

SITE INFORMATION

Report Type: Closure Report

2RP-434

General Site Information:

Site:	GJ West #135 Flowline		
Company:	COG Operating LLC		
Section, Township and Range	Section 22, T17S, R29 E	Unit Letter - B	
Lease Number:	API-30-015-28591		
County:	Eddy County		
GPS:	32.822267° N, 104.069467° W		
Surface Owner:	State		
Mineral Owner:			
Directions:	In Loco Hills, from the intersection of Haggerman Cutoff and 82, travel west on 82 (4.7 miles), turn north (800 feet) straight ahead to location		

Release Data:

Date Released:	1/19/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	15 bbls
Fluids Recovered:	12 bbls

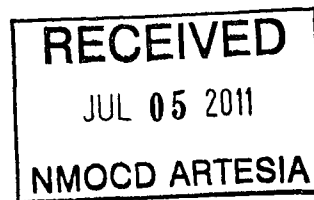
Official Communication:

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.tavaréz@tetrattech.com

Ranking Criteria

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

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





TETRA TECH

June 13, 2011

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

Re: Closure for the COG Operating LLC., GJ West COOP #135 Flow Line, Unit B, Section 22, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the GJ West COOP #135 flow line located in Unit B, Section 22, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82267°, W 104.069467°. 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 January 19, 2010, and released approximately fifteen (15) barrels of produced water from a flow line. To alleviate the problem, COG personnel replaced the flow line. Twelve (12) barrels of standing fluids were recovered. The spill initiated west of a well pad location impacting an area of approximately 40' x 130' in the pasture area and remained within a native low-lying area. The initial and final C-141 forms are enclosed in Appendix C.

Groundwater

According to the *Geology and Groundwater Resources of Eddy County, New Mexico* (Report 3), one well is located in Section 22, with reported depth to water of 79' below surface. The Geology and Groundwater Resources of Eddy County, New Mexico (Report 3) well report data is shown in Appendix B.

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 1,000 mg/kg.

Soil Assessment and Analytical Results

On February 22, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of three (3) auger holes (AH-1 through AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The sampling results are summarized in Table 1. The spill area and auger hole locations are shown on Figure 3.

Referring to Table 1, AH-1, AH-2, and AH-3 samples exceeded the RRAL for TPH and BTEX at surface down to 3-3.5' below surface. Concentrations decreased to below the RRAL for TPH and BTEX at 4-4.5' below surface at each of the three auger holes. Chloride impact was defined in AH-1 and AH-2 but not at AH-3. Chloride concentration for AH-3 at 7-7.5' below surface was 6,410 mg/kg.

To delineate the chloride impact in the vicinity of AH-3, Tetra Tech supervised the installation of one borehole utilizing an air rotary drilling rig on April 20, 2010. Soil samples were collected to a total depth of 70' below surface and the results are summarized in Table 1. Referring to Table 1, chloride concentrations had a significant decline at 15' (493 mg/kg) and continued to decline with depth.



TETRA TECH

Remedial Work and Closure Request

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The excavation measured approximately 40' x 130', with depths from 4.0' to 10.0' below surface. The final depths of the soil remediation for the entire spill met or exceeded the depths of the approved work plan. The excavation depths are highlighted in Table 1 and shown on Figure 4. Once excavated, the site was backfilled with clean material. A copy of the C-141 (Final) is included in Appendix A.

Based on the remedial activities performed at this site, COG request closure of this site. If you require any additional information or have any questions or comments concerning this report, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaréz
Project Manager

cc: Pat Ellis – COG

FIGURES

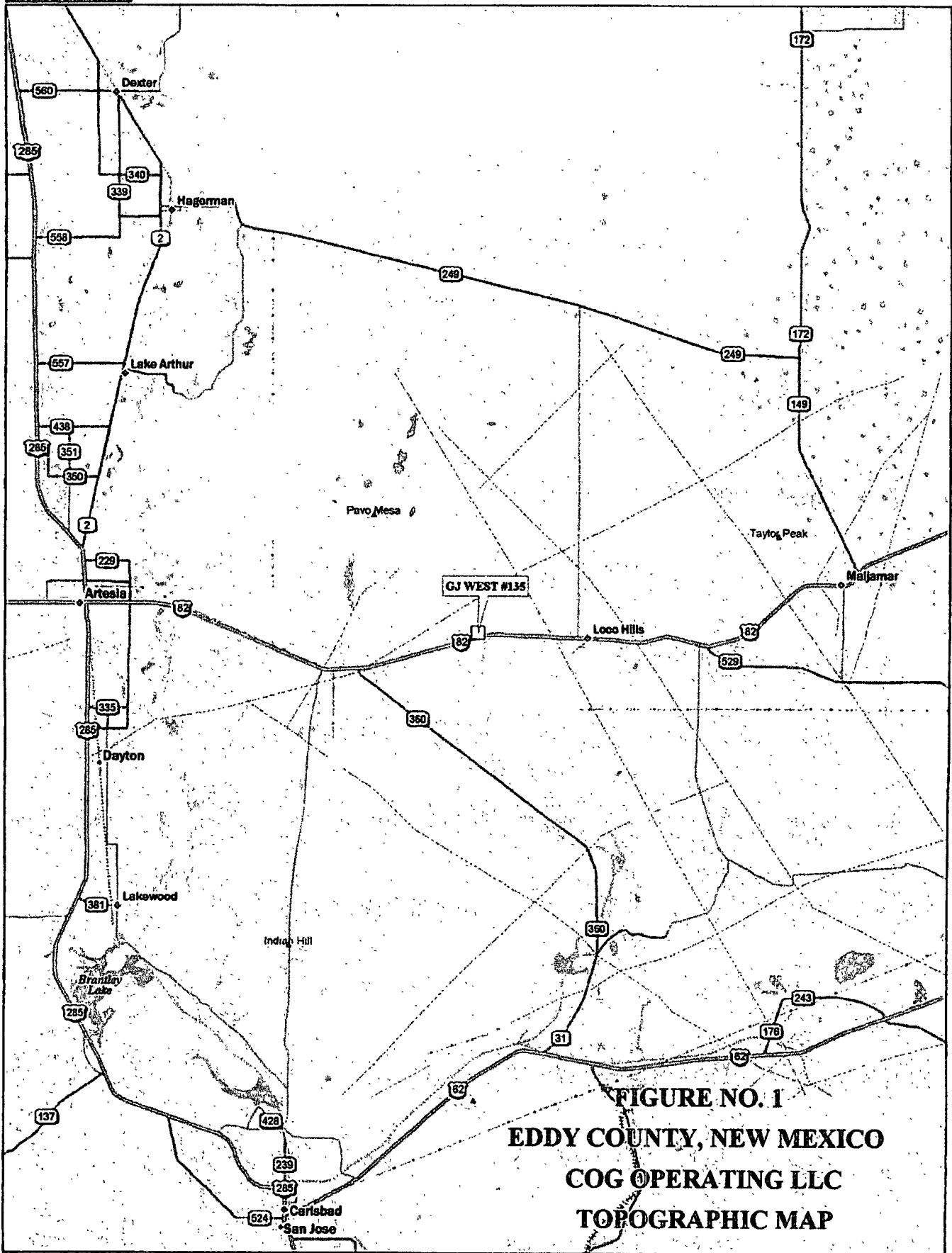
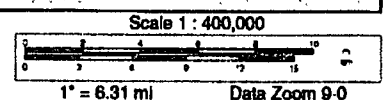


FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

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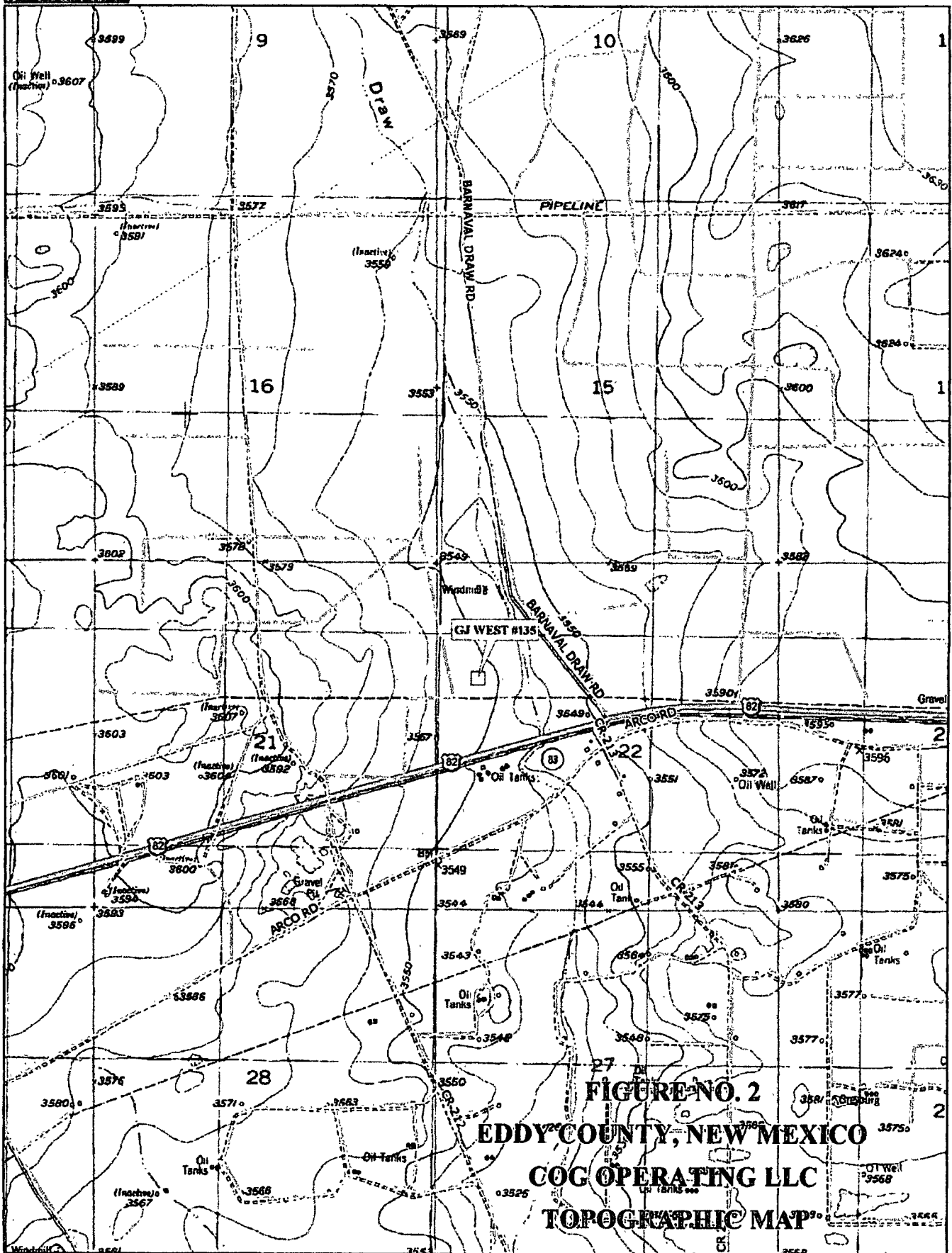


FIGURE NO. 2

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

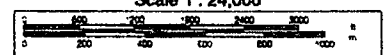
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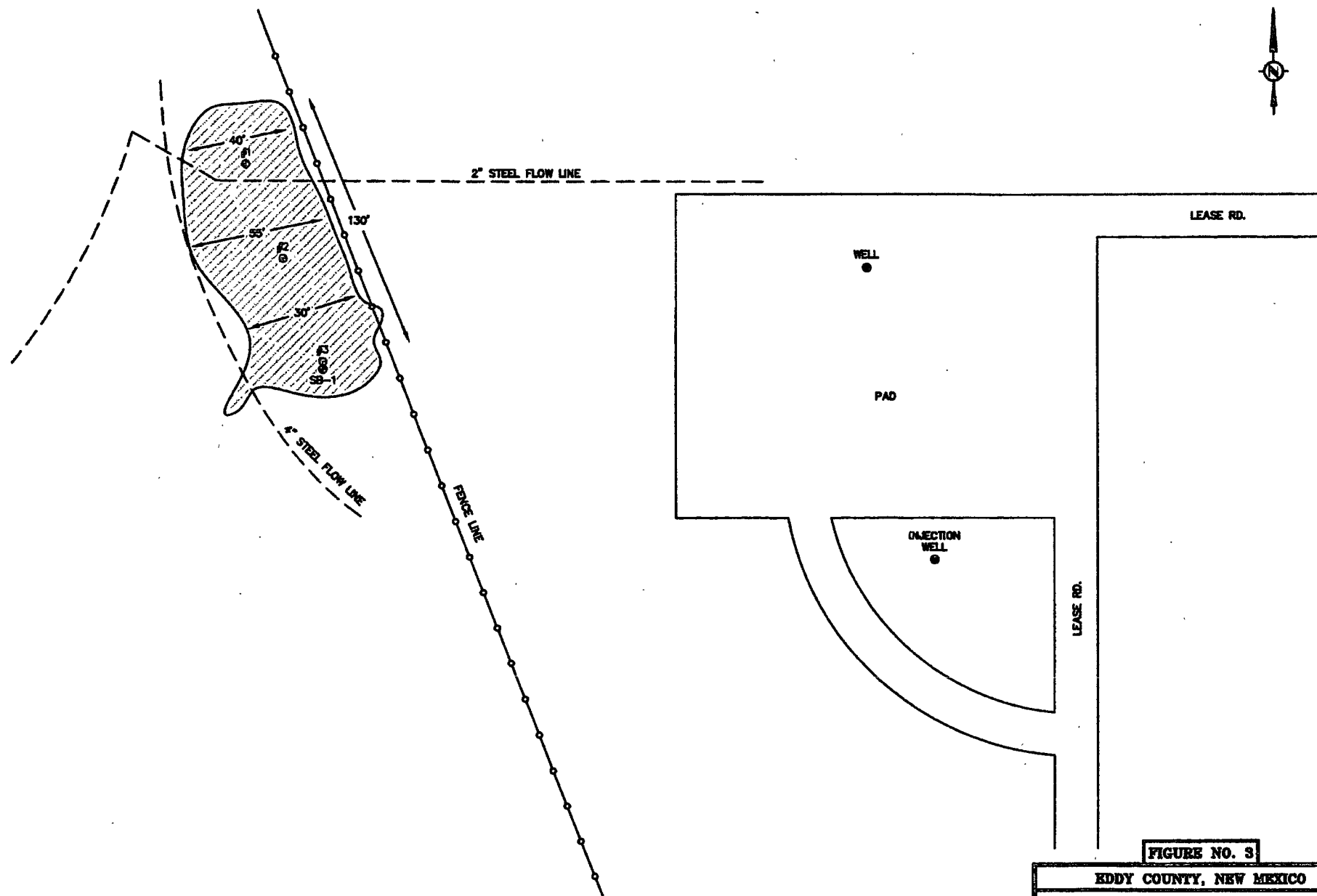


Scale 1 : 24,000



1" = 2,000.0 ft

Data Zoom 13-0



- ☒ SPILL AREA
- ☐ SAMPLE LOCATIONS
- ☐ SOIL BORING LOCATION

NOT TO SCALE

DATE:
2/24/10
DWL BY:
JJ
FILE:
RANCOO/0000000000
GJ WEST #135

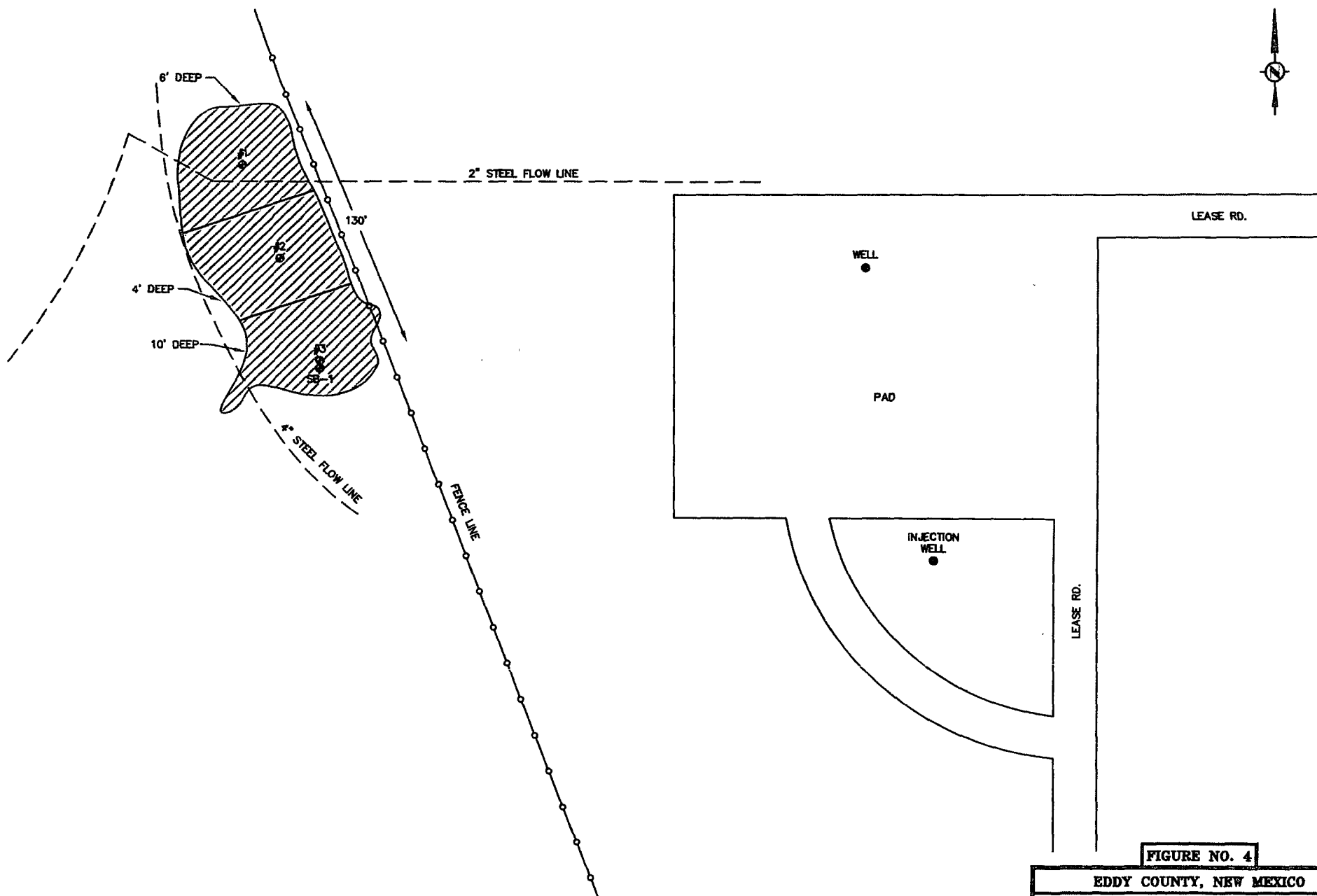
FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

GJ WEST #135

TETRA TECH, INC.
MIDLAND, TEXAS



- ☒ EXCAVATION AREA & DEPTHS
- ☐ SAMPLE LOCATIONS
- ☐ SOIL BORING LOCATION

NOT TO SCALE

DATE:
6/14/2011
DWL BY:
IM
FILE:
M:\000\0400432
GJ WEST #135

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

GJ WEST #135

TETRA TECH, INC.
MIDLAND, TEXAS

TABLES

Table 1
COG Operating LLC.
GJ West #135
EDDY COUNTY, NEW MEXICO

[illegible]

Table 1
COG Operating LLC.
GJ West #135
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-3	2/22/2010	0-1'			X	1,180	2,540	3,720	6.54	30.4	29.3	41.4	6,600
	2/22/2010	1-1.5'			X	2,620	2,980	5,600					12,100
	2/22/2010	2-2.5'			X	3,020	4,170	7,190	18.4	71.9	53.2	73	549
	2/22/2010	3-3.5'			X	5,060	4,890	9,950					337
	2/22/2010	4-4.5'			X	<50.0	<1.00	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	4,840
	2/22/2010	5-5.5'			X								10,000
	2/22/2010	6-6.5'			X								10,200
	2/22/2010	7-7.5'			X								6,410
SB-1	4/20/2010	8'			X								10,400
	4/20/2010	10'			X								6,150
	4/20/2010	15'		X		-	-	-	-	-	-	-	493
	4/20/2010	20'		X		-	-	-	-	-	-	-	871
	4/20/2010	25'		X		-	-	-	-	-	-	-	363
	4/20/2010	30'		X		-	-	-	-	-	-	-	234
	4/20/2010	40'		X		-	-	-	-	-	-	-	249
	4/20/2010	50'		X		-	-	-	-	-	-	-	443
	4/20/2010	60'		X		-	-	-	-	-	-	-	<200
	4/20/2010	70'		X		-	-	-	-	-	-	-	214

BEB Below Excavation Bottom

(-) Not Analyzed

 Excavation Depths

APPENDIX A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG Operating, LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100 Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	GJ WEST COOP UNIT #135	Facility Type	Flowline GJ WEST COOP UNIT #135
Surface Owner	State	Mineral Owner	Lease No. (API) 30-015-28591

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	22	17S	29E	990	NORTH	2310	EAST	EDDY

Latitude 32.822267 Longitude 104.069467

NATURE OF RELEASE

Type of Release	Produced Fluid	Volume of Release	15 bbls	Volume Recovered	12bbls
Source of Release	Flowline	Date and Hour of Occurrence	01/19/2010	Date and Hour of Discovery	01/19/2010 8:00 a.m.
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher - OCD		
By Whom?	Gail Lamb	Date and Hour	01/19/2010		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

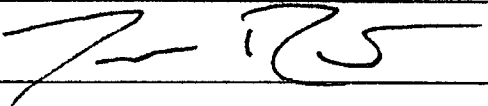
Describe Cause of Problem and Remedial Action Taken.*

A flowline ruptured and leaked releasing produced fluids into the pasture. The ruptured flowline was replaced with a new flowline.

Describe Area Affected and Cleanup Action Taken.*

15bbls of produced fluid released into the pasture next to the ruptured flowline. A vacuum truck recovered 12 bbls of produced fluid from the initial spill. One-call protocol will be made by dirt contractor who will then remove saturated soils prior to soil sampling by Tetra Tech. (The nearest location to the release is the GJ WEST COOP UNIT #98 E-22-17S-29E 1845 FNL 687 FWL 32.822306 : 104.068998). 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 your approval prior to any significant remediation.

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

Signature:				OIL CONSERVATION DIVISION	
Printed Name:	Josh Russo			Approved by District Supervisor:	
Title:	HSE Coordinator - COG Operating, LLC			Approval Date:	Expiration Date:
E-mail Address:	jrusso@conchoresources.com			Conditions of Approval:	Attached ☐
Date:	01/26/2010			Phone:	432-212-2399

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - GJ West COOP Unit 135
Eddy County, New Mexico

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

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

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

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

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

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

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

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

18 South 30 East					
6	5	4	3	2	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

Summary Report

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

Report Date: March 3, 2010

Work Order: 10022423



Project Location: Eddy Co., NM
Project Name: COG/GJ West #135
Project Number: 114-6400432

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
223529	AH-1 0-1'	soil	2010-02-22	00:00	2010-02-24
223530	AH-1 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223531	AH-1 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223532	AH-1 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223533	AH-1 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223534	AH-1 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223535	AH-1 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223536	AH-1 7-7.5'	soil	2010-02-22	00:00	2010-02-24
223537	AH-1 8-8.5'	soil	2010-02-22	00:00	2010-02-24
223538	AH-2 0-1'	soil	2010-02-22	00:00	2010-02-24
223539	AH-2 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223540	AH-2 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223541	AH-2 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223542	AH-2 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223543	AH-2 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223544	AH-2 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223545	AH-2 7-7.5'	soil	2010-02-22	00:00	2010-02-24
223546	AH-3 0-1'	soil	2010-02-22	00:00	2010-02-24
223547	AH-3 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223548	AH-3 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223549	AH-3 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223550	AH-3 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223551	AH-3 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223552	AH-3 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223553	AH-3 7-7.5'	soil	2010-02-22	00:00	2010-02-24

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)
223529 - AH-1 0-1'	13.0	41.0	27.9	39.8	773	1180
223530 - AH-1 1-1.5'					2740	2960
223531 - AH-1 2-2.5'	14.8	64.3	42.0	55.4	1150	2510
223532 - AH-1 3-3.5'					1220	2590
223533 - AH-1 4-4.5'	<0.0100	<0.0100	<0.0100	0.137	<50.0	12.7
223538 - AH-2 0-1'	9.04	40.6	34.6	47.9	1040	2820
223539 - AH-2 1-1.5'					3360	3350
223540 - AH-2 2-2.5'	11.8	65.2	49.4	69.1	3760	3540
223541 - AH-2 3-3.5'					2950	3920
223542 - AH-2 4-4.5'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
223546 - AH-3 0-1'	6.54	30.4	29.3	41.4	1180	2540
223547 - AH-3 1-1.5'					2620	2980
223548 - AH-3 2-2.5'	18.4	71.9	53.2	73.0	3020	4170
223549 - AH-3 3-3.5'					5060	4890
223550 - AH-3 4-4.5'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00

Sample: 223529 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		7910	mg/Kg	4.00

Sample: 223530 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		13400	mg/Kg	4.00

Sample: 223531 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		16900	mg/Kg	4.00

Sample: 223532 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		13400	mg/Kg	4.00

Sample: 223533 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		14100	mg/Kg	4.00

Sample: 223534 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7780	mg/Kg	4.00

Sample: 223535 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		1360	mg/Kg	4.00

Sample: 223536 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		241	mg/Kg	4.00

Sample: 223537 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		288	mg/Kg	4.00

Sample: 223538 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		8880	mg/Kg	4.00

Sample: 223539 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7980	mg/Kg	4.00

Sample: 223540 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		6510	mg/Kg	4.00

Sample: 223541 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		7940	mg/Kg	4.00

Sample: 223542 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		404	mg/Kg	4.00

Sample: 223543 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 223544 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 223545 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 223546 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		6600	mg/Kg	4.00

Sample: 223547 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		12100	mg/Kg	4.00

Sample: 223548 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		549	mg/Kg	4.00

Sample: 223549 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		337	mg/Kg	4.00

Sample: 223550 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		4840	mg/Kg	4.00

Sample: 223551 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		10000	mg/Kg	4.00

Sample: 223552 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		10200	mg/Kg	4.00

Sample: 223553 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		6410	mg/Kg	4.00



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
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E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRC WFVB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: March 3, 2010

Work Order: 10022423



Project Location: Eddy Co., NM
Project Name: COG/GJ West #135
Project Number: 114-6400432

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
223529	AH-1 0-1'	soil	2010-02-22	00:00	2010-02-24
223530	AH-1 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223531	AH-1 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223532	AH-1 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223533	AH-1 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223534	AH-1 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223535	AH-1 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223536	AH-1 7-7.5'	soil	2010-02-22	00:00	2010-02-24
223537	AH-1 8-8.5'	soil	2010-02-22	00:00	2010-02-24
223538	AH-2 0-1'	soil	2010-02-22	00:00	2010-02-24

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
223539	AH-2 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223540	AH-2 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223541	AH-2 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223542	AH-2 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223543	AH-2 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223544	AH-2 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223545	AH-2 7-7.5'	soil	2010-02-22	00:00	2010-02-24
223546	AH-3 0-1'	soil	2010-02-22	00:00	2010-02-24
223547	AH-3 1-1.5'	soil	2010-02-22	00:00	2010-02-24
223548	AH-3 2-2.5'	soil	2010-02-22	00:00	2010-02-24
223549	AH-3 3-3.5'	soil	2010-02-22	00:00	2010-02-24
223550	AH-3 4-4.5'	soil	2010-02-22	00:00	2010-02-24
223551	AH-3 5-5.5'	soil	2010-02-22	00:00	2010-02-24
223552	AH-3 6-6.5'	soil	2010-02-22	00:00	2010-02-24
223553	AH-3 7-7.5'	soil	2010-02-22	00:00	2010-02-24

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



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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/GJ West #135 were received by TraceAnalysis, Inc. on 2010-02-24 and assigned to work order 10022423. Samples for work order 10022423 were received intact at a temperature of 8.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	58010	2010-02-24 at 16:30	67881	2010-02-25 at 04:24
BTEX	S 8021B	58062	2010-02-26 at 11:00	67879	2010-02-27 at 14:44
Chloride (Titration)	SM 4500-Cl B	58063	2010-03-01 at 09:06	67924	2010-03-02 at 15:34
Chloride (Titration)	SM 4500-Cl B	58064	2010-03-01 at 09:07	67925	2010-03-02 at 15:35
Chloride (Titration)	SM 4500-Cl B	58065	2010-03-01 at 09:07	67926	2010-03-02 at 15:36
TPH DRO - NEW	Mod. 8015B	58044	2010-02-25 at 10:56	67849	2010-02-25 at 10:56
TPH DRO - NEW	Mod. 8015B	58045	2010-02-25 at 10:56	67850	2010-02-25 at 10:56
TPH GRO	S 8015B	58010	2010-02-24 at 16:30	67816	2010-02-25 at 04:52
TPH GRO	S 8015B	58062	2010-02-26 at 11:00	67877	2010-02-27 at 15:12

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 10022423 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: March 3, 2010
114-6400432

Work Order: 10022423
COG/GJ West #135

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Eddy Co., NM

Analytical Report

Sample: 223529 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 67881

Prep Batch: 58010

Analytical Method: S 8021B

Date Analyzed: 2010-02-25

Sample Preparation: 2010-02-24

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		13.0	mg/Kg	20	0.0100
Toluene		41.0	mg/Kg	20	0.0100
Ethylbenzene		27.9	mg/Kg	20	0.0100
Xylene		39.8	mg/Kg	20	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		17.9	mg/Kg	20	20.0	90	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		28.2	mg/Kg	20	20.0	141	43.1 - 158.4

Sample: 223529 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 67924

Prep Batch: 58063

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-03-02

Sample Preparation: 2010-03-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7910	mg/Kg	100	4.00

Sample: 223529 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 67849

Prep Batch: 58044

Analytical Method: Mod. 8015B

Date Analyzed: 2010-02-25

Sample Preparation: 2010-02-25

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		773	mg/Kg	1	50.0

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Eddy Co., NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹	132	mg/Kg	1	100	132	70 - 130

Sample: 223529 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67816
Prep Batch: 58010

Analytical Method: S 8015B
Date Analyzed: 2010-02-25
Sample Preparation: 2010-02-24

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1180	mg/Kg	20	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		22.3	mg/Kg	20	20.0	112	65.3 - 145
4-Bromofluorobenzene (4-BFB)	²	34.3	mg/Kg	20	20.0	172	61.7 - 131.1

Sample: 223530 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		13400	mg/Kg	100	4.00

Sample: 223530 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67849
Prep Batch: 58044

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-25
Sample Preparation: 2010-02-25

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2740	mg/Kg	1	50.0

¹ High surrogate recovery due to peak interference.

² High surrogate recovery due to peak interference.

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Eddy Co., NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	³	204	mg/Kg	1	100	204	70 - 130

Sample: 223530 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2960	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		103	mg/Kg	100	100	103	65.3 - 145
4-Bromofluorobenzene (4-BFB)		128	mg/Kg	100	100	128	61.7 - 131.1

Sample: 223531 - AH-1 2-2.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 67879
Prep Batch: 58062

Analytical Method: S 8021B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		14.8	mg/Kg	50	0.0100
Toluene		64.3	mg/Kg	50	0.0100
Ethylbenzene		42.0	mg/Kg	50	0.0100
Xylene		55.4	mg/Kg	50	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		43.4	mg/Kg	50	50.0	87	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		64.4	mg/Kg	50	50.0	129	43.1 - 158.4

Sample: 223531 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

³High surrogate recovery due to peak interference.

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114-6400432

Work Order: 10022423
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Eddy Co., NM

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		16900	mg/Kg	100	4.00

Sample: 223531 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67849
Prep Batch: 58044

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-25
Sample Preparation: 2010-02-25

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1150	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁴	164	mg/Kg	1	100	164	70 - 130

Sample: 223531 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2510	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	⁵	92.9	mg/Kg	50	50.0	186	65.3 - 145
4-Bromofluorobenzene (4-BFB)	⁶	77.3	mg/Kg	50	50.0	155	61.7 - 131.1

Sample: 223532 - AH-1 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

⁴High surrogate recovery due to peak interference.

⁵High surrogate recovery due to peak interference.

⁶High surrogate recovery due to peak interference.

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		13400	mg/Kg	100	4.00

Sample: 223532 - AH-1 3-3.5'

Laboratory: Midland
 Analysis: TPH DRO - NEW Analytical Method: Mod. 8015B Prep Method: N/A
 QC Batch: 67849 Date Analyzed: 2010-02-25 Analyzed By: kg
 Prep Batch: 58044 Sample Preparation: 2010-02-25 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1220	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	7	152	mg/Kg	1	100	152	70 - 130

Sample: 223532 - AH-1 3-3.5'

Laboratory: Midland
 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035
 QC Batch: 67877 Date Analyzed: 2010-02-27 Analyzed By: AG
 Prep Batch: 58062 Sample Preparation: 2010-02-26 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2590	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	⁸	86.6	mg/Kg	50	50.0	173	65.3 - 145
4-Bromofluorobenzene (4-BFB)	⁹	76.3	mg/Kg	50	50.0	153	61.7 - 131.1

Sample: 223533 - AH-1 4-4.5'

Laboratory: Midland
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
 QC Batch: 67879 Date Analyzed: 2010-02-27 Analyzed By: AG
 Prep Batch: 58062 Sample Preparation: 2010-02-26 Prepared By: AG

continued ...

⁷High surrogate recovery due to peak interference.

⁸High surrogate recovery due to peak interference.

⁹High surrogate recovery due to peak interference.

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Work Order: 10022423
COG/GJ West #135

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Eddy Co., NM

sample 223533 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		0.137	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.79	mg/Kg	1	2.00	90	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.13	mg/Kg	1	2.00	106	43.1 - 158.4

Sample: 223533 - AH-1 4-4.5'

Laboratory: Midland			
Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A	
QC Batch: 67924	Date Analyzed: 2010-03-02	Analyzed By: AR	
Prep Batch: 58063	Sample Preparation: 2010-03-01	Prepared By: AR	

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		14100	mg/Kg	100	4.00

Sample: 223533 - AH-1 4-4.5'

Laboratory: Midland			
Analysis: TPH DRO - NEW	Analytical Method: Mod. 8015B	Prep Method: N/A	
QC Batch: 67849	Date Analyzed: 2010-02-25	Analyzed By: kg	
Prep Batch: 58044	Sample Preparation: 2010-02-25	Prepared By: kg	

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		95.7	mg/Kg	1	100	96	70 - 130

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Eddy Co., NM

Sample: 223533 - AH-1 4-4.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		12.7	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.31	mg/Kg	1	2.00	116	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.43	mg/Kg	1	2.00	122	61.7 - 131.1

Sample: 223534 - AH-1 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7780	mg/Kg	100	4.00

Sample: 223535 - AH-1 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1360	mg/Kg	50	4.00

Sample: 223536 - AH-1 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67924
Prep Batch: 58063

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

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Eddy Co., NM

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		241	mg/Kg	50	4.00

Sample: 223537 - AH-1 8-8.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67924 Date Analyzed: 2010-03-02 Analyzed By: AR
Prep Batch: 58063 Sample Preparation: 2010-03-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		288	mg/Kg	50	4.00

Sample: 223538 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 67881 Date Analyzed: 2010-02-25 Analyzed By: AG
Prep Batch: 58010 Sample Preparation: 2010-02-24 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		9.04	mg/Kg	50	0.0100
Toluene		40.6	mg/Kg	50	0.0100
Ethylbenzene		34.6	mg/Kg	50	0.0100
Xylene		47.9	mg/Kg	50	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		50.3	mg/Kg	50	50.0	101	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		72.6	mg/Kg	50	50.0	145	43.1 - 158.4

Sample: 223538 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67924 Date Analyzed: 2010-03-02 Analyzed By: AR
Prep Batch: 58063 Sample Preparation: 2010-03-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8880	mg/Kg	100	4.00

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Sample: 223538 - AH-2 0-1'

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B
QC Batch:	67849	Date Analyzed:	2010-02-25
Prep Batch:	58044	Sample Preparation:	2010-02-25
		Prep Method:	N/A
		Analyzed By:	kg
		Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1040	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		122	mg/Kg	1	100	122	70 - 130

Sample: 223538 - AH-2 0-1'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015B
QC Batch:	67816	Date Analyzed:	2010-02-25
Prep Batch:	58010	Sample Preparation:	2010-02-24
		Prep Method:	S 5035
		Analyzed By:	AG
		Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2820	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		62.1	mg/Kg	50	50.0	124	65.3 - 145
4-Bromofluorobenzene (4-BFB)	¹⁰	78.2	mg/Kg	50	50.0	156	61.7 - 131.1

Sample: 223539 - AH-2 1-1.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	67925	Date Analyzed:	2010-03-02
Prep Batch:	58064	Sample Preparation:	2010-03-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7980	mg/Kg	100	4.00

¹⁰High surrogate recovery due to peak interference.

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114-6400432

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Eddy Co., NM

Sample: 223539 - AH-2 1-1.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-25	Analyzed By:	kg
QC Batch:	67849	Sample Preparation:	2010-02-25	Prepared By:	kg
Prep Batch:	58044				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		3360	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹¹	228	mg/Kg	1	100	228	70 - 130

Sample: 223539 - AH-2 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-02-27	Analyzed By:	AG
QC Batch:	67877	Sample Preparation:	2010-02-26	Prepared By:	AG
Prep Batch:	58062				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3350	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		108	mg/Kg	100	100	108	65.3 - 145
4-Bromofluorobenzene (4-BFB)	¹²	141	mg/Kg	100	100	141	61.7 - 131.1

Sample: 223540 - AH-2 2-2.5'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-02-27	Analyzed By:	AG
QC Batch:	67879	Sample Preparation:	2010-02-26	Prepared By:	AG
Prep Batch:	58062				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		11.8	mg/Kg	100	0.0100
Toluene		65.2	mg/Kg	100	0.0100
Ethylbenzene		49.4	mg/Kg	100	0.0100
Xylene		69.1	mg/Kg	100	0.0100

¹¹ High surrogate recovery due to peak interference.

¹² High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		87.2	mg/Kg	100	100	87	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		118	mg/Kg	100	100	118	43.1 - 158.4

Sample: 223540 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67925 Date Analyzed: 2010-03-02 Analyzed By: AR
Prep Batch: 58064 Sample Preparation: 2010-03-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6510	mg/Kg	100	4.00

Sample: 223540 - AH-2 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: Mod. 8015B Prep Method: N/A
QC Batch: 67849 Date Analyzed: 2010-02-25 Analyzed By: kg
Prep Batch: 58044 Sample Preparation: 2010-02-25 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		3760	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹³	248	mg/Kg	1	100	248	70 - 130

Sample: 223540 - AH-2 2-2.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035
QC Batch: 67877 Date Analyzed: 2010-02-27 Analyzed By: AG
Prep Batch: 58062 Sample Preparation: 2010-02-26 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3540	mg/Kg	100	1.00

¹³High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		110	mg/Kg	100	100	110	65.3 - 145
4-Bromofluorobenzene (4-BFB)	¹⁴	142	mg/Kg	100	100	142	61.7 - 131.1

Sample: 223541 - AH-2 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 67925

Prep Batch: 58064

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-03-02

Sample Preparation: 2010-03-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7940	mg/Kg	100	4.00

Sample: 223541 - AH-2 3-3.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 67849

Prep Batch: 58044

Analytical Method: Mod. 8015B

Date Analyzed: 2010-02-25

Sample Preparation: 2010-02-25

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2950	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹⁵	210	mg/Kg	1	100	210	70 - 130

Sample: 223541 - AH-2 3-3.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 67877

Prep Batch: 58062

Analytical Method: S 8015B

Date Analyzed: 2010-02-27

Sample Preparation: 2010-02-26

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3920	mg/Kg	50	1.00

¹⁴High surrogate recovery due to peak interference.

¹⁵High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	¹⁶	78.1	mg/Kg	50	50.0	156	65.3 - 145'
4-Bromofluorobenzene (4-BFB)	¹⁷	82.1	mg/Kg	50	50.0	164	61.7 - 131.1

Sample: 223542 - AH-2 4-4.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 67879

Prep Batch: 58062

Analytical Method: S 8021B

Date Analyzed: 2010-02-27

Sample Preparation: 2010-02-26

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.00	mg/Kg	1	2.00	100	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.20	mg/Kg	1	2.00	110	43.1 - 158.4

Sample: 223542 - AH-2 4-4.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 67925

Prep Batch: 58064

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-03-02

Sample Preparation: 2010-03-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		404	mg/Kg	50	4.00

Sample: 223542 - AH-2 4-4.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 67849

Prep Batch: 58044

Analytical Method: Mod. 8015B

Date Analyzed: 2010-02-25

Sample Preparation: 2010-02-25

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

¹⁶High surrogate recovery due to peak interference.

¹⁷High surrogate recovery due to peak interference.

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		94.0	mg/Kg	1	100	94	70 - 130

Sample: 223542 - AH-2 4-4.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.53	mg/Kg	1	2.00	126	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.38	mg/Kg	1	2.00	119	61.7 - 131.1

Sample: 223543 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67925
Prep Batch: 58064

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

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

Sample: 223544 - AH-2 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67925
Prep Batch: 58064

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

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sample 223544 continued ...

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

Sample: 223545 - AH-2 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67925 Date Analyzed: 2010-03-02 Analyzed By: AR
Prep Batch: 58064 Sample Preparation: 2010-03-01 Prepared By: AR

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

Sample: 223546 - AH-3 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 67881 Date Analyzed: 2010-02-25 Analyzed By: AG
Prep Batch: 58010 Sample Preparation: 2010-02-24 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		6.54	mg/Kg	50	0.0100
Toluene		30.4	mg/Kg	50	0.0100
Ethylbenzene		29.3	mg/Kg	50	0.0100
Xylene		41.4	mg/Kg	50	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		45.2	mg/Kg	50	50.0	90	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		64.7	mg/Kg	50	50.0	129	43.1 - 158.4

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Sample: 223546 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-03-02	Analyzed By:	AR
QC Batch:	67925	Sample Preparation:	2010-03-01	Prepared By:	AR
Prep Batch:	58064				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6600	mg/Kg	100	4.00

Sample: 223546 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-25	Analyzed By:	kg
QC Batch:	67849	Sample Preparation:	2010-02-25	Prepared By:	kg
Prep Batch:	58044				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1180	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹⁸	153	mg/Kg	1	100	153	70 - 130

Sample: 223546 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-02-25	Analyzed By:	AG
QC Batch:	67816	Sample Preparation:	2010-02-24	Prepared By:	AG
Prep Batch:	58010				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2540	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		56.1	mg/Kg	50	50.0	112	65.3 - 145
4-Bromofluorobenzene (4-BFB)	¹⁹	72.1	mg/Kg	50	50.0	144	61.7 - 131.1

¹⁸High surrogate recovery due to peak interference.

¹⁹High surrogate recovery due to peak interference.

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Sample: 223547 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-03-02	Analyzed By:	AR
QC Batch:	67925	Sample Preparation:	2010-03-01	Prepared By:	AR
Prep Batch:	58064				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		12100	mg/Kg	100	4.00

Sample: 223547 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-25	Analyzed By:	kg
QC Batch:	67849	Sample Preparation:	2010-02-25	Prepared By:	kg
Prep Batch:	58044				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2620	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²⁰	203	mg/Kg	1	100	203	70 - 130

Sample: 223547 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-02-27	Analyzed By:	AG
QC Batch:	67877	Sample Preparation:	2010-02-26	Prepared By:	AG
Prep Batch:	58062				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2980	mg/Kg	50	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	²¹	82.9	mg/Kg	50	50.0	166	65.3 - 145
4-Bromofluorobenzene (4-BFB)	²²	83.3	mg/Kg	50	50.0	167	61.7 - 131.1

²⁰High surrogate recovery due to peak interference.

²¹High surrogate recovery due to peak interference.

²²High surrogate recovery due to peak interference.

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Sample: 223548 - AH-3 2-2.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 67879

Prep Batch: 58062

Analytical Method: S 8021B

Date Analyzed: 2010-02-27

Sample Preparation: 2010-02-26

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		18.4	mg/Kg	100	0.0100
Toluene		71.9	mg/Kg	100	0.0100
Ethylbenzene		53.2	mg/Kg	100	0.0100
Xylene		73.0	mg/Kg	100	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		89.7	mg/Kg	100	100	90	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		122	mg/Kg	100	100	122	43.1 - 158.4

Sample: 223548 - AH-3 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 67925

Prep Batch: 58064

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-03-02

Sample Preparation: 2010-03-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 223548 - AH-3 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 67849

Prep Batch: 58044

Analytical Method: Mod. 8015B

Date Analyzed: 2010-02-25

Sample Preparation: 2010-02-25

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		3020	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²³	217	mg/Kg	1	100	217	70 - 130

²³High surrogate recovery due to peak interference.

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Sample: 223548 - AH-3 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4170	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		114	mg/Kg	100	100	114	65.3 - 145
4-Bromofluorobenzene (4-BFB)	²⁴	146	mg/Kg	100	100	146	61.7 - 131.1

Sample: 223549 - AH-3 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67926
Prep Batch: 58065

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		337	mg/Kg	50	4.00

Sample: 223549 - AH-3 3-3.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67850
Prep Batch: 58045

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-25
Sample Preparation: 2010-02-25

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		5060	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²⁵	304	mg/Kg	1	100	304	70 - 130

²⁴High surrogate recovery due to peak interference.

²⁵High surrogate recovery due to peak interference.

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Sample: 223549 - AH-3 3-3.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67877
Prep Batch: 58062

Analytical Method: S 8015B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4890	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		112	mg/Kg	100	100	112	65.3 - 145
4-Bromofluorobenzene (4-BFB)	²⁶	153	mg/Kg	100	100	153	61.7 - 131.1

Sample: 223550 - AH-3 4-4.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 67879
Prep Batch: 58062

Analytical Method: S 8021B
Date Analyzed: 2010-02-27
Sample Preparation: 2010-02-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.93	mg/Kg	1	2.00	96	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.04	mg/Kg	1	2.00	102	43.1 - 158.4

Sample: 223550 - AH-3 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67926
Prep Batch: 58065

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-03-02
Sample Preparation: 2010-03-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4840	mg/Kg	100	4.00

²⁶High surrogate recovery due to peak interference.

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Sample: 223550 - AH-3 4-4.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-25	Analyzed By:	kg
QC Batch:	67850	Sample Preparation:	2010-02-25	Prepared By:	kg
Prep Batch:	58045				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		107	mg/Kg	1	100	107	70 - 130

Sample: 223550 - AH-3 4-4.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-02-27	Analyzed By:	AG
QC Batch:	67877	Sample Preparation:	2010-02-26	Prepared By:	AG
Prep Batch:	58062				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.43	mg/Kg	1	2.00	122	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.22	mg/Kg	1	2.00	111	61.7 - 131.1

Sample: 223551 - AH-3 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-03-02	Analyzed By:	AR
QC Batch:	67926	Sample Preparation:	2010-03-01	Prepared By:	AR
Prep Batch:	58065				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10000	mg/Kg	100	4.00

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Sample: 223552 - AH-3 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-03-02	Analyzed By:	AR
QC Batch:	67926	Sample Preparation:	2010-03-01	Prepared By:	AR
Prep Batch:	58065				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10200	mg/Kg	100	4.00

Sample: 223553 - AH-3 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-03-02	Analyzed By:	AR
QC Batch:	67926	Sample Preparation:	2010-03-01	Prepared By:	AR
Prep Batch:	58065				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6410	mg/Kg	100	4.00

Method Blank (1) QC Batch: 67816

QC Batch:	67816	Date Analyzed:	2010-02-25	Analyzed By:	AG
Prep Batch:	58010	QC Preparation:	2010-02-24	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.39	mg/Kg	1	2.00	120	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.79	mg/Kg	1	2.00	90	62 - 120.5

Method Blank (1) QC Batch: 67849

QC Batch:	67849	Date Analyzed:	2010-02-25	Analyzed By:	kg
Prep Batch:	58044	QC Preparation:	2010-02-25	Prepared By:	kg

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Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		104	mg/Kg	1	100	104	70 - 130

Method Blank (1) QC Batch: 67850

QC Batch: 67850
Prep Batch: 58045

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-25

Analyzed By: kg
Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		110	mg/Kg	1	100	110	70 - 130

Method Blank (1) QC Batch: 67877

QC Batch: 67877
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.18	mg/Kg	1	2.00	109	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.59	mg/Kg	1	2.00	80	62 - 120.5

Method Blank (1) QC Batch: 67879

QC Batch: 67879
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01

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method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.71	mg/Kg	1	2.00	86	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.45	mg/Kg	1	2.00	72	43.9 - 141.9

Method Blank (1) QC Batch: 67881

QC Batch: 67881
Prep Batch: 58010

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-24

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.89	mg/Kg	1	2.00	94	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.66	mg/Kg	1	2.00	83	43.9 - 141.9

Method Blank (1) QC Batch: 67924

QC Batch: 67924
Prep Batch: 58063

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 67925

QC Batch: 67925
Prep Batch: 58064

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

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Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 67926

QC Batch: 67926 Date Analyzed: 2010-03-02 Analyzed By: AR
Prep Batch: 58065 QC Preparation: 2010-03-01 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch: 67816 Date Analyzed: 2010-02-25 Analyzed By: AG
Prep Batch: 58010 QC Preparation: 2010-02-24 Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.9	mg/Kg	1	20.0	<0.396	80	52.5 - 114.3

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.5	mg/Kg	1	20.0	<0.396	82	52.5 - 114.3	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)	2.15	2.19	mg/Kg	1	2.00	108	110	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.05	2.07	mg/Kg	1	2.00	102	104	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 67849 Date Analyzed: 2010-02-25 Analyzed By: kg
Prep Batch: 58044 QC Preparation: 2010-02-25 Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	304	mg/Kg	1	250	<5.86	122	57.4 - 133.4

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	305	mg/Kg	1	250	<5.86	122	57.4 - 133.4	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	86.8	88.6	mg/Kg	1	100	87	89	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 67850
Prep Batch: 58045

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-25

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	322	mg/Kg	1	250	<5.86	129	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	306	mg/Kg	1	250	<5.86	122	57.4 - 133.4	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	97.0	98.9	mg/Kg	1	100	97	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 67877
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.5	mg/Kg	1	20.0	<0.396	72	52.5 - 114.3

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	15.0	mg/Kg	1	20.0	<0.396	75	52.5 - 114.3	3	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.93	2.22	mg/Kg	1	2.00	96	111	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	1.86	2.12	mg/Kg	1	2.00	93	106	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 67879
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.78	mg/Kg	1	2.00	<0.00410	89	75.4 - 115.7
Toluene	1.78	mg/Kg	1	2.00	<0.00310	89	78.4 - 113.6
Ethylbenzene	1.76	mg/Kg	1	2.00	<0.00240	88	76 - 114.2
Xylene	5.30	mg/Kg	1	6.00	<0.00650	88	76.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.80	mg/Kg	1	2.00	<0.00410	90	75.4 - 115.7	1	20
Toluene	1.81	mg/Kg	1	2.00	<0.00310	90	78.4 - 113.6	2	20
Ethylbenzene	1.81	mg/Kg	1	2.00	<0.00240	90	76 - 114.2	3	20
Xylene	5.44	mg/Kg	1	6.00	<0.00650	91	76.9 - 113.6	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.63	1.68	mg/Kg	1	2.00	82	84	65 - 142.9
4-Bromofluorobenzene (4-BFB)	1.96	2.02	mg/Kg	1	2.00	98	101	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 67881
Prep Batch: 58010

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-24

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.81	mg/Kg	1	2.00	<0.00410	90	75.4 - 115.7
Toluene	1.80	mg/Kg	1	2.00	<0.00310	90	78.4 - 113.6
Ethylbenzene	1.80	mg/Kg	1	2.00	<0.00240	90	76 - 114.2
Xylene	5.41	mg/Kg	1	6.00	<0.00650	90	76.9 - 113.6

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.80	mg/Kg	1	2.00	<0.00410	90	75.4 - 115.7	1	20
Toluene	1.79	mg/Kg	1	2.00	<0.00310	90	78.4 - 113.6	1	20
Ethylbenzene	1.79	mg/Kg	1	2.00	<0.00240	90	76 - 114.2	1	20
Xylene	5.38	mg/Kg	1	6.00	<0.00650	90	76.9 - 113.6	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.72	1.59	mg/Kg	1	2.00	86	80	65 - 142.9
4-Bromofluorobenzene (4-BFB)	2.02	1.87	mg/Kg	1	2.00	101	94	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 67924
Prep Batch: 58063

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	103	mg/Kg	1	100	<2.18	103	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.8	mg/Kg	1	100	<2.18	100	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 67925
Prep Batch: 58064

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.8	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	2	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: 67926
Prep Batch: 58065

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.1	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.4	mg/Kg	1	100	<2.18	99	85 - 115	1	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: 223297

QC Batch: 67816
Prep Batch: 58010

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-24

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.0	mg/Kg	1	20.0	<0.396	80	10 - 198.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	17.0	mg/Kg	1	20.0	<0.396	85	10 - 198.3	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.30	2.00	mg/Kg	1	2	115	100	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.27	1.97	mg/Kg	1	2	114	98	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 223538

QC Batch: 67849
Prep Batch: 58044

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-25

Analyzed By: kg
Prepared By: kg

continued ...

matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	²⁷ 2380	mg/Kg	1	250	1040	536	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	²⁸ 1840	mg/Kg	1	250	1040	320	35.2 - 167.1	26	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
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	^{29 30} 186	144	mg/Kg	1	100	186	144	70 - 130

Matrix Spike (MS-1) Spiked Sample: 223550

QC Batch: 67850
Prep Batch: 58045

Date Analyzed: 2010-02-25
QC Preparation: 2010-02-25

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	323	mg/Kg	1	250	<5.86	129	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	335	mg/Kg	1	250	<5.86	134	35.2 - 167.1	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	101	99.0	mg/Kg	1	100	101	99	70 - 130

Matrix Spike (MS-1) Spiked Sample: 223681

QC Batch: 67877
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

²⁷Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

²⁸Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

²⁹High surrogate recovery due to peak interference.

³⁰High surrogate recovery due to peak interference.

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	22.4	mg/Kg	1	20.0	<0.396	112	10 - 198.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	23.9	mg/Kg	1	20.0	<0.396	120	10 - 198.3	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.73	2.34	mg/Kg	1	2	86	117	65.5 - 143
4-Bromofluorobenzene (4-BFB)	1.70	2.29	mg/Kg	1	2	85	114	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 223681

QC Batch: 67879
Prep Batch: 58062

Date Analyzed: 2010-02-27
QC Preparation: 2010-02-26

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.86	mg/Kg	1	2.00	<0.00410	93	57.7 - 140.7
Toluene	1.90	mg/Kg	1	2.00	<0.00310	95	53.4 - 146.6
Ethylbenzene	1.95	mg/Kg	1	2.00	<0.00240	98	62.1 - 141.6
Xylene	5.84	mg/Kg	1	6.00	<0.00650	97	61.2 - 142.7

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.82	mg/Kg	1	2.00	<0.00410	91	57.7 - 140.7	2	20
Toluene	1.85	mg/Kg	1	2.00	<0.00310	92	53.4 - 146.6	3	20
Ethylbenzene	1.92	mg/Kg	1	2.00	<0.00240	96	62.1 - 141.6	2	20
Xylene	5.75	mg/Kg	1	6.00	<0.00650	96	61.2 - 142.7	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)	1.36	1.87	mg/Kg	1	2	68	94	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.57	2.14	mg/Kg	1	2	78	107	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 223538

QC Batch: 67924
Prep Batch: 58063

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	17900	mg/Kg	100	10000	8880	90	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	18100	mg/Kg	100	10000	8880	92	85 - 115	1	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: 223548

QC Batch: 67925
Prep Batch: 58064

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10700	mg/Kg	100	10000	549	102	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10900	mg/Kg	100	10000	549	104	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 223553

QC Batch: 67926
Prep Batch: 58065

Date Analyzed: 2010-03-02
QC Preparation: 2010-03-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16900	mg/Kg	100	10000	6410	105	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	17100	mg/Kg	100	10000	6410	107	85 - 115	1	20

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

Standard (CCV-1)

QC Batch: 67816

Date Analyzed: 2010-02-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.933	93	80 - 120	2010-02-25

Standard (CCV-2)

QC Batch: 67816

Date Analyzed: 2010-02-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.08	108	80 - 120	2010-02-25

Standard (CCV-1)

QC Batch: 67849

Date Analyzed: 2010-02-25

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	301	120	80 - 120	2010-02-25

Standard (CCV-2)

QC Batch: 67849

Date Analyzed: 2010-02-25

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	275	110	80 - 120	2010-02-25

Standard (CCV-3)

QC Batch: 67849

Date Analyzed: 2010-02-25

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	272	109	80 - 120	2010-02-25

Standard (CCV-4)

QC Batch: 67849

Date Analyzed: 2010-02-25

Analyzed By: kg

Report Date: March 3, 2010
114-6400432

Work Order: 10022423
COG/GJ West #135

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Eddy Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	267	107	80 - 120	2010-02-25

Standard (CCV-1)

QC Batch: 67850

Date Analyzed: 2010-02-25

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	268	107	80 - 120	2010-02-25

Standard (CCV-2)

QC Batch: 67850

Date Analyzed: 2010-02-25

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	288	115	80 - 120	2010-02-25

Standard (CCV-1)

QC Batch: 67877

Date Analyzed: 2010-02-27

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.902	90	80 - 120	2010-02-27

Standard (CCV-2)

QC Batch: 67877

Date Analyzed: 2010-02-27

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.970	97	80 - 120	2010-02-27

Standard (CCV-3)

QC Batch: 67877

Date Analyzed: 2010-02-27

Analyzed By: AG

Report Date: March 3, 2010
114-6400432

Work Order: 10022423
COG/GJ West #135

Page Number: 38 of 40
Eddy Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.05	105	80 - 120	2010-02-27

Standard (CCV-1)

QC Batch: 67879

Date Analyzed: 2010-02-27

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0876	88	80 - 120	2010-02-27
Toluene		mg/Kg	0.100	0.0877	88	80 - 120	2010-02-27
Ethylbenzene		mg/Kg	0.100	0.0869	87	80 - 120	2010-02-27
Xylene		mg/Kg	0.300	0.263	88	80 - 120	2010-02-27

Standard (CCV-2)

QC Batch: 67879

Date Analyzed: 2010-02-27

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0868	87	80 - 120	2010-02-27
Toluene		mg/Kg	0.100	0.0860	86	80 - 120	2010-02-27
Ethylbenzene		mg/Kg	0.100	0.0842	84	80 - 120	2010-02-27
Xylene		mg/Kg	0.300	0.253	84	80 - 120	2010-02-27

Standard (CCV-3)

QC Batch: 67879

Date Analyzed: 2010-02-27

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0880	88	80 - 120	2010-02-27
Toluene		mg/Kg	0.100	0.0869	87	80 - 120	2010-02-27
Ethylbenzene		mg/Kg	0.100	0.0853	85	80 - 120	2010-02-27
Xylene		mg/Kg	0.300	0.257	86	80 - 120	2010-02-27

Standard (CCV-1)

QC Batch: 67881

Date Analyzed: 2010-02-25

Analyzed By: AG

Report Date: March 3, 2010
114-6400432

Work Order: 10022423
COG/GJ West #135

Page Number: 39 of 40
Eddy Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0905	90	80 - 120	2010-02-25
Toluene		mg/Kg	0.100	0.0901	90	80 - 120	2010-02-25
Ethylbenzene		mg/Kg	0.100	0.0904	90	80 - 120	2010-02-25
Xylene		mg/Kg	0.300	0.272	91	80 - 120	2010-02-25

Standard (CCV-2)

QC Batch: 67881

Date Analyzed: 2010-02-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0913	91	80 - 120	2010-02-25
Toluene		mg/Kg	0.100	0.0907	91	80 - 120	2010-02-25
Ethylbenzene		mg/Kg	0.100	0.0904	90	80 - 120	2010-02-25
Xylene		mg/Kg	0.300	0.271	90	80 - 120	2010-02-25

Standard (ICV-1)

QC Batch: 67924

Date Analyzed: 2010-03-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-02

Standard (CCV-1)

QC Batch: 67924

Date Analyzed: 2010-03-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.6	99	85 - 115	2010-03-02

Standard (ICV-1)

QC Batch: 67925

Date Analyzed: 2010-03-02

Analyzed By: AR

Report Date: March 3, 2010
114-6400432

Work Order: 10022423
COG/GJ West #135

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Eddy Co., NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.4	97	85 - 115	2010-03-02

Standard (CCV-1)

QC Batch: 67925

Date Analyzed: 2010-03-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	103	103	85 - 115	2010-03-02

Standard (ICV-1)

QC Batch: 67926

Date Analyzed: 2010-03-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.5	100	85 - 115	2010-03-02

Standard (CCV-1)

QC Batch: 67926

Date Analyzed: 2010-03-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-02

Order #: 10022423

Analysis Request of Chain of Custody Record

PAGE: 1 of 3

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6400432

PROJECT NAME:

COG / GT West # 135

Eddy Co., NM

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTEX 80215

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Vr Pd Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/808

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

203529

2/22

S

K

AH-1

0-1'

530

AH-2

1-1.5'

531

AH-1

2-2.5'

532

AH-1

3-3.5'

533

AH-1

4-4.5'

534

AH-1

5-5.5'

535

AH-1

6-6.5'

536

AH-1

7-7.5'

537

AH-1

8-8.5'

538

AH-2

0-1'

RELINQUISHED BY: (Signature)

Date: 2-24-10

Time: 1530

RECEIVED BY: (Signature)

Date: 2/24/10

Time: 15:00

SAMPLED BY: (Print & Initial)

Date: 2-23-10

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

AIRBILL #: _____

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

FEDEX

BUS

HAND DELIVERED

UPS

OTHER: _____

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

If TPH > 1,000 mg/kg run deeper samples
Run (3) BTEX with highest TPH

TETRA TECH CONTACT PERSON:

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.

Order #: 10022423

Analysis Request of Chain of Custody Record

PAGE: 2 of 3

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

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6400432

PROJECT NAME:

COG/GJ West #135

 Edco Co., NM
 SAMPLE IDENTIFICATION
LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD
 BTEX 8021B
 TPH 8015 MOD TX1005 (Ext. to C35)

PAH 8270

ICRA Metals Ag As Ba Cd Cr Pb Hg Se

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 8080/808

Pest. 808/808

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

223539

2/22

S

X

AH-2

1-1.5'

1

X

510

AH-2

2-2.5'

541

AH-2

3-3.5'

542

AH-2

4-4.5'

543

AH-2

5-5.5'

544

AH-2

6-6.5'

545

AH-2

7-7.5'

546

AH-2

0-1'

X

547

AH-3

1-1.5'

548

✓

✓

✓

AH-3

2-2.5'

✓

RELINQUISHED BY: (Signature)

Date:

2-24-10

Time:

15:10

RECEIVED BY: (Signature)

Date:

2/24/10

Time:

8:50

SAMPLED BY: (Print & Initial)

Date:

2/22/10

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

FEDEX

BUS

HAND DELIVERED

UPS

OTHER:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

TETRA TECH CONTACT PERSON:

Results by:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

 SF TPH > 6000 mg/kg Run deeper Samples
 Run (S) BTEX with highest TPH

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.

Order #: 10022423

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 3

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6400432

PROJECT NAME:

COG / GJ West #135

LAB I.D.
NUMBERDATE
2010

TIME

MATRIX

COMP

GRAB

Eddy Co., NM
SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHODBTX 8021B
CPH 8015 MDX TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

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 8080/808

Pest. 808/808

Chlorides

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 2/24/10
Time: 1530

RECEIVED BY: (Signature)

Date: 2/24/10
Time: 1530

SAMPLED BY: (Print & Initial)

Robert Grubbs

Date: 2/23/10
Time: 0930

RELINQUISHED BY: (Signature)

Date: _____
Time: _____

RECEIVED BY: (Signature)

Date: _____
Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX
HAND DELIVERED

AIRBILL #: _____

OTHER: _____

RELINQUISHED BY: (Signature)

Date: _____
Time: _____

RECEIVED BY: (Signature)

Date: _____
Time: _____

TETRA TECH CONTACT PERSON:

Ike Tavaraz

Results by:

RUSH Charges
Authorized:

Yes No

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

8.1c intact

REMARKS:

If TPH > 1,000 mg/kg run deeper samples
Run (3) BTX with highest TPH

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