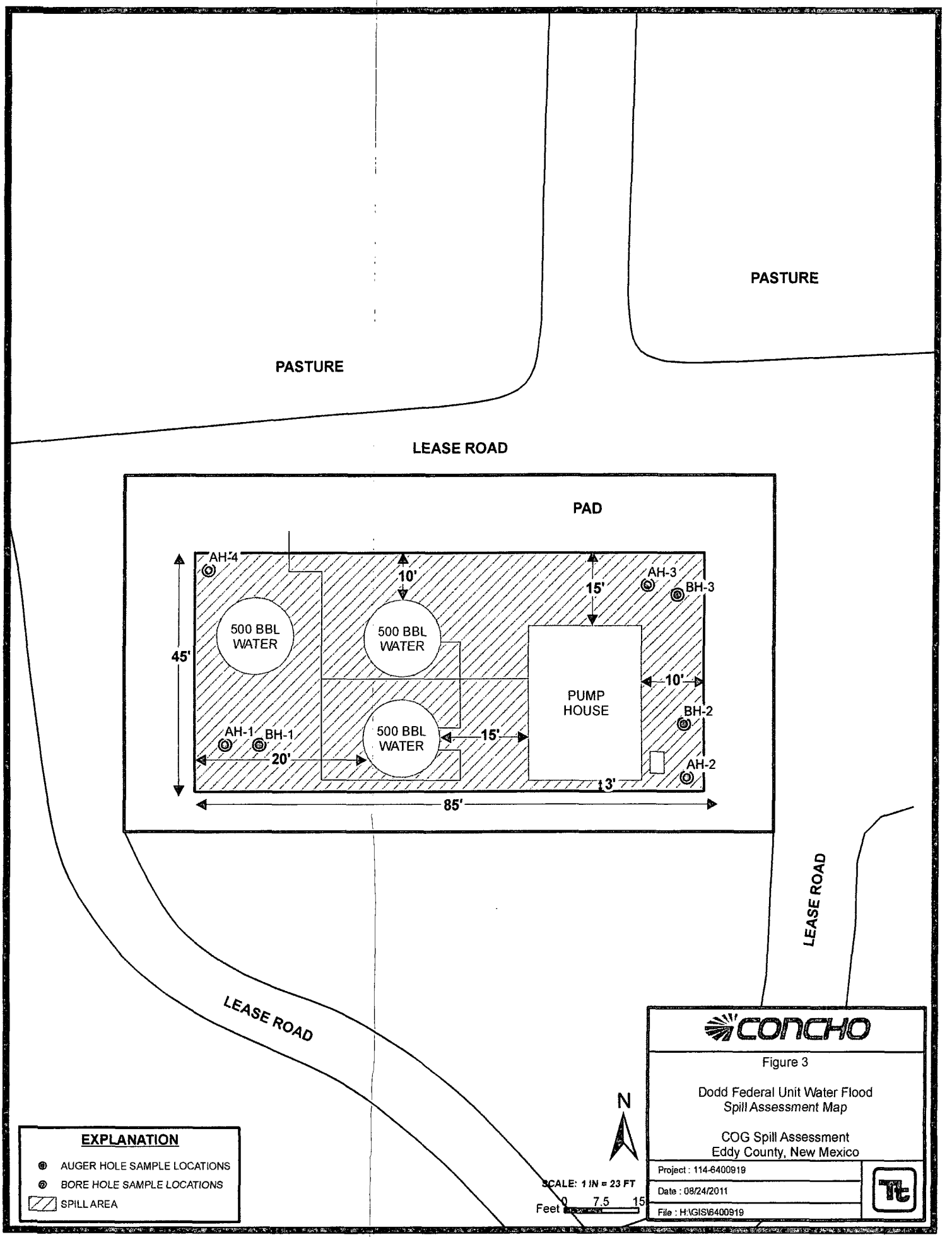
Figure 2
Dodd Federal Unit Water Flood
Topo Map 1:24,000

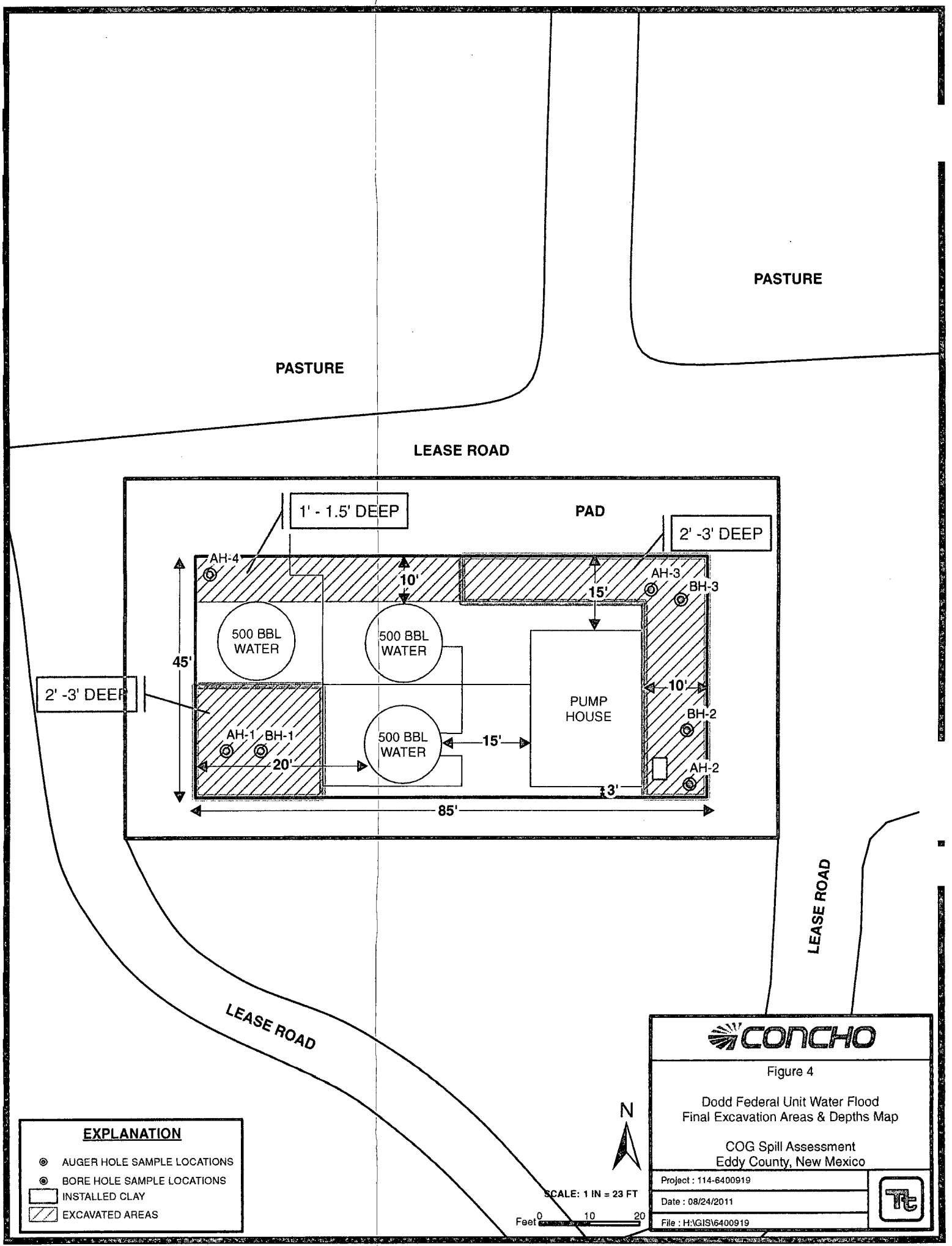
COG Spill Assessment
Eddy County, New Mexico

Project : 114-6400919
Date : 8/24/2011
File : H:\GIS\6400919

Drawn By: Isabel Manrolejo


EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 83 FT
Feet 0 30 60
CONCHO
Figure 3
Dodd Federal Unit Water Flood
Spill Assessment Map
COG Spill Assessment
Eddy County, New Mexico
Project : 114-6400919
Date : 08/24/2011
File : H:\GIS\6400919
Drawn By: Isabel Marmolejo


PASTURE
PASTURE
LEASE ROAD
PAD
AH-4
10'
15'
AH-3
BH-3
500 BBL WATER
500 BBL WATER
45'
PUMP HOUSE
10'
BH-2
AH-1
BH-1
500 BBL WATER
15'
20'
AH-2
13'
85'
LEASE ROAD
LEASE ROAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 23 FT
Feet 0 7.5 15
CONCHO
Figure 3
Dodd Federal Unit Water Flood
Spill Assessment Map
COG Spill Assessment
Eddy County, New Mexico
Project : 114-6400919
Date : 08/24/2011
File : H:\GIS\6400919
Drawn By: Isabel Marmolejo


PASTURE
PASTURE
LEASE ROAD
1' - 1.5' DEEP
PAD
2' -3' DEEP
AH-4
10'
15'
AH-3
BH-3
500 BBL WATER
500 BBL WATER
45'
2' -3' DEEP
PUMP HOUSE
10'
BH-2
AH-1
BH-1
20'
500 BBL WATER
15'
AH-2
3'
85'
LEASE ROAD
LEASE ROAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BORE HOLE SAMPLE LOCATIONS
INSTALLED CLAY
EXCAVATED AREAS
N
SCALE: 1 IN = 23 FT
Feet 0 10 20
CONCHO
Figure 4
Dodd Federal Unit Water Flood
Final Excavation Areas & Depths Map
COG Spill Assessment
Eddy County, New Mexico
Project : 114-6400919
Date : 08/24/2011
File : H:\GIS\6400919

TABLES

Table 1
COG Operating LLC.
DODD FEDERAL UNIT WATER FLOOD
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)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-1	5/31/2011	0-1'		X	77.2	61.9	139.10	<0.0200	0.192	0.147	0.492	8,190
	"	1-1.5'		X	-	-	-	-	-	-	-	9,490
	"	1.5-2'		X	-	-	-	-	-	-	-	10,100
BH-1	9/23/2011	0-1'		X	-	-	-	-	-	-	-	3,570
	"	3'		X	-	-	-	-	-	-	-	3,650
	"	5'	X		-	-	-	-	-	-	-	6,140
	"	7'	X		-	-	-	-	-	-	-	3,110
	"	10'	X		-	-	-	-	-	-	-	3,640
	"	15'	X		-	-	-	-	-	-	-	2,780
	"	20'	X		-	-	-	-	-	-	-	2,170
	"	25'	X		-	-	-	-	-	-	-	4,910
	"	30'	X		-	-	-	-	-	-	-	1,150
	"	40'	X		-	-	-	-	-	-	-	952
	"	50'	X		-	-	-	-	-	-	-	849
	"	60'	X		-	-	-	-	-	-	-	<200
CS-11 Sidewall	4/2/2012	-	X		-	-	-	-	-	-	-	15,200
CS-12 Sidewall	"	-	X		-	-	-	-	-	-	-	24,600
CS-13 Sidewall	4/3/2012	-	X		-	-	-	-	-	-	-	<200
CS-14 Sidewall	"	-	X		-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC.
DODD FEDERAL UNIT WATER FLOOD
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)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-2	5/31/2011	0-1'		X	11.3	<50.0	11.3	<0.0200	<0.0200	<0.0200	<0.0200	9,540
	"	1-1.5'		X	-	-	-	-	-	-	-	1,570
	"	2-2.5'		X	-	-	-	-	-	-	-	2,640
	"	3-3.5'		X	-	-	-	-	-	-	-	4,590
	"	4-4.5'	X		-	-	-	-	-	-	-	2,430
	"	5-5.5'	X		-	-	-	-	-	-	-	1,800
	"	6-6.5'	X		-	-	-	-	-	-	-	2,140
	"	7-7.5'	X		-	-	-	-	-	-	-	2,580
	"	8-8.5'	X		-	-	-	-	-	-	-	2,060
	"	9-9.5'	X		-	-	-	-	-	-	-	1,560
BH-2	9/23/2011	0-1'		X	-	-	-	-	-	-	-	5,150
	"	3'		X	-	-	-	-	-	-	-	7,250
	"	5'	X		-	-	-	-	-	-	-	1,410
	"	7'	X		-	-	-	-	-	-	-	4,510
	"	10'	X		-	-	-	-	-	-	-	1,920
	"	15'	X		-	-	-	-	-	-	-	1,490
	"	20'	X		-	-	-	-	-	-	-	1,490
	"	25'	X		-	-	-	-	-	-	-	1,050
	"	30'	X		-	-	-	-	-	-	-	236
	"	40'	X		-	-	-	-	-	-	-	<200
	"	50'	X		-	-	-	-	-	-	-	<200
	"	60'	X		-	-	-	-	-	-	-	<200
CS-8 Sidewall	4/3/2012	-	X		-	-	-	-	-	-	-	585
CS-9 Sidewall	4/2/2012	-	X		-	-	-	-	-	-	-	7,450
CS-10 Sidewall	"	-	X		-	-	-	-	-	-	-	604

Table 1
COG Operating LLC.
DODD FEDERAL UNIT WATER FLOOD
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)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-3	5/31/2011	0-1'		X	3.14	<50.0	3.14	<0.0200	<0.0200	<0.0200	<0.0200	1,370
	"	1-1.5'		X	-	-	-	-	-	-	-	865
	"	2-2.5'		X	-	-	-	-	-	-	-	1,050
	"	3-3.5'		X	-	-	-	-	-	-	-	2,070
	"	4-4.5'	X		-	-	-	-	-	-	-	1,840
	"	5-5.5'	X		-	-	-	-	-	-	-	1,560
	"	6-6.5'	X		-	-	-	-	-	-	-	1,440
	"	7-7.5'	X		-	-	-	-	-	-	-	1,630
	"	8-8.5'	X		-	-	-	-	-	-	-	4,920
	"	9-9.5'	X		-	-	-	-	-	-	-	2,060
BH-3	9/23/2011	10'	X		-	-	-	-	-	-	-	1,900
	"	15'	X		-	-	-	-	-	-	-	3,730
	"	20'	X		-	-	-	-	-	-	-	2,740
	"	25'	X		-	-	-	-	-	-	-	1,160
	"	30'	X		-	-	-	-	-	-	-	203
	"	40'	X		-	-	-	-	-	-	-	<200
	"	50'	X		-	-	-	-	-	-	-	<200
	"	60'	X		-	-	-	-	-	-	-	<200
CS-4 Sidewall	4/2/2012	-	X		-	-	-	-	-	-	-	546
CS-5 Sidewall	"	-	X		-	-	-	-	-	-	-	565
CS-6 Sidewall	"	-	X		-	-	-	-	-	-	-	682
CS-7 Sidewall	"	-	X		-	-	-	-	-	-	-	26,500

Table 1
COG Operating LLC.
DODD FEDERAL UNIT WATER FLOOD
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)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-4	5/31/2011	0-1'		X	22.5	<50.0	22.5	<0.0200	<0.0200	<0.0200	<0.0200	5,280
	"	1-1.5'		X	-	-	-	-	-	-	-	3,990
	"	2-2.5'	X		-	-	-	-	-	-	-	237
CS-1 Sidewall	4/3/2012	-	X		-	-	-	-	-	-	-	<200
CS-2 Sidewall	"	-	X		-	-	-	-	-	-	-	<200
CS-3 Sidewall	4/2/2012	-	X		-	-	-	-	-	-	-	14,300
Background	5/31/2011	1-1.5'	X		-	-	-	-	-	-	-	<200
	"	3-3.5'	X		-	-	-	-	-	-	-	989

(--) Not Analyzed

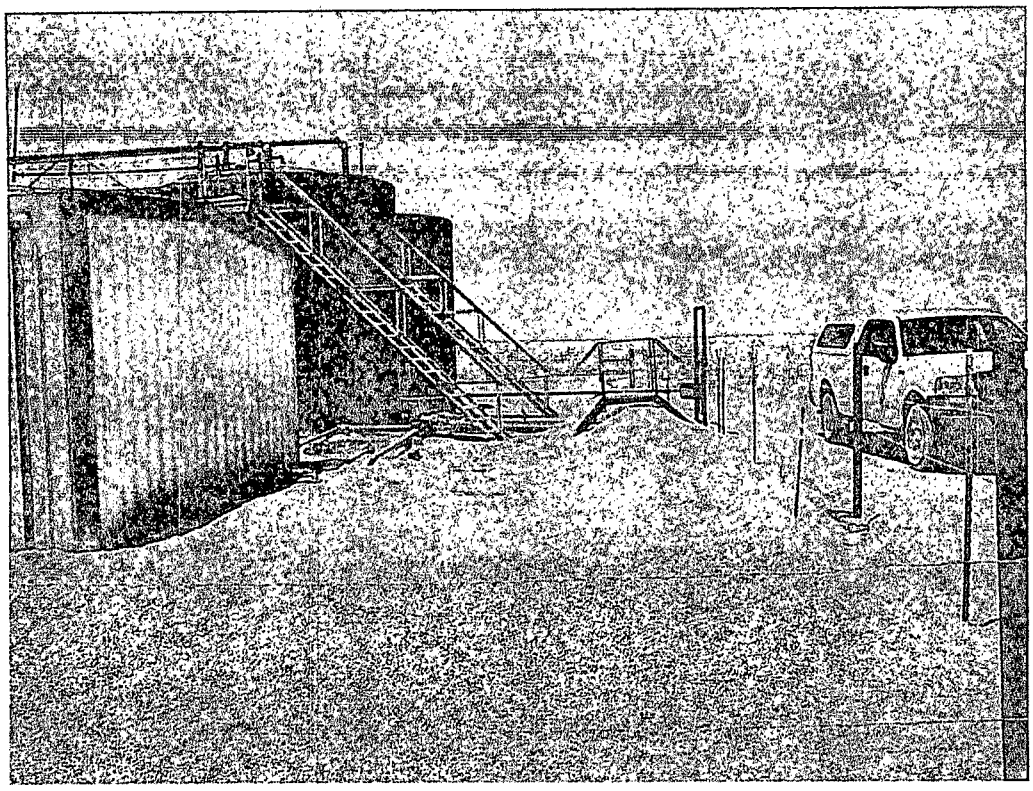
Excavated Depths

Clay Material

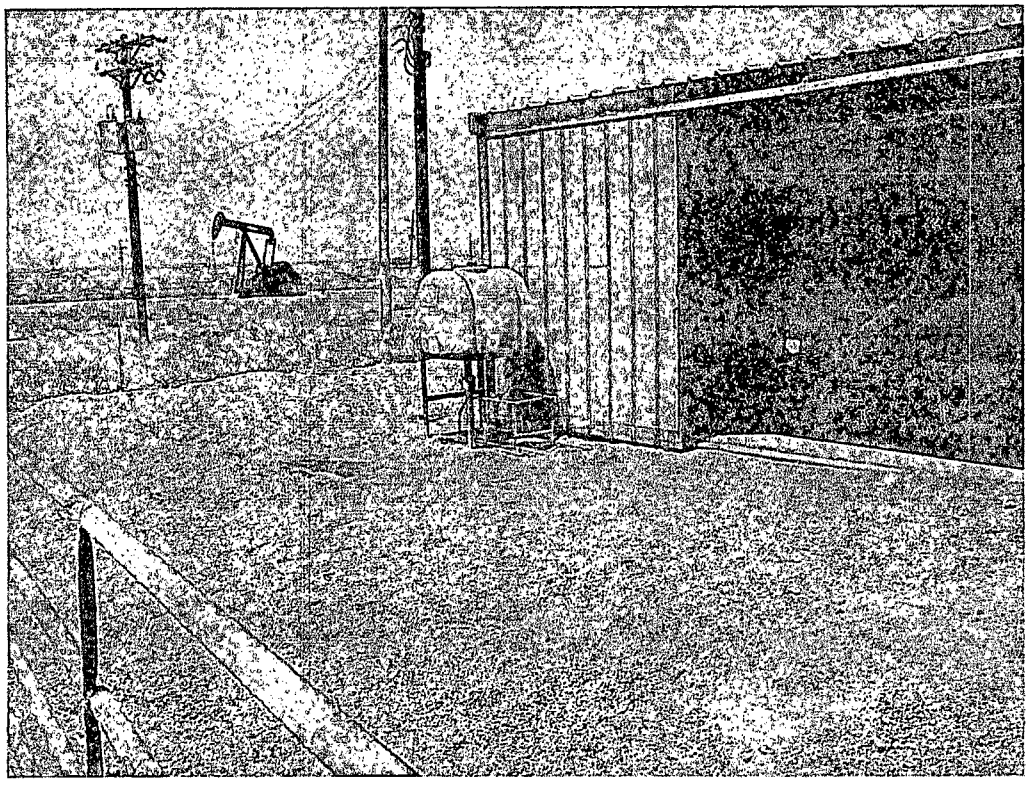
PHOTOGRAPHS

COG Operating LLC
Dodd Fed Unit Water Flood
Eddy County, New Mexico

TETRA TECH



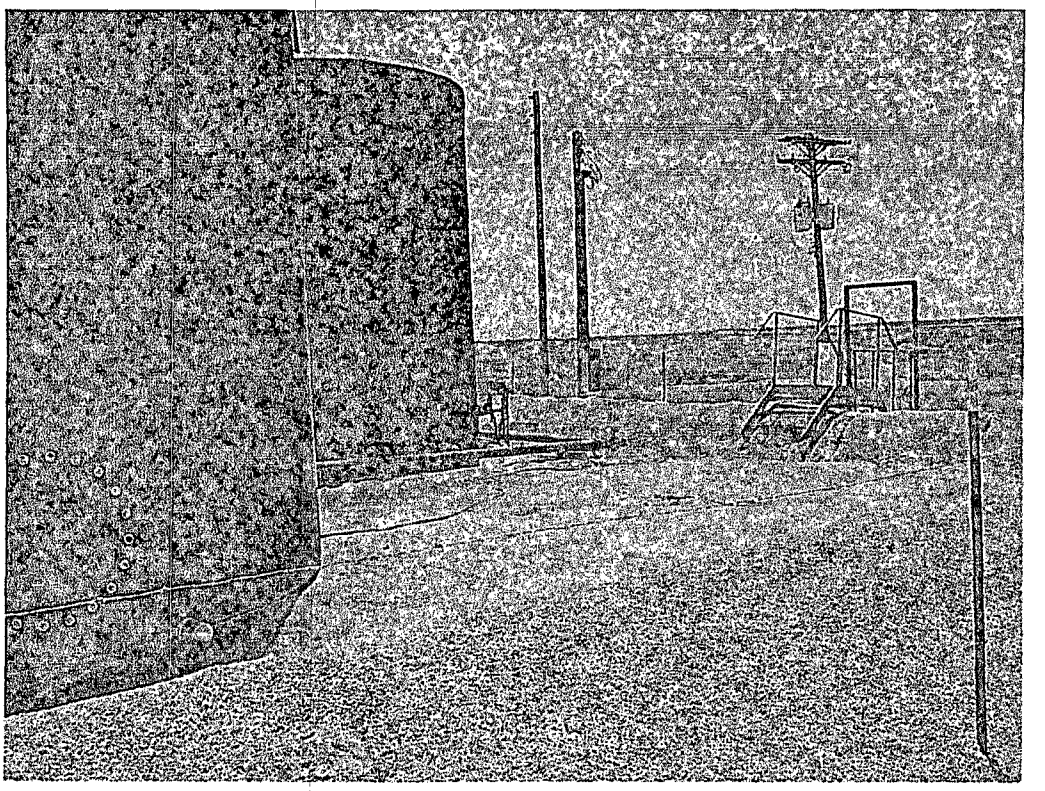
View West – AH-3 and 4



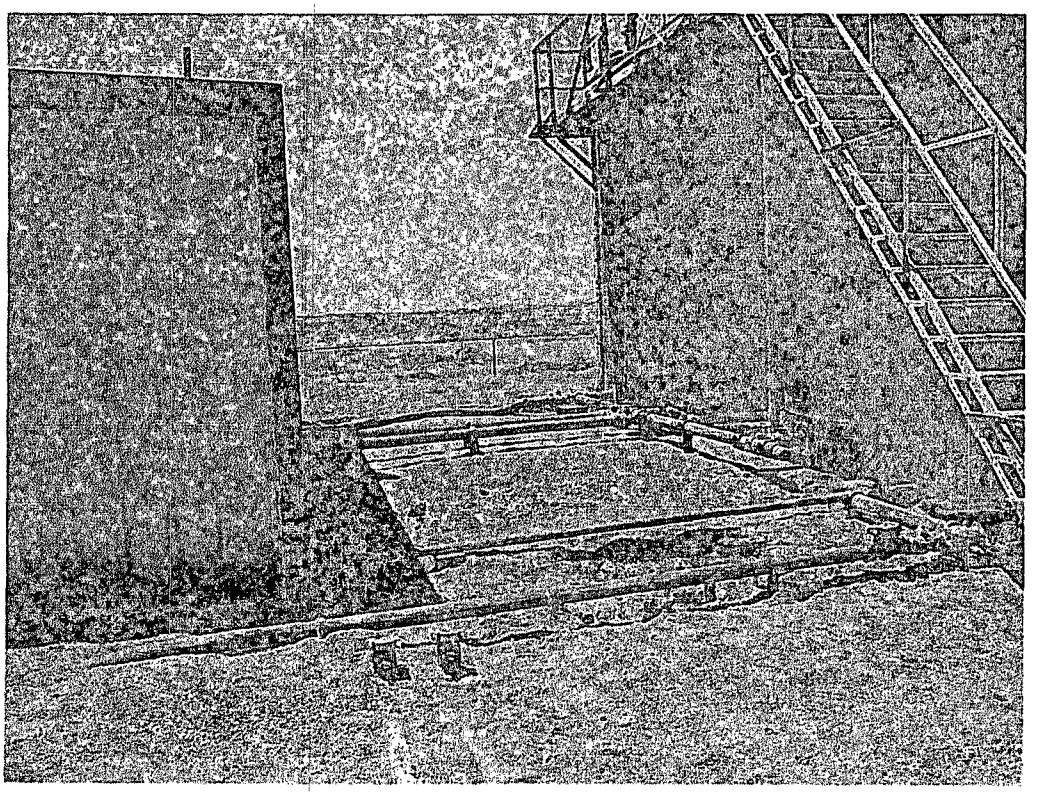
View South – AH-2

COG Operating LLC
Dodd Fed Unit Water Flood
Eddy County, New Mexico

TETRA TECH



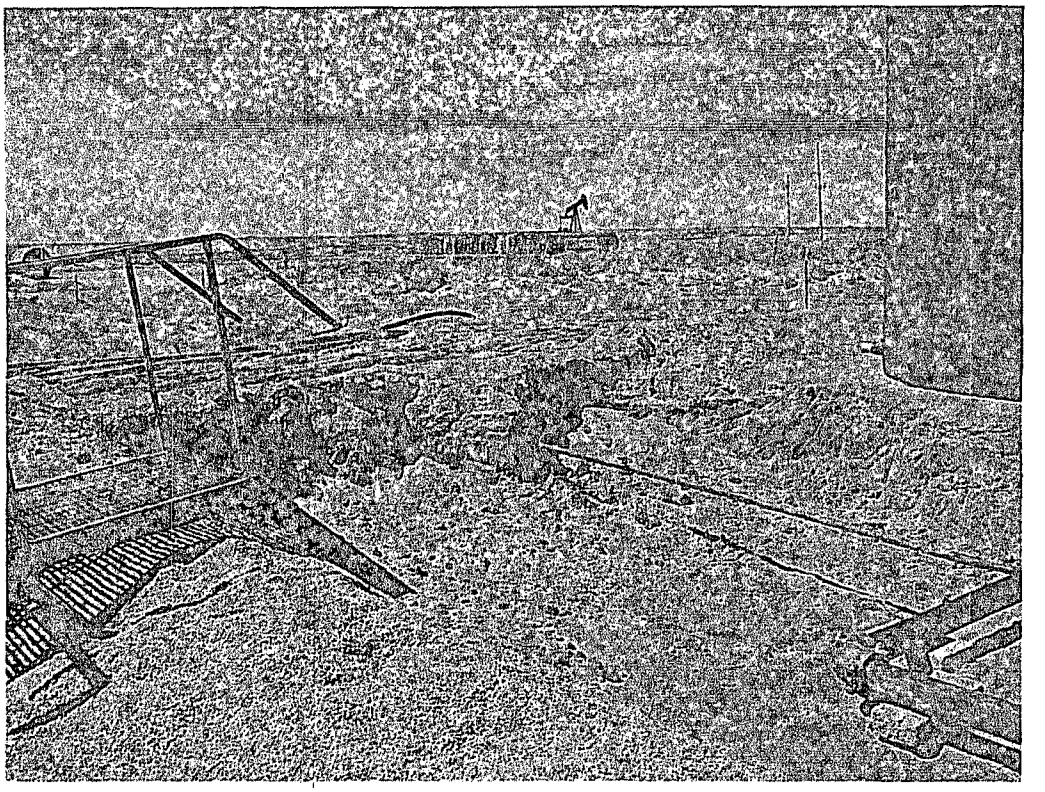
View South East – AH-4



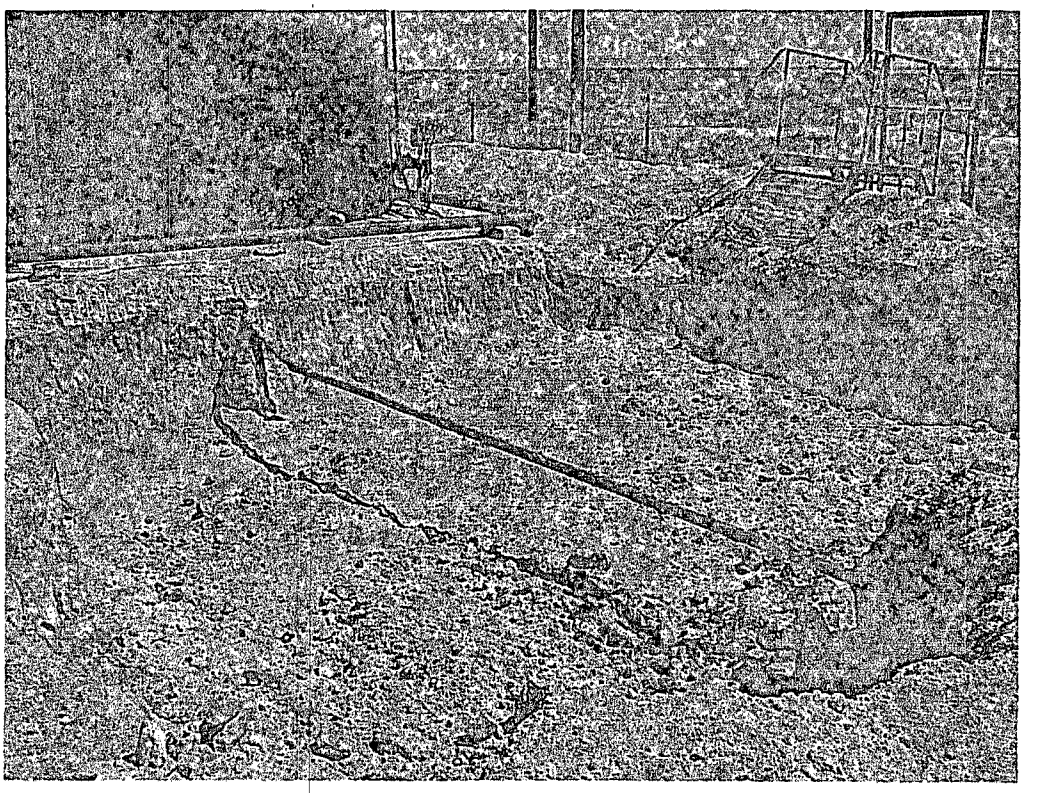
View South

COG Operating LLC
Dodd Fed Unit Water Flood
Eddy County, New Mexico

TETRA TECH



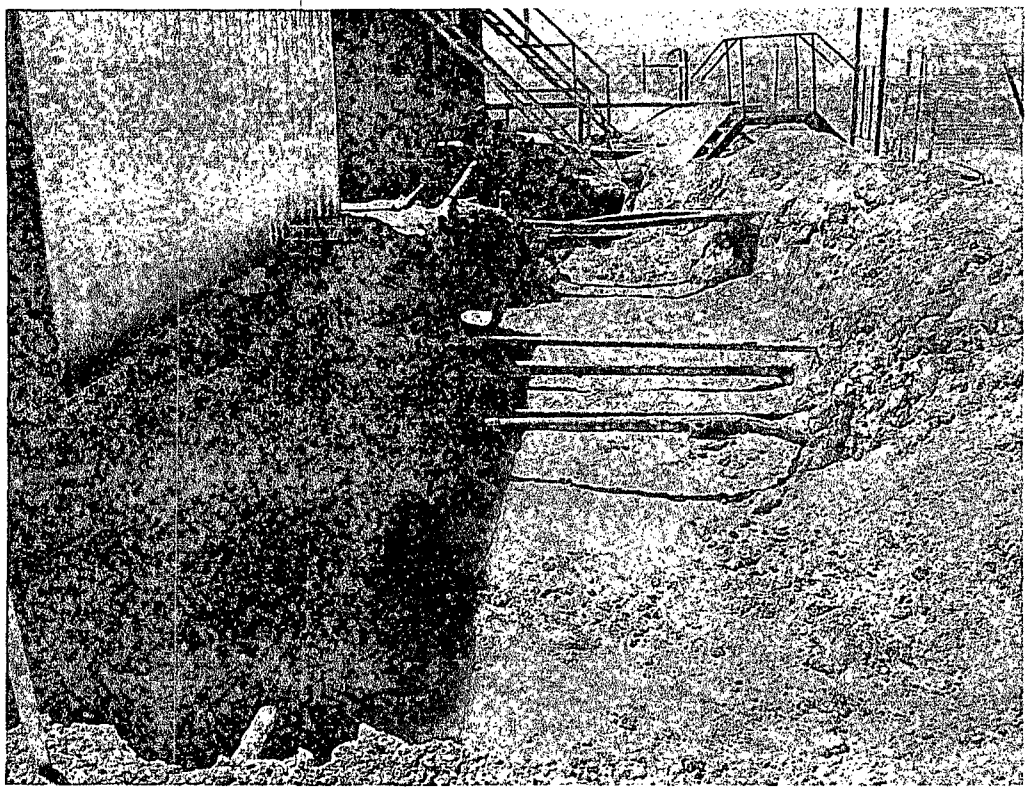
Excavated area near BH-1



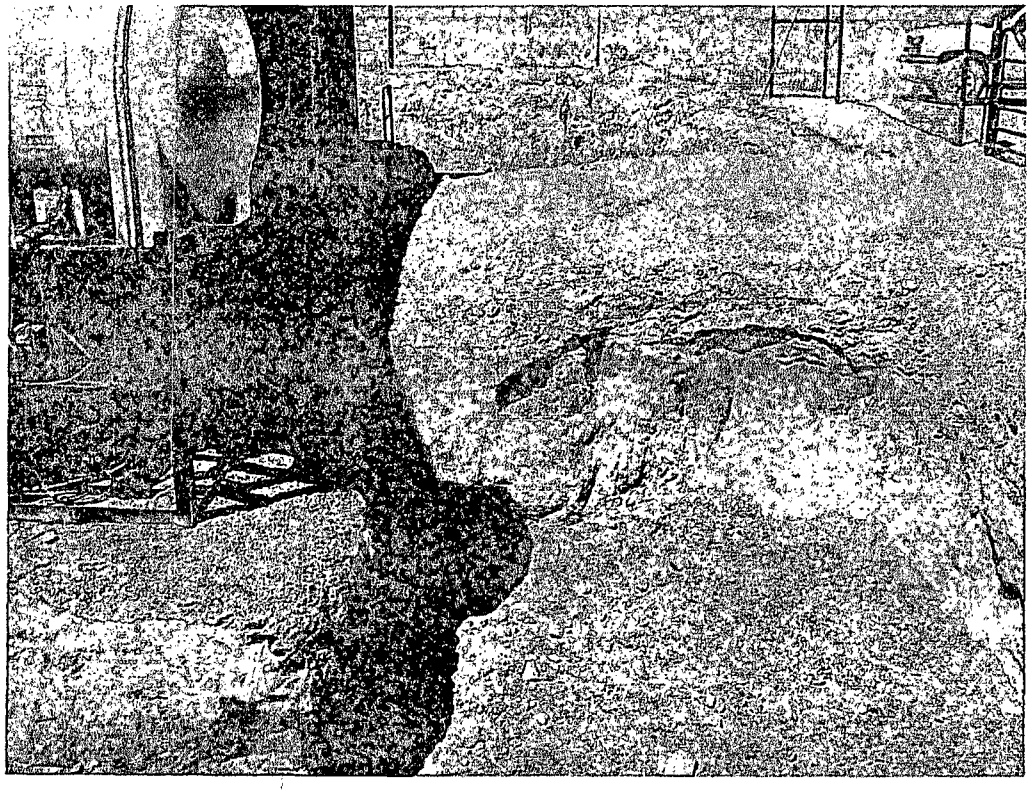
Excavated area near BH-1

COG Operating LLC
Dodd Fed Unit Water Flood
Eddy County, New Mexico

TETRA TECH



Excavated area near pump house (BH-3)



Excavated area near pump house (BH-2)

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 Dodd Federal Unit Water Flood	Facility Type **Water Flood TB**

Surface Owner Federal	Mineral Owner	Lease No. 30-015-02987

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	15	17-S	29-E					Eddy

Latitude N 32.83275° **Longitude** W 104.05684°

NATURE OF RELEASE

Type of Release: *Produced water*	Volume of Release **120 bbls**	Volume Recovered **115 bbls**
Source of Release **Produced water overflow tank**	Date and Hour of Occurrence 5/6/2011	Date and Hour of Discovery **5/6/2011 8:00 am**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Mike Bratcher – OCD** **Jim Amos – BLM** **Terry Gregston - BLM**	
By Whom? Josh Russo	Date and Hour 5/9/2011 7:52 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the side of an overflow tank at the Dodd Federal Water Flood TB. The tank has been removed and replaced.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. Soil with elevated chloride concentrations was removed and hauled away to Controlled Recovery, Inc., Hobbs, NM. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted 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 COC)	Approved by District Supervisor:
Title: Project Manager	Approval Date: / Expiration Date:
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval: / Attached ☐
Date: 5-10-12 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
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Dodd Federal Unit Water Flood	Facility Type	Water Flood TB

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-02987

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	15	17S	29E					Eddy

Latitude 32.83275 **Longitude** 104.05684

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 100bbls	Volume Recovered 98bbls
Source of Release Produced water overflow tank	Date and Hour of Occurrence 05/06/2011	Date and Hour of Discovery 05/06/2011 8:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher-OCD, Jim Amos-BLM, Terry Gregston-BLM	
By Whom? Josh Russo	Date and Hour 05/09/2011 7:52 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.*

A hole developed in the side of an overflow tank at the Dodd Federal Unit Water Flood TB. The faulty tank has been removed and replaced.

Describe Area Affected and Cleanup Action Taken.*

Initially 100bbls of produced water was released from the overflow tank and we were able to recover 98bbls with a vacuum truck. All released fluid was completely contained inside the dike walls of the facility. All standing fluid has been removed and the spill area has been scraped with a backhoe. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan 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: 05/12/2011 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - Dodd Federal Unit Water Flood
Eddy County, New Mexico

16 South 28 East

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

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

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

17 South 28 East

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

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15 SITE	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

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

18 South 28 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 **65**	36

18 South 29 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 30 East

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

New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD - Groundwater Data

APPENDIX C

Summary Report

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

Report Date: June 14, 2011

Work Order: 11060239

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
268053	AH-1 0-1'	soil	2011-05-31	00:00	2011-06-02
268054	AH-1 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268055	AH-1 1.5-2'	soil	2011-05-31	00:00	2011-06-02
268056	AH-2 0-1'	soil	2011-05-31	00:00	2011-06-02
268057	AH-2 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268058	AH-2 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268059	AH-2 3-3.5'	soil	2011-05-31	00:00	2011-06-02
268060	AH-2 4-4.5'	soil	2011-05-31	00:00	2011-06-02
268061	AH-2 5-5.5'	soil	2011-05-31	00:00	2011-06-02
268062	AH-2 6-6.5'	soil	2011-05-31	00:00	2011-06-02
268063	AH-2 7-7.5'	soil	2011-05-31	00:00	2011-06-02
268064	AH-2 8-8.5'	soil	2011-05-31	00:00	2011-06-02
268065	AH-2 9-9.5'	soil	2011-05-31	00:00	2011-06-02
268066	AH-3 0-1'	soil	2011-05-31	00:00	2011-06-02
268067	AH-3 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268068	AH-3 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268069	AH-3 3-3.5'	soil	2011-05-31	00:00	2011-06-02
268070	AH-3 4-4.5'	soil	2011-05-31	00:00	2011-06-02
268071	AH-3 5-5.5'	soil	2011-05-31	00:00	2011-06-02
268072	AH-3 6-6.5'	soil	2011-05-31	00:00	2011-06-02
268073	AH-3 7-7.5'	soil	2011-05-31	00:00	2011-06-02
268074	AH-3 8-8.5'	soil	2011-05-31	00:00	2011-06-02
268075	AH-3 9-9.5'	soil	2011-05-31	00:00	2011-06-02
268076	AH-4 0-1'	soil	2011-05-31	00:00	2011-06-02
268077	AH-4 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268078	AH-4 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268079	Background 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268080	Background 3-3.5'	soil	2011-05-31	00:00	2011-06-02

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
268053 - AH-1 0-1'	<0.0200	**0.192**	**0.147**	**0.492**	**61.9**	**77.2**
268056 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**11.3**
268066 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**3.14**
268076 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	**0.374**	<50.0	**22.5**

Sample: 268053 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**8190**	mg/Kg	4

Sample: 268054 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**9490**	mg/Kg	4

Sample: 268055 - AH-1 1.5-2'

Param	Flag	Result	Units	RL
Chloride		**10100**	mg/Kg	4

Sample: 268056 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**9540**	mg/Kg	4

Sample: 268057 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1570**	mg/Kg	4

Sample: 268058 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2640**	mg/Kg	4

Sample: 268059 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**4590**	mg/Kg	4

Sample: 268060 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2430**	mg/Kg	4

Sample: 268061 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1800**	mg/Kg	4

Sample: 268062 - AH-2 6-6.5'

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

Sample: 268063 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**2580**	mg/Kg	4

Sample: 268064 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**2060**	mg/Kg	4

Sample: 268065 - AH-2 9-9.5'

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

Sample: 268066 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**1370**	mg/Kg	4

Sample: 268067 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**865**	mg/Kg	4

Sample: 268068 - AH-3 2-2.5'

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

Sample: 268069 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**2070**	mg/Kg	4

Sample: 268070 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1840**	mg/Kg	4

Sample: 268071 - AH-3 5-5.5'

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

Sample: 268072 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**1440**	mg/Kg	4

Sample: 268073 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**1630**	mg/Kg	4

Sample: 268074 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**4920**	mg/Kg	4

Sample: 268075 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**2060**	mg/Kg	4

Sample: 268076 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**5280**	mg/Kg	4

Sample: 268077 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**3990**	mg/Kg	4

Sample: 268078 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**237**	mg/Kg	4

Sample: 268079 - Background 1-1.5'

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

Sample: 268080 - Background 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**989**	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

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: June 14, 2011

Work Order: 11060239

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

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
268053	AH-1 0-1'	soil	2011-05-31	00:00	2011-06-02
268054	AH-1 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268055	AH-1 1.5-2'	soil	2011-05-31	00:00	2011-06-02
268056	AH-2 0-1'	soil	2011-05-31	00:00	2011-06-02
268057	AH-2 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268058	AH-2 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268059	AH-2 3-3.5'	soil	2011-05-31	00:00	2011-06-02
268060	AH-2 4-4.5'	soil	2011-05-31	00:00	2011-06-02
268061	AH-2 5-5.5'	soil	2011-05-31	00:00	2011-06-02
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268063	AH-2 7-7.5'	soil	2011-05-31	00:00	2011-06-02
268064	AH-2 8-8.5'	soil	2011-05-31	00:00	2011-06-02
268065	AH-2 9-9.5'	soil	2011-05-31	00:00	2011-06-02
268066	AH-3 0-1'	soil	2011-05-31	00:00	2011-06-02
268067	AH-3 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268068	AH-3 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268069	AH-3 3-3.5'	soil	2011-05-31	00:00	2011-06-02
268070	AH-3 4-4.5'	soil	2011-05-31	00:00	2011-06-02

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
268071	AH-3 5-5.5'	soil	2011-05-31	00:00	2011-06-02
268072	AH-3 6-6.5'	soil	2011-05-31	00:00	2011-06-02
268073	AH-3 7-7.5'	soil	2011-05-31	00:00	2011-06-02
268074	AH-3 8-8.5'	soil	2011-05-31	00:00	2011-06-02
268075	AH-3 9-9.5'	soil	2011-05-31	00:00	2011-06-02
268076	AH-4 0-1'	soil	2011-05-31	00:00	2011-06-02
268077	AH-4 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268078	AH-4 2-2.5'	soil	2011-05-31	00:00	2011-06-02
268079	Background 1-1.5'	soil	2011-05-31	00:00	2011-06-02
268080	Background 3-3.5'	soil	2011-05-31	00:00	2011-06-02

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.

Blair Leftwich

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

Report Contents

Case Narrative

Samples for project COG/Dodd Federal Unit Water Flood were received by TraceAnalysis, Inc. on 2011-06-02 and assigned to work order 11060239. Samples for work order 11060239 were received intact at a temperature of 3.7 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	69547	2011-06-03 at 08:52	81910	2011-06-03 at 08:52
Chloride (Titration)	SM 4500-Cl B	69605	2011-06-07 at 09:06	82021	2011-06-08 at 14:56
Chloride (Titration)	SM 4500-Cl B	69605	2011-06-07 at 09:06	82022	2011-06-08 at 14:56
Chloride (Titration)	SM 4500-Cl B	69605	2011-06-07 at 09:06	82023	2011-06-08 at 14:57
Chloride (Titration)	SM 4500-Cl B	69605	2011-06-07 at 09:06	82163	2011-06-13 at 15:26
TPH DRO - NEW	S 8015 D	69730	2011-06-10 at 15:00	82132	2011-06-10 at 16:00
TPH GRO	S 8015 D	69547	2011-06-03 at 08:52	81911	2011-06-03 at 08:52

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 11060239 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: 268053 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	81910	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		2	<0.0200	mg/Kg	1	0.0200
Toluene		2	**0.192**	mg/Kg	1	0.0200
Ethylbenzene		2	**0.147**	mg/Kg	1	0.0200
Xylene		2	**0.492**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.68	mg/Kg	1	2.00	84	52.8 - 137
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	38.4 - 157

Sample: 268053 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82021	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**8190**	mg/Kg	100	4.00

Sample: 268053 - AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	82132	Date Analyzed:	2011-06-10	Analyzed By:	CM
Prep Batch:	69730	Sample Preparation:	2011-06-10	Prepared By:	CM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1	**61.9**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	70 - 130

Sample: 268053 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	81911	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		2	**77.2**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.09	mg/Kg	1	2.00	104	42 - 159

Sample: 268054 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82021	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9490**	mg/Kg	100	4.00

Sample: 268055 - AH-1 1.5-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

continued ...

sample 268055 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10100**	mg/Kg	100	4.00

Sample: 268056 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	81910	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		2	<0.0200	mg/Kg	1	0.0200
Toluene		2	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		2	<0.0200	mg/Kg	1	0.0200
Xylene		2	<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	52.8 - 137
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	38.4 - 157

Sample: 268056 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**9540**	mg/Kg	100	4.00

Sample: 268056 - AH-2 0-1'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	82132	Date Analyzed:	2011-06-10	Analyzed By:	CM
Prep Batch:	69730	Sample Preparation:	2011-06-10	Prepared By:	CM

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

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

Sample: 268056 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	81911	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
GRO		2		**11.3**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.67	mg/Kg	1	2.00	134	42 - 159

Sample: 268057 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**1570**	mg/Kg	100	4.00

Sample: 268058 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2640**	mg/Kg	100	4.00

Sample: 268059 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

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

Sample: 268060 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2430**	mg/Kg	100	4.00

Sample: 268061 - AH-2 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1800**	mg/Kg	100	4.00

Sample: 268062 - AH-2 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2140**	mg/Kg	100	4.00

Sample: 268063 - AH-2 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2580**	mg/Kg	100	4.00

Sample: 268064 - AH-2 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2060**	mg/Kg	100	4.00

Sample: 268065 - AH-2 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1560**	mg/Kg	100	4.00

Sample: 268066 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	81910	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		2	<0.0200	mg/Kg	1	0.0200
Toluene		2	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		2	<0.0200	mg/Kg	1	0.0200
Xylene		2	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	52.8 - 137
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	38.4 - 157

Sample: 268066 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1370**	mg/Kg	100	4.00

Sample: 268066 - AH-3 0-1'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	82132	Date Analyzed:	2011-06-10	Analyzed By:	CM
Prep Batch:	69730	Sample Preparation:	2011-06-10	Prepared By:	CM

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

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

Sample: 268066 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	81911	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
GRO		2		**3.14**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.48	mg/Kg	1	2.00	124	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.38	mg/Kg	1	2.00	119	42 - 159

Sample: 268067 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**865**	mg/Kg	100	4.00

Sample: 268068 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1050**	mg/Kg	100	4.00

Sample: 268069 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2070**	mg/Kg	100	4.00

Sample: 268070 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1840**	mg/Kg	100	4.00

Sample: 268071 - AH-3 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1560**	mg/Kg	100	4.00

Sample: 268072 - AH-3 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1440**	mg/Kg	100	4.00

Sample: 268073 - AH-3 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1630**	mg/Kg	100	4.00

Sample: 268074 - AH-3 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

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

Sample: 268075 - AH-3 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2060**	mg/Kg	100	4.00

Sample: 268076 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	81910	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		2	<0.0200	mg/Kg	1	0.0200
Toluene		2	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		2	<0.0200	mg/Kg	1	0.0200
Xylene		2	**0.374**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	52.8 - 137
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	38.4 - 157

Sample: 268076 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5280**	mg/Kg	100	4.00

Sample: 268076 - AH-4 0-1'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	82132	Date Analyzed:	2011-06-10	Analyzed By:	CM
Prep Batch:	69730	Sample Preparation:	2011-06-10	Prepared By:	CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	70 - 130

Sample: 268076 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	81911	Date Analyzed:	2011-06-03	Analyzed By:	ME
Prep Batch:	69547	Sample Preparation:	2011-06-03	Prepared By:	ME

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		2	**22.5**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.29	mg/Kg	1	2.00	114	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.37	mg/Kg	1	2.00	118	42 - 159

Sample: 268077 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3990**	mg/Kg	100	4.00

Sample: 268078 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**237**	mg/Kg	50	4.00

Sample: 268079 - Background 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

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

Sample: 268080 - Background 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	Sample Preparation:	2011-06-07	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**989**	mg/Kg	100	4.00

Method Blanks

Method Blank (1) QC Batch: 81910

QC Batch: 81910 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.0118	mg/Kg	0.02
Toluene		2	<0.00600	mg/Kg	0.02
Ethylbenzene		2	<0.00850	mg/Kg	0.02
Xylene		2	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.64	mg/Kg	1	2.00	82	66.6 - 122
4-Bromofluorobenzene (4-BFB)			1.55	mg/Kg	1	2.00	78	55.4 - 124

Method Blank (1) QC Batch: 81911

QC Batch: 81911 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		2	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	52.4 - 130

Method Blank (1) QC Batch: 82021

QC Batch: 82021 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

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

Method Blank (1) QC Batch: 82022

QC Batch:	82022	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	QC Preparation:	2011-06-07	Prepared By:	AR

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

Method Blank (1) QC Batch: 82023

QC Batch:	82023	Date Analyzed:	2011-06-08	Analyzed By:	AR
Prep Batch:	69605	QC Preparation:	2011-06-07	Prepared By:	AR

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

Method Blank (1) QC Batch: 82132

QC Batch:	82132	Date Analyzed:	2011-06-10	Analyzed By:	CM
Prep Batch:	69730	QC Preparation:	2011-06-10	Prepared By:	CM

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<17.1	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			113	mg/Kg	1	100	113	70 - 130

Method Blank (1) QC Batch: 82163

QC Batch:	82163	Date Analyzed:	2011-06-13	Analyzed By:	AR
Prep Batch:	69605	QC Preparation:	2011-06-07	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: 81910 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	1.93	mg/Kg	1	2.00	<0.0118	96	81.9 - 108
Toluene		2	2.04	mg/Kg	1	2.00	<0.00600	102	81.9 - 118
Ethylbenzene		2	1.72	mg/Kg	1	2.00	<0.00850	86	78.4 - 115
Xylene		2	5.18	mg/Kg	1	6.00	<0.00613	86	79.1 - 116

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		2	1.97	mg/Kg	1	2.00	<0.0118	98	81.9 - 108	2	20
Toluene		2	2.09	mg/Kg	1	2.00	<0.00600	104	81.9 - 118	2	20
Ethylbenzene		2	1.80	mg/Kg	1	2.00	<0.00850	90	78.4 - 115	4	20
Xylene		2	5.38	mg/Kg	1	6.00	<0.00613	90	79.1 - 116	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.67	1.74	mg/Kg	1	2.00	84	87	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.67	1.77	mg/Kg	1	2.00	84	88	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 81911 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	14.8	mg/Kg	1	20.0	<0.753	74	60.9 - 95.4

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

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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		2	15.2	mg/Kg	1	20.0	<0.753	76	60.9 - 95.4	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)	1.91	2.00	mg/Kg	1	2.00	96	100	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.79	1.86	mg/Kg	1	2.00	90	93	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 82021 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.7	mg/Kg	1	100	<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			104	mg/Kg	1	100	<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: 82022 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.6	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.

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			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: 82023 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.7	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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: 82132 | Date Analyzed: 2011-06-10 | Analyzed By: CM
Prep Batch: 69730 | QC Preparation: 2011-06-10 | Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	272	mg/Kg	1	250	<17.1	109	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	<17.1	108	70 - 130	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	115	114	mg/Kg	1	100	115	114	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 82163 | Date Analyzed: 2011-06-13 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.5	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.

Matrix Spike (MS-1) Spiked Sample: 268066

QC Batch: 81910 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	1.80	mg/Kg	1	2.00	<0.0118	90	80.5 - 112
Toluene		2	1.98	mg/Kg	1	2.00	<0.00600	99	82.4 - 113
Ethylbenzene		2	1.76	mg/Kg	1	2.00	<0.00850	88	83.9 - 114
Xylene		2	5.24	mg/Kg	1	6.00	<0.00613	87	84 - 114

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		2	2.02	mg/Kg	1	2.00	<0.0118	101	80.5 - 112	12	20
Toluene		2	2.18	mg/Kg	1	2.00	<0.00600	109	82.4 - 113	10	20
Ethylbenzene		2	1.95	mg/Kg	1	2.00	<0.00850	98	83.9 - 114	10	20
Xylene		2	5.82	mg/Kg	1	6.00	<0.00613	97	84 - 114	10	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)	1.98	2.04	mg/Kg	1	2	99	102	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1.96	2.01	mg/Kg	1	2	98	100	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 268056

QC Batch: 81911 | Date Analyzed: 2011-06-03 | Analyzed By: ME
Prep Batch: 69547 | QC Preparation: 2011-06-03 | Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	27.3	mg/Kg	1	20.0	11.2884	80	61.8 - 114

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		2	24.6	mg/Kg	1	20.0	11.2884	66	61.8 - 114	10	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)	2.70	2.81	mg/Kg	1	2	135	140	50 - 162
4-Bromofluorobenzene (4-BFB)	2.45	2.58	mg/Kg	1	2	122	129	50 - 162

Matrix Spike (MS-1) Spiked Sample: 268054

QC Batch: 82021 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			18000	mg/Kg	100	10000	9490	85	80 - 120

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			19000	mg/Kg	100	10000	9490	95	80 - 120	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: 268064

QC Batch: 82022 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11800	mg/Kg	100	10000	2060	97	80 - 120

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			12500	mg/Kg	100	10000	2060	104	80 - 120	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: 268074

QC Batch: 82023 | Date Analyzed: 2011-06-08 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14600	mg/Kg	100	10000	4920	97	80 - 120

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			15100	mg/Kg	100	10000	4920	102	80 - 120	3	20

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

Matrix Spike (MS-1) Spiked Sample: 267519

QC Batch: 82132 | Date Analyzed: 2011-06-10 | Analyzed By: CM
Prep Batch: 69730 | QC Preparation: 2011-06-10 | Prepared By: CM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO			362	mg/Kg	1	250	148	86	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	367	mg/Kg	1	250	148	88	70 - 130	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	118	120	mg/Kg	1	100	118	120	70 - 130

Matrix Spike (MS-1) Spiked Sample: 268080

QC Batch: 82163 | Date Analyzed: 2011-06-13 | Analyzed By: AR
Prep Batch: 69605 | QC Preparation: 2011-06-07 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10600	mg/Kg	100	10000	989	96	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10900	mg/Kg	100	10000	989	99	80 - 120	3	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 81910 | Date Analyzed: 2011-06-03 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.101	101	80 - 120	2011-06-03
Toluene		2	mg/Kg	0.100	0.106	106	80 - 120	2011-06-03
Ethylbenzene		2	mg/Kg	0.100	0.0904	90	80 - 120	2011-06-03
Xylene		2	mg/Kg	0.300	0.270	90	80 - 120	2011-06-03

Standard (CCV-2)

QC Batch: 81910 | Date Analyzed: 2011-06-03 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.0988	99	80 - 120	2011-06-03
Toluene		2	mg/Kg	0.100	0.104	104	80 - 120	2011-06-03
Ethylbenzene		2	mg/Kg	0.100	0.0861	86	80 - 120	2011-06-03
Xylene		2	mg/Kg	0.300	0.259	86	80 - 120	2011-06-03

Standard (CCV-1)

QC Batch: 81911 | Date Analyzed: 2011-06-03 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.02	102	80 - 120	2011-06-03

Standard (CCV-2)

QC Batch: 81911 | Date Analyzed: 2011-06-03 | Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.16	116	80 - 120	2011-06-03

Standard (ICV-1)

QC Batch: 82021 Date Analyzed: 2011-06-08 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	99.1	99	85 - 115	2011-06-08

Standard (CCV-1)

QC Batch: 82021 Date Analyzed: 2011-06-08 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-06-08

Standard (ICV-1)

QC Batch: 82022 Date Analyzed: 2011-06-08 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	97.7	98	85 - 115	2011-06-08

Standard (CCV-1)

QC Batch: 82022 Date Analyzed: 2011-06-08 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-06-08

Standard (ICV-1)

QC Batch: 82023 Date Analyzed: 2011-06-08 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	98.0	98	85 - 115	2011-06-08

Standard (CCV-1)

QC Batch: 82023 Date Analyzed: 2011-06-08 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-06-08

Standard (CCV-2)

QC Batch: 82132 Date Analyzed: 2011-06-10 Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	277	111	80 - 120	2011-06-10

Standard (CCV-3)

QC Batch: 82132 Date Analyzed: 2011-06-10 Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	275	110	80 - 120	2011-06-10

Standard (ICV-1)

QC Batch: 82163 Date Analyzed: 2011-06-13 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-06-13

Standard (CCV-1)

QC Batch: 82163 Date Analyzed: 2011-06-13 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	97.9	98	85 - 115	2011-06-13

Appendix

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	T104704219-11-TX	Lubbock
2	NELAP	T104704392-10-TX	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.

XWO#: 11060239

Analysis Request of Chain of Custody Record

PAGE: 1 of 3

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

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6400919
PROJECT NAME: COG / Dodd Federal Unit Water Flood, Eddy Co, NM

ANALYSIS REQUEST (Circle or Specify Method No.): BTEX 8021B (circled), TPH 8015 MOD. (circled) 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 (circled), Gamma Spec., Alpha Beta (Air), PLM (Asbestos), Major Anions/Cations, pH, TDS

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD.	Chloride
268053	5/31		S		X	AH-1 0-1'	1				X		X	X	X
054	↓		↓		↓	AH-1 1'-1.5'	↓				↓				↓
055	↓		↓		↓	AH-1 1.5'-2'	↓				↓				↓
056	↓		↓		↓	AH-2 0-1'	↓				↓		X	X	↓
057	↓		↓		↓	AH-2 1'-1.5'	↓				↓				↓
058	↓		↓		↓	AH-2 2'-2.5'	↓				↓				↓
059	↓		↓		↓	AH-2 3'-3.5'	↓				↓				↓
060	↓		↓		↓	AH-2 4'-4.5'	↓				↓				↓
061	↓		↓		↓	AH-2 5'-5.5'	↓				↓				↓
062	↓		↓		↓	AH-2 6'-6.5'	↓				↓				↓

RELINQUISHED BY: (Signature) [signature] Date: 6-2-11 Time: 1230
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Initial) JJ / JF Date: 5/31/11 Time:

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

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) [signature] DATE: 6-2-11 TIME: 12:30
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.7 °C [initials]

REMARKS: If total TPH exceeds 1,000 mg/kg run deeper samples / If Benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg run deeper samples

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

ZMcCoy TA 06/09/11 0850
Temp: ... : C 714 ...

aWO #: 11060239

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.: 114-6400919
PROJECT NAME: COG / Dodd Federal Unit Water Flood Eddy Co. NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B (circled)	TPH 8015 MOD. (circled) 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 (circled)	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
268063	5/31		S		X	AH-2 7'-7.5'	1				X														X				
064	↓		↓		↓	AH-2 8'-8.5'	↓				↓														↓				
065	↓		↓		↓	AH-2 9'-9.5'	↓				↓														↓				
066	↓		↓		↓	AH-3 0-1'	↓				↓		X	X											↓				
067	↓		↓		↓	AH-3 1'-1.5'	↓				↓														↓				
068	↓		↓		↓	AH-3 2'-2.5'	↓				↓														↓				
069	↓		↓		↓	AH-3 3'-3.5'	↓				↓														↓				
070	↓		↓		↓	AH-3 4'-4.5'	↓				↓														↓				
071	↓		↓		↓	AH-3 5'-5.5'	↓				↓														↓				
072	↓		↓		↓	AH-3 6'-6.5'	↓				↓														↓				

RELINQUISHED BY: (Signature) [signature] Date: 6-2-11 Time: 1230
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Initial) IT/TF Date: 5/31/11 Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED (circled) 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) [signature] DATE: 6-2-11 TIME: 12:30

SAMPLE CONDITION WHEN RECEIVED: 3.7 °C intact

REMARKS: If total TPH exceeds 1,000 mg/kg run deeper samples / If Benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg run deeper samples

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

JMcCoy TA 06/09/11 0850
Temp: TA 3.7/3.4°c IC7147Eilo

xWO #: 11060239

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.: 114-6406919

PROJECT NAME: COG / Dodd Federal Unit Water Flood Eddy Co. NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B (circled)	TPH TX1005 8015 MOD (circled)	Chloride (circled)
208073	5/31		S		X	AH-3 7'-7.5'	1				X				X
074	↓		↓		↓	AH-3 8'-8.5'	↓				↓				↓
075	↓		↓		↓	AH-3 9'-9.5'	↓				↓				↓
076	↓		↓		↓	AH-4 0-1'	↓				↓		X	X	↓
077	↓		↓		↓	AH-4 1'-1.5'	↓				↓				↓
078	↓		↓		↓	AH-4 2'-2.5'	↓				↓				↓
079	↓		↓		↓	Background 1'-1.5'	↓				↓				↓
080	↓		↓		↓	Background 3'-3.5'	↓				↓				↓

Other analysis columns (not marked): 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; Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature) [signature] Date: 6-2-11 Time: 1230 — RECEIVED BY: (Signature) Date: Time:

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

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

SAMPLED BY: (Print & Initial) IT/TF Date: 5/31/11 Time:

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

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) [signature] DATE: 6.2.11 TIME: 12:30

SAMPLE CONDITION WHEN RECEIVED: 3.7°C intact

REMARKS: If total TPH exceed 1,000 mg/kg run deeper samples / If BTEX exceeds 50 mg/kg or Benzene exceeds 10 mg/kg run deeper samples

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

ZMcCoy TA 06/09/11 0850
Temp: IR 3.7 / ... LS 71473516

Summary Report

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

Report Date: October 6, 2011

Work Order: 11092631

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
278367	BH-1 0-1'	soil	2011-09-23	00:00	2011-09-26
278368	BH-1 3'	soil	2011-09-23	00:00	2011-09-26
278369	BH-1 5'	soil	2011-09-23	00:00	2011-09-26
278370	BH-1 7'	soil	2011-09-23	00:00	2011-09-26
278371	BH-1 10'	soil	2011-09-23	00:00	2011-09-26
278372	BH-1 15'	soil	2011-09-23	00:00	2011-09-26
278373	BH-1 20'	soil	2011-09-23	00:00	2011-09-26
278374	BH-1 25'	soil	2011-09-23	00:00	2011-09-26
278375	BH-1 30'	soil	2011-09-23	00:00	2011-09-26
278376	BH-1 40'	soil	2011-09-23	00:00	2011-09-26
278377	BH-1 50'	soil	2011-09-23	00:00	2011-09-26
278378	BH-1 60'	soil	2011-09-23	00:00	2011-09-26
278381	BH-2 0-1'	soil	2011-09-23	00:00	2011-09-26
278382	BH-2 3'	soil	2011-09-23	00:00	2011-09-26
278383	BH-2 5'	soil	2011-09-23	00:00	2011-09-26
278384	BH-2 7'	soil	2011-09-23	00:00	2011-09-26
278385	BH-2 10'	soil	2011-09-23	00:00	2011-09-26
278386	BH-2 15'	soil	2011-09-23	00:00	2011-09-26
278387	BH-2 20'	soil	2011-09-23	00:00	2011-09-26
278388	BH-2 25'	soil	2011-09-23	00:00	2011-09-26
278389	BH-2 30'	soil	2011-09-23	00:00	2011-09-26
278390	BH-2 40'	soil	2011-09-23	00:00	2011-09-26
278391	BH-2 50'	soil	2011-09-23	00:00	2011-09-26
278392	BH-2 60'	soil	2011-09-23	00:00	2011-09-26
278397	BH-3 10'	soil	2011-09-23	00:00	2011-09-26
278398	BH-3 15'	soil	2011-09-23	00:00	2011-09-26
278399	BH-3 20'	soil	2011-09-23	00:00	2011-09-26
278400	BH-3 25'	soil	2011-09-23	00:00	2011-09-26
278401	BH-3 30'	soil	2011-09-23	00:00	2011-09-26
278402	BH-3 40'	soil	2011-09-23	00:00	2011-09-26

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
278403	BH-3 50'	soil	2011-09-23	00:00	2011-09-26
278404	BH-3 60'	soil	2011-09-23	00:00	2011-09-26

Sample: 278367 - BH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**3570**	mg/Kg	4

Sample: 278368 - BH-1 3'

Param	Flag	Result	Units	RL
Chloride		**3650**	mg/Kg	4

Sample: 278369 - BH-1 5'

Param	Flag	Result	Units	RL
Chloride		**6140**	mg/Kg	4

Sample: 278370 - BH-1 7'

Param	Flag	Result	Units	RL
Chloride		**3110**	mg/Kg	4

Sample: 278371 - BH-1 10'

Param	Flag	Result	Units	RL
Chloride		**3640**	mg/Kg	4

Sample: 278372 - BH-1 15'

Param	Flag	Result	Units	RL
Chloride		**2780**	mg/Kg	4

Sample: 278373 - BH-1 20'

continued ...

sample 278373 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**2170**	mg/Kg	4

Sample: 278374 - BH-1 25'

Param	Flag	Result	Units	RL
Chloride		**4910**	mg/Kg	4

Sample: 278375 - BH-1 30'

Param	Flag	Result	Units	RL
Chloride		**1150**	mg/Kg	4

Sample: 278376 - BH-1 40'

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

Sample: 278377 - BH-1 50'

Param	Flag	Result	Units	RL
Chloride		**849**	mg/Kg	4

Sample: 278378 - BH-1 60'

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

Sample: 278381 - BH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5150**	mg/Kg	4

Sample: 278382 - BH-2 3'

Param	Flag	Result	Units	RL
Chloride		**7250**	mg/Kg	4

Sample: 278383 - BH-2 5'

Param	Flag	Result	Units	RL
Chloride		**1410**	mg/Kg	4

Sample: 278384 - BH-2 7'

Param	Flag	Result	Units	RL
Chloride		**4510**	mg/Kg	4

Sample: 278385 - BH-2 10'

Param	Flag	Result	Units	RL
Chloride		**1920**	mg/Kg	4

Sample: 278386 - BH-2 15'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 278387 - BH-2 20'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 278388 - BH-2 25'

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

Sample: 278389 - BH-2 30'

Param	Flag	Result	Units	RL
Chloride		**236**	mg/Kg	4

Sample: 278390 - BH-2 40'

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

Sample: 278391 - BH-2 50'

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

Sample: 278392 - BH-2 60'

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

Sample: 278397 - BH-3 10'

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

Sample: 278398 - BH-3 15'

Param	Flag	Result	Units	RL
Chloride		**3730**	mg/Kg	4

Sample: 278399 - BH-3 20'

Param	Flag	Result	Units	RL
Chloride		**2740**	mg/Kg	4

Sample: 278400 - BH-3 25'

Param	Flag	Result	Units	RL
Chloride		**1160**	mg/Kg	4

Sample: 278401 - BH-3 30'

Param	Flag	Result	Units	RL
Chloride		**203**	mg/Kg	4

Sample: 278402 - BH-3 40'

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

Sample: 278403 - BH-3 50'

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

Sample: 278404 - BH-3 60'

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

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

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: October 6, 2011

Work Order: 11092631

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

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
278367	BH-1 0-1'	soil	2011-09-23	00:00	2011-09-26
278368	BH-1 3'	soil	2011-09-23	00:00	2011-09-26
278369	BH-1 5'	soil	2011-09-23	00:00	2011-09-26
278370	BH-1 7'	soil	2011-09-23	00:00	2011-09-26
278371	BH-1 10'	soil	2011-09-23	00:00	2011-09-26
278372	BH-1 15'	soil	2011-09-23	00:00	2011-09-26
278373	BH-1 20'	soil	2011-09-23	00:00	2011-09-26
278374	BH-1 25'	soil	2011-09-23	00:00	2011-09-26
278375	BH-1 30'	soil	2011-09-23	00:00	2011-09-26
278376	BH-1 40'	soil	2011-09-23	00:00	2011-09-26
278377	BH-1 50'	soil	2011-09-23	00:00	2011-09-26
278378	BH-1 60'	soil	2011-09-23	00:00	2011-09-26
278381	BH-2 0-1'	soil	2011-09-23	00:00	2011-09-26
278382	BH-2 3'	soil	2011-09-23	00:00	2011-09-26
278383	BH-2 5'	soil	2011-09-23	00:00	2011-09-26
278384	BH-2 7'	soil	2011-09-23	00:00	2011-09-26
278385	BH-2 10'	soil	2011-09-23	00:00	2011-09-26
278386	BH-2 15'	soil	2011-09-23	00:00	2011-09-26

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
278387	BH-2 20'	soil	2011-09-23	00:00	2011-09-26
278388	BH-2 25'	soil	2011-09-23	00:00	2011-09-26
278389	BH-2 30'	soil	2011-09-23	00:00	2011-09-26
278390	BH-2 40'	soil	2011-09-23	00:00	2011-09-26
278391	BH-2 50'	soil	2011-09-23	00:00	2011-09-26
278392	BH-2 60'	soil	2011-09-23	00:00	2011-09-26
278397	BH-3 10'	soil	2011-09-23	00:00	2011-09-26
278398	BH-3 15'	soil	2011-09-23	00:00	2011-09-26
278399	BH-3 20'	soil	2011-09-23	00:00	2011-09-26
278400	BH-3 25'	soil	2011-09-23	00:00	2011-09-26
278401	BH-3 30'	soil	2011-09-23	00:00	2011-09-26
278402	BH-3 40'	soil	2011-09-23	00:00	2011-09-26
278403	BH-3 50'	soil	2011-09-23	00:00	2011-09-26
278404	BH-3 60'	soil	2011-09-23	00:00	2011-09-26

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/Dodd Federal Unit Water Flood were received by TraceAnalysis, Inc. on 2011-09-26 and assigned to work order 11092631. Samples for work order 11092631 were received intact at a temperature of 1.3 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85272	2011-10-04 at 16:25
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85273	2011-10-04 at 16:26
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85274	2011-10-04 at 16:27
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85275	2011-10-04 at 16:51
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85276	2011-10-04 at 16:52

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 11092631 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: 278367 - BH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3570**	mg/Kg	100	4.00

Sample: 278368 - BH-1 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3650**	mg/Kg	100	4.00

Sample: 278369 - BH-1 5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6140**	mg/Kg	100	4.00

Sample: 278370 - BH-1 7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3110**	mg/Kg	100	4.00

Sample: 278371 - BH-1 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3640**	mg/Kg	100	4.00

Sample: 278372 - BH-1 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85272	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2780**	mg/Kg	100	4.00

Sample: 278373 - BH-1 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2170**	mg/Kg	100	4.00

Sample: 278374 - BH-1 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4910**	mg/Kg	100	4.00

Sample: 278375 - BH-1 30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1150**	mg/Kg	100	4.00

Sample: 278376 - BH-1 40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**952**	mg/Kg	100	4.00

Sample: 278377 - BH-1 50'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**849**	mg/Kg	50	4.00

Sample: 278378 - BH-1 60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278381 - BH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5150**	mg/Kg	100	4.00

Sample: 278382 - BH-2 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85273	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7250**	mg/Kg	100	4.00

Sample: 278383 - BH-2 5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1410**	mg/Kg	100	4.00

Sample: 278384 - BH-2 7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4510**	mg/Kg	100	4.00

Sample: 278385 - BH-2 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1920**	mg/Kg	100	4.00

Sample: 278386 - BH-2 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1490**	mg/Kg	100	4.00

Sample: 278387 - BH-2 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1490**	mg/Kg	100	4.00

Sample: 278388 - BH-2 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1050**	mg/Kg	100	4.00

Sample: 278389 - BH-2 30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**236**	mg/Kg	50	4.00

Sample: 278390 - BH-2 40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278391 - BH-2 50'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278392 - BH-2 60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85274	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278397 - BH-3 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1900**	mg/Kg	100	4.00

Sample: 278398 - BH-3 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3730**	mg/Kg	100	4.00

Sample: 278399 - BH-3 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278400 - BH-3 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1160**	mg/Kg	100	4.00

Sample: 278401 - BH-3 30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**203**	mg/Kg	50	4.00

Sample: 278402 - BH-3 40'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85275	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278403 - BH-3 50'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85276	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Sample: 278404 - BH-3 60'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	85276	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	Sample Preparation:	2011-10-03	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 85272

QC Batch: 85272 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

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

Method Blank (1) QC Batch: 85273

QC Batch: 85273 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

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

Method Blank (1) QC Batch: 85274

QC Batch: 85274 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

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

Method Blank (1) QC Batch: 85275

QC Batch: 85275 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

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

Method Blank (1) QC Batch: 85276

QC Batch:	85276	Date Analyzed:	2011-10-04	Analyzed By:	AR
Prep Batch:	72370	QC Preparation:	2011-10-03	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: 85272 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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: 85273 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.1	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			103	mg/Kg	1	100	<3.85	103	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: 85274 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.8	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			105	mg/Kg	1	100	<3.85	105	85 - 115	9	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 85275 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | 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: 85276 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.9	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			102	mg/Kg	1	100	<3.85	102	85 - 115	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: 278372

QC Batch: 85272 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12800	mg/Kg	100	10000	2780	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			13500	mg/Kg	100	10000	2780	107	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: 278382

QC Batch: 85273 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			17100	mg/Kg	100	10000	7250	98	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			17700	mg/Kg	100	10000	7250	104	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 278392

QC Batch: 85274 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	101	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			10800	mg/Kg	100	10000	<385	108	79.4 - 120.6	7	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: 278402

QC Batch: 85275 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10200	mg/Kg	100	10000	<385	102	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10700	mg/Kg	100	10000	<385	107	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: 278404

QC Batch: 85276 | Date Analyzed: 2011-10-04 | Analyzed By: AR
Prep Batch: 72370 | QC Preparation: 2011-10-03 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10200	mg/Kg	100	10000	<385	102	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10800	mg/Kg	100	10000	<385	108	79.4 - 120.6	6	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 85272 Date Analyzed: 2011-10-04 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	2011-10-04

Standard (CCV-1)

QC Batch: 85272 Date Analyzed: 2011-10-04 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	98.6	99	85 - 115	2011-10-04

Standard (ICV-1)

QC Batch: 85273 Date Analyzed: 2011-10-04 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	98.8	99	85 - 115	2011-10-04

Standard (CCV-1)

QC Batch: 85273 Date Analyzed: 2011-10-04 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	2011-10-04

Standard (ICV-1)

QC Batch: 85274 | Date Analyzed: 2011-10-04 | 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	99.5	100	85 - 115	2011-10-04

Standard (CCV-1)

QC Batch: 85274 | Date Analyzed: 2011-10-04 | 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	2011-10-04

Standard (ICV-1)

QC Batch: 85275 | Date Analyzed: 2011-10-04 | 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	2011-10-04

Standard (CCV-1)

QC Batch: 85275 | Date Analyzed: 2011-10-04 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2011-10-04

Standard (ICV-1)

QC Batch: 85276 | Date Analyzed: 2011-10-04 | 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	99.7	100	85 - 115	2011-10-04

Standard (CCV-1)

QC Batch: 85276 | Date Analyzed: 2011-10-04 | 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	2011-10-04

Appendix

Laboratory Certifications

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

Standard Flags

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

Attachments

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

WO #: 11092631

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: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6100919

PROJECT NAME: Dodd Federal Water Flood

Eddy Co., NM

LAB I.D. NUMBER	DATE 2011	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
278367	9/23		S		X	BH-1 01'	1				X													X				
368						3'	1				X													X				
369						5'	1				X													X				
370						7'	1				X													X				
371						10'	1				X													X				
372						15'	1				X													X				
373						20'	1				X													X				
374						25'	1				X													X				
375						30'	1				X													X				
376						40'	1				X													X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 9/26/11 Time: 1400

RECEIVED BY: (Signature) Date: 9/26/11 Time: 1400

SAMPLED BY: (Print & Initial) Kim Date: 9/26/11 Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

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

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RECEIVING LABORATORY: TRACE

ADDRESS:

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.3°C intact

REMARKS: All tests Midland

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

WO #: 11092631

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-G100919

PROJECT NAME: Dodd Federal Water Flood
Eddy Co., NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
178377	9/23		S		X	BH-1 50'	1				X	
378						60'	1					
379						70'	1					
380						80'	1					
381						BH-2 0-1'	1					
382						3'	1					
383						5'	1					
384						7'	1					
385						10'	1					
386						15'	1					

ANALYSIS REQUEST (Circle or Specify Method No.)

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

RELINQUISHED BY: (Signature) Date: 9/26/11 Time: 400
RECEIVED BY: (Signature) Date: 9/26/11 Time: 15:00
SAMPLED BY: (Print & Initial) Kim Date: 9/26/11 Time:

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.3 C intact

REMARKS:

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

WO#: 11092631

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.: 114-6400919

PROJECT NAME: Dodd Federal Water Flood
Eddy Co., NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
278387	9/23		S		X	BH-2 20'	1				X	
388						25'	1					
389						30'	1					
390						40'	1					
391						50'	1					
392						60'	1					
393						BH-3 0-1'	1					
394						3'	1					
395						5'	1					
396						7'	1					

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 8081/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				
												X				
												X				
												X				
												X				

RELINQUISHED BY: (Signature) — Date: 9/26/11 Time: 1400
RECEIVED BY: (Signature) — Date: 9/26/11 Time: 1510
SAMPLED BY: (Print & Initial) Kim — Date: 9/26/11 Time:

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

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:

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

SAMPLE CONDITION WHEN RECEIVED: 13° Intact

REMARKS:

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

WO #: 11092631

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4

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.: 114-6400919

PROJECT NAME: Dodd Federal Water Flood Eddy Co., NM

LAB I.D. NUMBER	DATE 2011	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
278397	9/23		S		X	BH-3 10'	1				X													X				
398						15'	1																	X				
399						20'	1																	X				
400						25'	1																	X				
401						30'	1																	X				
402						40'	1																	X				
403						50'	1																	X				
404						60'	1																	X				

RELINQUISHED BY: (Signature) Date: 9/26/11 Time: 1400

RECEIVED BY: (Signature) Date: 9/26/11 Time: 1500

SAMPLED BY: (Print & Initial) Kim Date: 9/26/11 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: DATE: TIME:

RECEIVED BY: (Signature)

SAMPLE CONDITION WHEN RECEIVED: 1.3° C Intact

REMARKS:

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

Summary Report

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

Report Date: April 18, 2012

Work Order: 12041320

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
294206	CS-1 Sidewall (AH-4)	soil	2012-04-03	00:00	2012-04-13
294207	CS-2 Sidewall (AH-4)	soil	2012-04-03	00:00	2012-04-13
294208	CS-3 Sidewall (AH-4)	soil	2012-04-02	00:00	2012-04-13
294209	CS-4 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294210	CS-5 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294211	CS-6 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294212	CS-7 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294213	CS-8 Sidewall (AH-2)	soil	2012-04-03	00:00	2012-04-13
294214	CS-9 Sidewall (AH-2)	soil	2012-04-02	00:00	2012-04-13
294215	CS-10 Sidewall (AH-2)	soil	2012-04-02	00:00	2012-04-13
294216	CS-13 Sidewall (AH-1)	soil	2012-04-03	00:00	2012-04-13
294217	CS-14 Sidewall (AH-1)	soil	2012-04-03	00:00	2012-04-13
294218	CS-11 Sidewall (AH-1)	soil	2012-04-02	00:00	2012-04-13
294219	CS-12 Sidewall (AH-1)	soil	2012-04-02	00:00	2012-04-13

Sample: 294206 - CS-1 Sidewall (AH-4)

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

Sample: 294207 - CS-2 Sidewall (AH-4)

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

Sample: 294208 - CS-3 Sidewall (AH-4)

Param	Flag	Result	Units	RL
Chloride		**14300**	mg/Kg	4

Sample: 294209 - CS-4 Sidewall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**546**	mg/Kg	4

Sample: 294210 - CS-5 Sidewall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**565**	mg/Kg	4

Sample: 294211 - CS-6 Sidewall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**682**	mg/Kg	4

Sample: 294212 - CS-7 Sidewall (AH-3)

Param	Flag	Result	Units	RL
Chloride		**26500**	mg/Kg	4

Sample: 294213 - CS-8 Sidewall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**585**	mg/Kg	4

Sample: 294214 - CS-9 Sidewall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**7450**	mg/Kg	4

Sample: 294215 - CS-10 Sidewall (AH-2)

Param	Flag	Result	Units	RL
Chloride		**604**	mg/Kg	4

Sample: 294216 - CS-13 Sidewall (AH-1)

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

Sample: 294217 - CS-14 Sidewall (AH-1)

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

Sample: 294218 - CS-11 Sidewall (AH-1)

Param	Flag	Result	Units	RL
Chloride		**15200**	mg/Kg	4

Sample: 294219 - CS-12 Sidewall (AH-1)

Param	Flag	Result	Units	RL
Chloride		**24600**	mg/Kg	4

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: April 18, 2012

Work Order: 12041320

Project Location: Eddy Co., NM
Project Name: COG/Dodd Federal Unit Water Flood
Project Number: 114-6400919

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
294206	CS-1 Sidewall (AH-4)	soil	2012-04-03	00:00	2012-04-13
294207	CS-2 Sidewall (AH-4)	soil	2012-04-03	00:00	2012-04-13
294208	CS-3 Sidewall (AH-4)	soil	2012-04-02	00:00	2012-04-13
294209	CS-4 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294210	CS-5 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294211	CS-6 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294212	CS-7 Sidewall (AH-3)	soil	2012-04-02	00:00	2012-04-13
294213	CS-8 Sidewall (AH-2)	soil	2012-04-03	00:00	2012-04-13
294214	CS-9 Sidewall (AH-2)	soil	2012-04-02	00:00	2012-04-13
294215	CS-10 Sidewall (AH-2)	soil	2012-04-02	00:00	2012-04-13
294216	CS-13 Sidewall (AH-1)	soil	2012-04-03	00:00	2012-04-13
294217	CS-14 Sidewall (AH-1)	soil	2012-04-03	00:00	2012-04-13
294218	CS-11 Sidewall (AH-1)	soil	2012-04-02	00:00	2012-04-13
294219	CS-12 Sidewall (AH-1)	soil	2012-04-02	00:00	2012-04-13

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

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

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

Report Contents

Case Narrative

Samples for project COG/Dodd Federal Unit Water Flood were received by TraceAnalysis, Inc. on 2012-04-13 and assigned to work order 12041320. Samples for work order 12041320 were received intact at a temperature of 12.1 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
Chloride (Titration)	SM 4500-Cl B	76585	2012-04-13 at 12:07	90251	2012-04-16 at 12:08
Chloride (Titration)	SM 4500-Cl B	76585	2012-04-13 at 12:07	90252	2012-04-16 at 12:09

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 12041320 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: 294206 - CS-1 Sidewall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

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

Sample: 294207 - CS-2 Sidewall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

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

Sample: 294208 - CS-3 Sidewall (AH-4)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**14300**	mg/Kg	100	4.00

Sample: 294209 - CS-4 Sidewall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**546**		mg/Kg	50	4.00

Sample: 294210 - CS-5 Sidewall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**565**		mg/Kg	50	4.00

Sample: 294211 - CS-6 Sidewall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**682**		mg/Kg	50	4.00

Sample: 294212 - CS-7 Sidewall (AH-3)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**26500**	mg/Kg	100	4.00

Sample: 294213 - CS-8 Sidewall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**585**	mg/Kg	50	4.00

Sample: 294214 - CS-9 Sidewall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7450**	mg/Kg	100	4.00

Sample: 294215 - CS-10 Sidewall (AH-2)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**604**	mg/Kg	50	4.00

Sample: 294216 - CS-13 Sidewall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

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

Sample: 294217 - CS-14 Sidewall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

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

Sample: 294218 - CS-11 Sidewall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**15200**	mg/Kg	100	4.00

Sample: 294219 - CS-12 Sidewall (AH-1)

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	Sample Preparation:	2012-04-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**24600**	mg/Kg	100	4.00

Method Blanks

Method Blank (1) QC Batch: 90251

QC Batch:	90251	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	QC Preparation:	2012-04-13	Prepared By:	AR

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

Method Blank (1) QC Batch: 90252

QC Batch:	90252	Date Analyzed:	2012-04-16	Analyzed By:	AR
Prep Batch:	76585	QC Preparation:	2012-04-13	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: 90251 | Date Analyzed: 2012-04-16 | Analyzed By: AR
Prep Batch: 76585 | QC Preparation: 2012-04-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			99.0	mg/Kg	1	100	<3.85	99	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			100	mg/Kg	1	100	<3.85	100	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 90252 | Date Analyzed: 2012-04-16 | Analyzed By: AR
Prep Batch: 76585 | QC Preparation: 2012-04-13 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			98.4	mg/Kg	1	100	<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			100	mg/Kg	1	100	<3.85	100	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 294213

QC Batch: 90251 | Date Analyzed: 2012-04-16 | Analyzed By: AR
Prep Batch: 76585 | QC Preparation: 2012-04-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10200	mg/Kg	100	10000	585	96	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			10400	mg/Kg	100	10000	585	98	79.4 - 120.6	2	20

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

Matrix Spike (MS-1) Spiked Sample: 294219

QC Batch: 90252 | Date Analyzed: 2012-04-16 | Analyzed By: AR
Prep Batch: 76585 | QC Preparation: 2012-04-13 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			33700	mg/Kg	100	10000	24600	91	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			34200	mg/Kg	100	10000	24600	96	79.4 - 120.6	2	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 90251 | Date Analyzed: 2012-04-16 | 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	99.9	100	85 - 115	2012-04-16

Standard (CCV-1)

QC Batch: 90251 | Date Analyzed: 2012-04-16 | 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	2012-04-16

Standard (ICV-1)

QC Batch: 90252 | Date Analyzed: 2012-04-16 | 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	2012-04-16

Standard (CCV-1)

QC Batch: 90252 | Date Analyzed: 2012-04-16 | 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	99.3	99	85 - 115	2012-04-16

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

Attachments

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

12041320

Analysis Request of Chain of Custody Record

PAGE: | OF: 2

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400919

PROJECT NAME: Dodd federal unit water flood

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
204 206	4/3/12		S		X	CS-1 sidewall (AH-4)	1				X													X				
207	4/3/12		S		X	CS-2 sidewall AH-4	1				X													X				
208	4/2/12		S		X	CS-3 sidewall AH-4	1				X													X				
209	↓		S		X	CS-4 sidewall (AH-3 BPS)	1				X													X				
210			S		X	CS-5 sidewall (AH-3)	1				X													X				
211			S		X	CS-6 sidewall (AH-3)	1				X													X				
212			S		X	CS-7 sidewall (AH-3)	1				X													X				
213	4/3/12		S		X	CS-8 sidewall (AH-2)	1				X													X				
214	4/2/12		S		X	CS-9 sidewall (AH-2)	1				X													X				
215	↓		S		X	CS-10 sidewall (AH-2)	1				X													X				

RELINQUISHED BY: (Signature) — Date: 4/6/12 Time: 500 — RECEIVED BY: (Signature) — Date: 4/6/12 Time: 1:05pm

RELINQUISHED BY: (Signature) — Date: 4/6/12 Time: 1:05pm — RECEIVED BY: (Signature) — Date: 4/13/12 Time: 13:10

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

SAMPLED BY: (Print & Initial) BRIAN Schavee BAS — Date: 4/4/12 Time: noon

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

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: — RECEIVED BY: (Signature)

ADDRESS: — CITY: — STATE: — ZIP: — CONTACT: — PHONE: — DATE: — TIME:

SAMPLE CONDITION WHEN RECEIVED: 2.1 intact

REMARKS: all tests Midland

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

1204320

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.: 114-6400919

PROJECT NAME: Dodd Federal unit waterflood (Eddy County)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
216	4/3/12		S		X	CS-13 sidewall (AH-1)	1				X	
217	↓		S		X	CS-14 sidewall (AH-1)	1				X	
218	4/3/12		S		X	CS-11 sidewall (AH-1)						
219	4/3/12		S		X	CS-12 sidewall (AH-1)						

ANALYSIS REQUEST (Circle or Specify Method No.)

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

RELINQUISHED BY: (Signature) — Date: 4/6/12 Time: 500
RECEIVED BY: (Signature) — Date: 4/13/12 Time: 1:30 p.m.
SAMPLED BY: (Print & Initial) BRIAN Schaver — Date: 4/6/12 Time: 1200

RELINQUISHED BY: (Signature) — Date: 4/13/12 Time: 1:30 p.m.
RECEIVED BY: (Signature) — Date: 4/13/12 Time: 1330
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:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 12° Intact

REMARKS:

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