

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

SEP 06 2012

Form C-141
Revised October 10, 2003

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

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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	BC Federal #26	Facility Type	Well location
Surface Owner	Federal	Mineral Owner	
		Lease No.	30-015-38745

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	20	17-S	32-E					Eddy

Latitude N 32.82112° Longitude W 103.79454°

NATURE OF RELEASE

Type of Release: Oil and Produced water	Volume of Release Oil 10 bbls Produced Water 25 bbls	Volume Recovered Oil 8 bbls Produced Water 12 bbls
Source of Release Oil Tank	Date and Hour of Occurrence 12/16/2011	Date and Hour of Discovery 12/16/2011 1:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking - OCD	
By Whom? Josh Russo	Date and Hour 12/19/2011 11:01 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

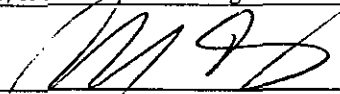
Describe Cause of Problem and Remedial Action Taken.*

Well released produced fluids onto location while crew was installing BOP

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected and collected samples to define spill extents. The chloride impacted soils were removed and transported to Controlled Recovery for disposal. Once approved, the excavation was then backfilled with clean soil to surface grade. Tetra Tech prepared closure report and submitted to the NMOCD.

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

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:		
Title: Project Manager	Approval Date:	Expiration Date:	
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval:		Attached ☐
Date: 8/16/12	Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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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	BC FEDERAL #26	Facility Type	Well location
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#)	30-025-38745

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	20	17S	32E					Lea

Latitude 32 49.219 Longitude 103 47.653

NATURE OF RELEASE

Type of Release	Oil and Produced water	Volume of Release	Oil 10bbls Produced water 25bbls	Volume Recovered	Oil 8bbls Produced water 12bbls
Source of Release	Wellhead	Date and Hour of Occurrence	12/16/2011	Date and Hour of Discovery	12/16/2011 1:00 p.m.
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Geoffrey Leking-OCD		
By Whom?	Josh Russo	Date and Hour	12/19/2011 11:01 a.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.*

Well released produced fluids onto the location while crew was installing BOP.

Describe Area Affected and Cleanup Action Taken.*

Initially 35bbls were released from the wellhead and we were able to recover 20bbls with a vacuum truck. All fluids remained on the pad location of the BC Federal #26 well. The pad has been scraped and any contaminated soil has been hauled to disposal. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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

OIL CONSERVATION DIVISION

Signature:		Approved by District Supervisor:	
Printed Name:	Josh Russo	Approval Date:	Expiration Date:
Title:	HSE Coordinator	Conditions of Approval:	
E-mail Address:	jrusso@conchoresources.com	Attached ☐	
Date:	12/27/2011	Phone:	432-212-2399

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	BC Federal #26 (Well Site)				
Company:	COG Operating LLC				
Section, Township and Range	Unit E	Sec. 20	T-17-S	R-32-E	
Lease Number:	30-025-38745				
County:	Lea County				
GPS:	32.82112° N			103.79454° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From CR-126 and Conoco Road, travel 1.9 mi west on Conoco Road, turn right 0.2 miles to location on left.				

Release Data:

Date Released:	12/16/2011
Type Release:	Produced Water and Oil
Source of Contamination:	Well release during BOP install
Fluid Released:	10 bbls oil - 25 bbls of produced water
Fluids Recovered:	0 bbls oil - 12 bbls of produced water

Official Communication:

Name:	Pat Ellis	Ike Tavaréz
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@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0

Wellhead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0

Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0

Total Ranking Score:	0
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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000

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March 6, 2012

HOBBS OCD

SEP 06 2012

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

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Re: Work Plan for the COG Operating LLC., BC Federal #26 Well Site, Unit E, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #26 well, Unit E, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico. (Site). The spill site coordinates are N 32.82112°, W 103.79454°. 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 December 16, 2011 and released approximately ten (10) barrels of oil and twenty-five (25) barrels of produced water. The release occurred when a crew was installing a BOP on the well. The entire spill remained on the caliche pad location. COG was able to recover twenty (20) barrels of fluid with a vacuum truck. The spill measured approximately 70' x 170' and included an additional area measuring 60' x 25'. The initial C-141 form is enclosed in Appendix C.

Groundwater

On a previous project, Tetra Tech installed a temporary monitor well (TMW) in Section 30 to establish depth to groundwater for the area. The temporary well was installed to a total depth of 180' below surface and found no groundwater (dry) in the well. According to the NMOCD groundwater map, the average depth to groundwater in this area is 150' below surface. The groundwater data is shown in Appendix A.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On January 30, 2012 Tetra Tech personnel inspected and sampled the spill area. Ten (10) auger holes (AH-1 and AH-10) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. A shallow chloride impact was detected on the well pad. The detectable chloride concentrations at 0-1' ranged from 866 mg/kg to 5,150 mg/kg. The chloride concentrations significantly declined with depth and majority of the auger holes showing chloride concentrations of <200 mg/kg at 1-1.5' below surface.

Work Plan

COG proposes to remove approximately 0.5' to 1.0' of impacted material as highlighted (green) in Table 1 and the proposed excavated areas are shown on Figure 4. Based on groundwater depth (greater 180'), the deeper impact does not appear an environmental concern. Once excavated to the appropriate depths, the excavation will be backfilled with clean caliche.

Based on the location of the spill, the proposed excavation areas or excavation depths may not be achieved around oil and gas equipment, structures or lines due to safety concerns for onsite personnel. In addition,



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impacted soil may not be feasible or practicable to be removed due to these safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH



Ike Tavaréz, PG
Project Manager

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

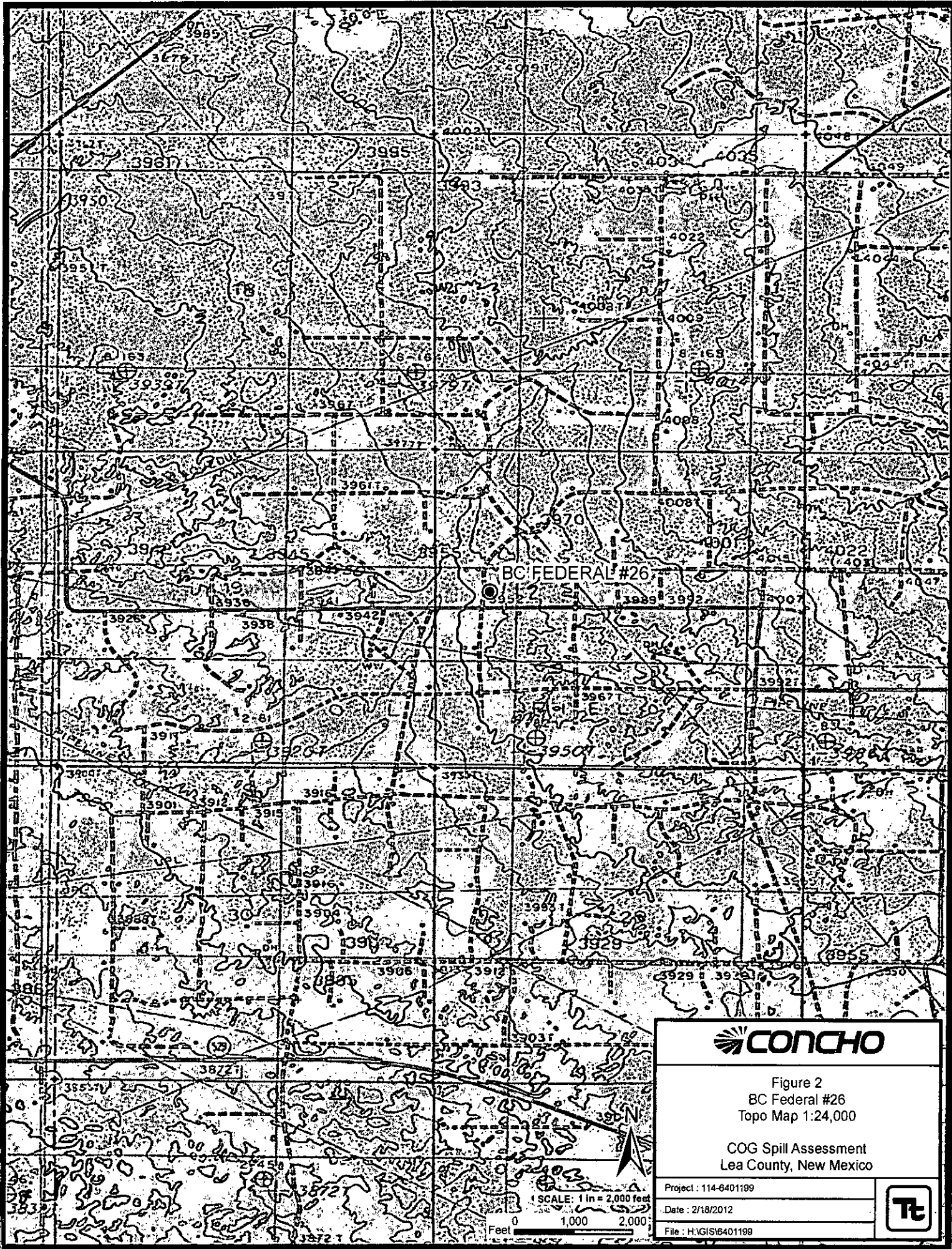


Figure 2
BC Federal #26
Topo Map 1:24,000

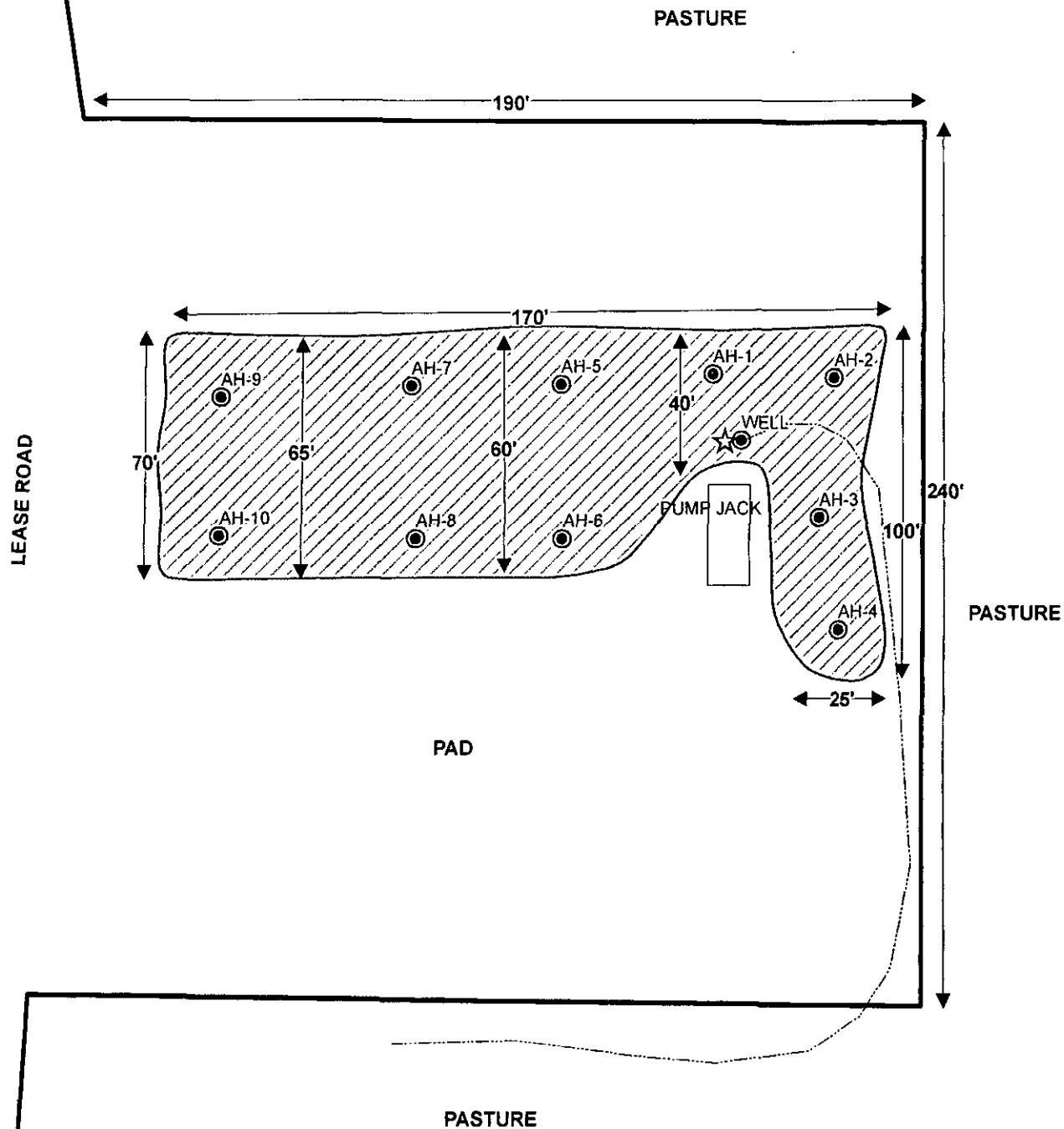
COG Spill Assessment
Lea County, New Mexico

Project : 114-6401199

Date : 2/18/2012

File : H:\GIS\6401199





EXPLANATION

- WELL
- AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- FLOWLINE
- ▨ SPILL AREA



SCALE: 1 IN = 46 FEET

Feet 0 20 40



Figure 3

BC Federal #26
Spill Assessment Map

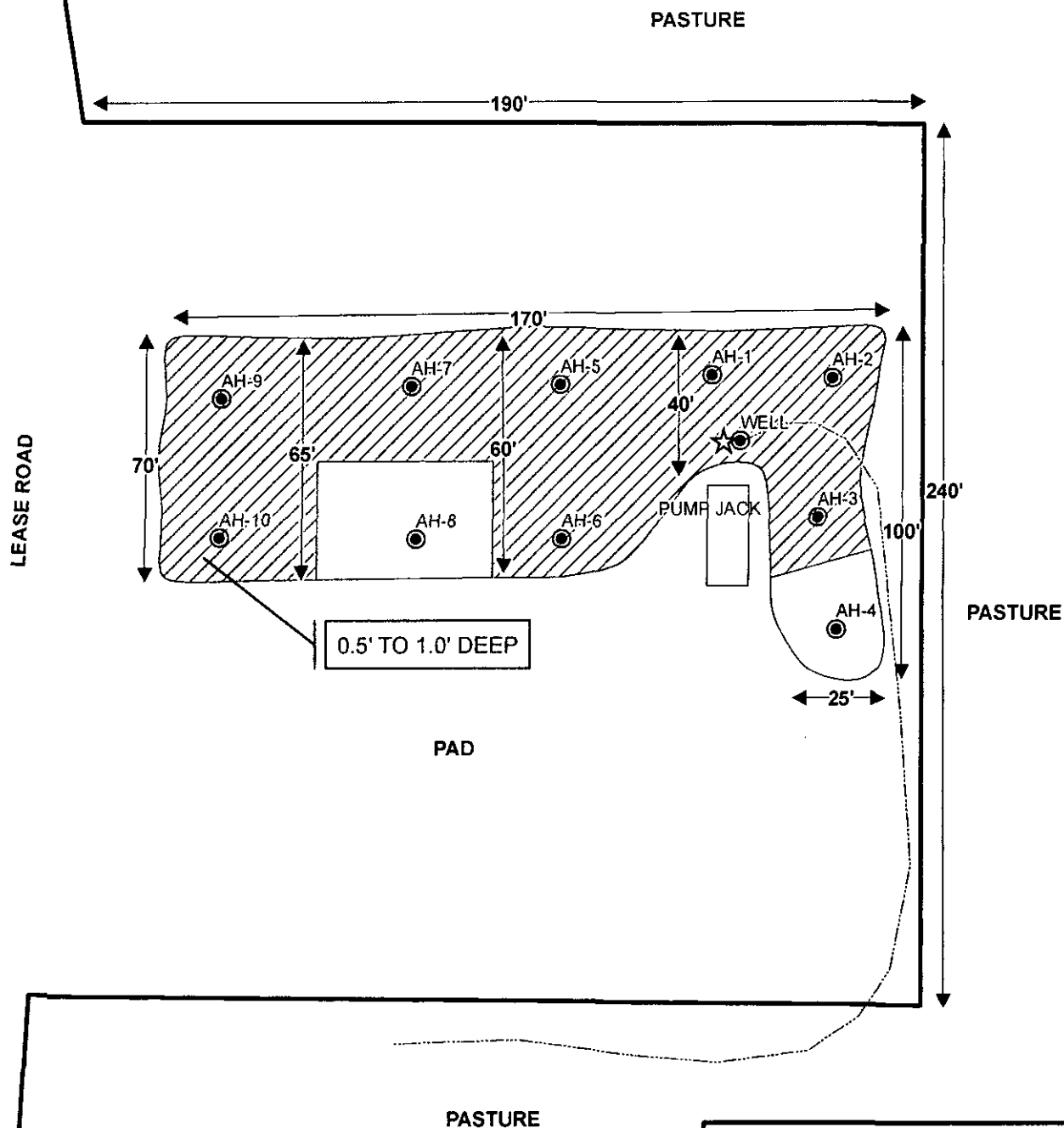
COG Spill Assessment
Lea County, New Mexico

Project : 114-6401199

Date : 2/28/2012

File : H:\GIS\6401199





EXPLANATION

- WELL
- AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- FLOWLINE
- ▨ PROPOSED EXCAVATION AREA



SCALE: 1 IN = 48 FEET

Feet 0 20 40



Figure 4

BC Federal #26
Proposed Excavation Area & Depths Map

COG Spill Assessment
Lea County, New Mexico

Project : 114-6401199

Date : 2/28/2012

File : H:\GIS\6401199



Table 1

[illegible]

Table 1

[illegible]

Table 1

[illegible]

Table 1
COG Operating LLC.
BC Fed. #26 Well Site
Lea County, New Mexico

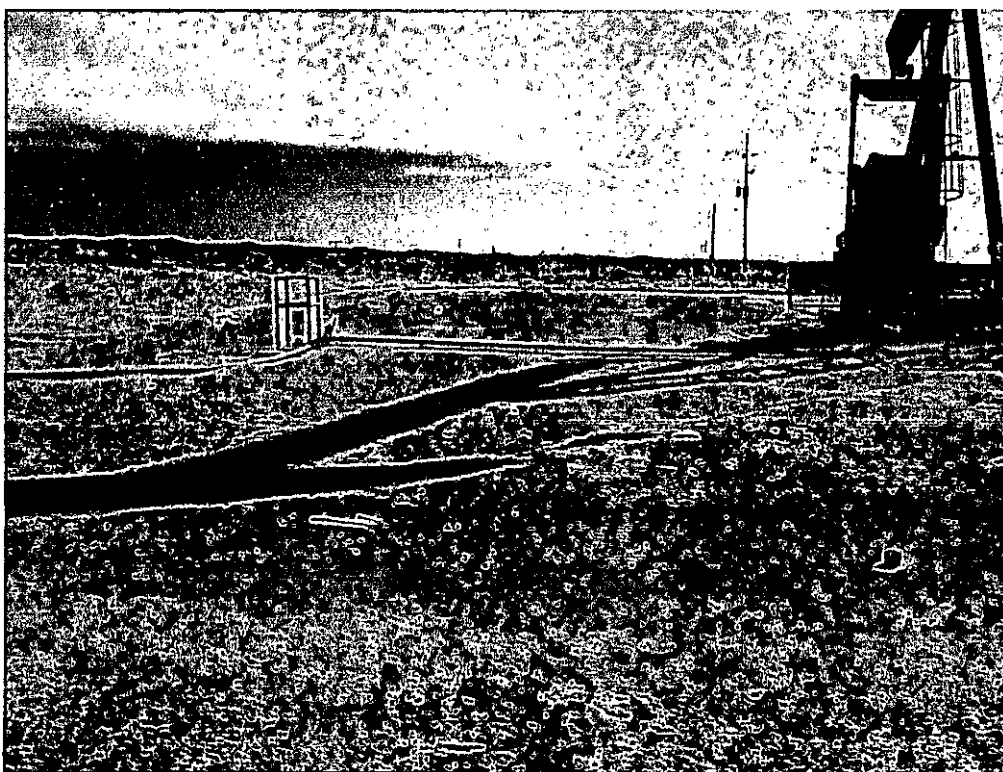
Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-10	1/30/2012	0-1	X		2.76	<50.0	2.76	-	-	-	-	-	5,150
	"	1-1.5	X		-	-	-	-	-	-	-	-	<200
	"	2-2.5	X		-	-	-	-	-	-	-	-	<200
	"	3-3.5	X		-	-	-	-	-	-	-	-	<200
	"	4-4.5	X		-	-	-	-	-	-	-	-	<200

(-) Not Analyzed

 Proposed Areas and Excavation Depths



View east – BC Federal #26 wellhead and source area

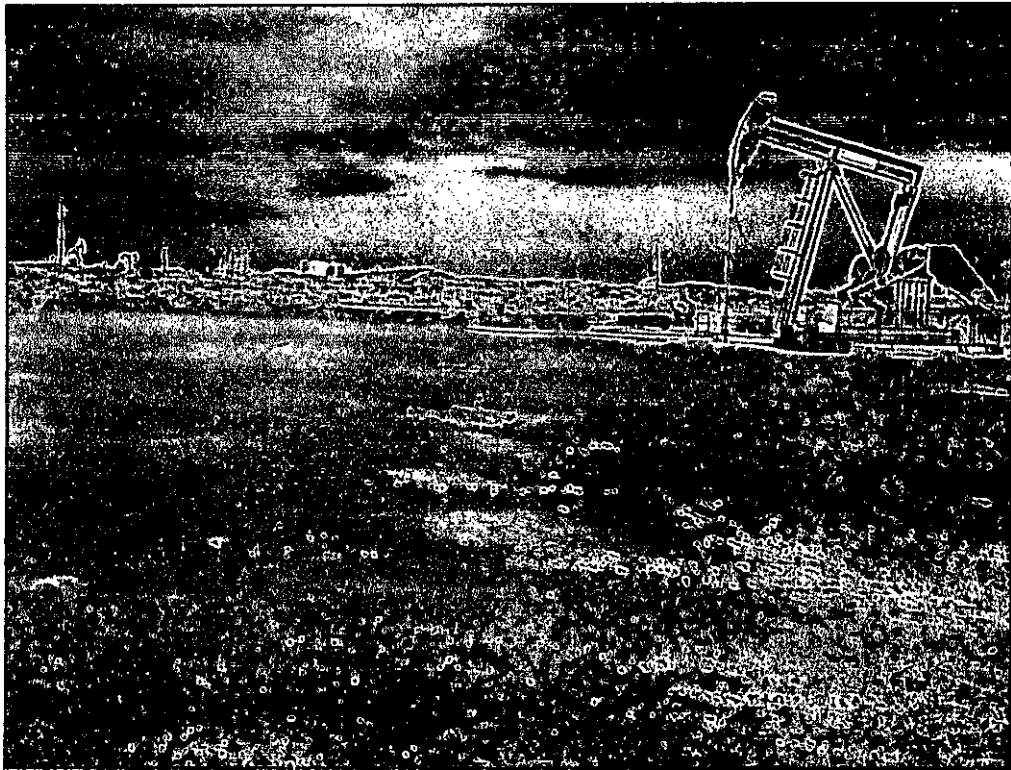


View south – Small impacted area east of wellhead

COG Operating LLC
BC Federal #26
Lea County, New Mexico



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View east – Near AH-9 and AH-10 at edge of spill area

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #26
Lea County, New Mexico

16 South			31 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
290					

17 South			31 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
			271		

18 South			31 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
			261		

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

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

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

16 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
190	188	160			

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

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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System
-  Site - BC Federal #26
-  Tetra Tech Temporary well

SAMPLE LOG

Boring/Well: TMW-1
 Project Number: 114-6400224
 Client: COG
 Site Location: Pronghorn Section 30
 Location: Lea County, New Mexico
 Legals: Township 17S Range 32E Section 30
 Total Depth: 180
 Date Installed: 07/14/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Brown fine grain sand
10-11	--	Buff limestone
15-16	--	Tan to buff calcareous sand with chert intermixed.
20-21	--	Tan calcareous sand
25-26	--	Tan fine grain sand
30-31	--	Tan to yellow sandy clay
35-36	--	Reddish clayey sand with gravel
40-41	--	Red gravelly fine grain sand
45-46	--	Red to buff gravelly calcareous sand
50-51	--	Red fine grain sand
55-56	--	Red sandy silt
60-61	--	Red silty clay (dry)
65-66	--	Red coarse grain sandy clay
70-71	--	Red fine grain sand
75-76	--	Red fine grain sand
80-81	--	Red gravelly sand
85-86	--	Red fine grain silty clay with some sand intermixed
90-91	--	Red fine grain silty clay with some sand intermixed
95-96	--	Red fine grain silty clay with some sand intermixed
100-101	--	Red fine grain silty clay with some sand intermixed
105-106	--	Tan red fine grain sand
110-111	--	Tan fine grain sand
115-116	--	Tan fine grain sand
120-121	--	Tan to red fine grain sand
130-131	--	Red clay of high plasticity (Red bed)
140-141	--	Red clay of high plasticity (Red bed)
150-151	--	Red clay of high plasticity (Red bed) intermixed with gravel
160-161	--	Red clay of high plasticity (Red bed) intermixed with gravel
170-171	--	Red clay of high plasticity (Red bed) intermixed with gravel
180-181	--	Red clay of high plasticity (Red bed)

Total Depth 181' Groundwater was not encountered

Summary Report

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

Report Date: February 9, 2012

Work Order: 12013116

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #26
Project Number: 114-6401199

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287836	AH-1 0-1'	soil	2012-01-30	00:00	2012-01-31
287837	AH-1 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287838	AH-1 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287839	AH-1 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287840	AH-1 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287841	AH-1 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287842	AH-1 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287843	AH-1 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287844	AH-2 0-1'	soil	2012-01-30	00:00	2012-01-31
287845	AH-2 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287846	AH-2 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287847	AH-2 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287848	AH-2 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287849	AH-2 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287850	AH-3 0-1'	soil	2012-01-30	00:00	2012-01-31
287851	AH-3 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287852	AH-3 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287853	AH-3 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287854	AH-3 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287855	AH-4 0-1'	soil	2012-01-30	00:00	2012-01-31
287856	AH-4 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287857	AH-4 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287858	AH-4 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287859	AH-4 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287860	AH-5 0-1'	soil	2012-01-30	00:00	2012-01-31
287861	AH-5 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287862	AH-5 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287863	AH-6 0-1'	soil	2012-01-30	00:00	2012-01-31
287864	AH-6 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287865	AH-6 2-2.5'	soil	2012-01-30	00:00	2012-01-31

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287866	AH-7 0-1'	soil	2012-01-30	00:00	2012-01-31
287867	AH-7 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287868	AH-7 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287869	AH-7 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287870	AH-7 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287871	AH-8 0-1'	soil	2012-01-30	00:00	2012-01-31
287872	AH-8 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287873	AH-8 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287874	AH-8 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287875	AH-8 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287876	AH-9 0-1'	soil	2012-01-30	00:00	2012-01-31
287877	AH-9 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287878	AH-9 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287879	AH-9 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287880	AH-9 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287881	AH-9 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287882	AH-9 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287883	AH-9 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287884	AH-10 0-1'	soil	2012-01-30	00:00	2012-01-31
287885	AH-10 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287886	AH-10 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287887	AH-10 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287888	AH-10 4-4.5'	soil	2012-01-30	00:00	2012-01-31

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
287836 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.38 Q*
287844 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	5.97 Q*
287850 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.22 Q*
287855 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.20 Q*
287860 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	2.96 Q*
287863 - AH-6 0-1'					<50.0	2.95 Q*
287866 - AH-7 0-1'					<50.0	2.81 Q*
287871 - AH-8 0-1'					<50.0	2.90 Q*
287876 - AH-9 0-1'					<50.0	2.80 Q*
287884 - AH-10 0-1'					<50.0	2.76 Q*

Sample: 287836 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4410	mg/Kg	4

Sample: 287837 - AH-1 1-1.5'

continued ...

sample 287837 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4

Sample: 287838 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4

Sample: 287839 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		815	mg/Kg	4

Sample: 287840 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		649	mg/Kg	4

Sample: 287841 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		307	mg/Kg	4

Sample: 287842 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		237	mg/Kg	4

Sample: 287843 - AH-1 7-7.5'

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

Sample: 287844 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		1760	mg/Kg	4

Sample: 287845 - AH-2 1-1.5'

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

Sample: 287846 - AH-2 2-2.5'

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

Sample: 287847 - AH-2 3-3.5'

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

Sample: 287848 - AH-2 4-4.5'

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

Sample: 287849 - AH-2 5-5.5'

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

Sample: 287850 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		4920	mg/Kg	4

Sample: 287851 - AH-3 1-1.5'

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

Sample: 287852 - AH-3 2-2.5'

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

Sample: 287853 - AH-3 3-3.5'

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

Sample: 287854 - AH-3 4-4.5'

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

Sample: 287855 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		866	mg/Kg	4

Sample: 287856 - AH-4 1-1.5'

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

Sample: 287857 - AH-4 2-2.5'

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

Sample: 287858 - AH-4 3-3.5'

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

Sample: 287859 - AH-4 4-4.5'

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

Sample: 287860 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		4050	mg/Kg	4

Sample: 287861 - AH-5 1-1.5'

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

Sample: 287862 - AH-5 2-2.5'

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

Sample: 287863 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		3830	mg/Kg	4

Sample: 287864 - AH-6 1-1.5'

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

Sample: 287865 - AH-6 2-2.5'

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

Sample: 287866 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		4390	mg/Kg	4

Sample: 287867 - AH-7 1-1.5'

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

Sample: 287868 - AH-7 2-2.5'

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

Sample: 287869 - AH-7 3-3.5'

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

Sample: 287870 - AH-7 4-4.5'

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

Sample: 287871 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		558	mg/Kg	4

Sample: 287872 - AH-8 1-1.5'

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

Sample: 287873 - AH-8 2-2.5'

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

Sample: 287874 - AH-8 3-3.5'

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

Sample: 287875 - AH-8 4-4.5'

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

Sample: 287876 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		3890	mg/Kg	4

Sample: 287877 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		549	mg/Kg	4

Sample: 287878 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		407	mg/Kg	4

Sample: 287879 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		250	mg/Kg	4

Sample: 287880 - AH-9 4-4.5'

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

Sample: 287881 - AH-9 5-5.5'

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

Sample: 287882 - AH-9 6-6.5'

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

Sample: 287883 - AH-9 7-7.5'

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

Sample: 287884 - AH-10 0-1'

Param	Flag	Result	Units	RL
Chloride		5150	mg/Kg	4

Sample: 287885 - AH-10 1-1.5'

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

Sample: 287886 - AH-10 2-2.5'

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

Sample: 287887 - AH-10 3-3.5'

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

Sample: 287888 - AH-10 4-4.5'

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



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: February 9, 2012

Work Order: 12013116

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #26
Project Number: 114-6401199

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
287836	AH-1 0-1'	soil	2012-01-30	00:00	2012-01-31
287837	AH-1 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287838	AH-1 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287839	AH-1 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287840	AH-1 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287841	AH-1 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287842	AH-1 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287843	AH-1 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287844	AH-2 0-1'	soil	2012-01-30	00:00	2012-01-31
287845	AH-2 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287846	AH-2 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287847	AH-2 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287848	AH-2 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287849	AH-2 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287850	AH-3 0-1'	soil	2012-01-30	00:00	2012-01-31
287851	AH-3 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287852	AH-3 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287853	AH-3 3-3.5'	soil	2012-01-30	00:00	2012-01-31

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287854	AH-3 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287855	AH-4 0-1'	soil	2012-01-30	00:00	2012-01-31
287856	AH-4 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287857	AH-4 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287858	AH-4 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287859	AH-4 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287860	AH-5 0-1'	soil	2012-01-30	00:00	2012-01-31
287861	AH-5 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287862	AH-5 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287863	AH-6 0-1'	soil	2012-01-30	00:00	2012-01-31
287864	AH-6 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287865	AH-6 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287866	AH-7 0-1'	soil	2012-01-30	00:00	2012-01-31
287867	AH-7 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287868	AH-7 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287869	AH-7 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287870	AH-7 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287871	AH-8 0-1'	soil	2012-01-30	00:00	2012-01-31
287872	AH-8 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287873	AH-8 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287874	AH-8 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287875	AH-8 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287876	AH-9 0-1'	soil	2012-01-30	00:00	2012-01-31
287877	AH-9 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287878	AH-9 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287879	AH-9 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287880	AH-9 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287881	AH-9 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287882	AH-9 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287883	AH-9 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287884	AH-10 0-1'	soil	2012-01-30	00:00	2012-01-31
287885	AH-10 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287886	AH-10 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287887	AH-10 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287888	AH-10 4-4.5'	soil	2012-01-30	00:00	2012-01-31

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 52 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



Michael Abel

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

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Sample 287882 (AH-9 6-6.5')	30
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Case Narrative

Samples for project COG/BC Fed. #26 were received by TraceAnalysis, Inc. on 2012-01-31 and assigned to work order 12013116. Samples for work order 12013116 were received intact at a temperature of 6.0 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	75024	2012-02-07 at 13:33	88373	2012-02-07 at 13:35
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88318	2012-02-03 at 09:46
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88319	2012-02-03 at 09:48
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88320	2012-02-03 at 09:48
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88321	2012-02-03 at 09:49
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88322	2012-02-03 at 09:50
Chloride (Titration)	SM 4500-Cl B	75016	2012-02-06 at 09:29	88376	2012-02-07 at 13:56
TPH DRO - NEW	S 8015 D	74988	2012-02-03 at 14:00	88323	2012-02-06 at 10:03
TPH DRO - NEW	S 8015 D	74990	2012-02-03 at 15:00	88324	2012-02-06 at 10:04
TPH GRO	S 8015 D	74935	2012-02-02 at 14:14	88262	2012-02-02 at 14:16

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 12013116 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.

Report Date: February 9, 2012
114-6401199

Work Order: 12013116
COG/BC Fed. #26

Page Number: 8 of 52
Lea Co., NM

Analytical Report

Sample: 287836 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.29	mg/Kg	1	2.00	114	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	63.6 - 158.9

Sample: 287836 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88318

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4410	mg/Kg	100	4.00

Sample: 287836 - AH-1 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	61.5 - 159

Sample: 287836 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	3.38	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1	2.00	105	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.36	mg/Kg	1	2.00	118	22.4 - 149

Sample: 287837 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88318
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			599	mg/Kg	50	4.00

Sample: 287838 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88318
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 287838 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1600	mg/Kg	100	4.00

Sample: 287839 - AH-1 3-3.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-02-03	Analyzed By: AR
QC Batch: 88318	Sample Preparation: 2012-02-02	Prepared By: AR
Prep Batch: 74987		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			815	mg/Kg	50	4.00

Sample: 287840 - AH-1 4-4.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-02-03	Analyzed By: AR
QC Batch: 88318	Sample Preparation: 2012-02-02	Prepared By: AR
Prep Batch: 74987		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			649	mg/Kg	50	4.00

Sample: 287841 - AH-1 5-5.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-02-03	Analyzed By: AR
QC Batch: 88318	Sample Preparation: 2012-02-02	Prepared By: AR
Prep Batch: 74987		

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			307	mg/Kg	50	4.00

Sample: 287842 - AH-1 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287843 - AH-1 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 88373 Date Analyzed: 2012-02-07 Analyzed By: DA
Prep Batch: 75024 Sample Preparation: 2012-02-07 Prepared By: tc

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

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sample 287844 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.41	mg/Kg	1	2.00	120	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	63.6 - 158.9

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1760	mg/Kg	100	4.00

Sample: 287844 - AH-2 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 88323 Date Analyzed: 2012-02-06 Analyzed By: CM
Prep Batch: 74988 Sample Preparation: 2012-02-03 Prepared By: CM

Parameter	Flag	Cert	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			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 88262 Date Analyzed: 2012-02-02 Analyzed By: tc
Prep Batch: 74935 Sample Preparation: 2012-02-02 Prepared By: tc

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	5.97	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	22.4 - 149

Sample: 287845 - AH-2 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88318

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287846 - AH-2 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287847 - AH-2 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287848 - AH-2 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287849 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287850 - AH-3 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 88373 Date Analyzed: 2012-02-07 Analyzed By: DA
Prep Batch: 75024 Sample Preparation: 2012-02-07 Prepared By: tc

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	u	2	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TF ³ T)			2.34	mg/Kg	1	2.00	117	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	63.6 - 158.9

Sample: 287850 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287850 - AH-3 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 88323 Date Analyzed: 2012-02-06 Analyzed By: CM
Prep Batch: 74988 Sample Preparation: 2012-02-03 Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	61.5 - 159

Sample: 287850 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 88262 Date Analyzed: 2012-02-02 Analyzed By: tc
Prep Batch: 74935 Sample Preparation: 2012-02-02 Prepared By: tc

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	2	3.22	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	22.4 - 149

Sample: 287851 - AH-3 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88319
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287852 - AH-3 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88319
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287853 - AH-3 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88319
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287854 - AH-3 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287855 - AH-4 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 88373 Date Analyzed: 2012-02-07 Analyzed By: DA
Prep Batch: 75024 Sample Preparation: 2012-02-07 Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.23	mg/Kg	1	2.00	112	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	63.6 - 158.9

Sample: 287855 - AH-4 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			866	mg/Kg	50	4.00

Sample: 287855 - AH-4 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW
QC Batch: 88323
Prep Batch: 74988

Analytical Method: S 8015 D
Date Analyzed: 2012-02-06
Sample Preparation: 2012-02-03

Prep Method: N/A
Analyzed By: CM
Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287855 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	QA	2	3.20	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.36	mg/Kg	1	2.00	118	22.4 - 149

Sample: 287856 - AH-4 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287857 - AH-4 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287858 - AH-4 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287859 - AH-4 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

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Sample: 287860 - AH-5 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.27	mg/Kg	1	2.00	114	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	63.6 - 158.9

Sample: 287860 - AH-5 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88320

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4050	mg/Kg	100	4.00

Sample: 287860 - AH-5 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

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Sample: 287860 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	2	2.96	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.38	mg/Kg	1	2.00	119	22.4 - 149

Sample: 287861 - AH-5 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287862 - AH-5 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

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Sample: 287863 - AH-6 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88320	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3830	mg/Kg	100	4.00

Sample: 287863 - AH-6 0-1'

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2012-02-06	Analyzed By:	CM
QC Batch:	88323	Sample Preparation:	2012-02-03	Prepared By:	CM
Prep Batch:	74988				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	61.5 - 159

Sample: 287863 - AH-6 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2012-02-02	Analyzed By:	tc
QC Batch:	88262	Sample Preparation:	2012-02-02	Prepared By:	tc
Prep Batch:	74935				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	qs	2	2.95	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.33	mg/Kg	1	2.00	116	22.4 - 149

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Sample: 287864 - AH-6 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88320	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287865 - AH-6 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88320	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287866 - AH-7 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88321	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4390	mg/Kg	100	4.00

Sample: 287866 - AH-7 0-1'

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2012-02-06	Analyzed By:	CM
QC Batch:	88323	Sample Preparation:	2012-02-03	Prepared By:	CM
Prep Batch:	74988				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	61.5 - 159

Sample: 287866 - AH-7 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	qs	2	2.81	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.29	mg/Kg	1	2.00	114	22.4 - 149

Sample: 287867 - AH-7 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88321
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287868 - AH-7 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88321
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287869 - AH-7 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287870 - AH-7 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287871 - AH-8 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			558	mg/Kg	50	4.00

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Sample: 287871 - AH-8 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

Parameter	Flag	Cert	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			102	mg/Kg	1	100	102	61.5 - 159

Sample: 287871 - AH-8 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q#	2	2.90	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.25	mg/Kg	1	2.00	112	22.4 - 149

Sample: 287872 - AH-8 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88321

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

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Sample: 287873 - AH-8 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88321	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287874 - AH-8 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88321	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287875 - AH-8 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88321	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287876 - AH-9 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3890	mg/Kg	100	4.00

Sample: 287876 - AH-9 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	0	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	61.5 - 159

Sample: 287876 - AH-9 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	0	2	2.80	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1	2.00	113	22.4 - 149

Sample: 287877 - AH-9 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88322

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			549	mg/Kg	50	4.00

Sample: 287878 - AH-9 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			407	mg/Kg	50	4.00

Sample: 287879 - AH-9 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			250	mg/Kg	50	4.00

Sample: 287880 - AH-9 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

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Sample: 287881 - AH-9 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287882 - AH-9 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287883 - AH-9 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287884 - AH-10 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287884 - AH-10 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88324

Prep Batch: 74990

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	0	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287884 - AH-10 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	0	2	2.76	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.28	mg/Kg	1	2.00	114	22.4 - 149

Sample: 287885 - AH-10 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88322

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287886 - AH-10 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88376
Prep Batch: 75016

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-07
Sample Preparation: 2012-02-07

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287887 - AH-10 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88376
Prep Batch: 75016

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-07
Sample Preparation: 2012-02-07

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287888 - AH-10 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88376
Prep Batch: 75016

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-07
Sample Preparation: 2012-02-07

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

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Method Blanks

Method Blank (1) QC Batch: 88262

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

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)			1.99	mg/Kg	1	2.00	100	67.6 - 150
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	52.4 - 130

Method Blank (1) QC Batch: 88318

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88319

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

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Method Blank (1) QC Batch: 88320

QC Batch: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88321

QC Batch: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88322

QC Batch: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88323

QC Batch: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<17.1	mg/Kg	50

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Method Blank (1) QC Batch: 88324

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
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			109	mg/Kg	1	100	109	61.5 - 159

Method Blank (1) QC Batch: 88373

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.00470	mg/Kg	0.02
Toluene		2	<0.00980	mg/Kg	0.02
Ethylbenzene		2	<0.00500	mg/Kg	0.02
Xylene		2	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	78 - 113.6
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	55.9 - 112.4

Method Blank (1) QC Batch: 88376

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	18.5	mg/Kg	1	20.0	<0.753	92	60.9 - 105.4

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		2	18.2	mg/Kg	1	20.0	<0.753	91	60.9 - 105.4	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.86	mg/Kg	1	2.00	97	93	61.9 - 142
4-Bromofluorobenzene (4-BFB)	2.14	2.08	mg/Kg	1	2.00	107	104	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.4	mg/Kg	1	100	<3.85	94	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			106	mg/Kg	1	100	<3.85	106	85 - 115	12	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.9	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	LCS 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: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.2	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	LCS 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: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
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.

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Param	F	C	LCS 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: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.9	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	LCS 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: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO			199	mg/Kg	1	250	<17.1	80	75.6 - 120

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO			201	mg/Kg	1	250	<17.1	80	75.6 - 120	1	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	107	106	mg/Kg	1	100	107	106	61.5 - 159

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Laboratory Control Spike (LCS-1)

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	211	mg/Kg	1	250	<17.1	84	75.6 - 120

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	217	mg/Kg	1	250	<17.1	87	75.6 - 120	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	99.7	102	mg/Kg	1	100	100	102	61.5 - 159

Laboratory Control Spike (LCS-1)

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.24	mg/Kg	1	2.00	<0.00470	112	86.5 - 124.9
Toluene		2	2.16	mg/Kg	1	2.00	<0.00980	108	84.7 - 122.5
Ethylbenzene		2	2.06	mg/Kg	1	2.00	<0.00500	103	79.4 - 118.9
Xylene		2	6.13	mg/Kg	1	6.00	<0.0170	102	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	2.30	mg/Kg	1	2.00	<0.00470	115	86.5 - 124.9	3	20
Toluene		2	2.24	mg/Kg	1	2.00	<0.00980	112	84.7 - 122.5	4	20
Ethylbenzene		2	2.14	mg/Kg	1	2.00	<0.00500	107	79.4 - 118.9	4	20
Xylene		2	6.38	mg/Kg	1	6.00	<0.0170	106	79.5 - 118.9	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)	1.99	2.06	mg/Kg	1	2.00	100	103	73.9 - 117

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.85	1.81	mg/Kg	1	2.00	92	90	70.4 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.8	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			107	mg/Kg	1	100	<3.85	107	85 - 115	9	20

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

Matrix Spike (MS-1) Spiked Sample: 287908

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

Param			F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q*	Q*	2		46.4	mg/Kg	1	20.0	7.1711	196	61.8 - 114

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

Param			MSD				Spike	Matrix		Rec.		RPD
	F	C	Result	Units	Dil.		Amount	Result	Rec.	Limit	RPD	Limit
GRO	Q*	Q*	2	47.2	mg/Kg	1	20.0	7.1711	200	61.8 - 114	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	2.02	mg/Kg	1	2	102	101	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	2.43	2.47	mg/Kg	1	2	122	124	37.3 - 162

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Matrix Spike (MS-1) Spiked Sample: 287845

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9900	mg/Kg	100	10000	<385	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10500	mg/Kg	100	10000	<385	105	79.4 - 120.6	6	20

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

Matrix Spike (MS-1) Spiked Sample: 287855

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11100	mg/Kg	100	10000	866	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			12000	mg/Kg	100	10000	866	111	79.4 - 120.6	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: 287865

QC Batch: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10300	mg/Kg	100	10000	<385	103	79.4 - 120.6

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11000	mg/Kg	100	10000	<385	110	79.4 - 120.6	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: 287875

QC Batch: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9920	mg/Kg	100	10000	<385	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10600	mg/Kg	100	10000	<385	106	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: 287885

QC Batch: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10000	mg/Kg	100	10000	<385	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			10500	mg/Kg	100	10000	<385	105	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: 287836

QC Batch: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	282	mg/Kg	1	250	27.4	102	58 - 129

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	268	mg/Kg	1	250	27.4	96	58 - 129	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	95.1	91.3	mg/Kg	1	100	95	91	61.5 - 159

Matrix Spike (MS-1) Spiked Sample: 287884

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	298	mg/Kg	1	250	<17.1	119	58 - 129

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	306	mg/Kg	1	250	<17.1	122	58 - 129	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	99.3	98.5	mg/Kg	1	100	99	98	61.5 - 159

Matrix Spike (MS-1) Spiked Sample: 288202

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.20	mg/Kg	1	2.00	<0.00470	110	69.3 - 159.2

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matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Toluene		2	2.19	mg/Kg	1	2.00	<0.00980	110	68.7 - 157
Ethylbenzene		2	2.29	mg/Kg	1	2.00	<0.00500	114	71.6 - 158.2
Xylene		2	6.80	mg/Kg	1	6.00	<0.0170	113	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	2.23	mg/Kg	1	2.00	<0.00470	112	69.3 - 159.2	1	20
Toluene		2	2.24	mg/Kg	1	2.00	<0.00980	112	68.7 - 157	2	20
Ethylbenzene		2	2.29	mg/Kg	1	2.00	<0.00500	114	71.6 - 158.2	0	20
Xylene		2	6.82	mg/Kg	1	6.00	<0.0170	114	70.8 - 159.8	0	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)	2.09	2.09	mg/Kg	1	2	104	104	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.89	1.90	mg/Kg	1	2	94	95	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 287895

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			17300	mg/Kg	100	10000	7920	94	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			18100	mg/Kg	100	10000	7920	102	79.4 - 120.6	4	20

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

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Calibration Standards

Standard (CCV-1)

QC Batch: 88262

Date Analyzed: 2012-02-02

Analyzed By: tc

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	2012-02-02

Standard (CCV-2)

QC Batch: 88262

Date Analyzed: 2012-02-02

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.11	111	80 - 120	2012-02-02

Standard (ICV-1)

QC Batch: 88318

Date Analyzed: 2012-02-03

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	2012-02-03

Standard (CCV-1)

QC Batch: 88318

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.1	98	85 - 115	2012-02-03

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Standard (ICV-1)

QC Batch: 88319

Date Analyzed: 2012-02-03

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	98.7	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88319

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88320

Date Analyzed: 2012-02-03

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	99.3	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88320

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88321

Date Analyzed: 2012-02-03

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88321

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88322

Date Analyzed: 2012-02-03

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	2012-02-03

Standard (CCV-1)

QC Batch: 88322

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88323

Date Analyzed: 2012-02-06

Analyzed By: CM

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	202	81	80 - 120	2012-02-06

Standard (CCV-2)

QC Batch: 88323

Date Analyzed: 2012-02-06

Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	205	82	80 - 120	2012-02-06

Standard (CCV-3)

QC Batch: 88323

Date Analyzed: 2012-02-06

Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	200	80	80 - 120	2012-02-06

Standard (CCV-1)

QC Batch: 88324

Date Analyzed: 2012-02-06

Analyzed By: CM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		,	mg/Kg	250	200	80	80 - 120	2012-02-06

Standard (CCV-2)

QC Batch: 88324

Date Analyzed: 2012-02-06

Analyzed By: CM

Report Date: February 9, 2012
114-6401199

Work Order: 12013116
COG/BC Fed. #26

Page Number: 50 of 52
Lea Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	216	86	80 - 120	2012-02-06

Standard (CCV-1)

QC Batch: 88373

Date Analyzed: 2012-02-07

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.103	103	80 - 120	2012-02-07
Toluene		2	mg/Kg	0.100	0.0979	98	80 - 120	2012-02-07
Ethylbenzene		2	mg/Kg	0.100	0.0934	93	80 - 120	2012-02-07
Xylene		2	mg/Kg	0.300	0.280	93	80 - 120	2012-02-07

Standard (CCV-2)

QC Batch: 88373

Date Analyzed: 2012-02-07

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.116	116	80 - 120	2012-02-07
Toluene		2	mg/Kg	0.100	0.113	113	80 - 120	2012-02-07
Ethylbenzene		2	mg/Kg	0.100	0.106	106	80 - 120	2012-02-07
Xylene		2	mg/Kg	0.300	0.314	105	80 - 120	2012-02-07

Standard (ICV-1)

QC Batch: 88376

Date Analyzed: 2012-02-07

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	103	103	85 - 115	2012-02-07

Report Date: February 9, 2012
114-6401199

Work Order: 12013116
COG/BC Fed. #26

Page Number: 51 of 52
Lea Co., NM

Standard (CCV-1)

QC Batch: 88376

Date Analyzed: 2012-02-07

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	97.5	98	85 - 115	2012-02-07

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-5	Lubbock
2	NELAP	T104704392-11-3	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than 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.

25-5-1

PAGE: 1 OF: 6

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

CLIENT NAME:	006		SITE MANAGER:	Ike Taverz	
PROJECT NO.:	114-0101194		PROJECT NAME:	006 / 130 Fed #20	
LAB I.D. NUMBER	2012	DATE	TIME	MATRIX	COMP
					GRAB
			SAMPLE IDENTIFICATION		
			600. NIM		
			NUMBER OF CONTAINERS		
			FILTERED (Y/N)		
			PRESERVATIVE METHOD		
			HCL		
			HNO3		
			ICE		
			NONE		

1/20	S	X	AH-1	0'-1'	1	Y
287826				0'-1'		
837				1'-1.5'		
838				2'-2.5'		
839				3'-3.5'		
840				4'-4.5'		
841				5'-5.5'		
842				6'-6.5'		
843				7'-7.5'		
844						
845				AH-2 0'-1'		
				1'-1.5'		

RELINQUISHED BY: (Signature)	Date: <u>11/11/82</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
RELINQUISHED BY: (Signature)	Date: <u>11/11/82</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
RELINQUISHED BY: (Signature)	Date: <u>11/11/82</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
RECEIVING LABORATORY:	ADDRESS: <u>1111</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
CITY: <u>1111</u>	STATE: <u>TX</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
CONTACT: <u>1111</u>	ZIP: <u>1111</u>	RECEIVED BY: (Signature)	Date: <u>11/11/82</u>
PHONE: <u>1111</u>		RECEIVED BY: (Signature)	Date: <u>11/11/82</u>

20	3.5	3.4	3.5	REMARKS: II total TSS exceeds 500 mg/kg run deeper samples	Run B1 or B2
SAMPLE CONDITION WHEN RECEIVED:					

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech Project Manager

BTX 8021B	TPH 8015 MOD	TX1005	(Ext. to C35)
PAH 8270			
HCRA 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			
Post. 808/608			
Chloride			
Gamma Spec.			
Alpha Beta (Air)			
PLM (Asbestos)			
Major Anions/Cations, pH, TDS			

SAMPLED BY: (Print & Initial)	AT 12	Date: 1/31/76
		Time: _____
SAMPLE SHIPPED BY: (Circle)	BUS	AIRBILL #: 2N5174
FEDEX		
HAND DELIVERED	UPS	OTHER: _____
TETRA TECH CONTACT PERSON:		Results by: _____
I K4 Invariant ✓ 2nd 2/1/76		RUSH Charges Authorized: _____ Yes ☐ No ☐

retains Pink copy - Accounting receives Gold copy.
 44-38861-117-DEO

12013116

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 6

ANALYSIS REQUEST
(Circle or Specify Method No.)**TETRA TECH**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: CCG		SITE MANAGER: J. K. Tarrant		PRESERVATIVE METHOD		ANALYSIS REQUEST (Circle or Specify Method No.)	
PROJECT NO.: 14-640194		PROJECT NAME: CCG / BC Federal #26		NUMBER OF CONTAINERS		PAH 8270 TCLP Metals Ag As Ba Cd Cr Pb 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	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMF	GRAB	SAMPLE IDENTIFICATION	
856	7/30		S	X		1-1.5"	
857						2-2.5"	
858						3-3.5"	
859						4-4.5"	
860						0-1"	
861						1-1.5"	
862						2-2.5"	
863						0-1"	
864						1-1.5"	
865						2-2.5"	

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

RECEIVING LABORATORY: Tetra Tech	STATE: TX	ZIP: 79705	REMARKS: CCG - TRAC INTRBUCK
CITY: Midland	DATE: 7/30	TIME: 8:30	
CONTACT: J. K. Tarrant	PHONE: (432) 682-4559		

SAMPLING CONDITION WHEN RECEIVED		REMARKS: CCG - TRAC INTRBUCK	
LAB I.D. NUMBER	DATE	TIME	
856	7/30	15:15	

TETRA TECH CONTACT PERSON: J. K. Tarrant		RUSH Charges Authorized: Yes	
SAMPLE SHIPPED BY: (Circle) FEDEX		AIRBILL #: 2N319	
HAND DELIVERED		OTHER:	

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

#12013116

Analysis Request of Chain of Custody Record

PAGE: 5 OF: 6



TETRA TECH

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

CLIENT NAME: CCG		SITE MANAGER: Jkr Turner			
PROJECT NO.: 114-0401145		PROJECT NAME: 2061 / 130 Federal #20			
LAB I.D. NUMBER	DATE	TIME	PRESERVATIVE METHOD		
			NUMBER OF CONTAINERS	DATE	METHOD
876	4/30/2012		5	X	None
877					ICE
878					HNO3
879					HCL
880					Filtered (Y/N)
881					
882					
883					
884					
885					

RELINQUISHED BY: (Signature)	Date: 11/30/12	Time: 15:00	RECEIVED BY: (Signature)	Date: 11/30/12	Time: 15:00
RELINQUISHED BY: (Signature) <td>Date: 11/30/12</td> <td>Time: 15:00</td> <td>RECEIVED BY: (Signature)<td>Date: 11/30/12</td><td>Time: 15:00</td></td>	Date: 11/30/12	Time: 15:00	RECEIVED BY: (Signature) <td>Date: 11/30/12</td> <td>Time: 15:00</td>	Date: 11/30/12	Time: 15:00
RELINQUISHED BY: (Signature) <td>Date: 11/30/12</td> <td>Time: 15:00</td> <td>RECEIVED BY: (Signature)<td>Date: 11/30/12</td><td>Time: 15:00</td></td>	Date: 11/30/12	Time: 15:00	RECEIVED BY: (Signature) <td>Date: 11/30/12</td> <td>Time: 15:00</td>	Date: 11/30/12	Time: 15:00

RECEIVING LABORATORY:	ADDRESS:	CITY:	STATE:	ZIP:	PHONE:
Midland	1910 N. Big Spring St.	Midland	TX	79705	(432) 682-4559

SAMPLE CONDITION WHEN RECEIVED:	REMARKS:
6.0	Midland - BTEX/CHL / Jkr Turner

ANALYSIS REQUEST
(Circle or Specify Method No.)

GC/MS Vol. 8240/8260/624	
GC/MS Semi. Vol. 8270/625	
PCB's 8080/608	
Post. 808/608	
Chloride	X
Gamma Spec.	
Alpha Beta (Air)	
PLM (Asbestos)	
Major Anions/Cations, pH, TDS	

SAMPLED BY: (Print & Initial)	Date: 11/30/12	Time: 15:00
SAMPLE SHIPPED BY: (Circle)		
FEDEx		
HAND DELIVERED		
UPS		
TETRA TECH CONTACT PERSON:	Jkr Turner	
Results by:		
RUSH Charges Authorized:	Yes	No

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

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	BC Federal #26 (Well Site)				
Company:	COG Operating LLC				
Section, Township and Range	Unit E	Sec. 20	T-17-S	R-32-E	
Lease Number:	30-025-38745				
County:	Lea County				
GPS:	32.82112° N			103.79454° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From CR-126 and Conoco Road, travel 1.9 mi west on Conoco Road, turn right 0.2 miles to location on left.				

Release Data:

Date Released:	12/16/2011
Type Release:	Produced Water and Oil
Source of Contamination:	Well release during BOP install
Fluid Released:	10 bbls oil - 25 bbls of produced water
Fluids Recovered:	0 bbls oil - 12 bbls of produced water

Official Communication:

Name:	Pat Ellis	Ike Tavaréz
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@tetrattech.com

Ranking Criteria

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

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

HOBBS OCD

SEP 06 2012

RECEIVED



TETRA TECH

August 16, 2012

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

HOBBS OCD

SEP 06 2012

RECEIVED

Re: Closure Report for the COG Operating LLC., BC Federal #26 Well Site, Unit E, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #26 well, Unit E, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico. (Site). The spill site coordinates are N 32.82112°, W 103.79454°. 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 December 16, 2011 and released approximately ten (10) barrels of oil and twenty-five (25) barrels of produced water. The release occurred when a crew was installing a BOP on the well. The entire spill remained on the caliche pad location. COG was able to recover twenty (20) barrels of fluid with a vacuum truck. The spill measured approximately 70' x 170' and included an additional area measuring 60' x 25'. The initial C-141 form is enclosed in Appendix A.

Groundwater

On a previous project, Tetra Tech installed a temporary monitor well (TMW) in Section 30 to establish depth to groundwater for the area. The temporary well was installed to a total depth of 180' below surface and found no groundwater (dry) in the well. According to the NMOCD groundwater map, the average depth to groundwater in this area is 150' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.662.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On January 30, 2012 Tetra Tech personnel inspected and sampled the spill area. Ten (10) auger holes (AH-1 and AH-10) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. A shallow chloride impact was detected on the well pad. The detectable chloride concentrations at 0-1' ranged from 866 mg/kg to 5,150 mg/kg. The chloride concentrations significantly declined with depth and majority of the auger holes showing chloride concentrations of <200 mg/kg at 1-1.5' below surface.

Site Remediation

On May 7, 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. At the request of the NMOCD, the area of AH-1 was excavated to a depth of 2.5' below surface. The excavated depth and areas are shown in Table 1 and on Figure 4. Approximately 260 yards³ were removed and transported to CRI for disposal. Once approved, the site was backfilled to surface grade with clean material.



TETRA TECH

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 Tavares
Senior Project Manager

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

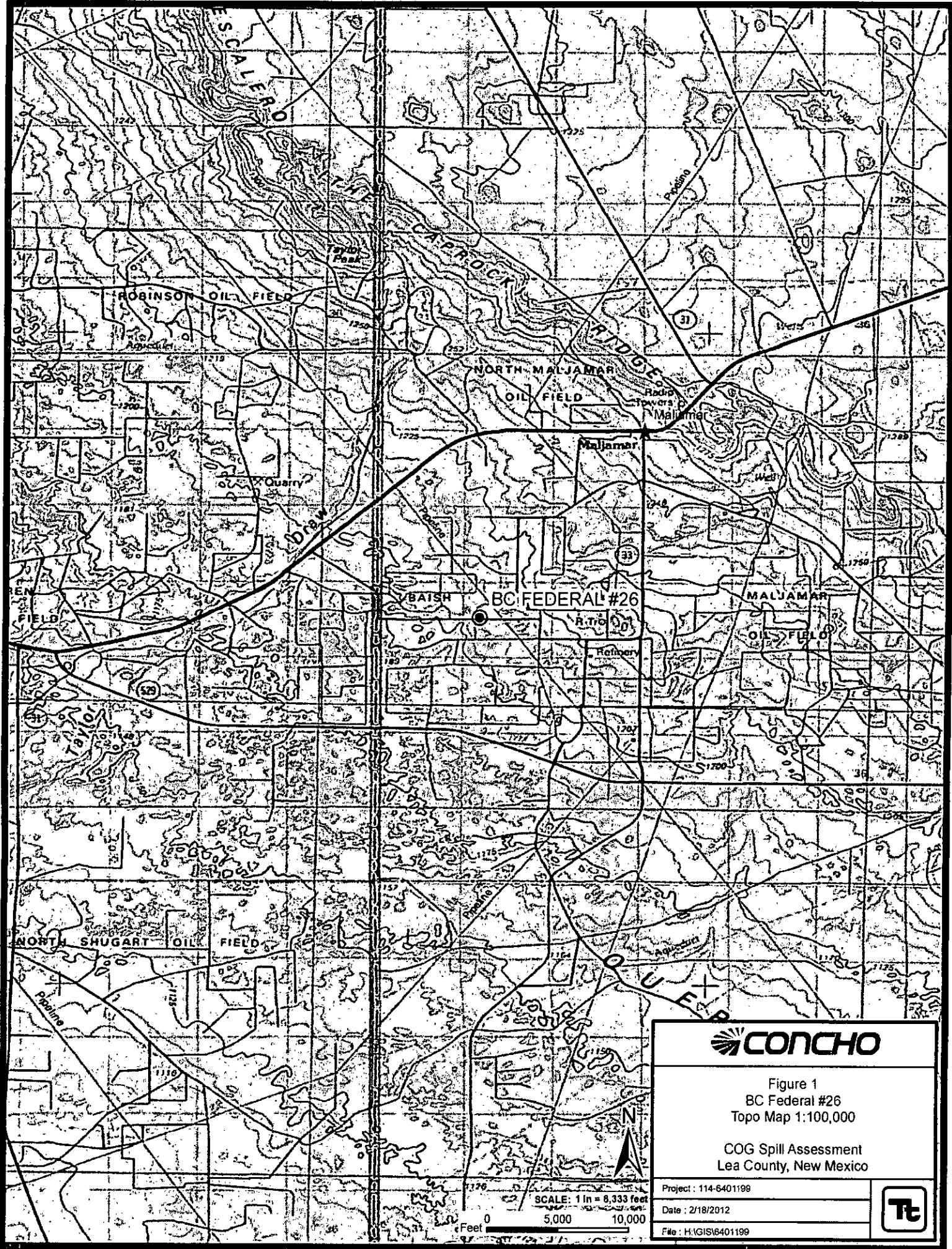


Figure 1
BC Federal #26
Topo Map 1:100,000

COG Spill Assessment
Lea County, New Mexico

Project : 114-6401199

Date : 2/18/2012

File : H:\GIS\6401199



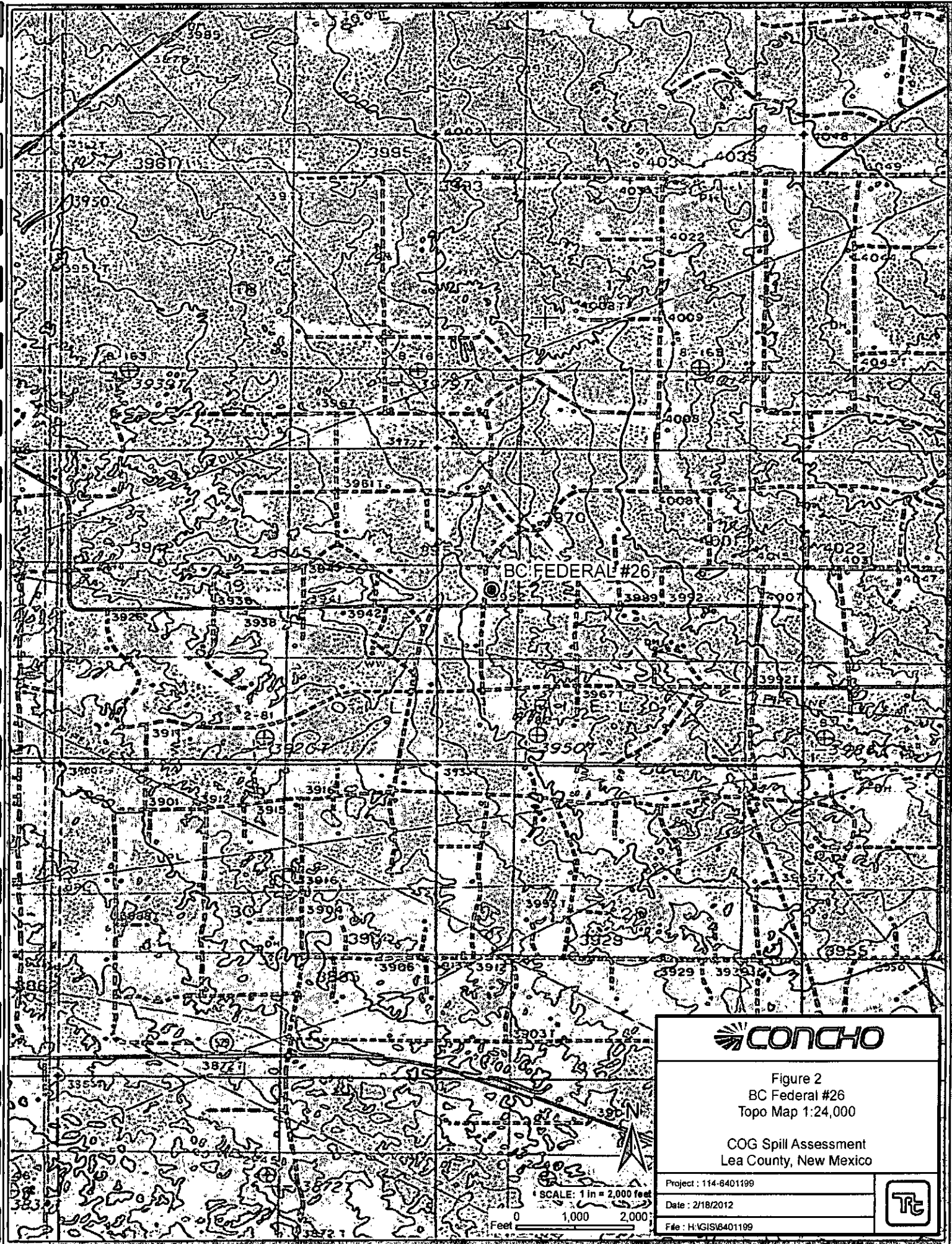
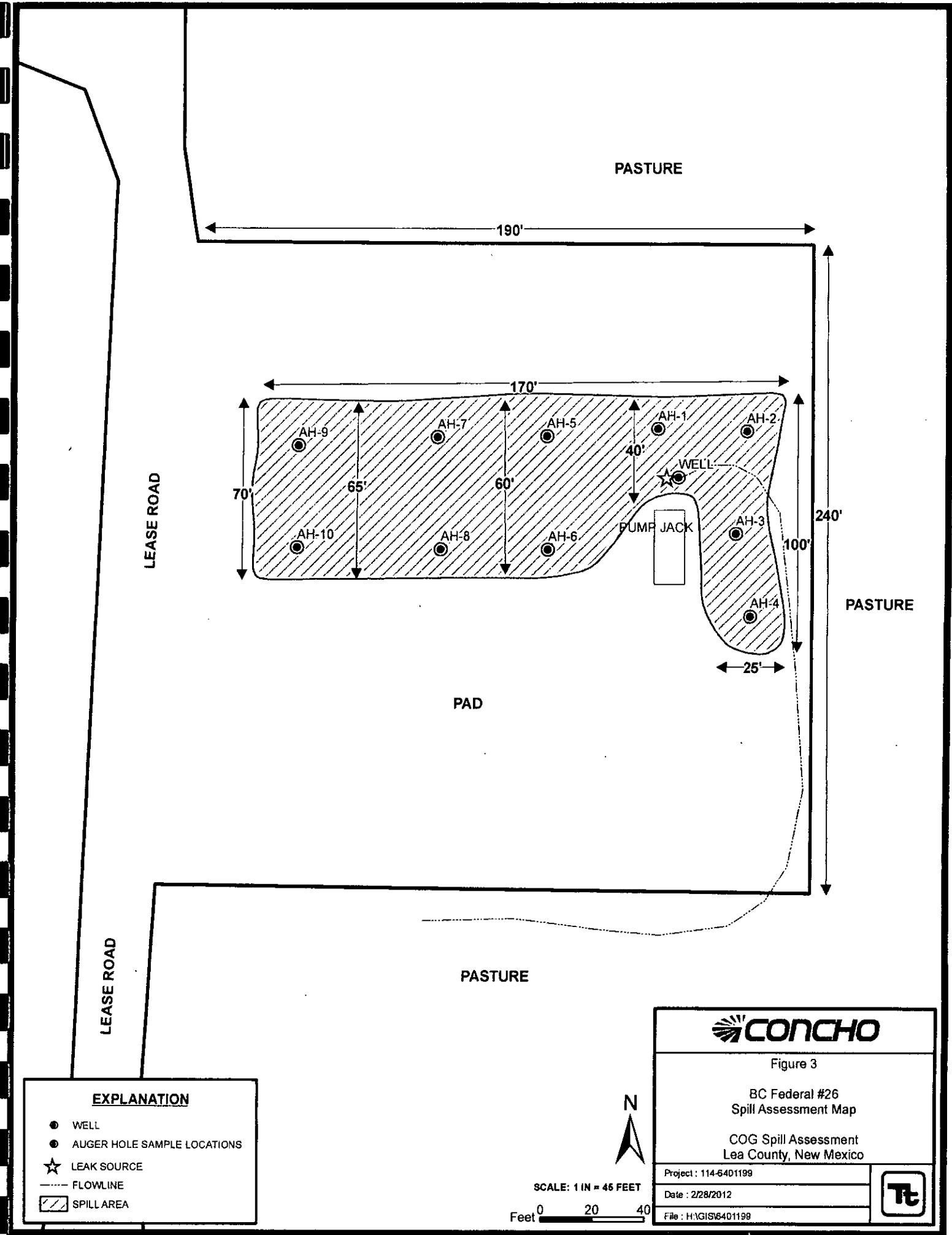


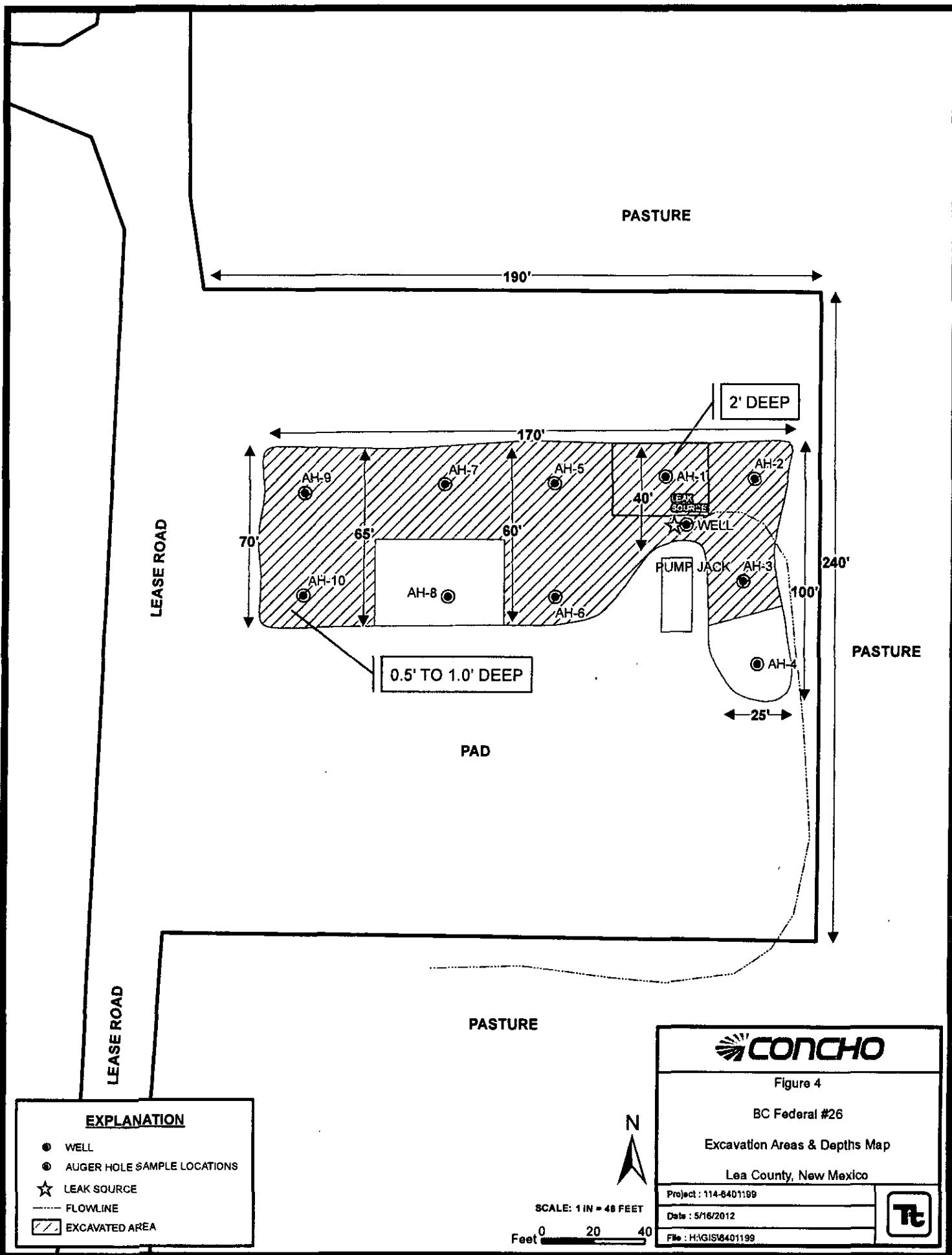
Figure 2
BC Federal #26
Topo Map 1:24,000

COG Spill Assessment
Lea County, New Mexico

Project : 114-6401199
Date : 2/18/2012
File : H:\GIS\16401199







EXPLANATION

- WELL
- AUGER HOLE SAMPLE LOCATIONS
- ☆ LEAK SOURCE
- FLOWLINE
- ▨ EXCAVATED AREA



SCALE: 1 IN = 48 FEET

Feet 0 20 40



Figure 4

BC Federal #26

Excavation Areas & Depths Map

Lea County, New Mexico

Project: 114-8401199

Date: 5/16/2012

File: H:\GIS\8401199



Table 1

[illegible]

Table 1
COG Operating LLC.
BC Fed. #26 Well Site
Lea County, New Mexico

[illegible]

Table 1

[illegible]

Table 1
COG Operating LLC.
BC Fed. #26 Well Site
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-10	1/30/2012	0-1		X	2.76	<50.0	2.76	-	-	-	-	-	5,150
	"	1-1.5	X		-	-	-	-	-	-	-	-	<200
	"	2-2.5	X		-	-	-	-	-	-	-	-	<200
	"	3-3.5	X		-	-	-	-	-	-	-	-	<200
	"	4-4.5	X		-	-	-	-	-	-	-	-	<200

(-) Not Analyzed

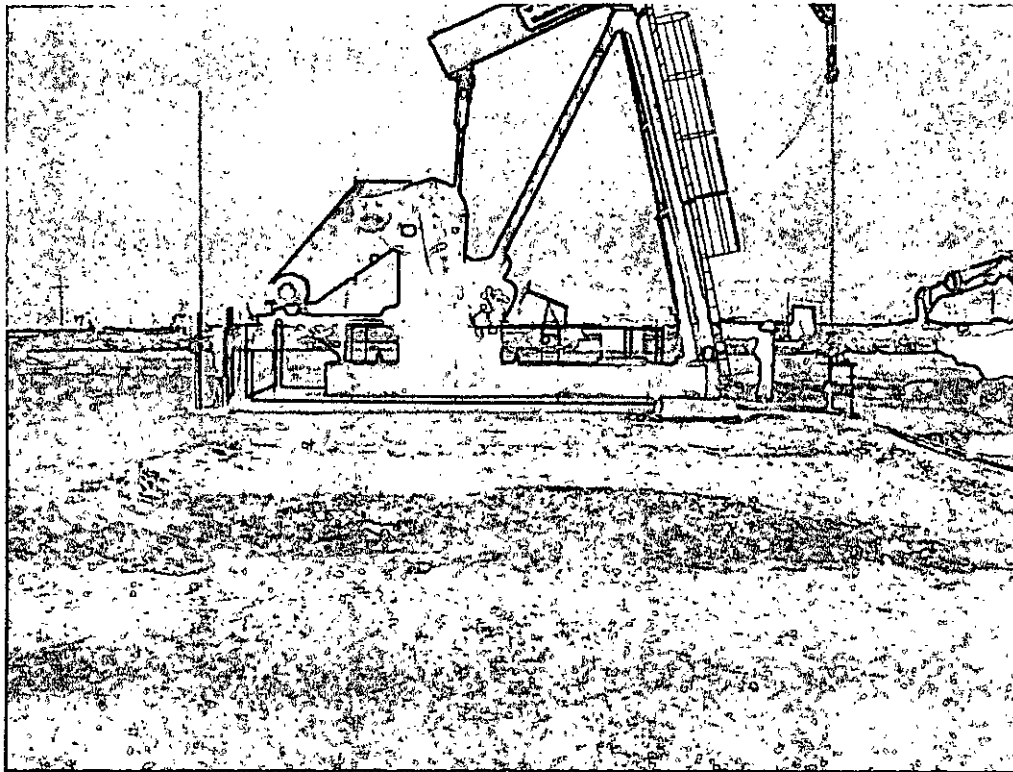


Excavation Depths

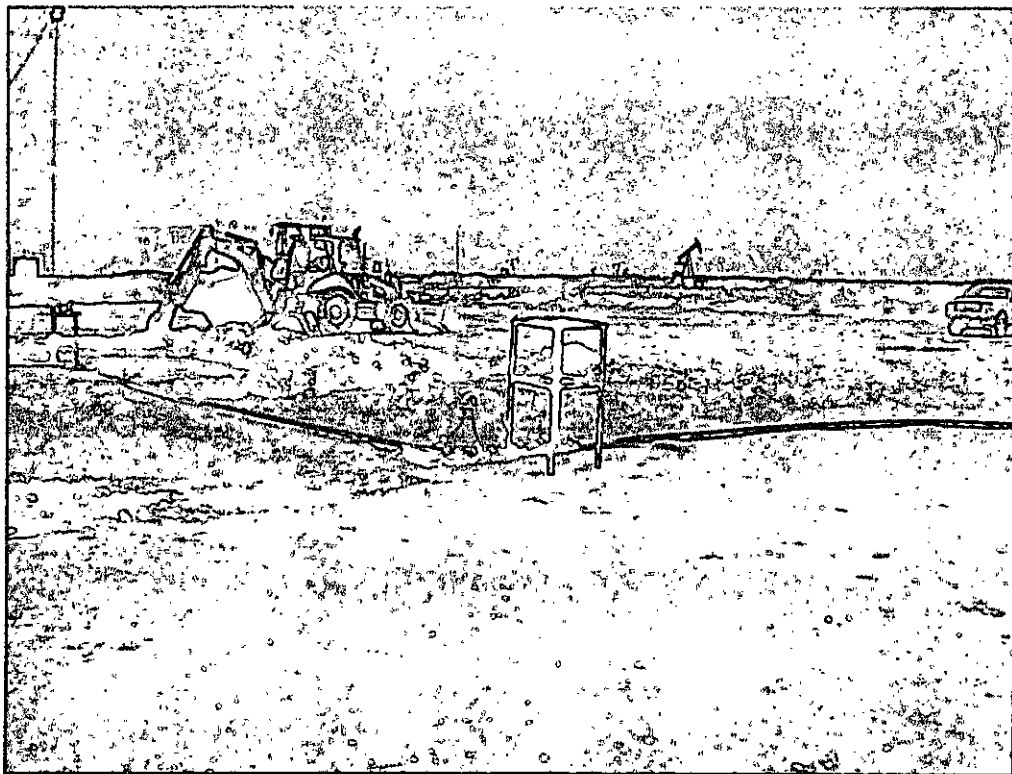
COG Operating LLC
BC Federal #26
Lea County, New Mexico



TETRA TECH

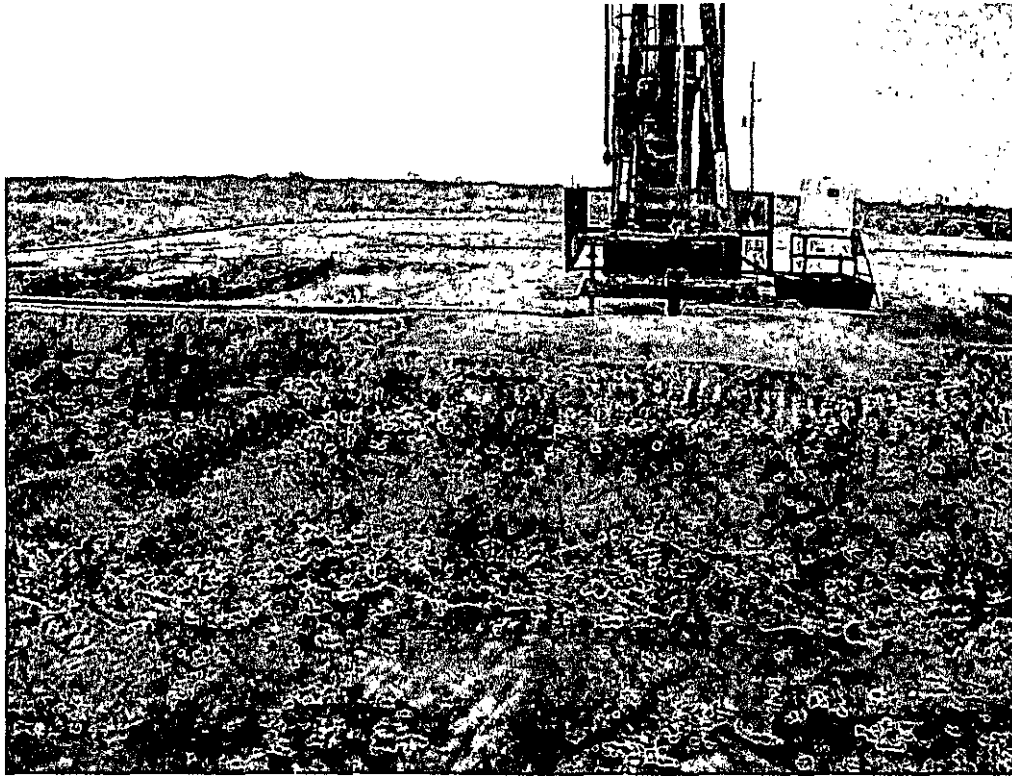


View of excavation

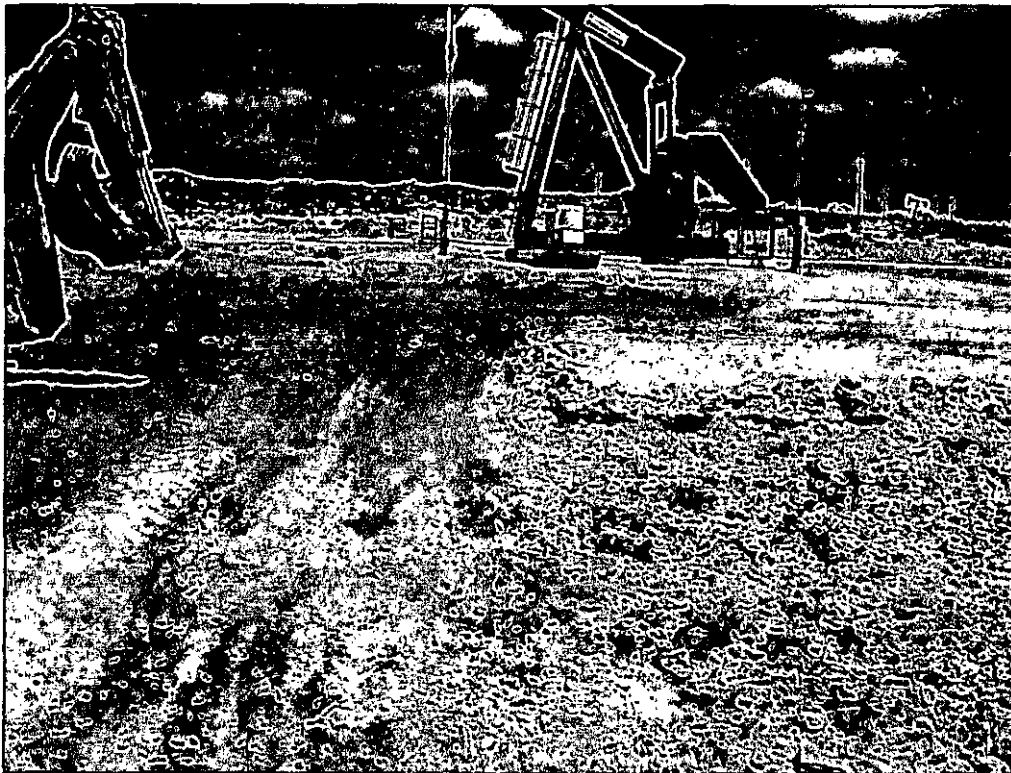


View of excavation

COG Operating LLC
BC Federal #26
Lea County, New Mexico



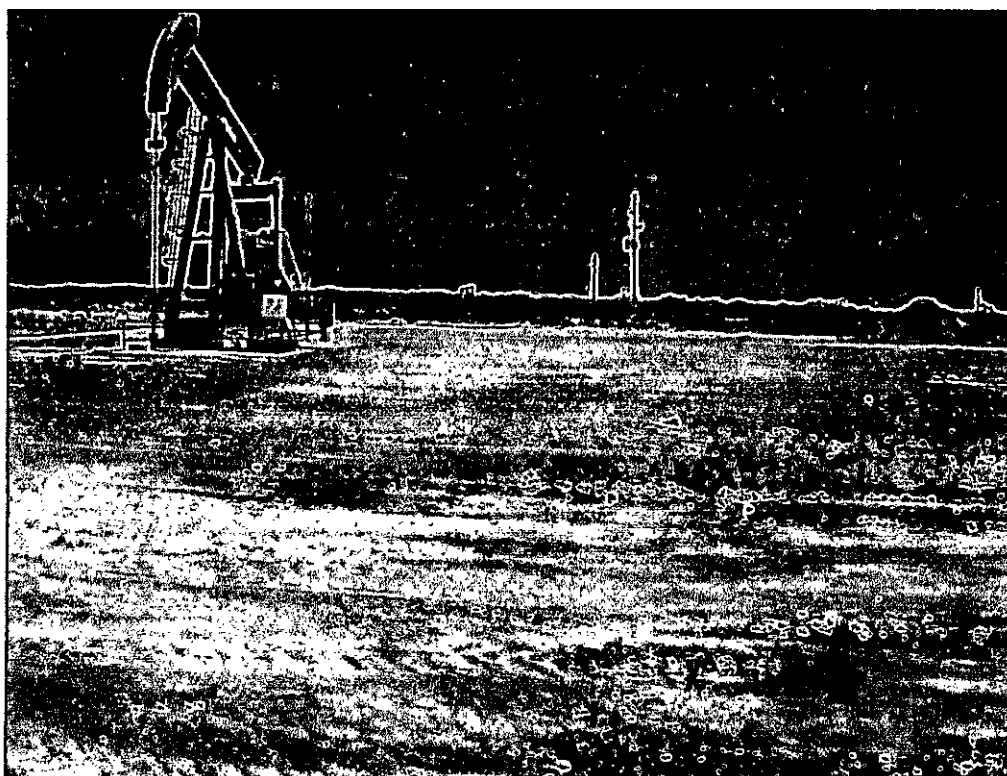
View of excavation



View of excavation



View of excavation



View of excavation

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #26
Lea County, New Mexico

16 South			31 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
280					

17 South			31 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
					271

18 South			31 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
					261

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

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

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

16 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
190	168	160			

17 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					155

18 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					177

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System
-  Site - BC Federal #26
-  Tetra Tech Temporary well

Summary Report

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

Report Date: February 9, 2012

Work Order: 12013116

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #26
Project Number: 114-6401199

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287836	AH-1 0-1'	soil	2012-01-30	00:00	2012-01-31
287837	AH-1 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287838	AH-1 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287839	AH-1 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287840	AH-1 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287841	AH-1 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287842	AH-1 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287843	AH-1 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287844	AH-2 0-1'	soil	2012-01-30	00:00	2012-01-31
287845	AH-2 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287846	AH-2 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287847	AH-2 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287848	AH-2 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287849	AH-2 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287850	AH-3 0-1'	soil	2012-01-30	00:00	2012-01-31
287851	AH-3 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287852	AH-3 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287853	AH-3 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287854	AH-3 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287855	AH-4 0-1'	soil	2012-01-30	00:00	2012-01-31
287856	AH-4 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287857	AH-4 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287858	AH-4 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287859	AH-4 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287860	AH-5 0-1'	soil	2012-01-30	00:00	2012-01-31
287861	AH-5 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287862	AH-5 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287863	AH-6 0-1'	soil	2012-01-30	00:00	2012-01-31
287864	AH-6 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287865	AH-6 2-2.5'	soil	2012-01-30	00:00	2012-01-31

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287866	AH-7 0-1'	soil	2012-01-30	00:00	2012-01-31
287867	AH-7 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287868	AH-7 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287869	AH-7 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287870	AH-7 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287871	AH-8 0-1'	soil	2012-01-30	00:00	2012-01-31
287872	AH-8 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287873	AH-8 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287874	AH-8 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287875	AH-8 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287876	AH-9 0-1'	soil	2012-01-30	00:00	2012-01-31
287877	AH-9 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287878	AH-9 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287879	AH-9 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287880	AH-9 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287881	AH-9 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287882	AH-9 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287883	AH-9 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287884	AH-10 0-1'	soil	2012-01-30	00:00	2012-01-31
287885	AH-10 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287886	AH-10 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287887	AH-10 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287888	AH-10 4-4.5'	soil	2012-01-30	00:00	2012-01-31

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
287836 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.38 _{QA}
287844 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	5.97 _{QA}
287850 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.22 _{QA}
287855 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	3.20 _{QA}
287860 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	2.96 _{QA}
287863 - AH-6 0-1'					<50.0	2.95 _{QA}
287866 - AH-7 0-1'					<50.0	2.81 _{QA}
287871 - AH-8 0-1'					<50.0	2.90 _{QA}
287876 - AH-9 0-1'					<50.0	2.80 _{QA}
287884 - AH-10 0-1'					<50.0	2.76 _{QA}

Sample: 287836 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4410	mg/Kg	4

Sample: 287837 - AH-1 1-1.5'

continued ...

sample 287837 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4

Sample: 287838 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4

Sample: 287839 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		815	mg/Kg	4

Sample: 287840 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		649	mg/Kg	4

Sample: 287841 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		307	mg/Kg	4

Sample: 287842 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		237	mg/Kg	4

Sample: 287843 - AH-1 7-7.5'

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

Sample: 287844 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		1760	mg/Kg	4

Sample: 287845 - AH-2 1-1.5'

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

Sample: 287846 - AH-2 2-2.5'

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

Sample: 287847 - AH-2 3-3.5'

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

Sample: 287848 - AH-2 4-4.5'

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

Sample: 287849 - AH-2 5-5.5'

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

Sample: 287850 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		4920	mg/Kg	4

Sample: 287851 - AH-3 1-1.5'

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

Sample: 287852 - AH-3 2-2.5'

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

Sample: 287853 - AH-3 3-3.5'

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

Sample: 287854 - AH-3 4-4.5'

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

Sample: 287855 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		866	mg/Kg	4

Sample: 287856 - AH-4 1-1.5'

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

Sample: 287857 - AH-4 2-2.5'

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

Sample: 287858 - AH-4 3-3.5'

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

Sample: 287859 - AH-4 4-4.5'

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

Sample: 287860 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		4050	mg/Kg	4

Sample: 287861 - AH-5 1-1.5'

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

Sample: 287862 - AH-5 2-2.5'

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

Sample: 287863 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		3830	mg/Kg	4

Sample: 287864 - AH-6 1-1.5'

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

Sample: 287865 - AH-6 2-2.5'

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

Sample: 287866 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		4390	mg/Kg	4

Sample: 287867 - AH-7 1-1.5'

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

Sample: 287868 - AH-7 2-2.5'

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

Sample: 287869 - AH-7 3-3.5'

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

Sample: 287870 - AH-7 4-4.5'

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

Sample: 287871 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		558	mg/Kg	4

Sample: 287872 - AH-8 1-1.5'

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

Sample: 287873 - AH-8 2-2.5'

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

Sample: 287874 - AH-8 3-3.5'

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

Sample: 287875 - AH-8 4-4.5'

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

Sample: 287876 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		3890	mg/Kg	4

Sample: 287877 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		549	mg/Kg	4

Sample: 287878 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		407	mg/Kg	4

Sample: 287879 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		250	mg/Kg	4

Sample: 287880 - AH-9 4-4.5'

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

Sample: 287881 - AH-9 5-5.5'

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

Sample: 287882 - AH-9 6-6.5'

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

Sample: 287883 - AH-9 7-7.5'

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

Sample: 287884 - AH-10 0-1'

Param	Flag	Result	Units	RL
Chloride		5150	mg/Kg	4

Sample: 287885 - AH-10 1-1.5'

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

Sample: 287886 - AH-10 2-2.5'

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

Sample: 287887 - AH-10 3-3.5'

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

Sample: 287888 - AH-10 4-4.5'

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



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: February 9, 2012

Work Order: 12013116

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #26
Project Number: 114-6401199

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
287836	AH-1 0-1'	soil	2012-01-30	00:00	2012-01-31
287837	AH-1 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287838	AH-1 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287839	AH-1 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287840	AH-1 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287841	AH-1 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287842	AH-1 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287843	AH-1 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287844	AH-2 0-1'	soil	2012-01-30	00:00	2012-01-31
287845	AH-2 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287846	AH-2 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287847	AH-2 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287848	AH-2 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287849	AH-2 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287850	AH-3 0-1'	soil	2012-01-30	00:00	2012-01-31
287851	AH-3 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287852	AH-3 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287853	AH-3 3-3.5'	soil	2012-01-30	00:00	2012-01-31

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
287854	AH-3 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287855	AH-4 0-1'	soil	2012-01-30	00:00	2012-01-31
287856	AH-4 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287857	AH-4 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287858	AH-4 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287859	AH-4 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287860	AH-5 0-1'	soil	2012-01-30	00:00	2012-01-31
287861	AH-5 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287862	AH-5 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287863	AH-6 0-1'	soil	2012-01-30	00:00	2012-01-31
287864	AH-6 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287865	AH-6 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287866	AH-7 0-1'	soil	2012-01-30	00:00	2012-01-31
287867	AH-7 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287868	AH-7 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287869	AH-7 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287870	AH-7 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287871	AH-8 0-1'	soil	2012-01-30	00:00	2012-01-31
287872	AH-8 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287873	AH-8 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287874	AH-8 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287875	AH-8 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287876	AH-9 0-1'	soil	2012-01-30	00:00	2012-01-31
287877	AH-9 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287878	AH-9 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287879	AH-9 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287880	AH-9 4-4.5'	soil	2012-01-30	00:00	2012-01-31
287881	AH-9 5-5.5'	soil	2012-01-30	00:00	2012-01-31
287882	AH-9 6-6.5'	soil	2012-01-30	00:00	2012-01-31
287883	AH-9 7-7.5'	soil	2012-01-30	00:00	2012-01-31
287884	AH-10 0-1'	soil	2012-01-30	00:00	2012-01-31
287885	AH-10 1-1.5'	soil	2012-01-30	00:00	2012-01-31
287886	AH-10 2-2.5'	soil	2012-01-30	00:00	2012-01-31
287887	AH-10 3-3.5'	soil	2012-01-30	00:00	2012-01-31
287888	AH-10 4-4.5'	soil	2012-01-30	00:00	2012-01-31

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 52 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

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Sample 287871 (AH-8 0-1')	25
Sample 287872 (AH-8 1-1.5')	26
Sample 287873 (AH-8 2-2.5')	26
Sample 287874 (AH-8 3-3.5')	27
Sample 287875 (AH-8 4-4.5')	27
Sample 287876 (AH-9 0-1')	27
Sample 287877 (AH-9 1-1.5')	28
Sample 287878 (AH-9 2-2.5')	29

Sample 287879 (AH-9 3-3.5')	29
Sample 287880 (AH-9 4-4.5')	29
Sample 287881 (AH-9 5-5.5')	29
Sample 287882 (AH-9 6-6.5')	30
Sample 287883 (AH-9 7-7.5')	30
Sample 287884 (AH-10 0-1')	30
Sample 287885 (AH-10 1-1.5')	31
Sample 287886 (AH-10 2-2.5')	32
Sample 287887 (AH-10 3-3.5')	32
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Case Narrative

Samples for project COG/BC Fed. #26 were received by TraceAnalysis, Inc. on 2012-01-31 and assigned to work order 12013116. Samples for work order 12013116 were received intact at a temperature of 6.0 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	75024	2012-02-07 at 13:33	88373	2012-02-07 at 13:35
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88318	2012-02-03 at 09:46
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88319	2012-02-03 at 09:48
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88320	2012-02-03 at 09:48
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88321	2012-02-03 at 09:49
Chloride (Titration)	SM 4500-Cl B	74987	2012-02-02 at 09:31	88322	2012-02-03 at 09:50
Chloride (Titration)	SM 4500-Cl B	75016	2012-02-06 at 09:29	88376	2012-02-07 at 13:56
TPH DRO - NEW	S 8015 D	74988	2012-02-03 at 14:00	88323	2012-02-06 at 10:03
TPH DRO - NEW	S 8015 D	74990	2012-02-03 at 15:00	88324	2012-02-06 at 10:04
TPH GRO	S 8015 D	74935	2012-02-02 at 14:14	88262	2012-02-02 at 14:16

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 12013116 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.

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Analytical Report

Sample: 287836 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.29	mg/Kg	1	2.00	114	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	63.6 - 158.9

Sample: 287836 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88318

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4410	mg/Kg	100	4.00

Sample: 287836 - AH-1 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	61.5 - 159

Sample: 287836 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	2	3.38	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1	2.00	105	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.36	mg/Kg	1	2.00	118	22.4 - 149

Sample: 287837 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88318
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			599	mg/Kg	50	4.00

Sample: 287838 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88318
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 287838 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1600	mg/Kg	100	4.00

Sample: 287839 - AH-1 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88318	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			815	mg/Kg	50	4.00

Sample: 287840 - AH-1 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88318	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			649	mg/Kg	50	4.00

Sample: 287841 - AH-1 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88318	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			307	mg/Kg	50	4.00

Sample: 287842 - AH-1 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287843 - AH-1 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 88373 Date Analyzed: 2012-02-07 Analyzed By: DA
Prep Batch: 75024 Sample Preparation: 2012-02-07 Prepared By: tc

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	0	2	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.41	mg/Kg	1	2.00	120	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	63.6 - 158.9

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88318 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1760	mg/Kg	100	4.00

Sample: 287844 - AH-2 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 88323 Date Analyzed: 2012-02-06 Analyzed By: CM
Prep Batch: 74988 Sample Preparation: 2012-02-03 Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287844 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 88262 Date Analyzed: 2012-02-02 Analyzed By: tc
Prep Batch: 74935 Sample Preparation: 2012-02-02 Prepared By: tc

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q	2	5.97	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	22.4 - 149

Sample: 287845 - AH-2 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88318

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287846 - AH-2 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287847 - AH-2 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287848 - AH-2 4-4.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287849 - AH-2 5-5.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287850 - AH-3 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

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sample 287850 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	U	2	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.34	mg/Kg	1	2.00	117	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	63.6 - 158.9

Sample: 287850 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88319 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287850 - AH-3 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 88323 Date Analyzed: 2012-02-06 Analyzed By: CM
Prep Batch: 74988 Sample Preparation: 2012-02-03 Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	61.5 - 159

Sample: 287850 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 88262 Date Analyzed: 2012-02-02 Analyzed By: tc
Prep Batch: 74935 Sample Preparation: 2012-02-02 Prepared By: tc

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	3.22	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	22.4 - 149

Sample: 287851 - AH-3 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287852 - AH-3 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287853 - AH-3 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287854 - AH-3 4-4.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287855 - AH-4 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.23	mg/Kg	1	2.00	112	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	63.6 - 158.9

Sample: 287855 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88319

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			866	mg/Kg	50	4.00

Sample: 287855 - AH-4 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW
QC Batch: 88323
Prep Batch: 74988

Analytical Method: S 8015 D
Date Analyzed: 2012-02-06
Sample Preparation: 2012-02-03

Prep Method: N/A
Analyzed By: CM
Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287855 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	qs	2	3.20	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.36	mg/Kg	1	2.00	118	22.4 - 149

Sample: 287856 - AH-4 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287857 - AH-4 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287858 - AH-4 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287859 - AH-4 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88320 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

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Sample: 287860 - AH-5 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88373

Prep Batch: 75024

Analytical Method: S 8021B

Date Analyzed: 2012-02-07

Sample Preparation: 2012-02-07

Prep Method: S 5035

Analyzed By: DA

Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.27	mg/Kg	1	2.00	114	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	63.6 - 158.9

Sample: 287860 - AH-5 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88320

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4050	mg/Kg	100	4.00

Sample: 287860 - AH-5 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

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Sample: 287860 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	2.96	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.38	mg/Kg	1	2.00	119	22.4 - 149

Sample: 287861 - AH-5 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287862 - AH-5 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

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Sample: 287863 - AH-6 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88320
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3830	mg/Kg	100	4.00

Sample: 287863 - AH-6 0-1'

Laboratory: Lubbock
Analysis: TPH DRO - NEW
QC Batch: 88323
Prep Batch: 74988

Analytical Method: S 8015 D
Date Analyzed: 2012-02-06
Sample Preparation: 2012-02-03

Prep Method: N/A
Analyzed By: CM
Prepared By: CM

Parameter	Flag	Cert	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			104	mg/Kg	1	100	104	61.5 - 159

Sample: 287863 - AH-6 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	2.95	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.33	mg/Kg	1	2.00	116	22.4 - 149

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Sample: 287864 - AH-6 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88320	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287865 - AH-6 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88320	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287866 - AH-7 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88321	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4390	mg/Kg	100	4.00

Sample: 287866 - AH-7 0-1'

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2012-02-06	Analyzed By:	CM
QC Batch:	88323	Sample Preparation:	2012-02-03	Prepared By:	CM
Prep Batch:	74988				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	61.5 - 159

Sample: 287866 - AH-7 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88262
Prep Batch: 74935

Analytical Method: S 8015 D
Date Analyzed: 2012-02-02
Sample Preparation: 2012-02-02

Prep Method: S 5035
Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	qs	2	2.81	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.29	mg/Kg	1	2.00	114	22.4 - 149

Sample: 287867 - AH-7 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88321
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287868 - AH-7 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88321
Prep Batch: 74987

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-03
Sample Preparation: 2012-02-02

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 287869 - AH-7 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287870 - AH-7 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

Sample: 287871 - AH-8 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88321 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			558	mg/Kg	50	4.00

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Sample: 287871 - AH-8 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			102	mg/Kg	1	100	102	61.5 - 159

Sample: 287871 - AH-8 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	2.90	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.25	mg/Kg	1	2.00	112	22.4 - 149

Sample: 287872 - AH-8 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88321

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

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Sample: 287873 - AH-8 2-2.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88321	Date Analyzed:	2012-02-03
Prep Batch:	74987	Sample Preparation:	2012-02-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 287874 - AH-8 3-3.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88321	Date Analyzed:	2012-02-03
Prep Batch:	74987	Sample Preparation:	2012-02-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 287875 - AH-8 4-4.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88321	Date Analyzed:	2012-02-03
Prep Batch:	74987	Sample Preparation:	2012-02-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 287876 - AH-9 0-1'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88322	Date Analyzed:	2012-02-03
Prep Batch:	74987	Sample Preparation:	2012-02-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3890	mg/Kg	100	4.00

Sample: 287876 - AH-9 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88323

Prep Batch: 74988

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	61.5 - 159

Sample: 287876 - AH-9 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	2.80	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1	2.00	113	22.4 - 149

Sample: 287877 - AH-9 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88322

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			549	mg/Kg	50	4.00

Sample: 287878 - AH-9 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			407	mg/Kg	50	4.00

Sample: 287879 - AH-9 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			250	mg/Kg	50	4.00

Sample: 287880 - AH-9 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88322 Date Analyzed: 2012-02-03 Analyzed By: AR
Prep Batch: 74987 Sample Preparation: 2012-02-02 Prepared By: AR

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

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Sample: 287881 - AH-9 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287882 - AH-9 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287883 - AH-9 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287884 - AH-10 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-02-03	Analyzed By:	AR
QC Batch:	88322	Sample Preparation:	2012-02-02	Prepared By:	AR
Prep Batch:	74987				

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

Sample: 287884 - AH-10 0-1'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 88324

Prep Batch: 74990

Analytical Method: S 8015 D

Date Analyzed: 2012-02-06

Sample Preparation: 2012-02-03

Prep Method: N/A

Analyzed By: CM

Prepared By: CM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Sample: 287884 - AH-10 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 88262

Prep Batch: 74935

Analytical Method: S 8015 D

Date Analyzed: 2012-02-02

Sample Preparation: 2012-02-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	2	2.76	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.28	mg/Kg	1	2.00	114	22.4 - 149

Sample: 287885 - AH-10 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88322

Prep Batch: 74987

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-03

Sample Preparation: 2012-02-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 287886 - AH-10 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88376 Date Analyzed: 2012-02-07 Analyzed By: AR
Prep Batch: 75016 Sample Preparation: 2012-02-07 Prepared By: AR

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

Sample: 287887 - AH-10 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88376 Date Analyzed: 2012-02-07 Analyzed By: AR
Prep Batch: 75016 Sample Preparation: 2012-02-07 Prepared By: AR

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

Sample: 287888 - AH-10 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88376 Date Analyzed: 2012-02-07 Analyzed By: AR
Prep Batch: 75016 Sample Preparation: 2012-02-07 Prepared By: AR

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

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Method Blanks

Method Blank (1) QC Batch: 88262

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

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)			1.99	mg/Kg	1	2.00	100	67.6 - 150
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	52.4 - 130

Method Blank (1) QC Batch: 88318

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88319

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

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Method Blank (1) QC Batch: 88320

QC Batch: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88321

QC Batch: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88322

QC Batch: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88323

QC Batch: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<17.1	mg/Kg	50

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	61.5 - 159

Method Blank (1) QC Batch: 88324

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
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			109	mg/Kg	1	100	109	61.5 - 159

Method Blank (1) QC Batch: 88373

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.00470	mg/Kg	0.02
Toluene		2	<0.00980	mg/Kg	0.02
Ethylbenzene		2	<0.00500	mg/Kg	0.02
Xylene		2	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	78 - 113.6
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	55.9 - 112.4

Method Blank (1) QC Batch: 88376

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	18.5	mg/Kg	1	20.0	<0.753	92	60.9 - 105.4

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		2	18.2	mg/Kg	1	20.0	<0.753	91	60.9 - 105.4	2	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.86	mg/Kg	1	2.00	97	93	61.9 - 142
4-Bromofluorobenzene (4-BFB)	2.14	2.08	mg/Kg	1	2.00	107	104	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.4	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			106	mg/Kg	1	100	<3.85	106	85 - 115	12	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.9	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: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.2	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	8	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
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.

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Param	F	C	LCS 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: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.9	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	LCS 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: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO			199	mg/Kg	1	250	<17.1	80	75.6 - 120

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO			201	mg/Kg	1	250	<17.1	80	75.6 - 120	1	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	107	106	mg/Kg	1	100	107	106	61.5 - 159

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Laboratory Control Spike (LCS-1)

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	211	mg/Kg	1	250	<17.1	84	75.6 - 120

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	217	mg/Kg	1	250	<17.1	87	75.6 - 120	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	99.7	102	mg/Kg	1	100	100	102	61.5 - 159

Laboratory Control Spike (LCS-1)

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.24	mg/Kg	1	2.00	<0.00470	112	86.5 - 124.9
Toluene		2	2.16	mg/Kg	1	2.00	<0.00980	108	84.7 - 122.5
Ethylbenzene		2	2.06	mg/Kg	1	2.00	<0.00500	103	79.4 - 118.9
Xylene		2	6.13	mg/Kg	1	6.00	<0.0170	102	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	2.30	mg/Kg	1	2.00	<0.00470	115	86.5 - 124.9	3	20
Toluene		2	2.24	mg/Kg	1	2.00	<0.00980	112	84.7 - 122.5	4	20
Ethylbenzene		2	2.14	mg/Kg	1	2.00	<0.00500	107	79.4 - 118.9	4	20
Xylene		2	6.38	mg/Kg	1	6.00	<0.0170	106	79.5 - 118.9	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)	1.99	2.06	mg/Kg	1	2.00	100	103	73.9 - 117

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.85	1.81	mg/Kg	1	2.00	92	90	70.4 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.8	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.	RPD Limit
Chloride			107	mg/Kg	1	100	<3.85	107	85 - 115

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

Matrix Spike (MS-1) Spiked Sample: 287908

QC Batch: 88262
Prep Batch: 74935

Date Analyzed: 2012-02-02
QC Preparation: 2012-02-02

Analyzed By: tc
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q*	Q*	2	46.4	mg/Kg	1	20.0	7.1711	196

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.	RPD Limit
GRO	Q*	Q*	2	47.2	mg/Kg	1	20.0	7.1711	200

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	2.02	mg/Kg	1	2	102	101	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	2.43	2.47	mg/Kg	1	2	122	124	37.3 - 162

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Matrix Spike (MS-1) Spiked Sample: 287845

QC Batch: 88318
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9900	mg/Kg	100	10000	<385	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10500	mg/Kg	100	10000	<385	105	79.4 - 120.6	6	20

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

Matrix Spike (MS-1) Spiked Sample: 287855

QC Batch: 88319
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11100	mg/Kg	100	10000	866	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			12000	mg/Kg	100	10000	866	111	79.4 - 120.6	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: 287865

QC Batch: 88320
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10300	mg/Kg	100	10000	<385	103	79.4 - 120.6

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11000	mg/Kg	100	10000	<385	110	79.4 - 120.6	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: 287875

QC Batch: 88321
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9920	mg/Kg	100	10000	<385	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10600	mg/Kg	100	10000	<385	106	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: 287885

QC Batch: 88322
Prep Batch: 74987

Date Analyzed: 2012-02-03
QC Preparation: 2012-02-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10000	mg/Kg	100	10000	<385	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			10500	mg/Kg	100	10000	<385	105	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: 287836

QC Batch: 88323
Prep Batch: 74988

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	282	mg/Kg	1	250	27.4	102	58 - 129

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	268	mg/Kg	1	250	27.4	96	58 - 129	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	95.1	91.3	mg/Kg	1	100	95	91	61.5 - 159

Matrix Spike (MS-1) Spiked Sample: 287884

QC Batch: 88324
Prep Batch: 74990

Date Analyzed: 2012-02-06
QC Preparation: 2012-02-03

Analyzed By: CM
Prepared By: CM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	298	mg/Kg	1	250	<17.1	119	58 - 129

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	306	mg/Kg	1	250	<17.1	122	58 - 129	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	99.3	98.5	mg/Kg	1	100	99	98	61.5 - 159

Matrix Spike (MS-1) Spiked Sample: 288202

QC Batch: 88373
Prep Batch: 75024

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-07

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.20	mg/Kg	1	2.00	<0.00470	110	69.3 - 159.2

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Toluene		2	2.19	mg/Kg	1	2.00	<0.00980	110	68.7 - 157
Ethylbenzene		2	2.29	mg/Kg	1	2.00	<0.00500	114	71.6 - 158.2
Xylene		2	6.80	mg/Kg	1	6.00	<0.0170	113	70.8 - 159.8

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	2.23	mg/Kg	1	2.00	<0.00470	112	69.3 - 159.2	1	20
Toluene		2	2.24	mg/Kg	1	2.00	<0.00980	112	68.7 - 157	2	20
Ethylbenzene		2	2.29	mg/Kg	1	2.00	<0.00500	114	71.6 - 158.2	0	20
Xylene		2	6.82	mg/Kg	1	6.00	<0.0170	114	70.8 - 159.8	0	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)	2.09	2.09	mg/Kg	1	2	104	104	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.89	1.90	mg/Kg	1	2	94	95	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 287895

QC Batch: 88376
Prep Batch: 75016

Date Analyzed: 2012-02-07
QC Preparation: 2012-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			17300	mg/Kg	100	10000	7920	94	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			18100	mg/Kg	100	10000	7920	102	79.4 - 120.6	4	20

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

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114-6401199

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Calibration Standards

Standard (CCV-1)

QC Batch: 88262

Date Analyzed: 2012-02-02

Analyzed By: tc

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	2012-02-02

Standard (CCV-2)

QC Batch: 88262

Date Analyzed: 2012-02-02

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.11	111	80 - 120	2012-02-02

Standard (ICV-1)

QC Batch: 88318

Date Analyzed: 2012-02-03

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	2012-02-03

Standard (CCV-1)

QC Batch: 88318

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.1	98	85 - 115	2012-02-03

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Standard (ICV-1)

QC Batch: 88319

Date Analyzed: 2012-02-03

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	98.7	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88319

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88320

Date Analyzed: 2012-02-03

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	99.3	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88320

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88321

Date Analyzed: 2012-02-03

Analyzed By: AR

Report Date: February 9, 2012
114-6401199

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88321

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-02-03

Standard (ICV-1)

QC Batch: 88322

Date Analyzed: 2012-02-03

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	2012-02-03

Standard (CCV-1)

QC Batch: 88322

Date Analyzed: 2012-02-03

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2012-02-03

Standard (CCV-1)

QC Batch: 88323

Date Analyzed: 2012-02-06

Analyzed By: CM

Report Date: February 9, 2012
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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	202	81	80 - 120	2012-02-06

Standard (CCV-2)

QC Batch: 88323

Date Analyzed: 2012-02-06

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	205	82	80 - 120	2012-02-06

Standard (CCV-3)

QC Batch: 88323

Date Analyzed: 2012-02-06

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	200	80	80 - 120	2012-02-06

Standard (CCV-1)

QC Batch: 88324

Date Analyzed: 2012-02-06

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	200	80	80 - 120	2012-02-06

Standard (CCV-2)

QC Batch: 88324

Date Analyzed: 2012-02-06

Analyzed By: CM

Report Date: February 9, 2012
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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	216	86	80 - 120	2012-02-06

Standard (CCV-1)

QC Batch: 88373

Date Analyzed: 2012-02-07

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.103	103	80 - 120	2012-02-07
Toluene		2	mg/Kg	0.100	0.0979	98	80 - 120	2012-02-07
Ethylbenzene		2	mg/Kg	0.100	0.0934	93	80 - 120	2012-02-07
Xylene		2	mg/Kg	0.300	0.280	93	80 - 120	2012-02-07

Standard (CCV-2)

QC Batch: 88373

Date Analyzed: 2012-02-07

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.116	116	80 - 120	2012-02-07
Toluene		2	mg/Kg	0.100	0.113	113	80 - 120	2012-02-07
Ethylbenzene		2	mg/Kg	0.100	0.106	106	80 - 120	2012-02-07
Xylene		2	mg/Kg	0.300	0.314	105	80 - 120	2012-02-07

Standard (ICV-1)

QC Batch: 88376

Date Analyzed: 2012-02-07

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	103	103	85 - 115	2012-02-07

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Standard (CCV-1)

QC Batch: 88376

Date Analyzed: 2012-02-07

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	97.5	98	85 - 115	2012-02-07

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-5	Lubbock
2	NELAP	T104704392-11-3	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than 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.

12013116

Analysis Request of Chain of Custody Record

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TETRA TECH

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

CLIENT NAME: CCG		SITE MANAGER: Ike Turner		PROJECT NAME: CCG BC Federal #20		PRESERVATIVE METHOD	
PROJECT NO.: 114-2401149		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS		PRESERVATIVE METHOD	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	NUMBER OF CONTAINERS	PRESERVATIVE METHOD
866	2-22	1:30	3	X	0.1	1	ICE
867					1-1.5'		HNO3
868					2-2.5'		HCL
869					3-3.5'		None
870					4-4.5'		
871					0.1		
872					1-1.5'		
873					2-2.5'		
874					3-3.5'		
875					4-4.5'		

RELINQUISHED BY: (Signature)	Date: 1/31/12	Time: 1:30	RECEIVED BY: (Signature)	Date: 1/31/12	Time: 1:30
RELINQUISHED BY: (Signature) <td>Date: 1/31/12</td> <td>Time: 1:30</td> <td>RECEIVED BY: (Signature)<td>Date: 1/31/12</td><td>Time: 1:30</td></td>	Date: 1/31/12	Time: 1:30	RECEIVED BY: (Signature) <td>Date: 1/31/12</td> <td>Time: 1:30</td>	Date: 1/31/12	Time: 1:30
RELINQUISHED BY: (Signature) <td>Date: 1/31/12</td> <td>Time: 1:30</td> <td>RECEIVED BY: (Signature)<td>Date: 1/31/12</td><td>Time: 1:30</td></td>	Date: 1/31/12	Time: 1:30	RECEIVED BY: (Signature) <td>Date: 1/31/12</td> <td>Time: 1:30</td>	Date: 1/31/12	Time: 1:30
RECEIVING LABORATORY: KCC <td>STATE: TX<td>ZIP: 79705<td>DATE: 2/2/12<td>TIME: 8:30<td></td></td></td></td></td>	STATE: TX <td>ZIP: 79705<td>DATE: 2/2/12<td>TIME: 8:30<td></td></td></td></td>	ZIP: 79705 <td>DATE: 2/2/12<td>TIME: 8:30<td></td></td></td>	DATE: 2/2/12 <td>TIME: 8:30<td></td></td>	TIME: 8:30 <td></td>	

ANALYSIS REQUEST (Circle or Specify Method No.)	DATE: 1/31/12	TIME: 1:30
Major Anions/Cations, pH, TDS		
PLM (Asbestos)		
Alpha Beta (Air)		
Gamma Spec.		
Chloride	X	
Post. 808/608		
PCB's 8080/608		
GC/MS Semi. Vol. 8270/625		
GC/MS Vol. 8240/8260/624		
RCI		
TCLP Semi Volatiles		
TCLP Volatiles		
TCLP Metals Ag As Ba Cd Cr Pb Hg Se		
PAH 8270		
PH 8015 MOD TX1005 (Ext. to C95)	X	
BTEX 8021B	X	

RESULTS BY:	DATE: 1/31/12	TIME: 1:30
SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED UPS		
AIRBILL #: 2N319		
OTHER:		
TETRA TECH CONTACT PERSON: Ike Turner		
Results by:		
RUSH Charges Authorized: Yes No		

REMARKS: C.C. Midland - BTEX/CHL KX Labwork - TPH-DLO
3.5/3.9
Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

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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: <u>0067</u>		SITE MANAGER: <u>Ike Turner</u>	
PROJECT NO.: <u>111-1401177</u>		PROJECT NAME: <u>0067 / 30 Federal #26</u>	
LAB ID NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
	TIME	TIME	
886	7:30	1:25	5
887		3:35	1
888		4:45	1
PRESERVATIVE METHOD			
HCL			
HNO3			
ICE			
NONE			
NUMBER OF CONTAINERS			
FILTERED (Y/N)			
TCLP Volatiles			
TCLP Metals Ag As Ba Cd Cr Pb Hg Se			
PAH 8270			
RCRA Metals Ag As Ba Cd Cr Pb Hg Se			
TCLP Volatiles			
TCLP Semi Volatiles			
RCI			
GC/MS Vol. 8240/8260/824			
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			

RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>1/31/16</u>	Time: <u>1:25</u>	SAMPLED BY: (Print & Initial) <u>JK</u>	Date: <u>1/31/16</u>	Time: <u>1:25</u>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>1/31/16</u>	Time: <u>1:25</u>	SAMPLE SHIPPED BY: (Circle) <u>BUS</u>	AIRBILL # <u>2N319 472</u>	OTHER: <u>UPS</u>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>1/31/16</u>	Time: <u>1:25</u>	HAND DELIVERED	TETRA TECH CONTACT PERSON: <u>Ike Turner</u>	
RECEIVING LABORATORY: <u>Tetra Tech</u>	STATE: <u>TX</u>	ZIP: <u>79705</u>	REMARKS: <u>Trace Lubricant</u>		
CITY: <u>Midland</u>	DATE: <u>2/2/16</u>				
CONTACT: <u>0067</u>	RECEIVED BY: (Signature) <u>[Signature]</u>				
SAMPLE CONDITION WHEN RECEIVED: <u>Good</u>					