

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

HOBBS OCD

JAN 14 2013

RECEIVED

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

PLW-51049142148

2467

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

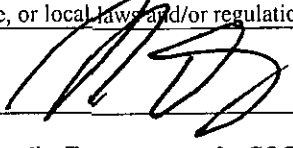
Name of Company COG Operating LLC	Contact Pat Ellis	
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 685-4332	
Facility Name MC Federal #37	Facility Type Oil Pump	
Surface Owner Federal	Mineral Owner	Lease No. 30-025-39108

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	21	17-S	32-E	870	South	1600	West	Lea

Latitude N 32.81531° Longitude W 104.77483°

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 55 bbls	Volume Recovered 45 bbls
Source of Release Wellhead	Date and Hour of Occurrence 12/13/2009	Date and Hour of Discovery 12/13/2009
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jeff Leking - OCD Larry Johnson - OCD Trisha Bad Bear - BLM	
By Whom? Pat Ellis	Date and Hour 12/14/2009 1:18 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	
If a Watercourse was Impacted, Describe Fully.* N/A		
Describe Cause of Problem and Remedial Action Taken.* The wellhead packing had blown out. We have replaced packing.		
Describe Area Affected and Cleanup Action Taken.* Tetra Tech inspected site and assessed spill area to define spill extents. Soil with elevated chloride concentrations was removed and transported to R360 for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval:	Attached ☐
Date: 11-5-12 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	Kanicia Carrillo
Address	550 W. Texas, Suite 100 Midland, TX 79701	Telephone No.	432-685-4332
Facility Name	MC Federal #37	Facility Type	Oil Pump

Surface Owner	Federal	Mineral Owner		Lease No.	30-025-39108
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	21	17S	32E	870	South	1600	West	Eddy

Latitude N32 48.926' Longitude W 103 46.495'

NATURE OF RELEASE

Type of Release- Oil	Volume of Release- 55 bbls	Volume Recovered- 45 bbls
Source of Release- Wellhead	Date and Hour of Occurrence- 12/13/09	Date and Hour of Discovery 12/13/09
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Trishia Bad Bear, Larry Johnson, Jeff Leaking	
By Whom? Pat Ellis	Date and Hour 12/14/09 1:18pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The wellhead packing had blown out. We have replaced packing.

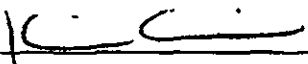
Describe Area Affected and Cleanup Action Taken.*

Most of the fluid remained on the pad. About 5 to 10 bbls rolled off the pad on the west side of the location. We scraped the pad and hauled off contaminated soil.

Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for your 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: 

Printed Name: Kanicia Carrillo

Approved by District Supervisor:

Title: Regulatory Analyst

Approval Date:

Expiration Date:

E-mail Address: kcarrillo@conchoresources.com

Conditions of Approval:

Attached ☐

Date: 12/28/09

Phone: 432-685-4332

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	MC Federal #37 (Well Site)					
Company:	COG Operating LLC					
Section, Township and Range	Unit N	Sec 21	T17S	R32E		
Lease Number:	API-30-025-39108					
County:	Lea County					
GPS:	32.81531			103.77483		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of Hwy 529 and CR 126, turn north on CR 126 and travel 1.8 miles, turn left and travel 0.6 miles to location.					

Release Data:

Date Released:	12/13/2009
Type Release:	Oil
Source of Contamination:	Wellhead
Fluid Released:	55 bbls
Fluids Recovered:	45 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
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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	1,000

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JAN 14 2013

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DEC 22 2015



TETRA TECH

November 5, 2012

HOBBS OCD

JAN 14 2013

RECEIVED

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

**Re: Closure Report for the COG Operating LLC., MC Federal #37
Well Site, Unit N, Section 21, 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 MC Federal #37 Well Site located in Unit N, Section 21, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81531°, W 103.77483°. 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 13, 2010, and released approximately fifty five (55) barrels of oil due to a malfunction on the wellhead. To alleviate the problem, COG personnel repaired the wellhead. Forty five (45) barrels of standing fluids were recovered. The spill initiated on the well pad and traveled west off the pad into the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

The United States Geological Survey (USGS) Well Reports showed one well in Section 11 with a reported depth of 88.0' below ground surface. However, the Geology and Ground Water Conditions showed depth to

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



groundwater in Sections 2, 3, 4 and 11 ranging from 60' to 175'. According to the NMOCD groundwater map, the average depth to groundwater appears to be around 90' to 100' below surface. The groundwater data is shown in Appendix B.

Regulatory

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

Soil Assessment and Analytical Results

On February 8, 2009, Tetra Tech personnel inspected and sampled the spill area, which measured approximately 10' x 100' on the pad and migrated west off the pad measuring approximately 5' x 80', 20' x 45' and 10' x 35'. A total of six (6) auger holes (AH-1 through AH-6) were installed using a stainless steel hand auger to assess the impacted soils.

Referring to Table 1, all of the submitted samples were below the TPH and BTEX RRAL. On the pad, auger holes (AH-1 and AH-2) did show a chloride impact the subsurface soils. Auger hole (AH-1) was not vertically defined, with a chloride concentration of 1,150 mg/kg at 3-3.5' below surface. Auger hole (AH-2) was defined and showed a shallow impact to the soil at 1.5' below surface. The remaining auger holes (AH-3, AH-4, AH-5 and AH-6) were installed in the pasture. Auger holes (AH-4 and AH-6) did not show a chloride impact to the soils. The areas of auger holes (AH-3 and AH-5) were not vertically defined showing chloride concentrations of 3,560 mg/kg (9-9.5') and 3,300 mg/kg (4-4.5'), respectively.



On April 22, 2010, Tetra Tech personnel supervised installation of soil borings using an air rotary drilling rig. A total of three (3) soil borings were installed in the areas of AH-1, AH-3 and AH-5 to vertically define the chloride impact. The sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The soil boring locations are shown on Figure 3.

Referring to Table 1, SB-1 (AH-1) did not show a significant chloride impact below 2.0' below surface and SB-3 (AH-5) did not show any impact to the subsurface soils.

In the area of SB-2 (AH-3), elevated concentrations were detected from 0 to 5.0' below surface and declined at 6-6.5' (416 mg/kg) and 7-7.5' (727 mg/kg). However, the chloride concentrations in the soil boring spiked at 10.0' and steadily declined to a chloride of 2,680 mg/kg at 80.0' below surface. Due to the sandy formation, the deeper samples appeared to be cross-contaminated with the uppers soils.

After reviewing the aerial photograph, the two production wells (MC Federal #37 and the MC Federal #5 are located on the same pad as shown in Figure 4. According to the well information, MC Federal #5 was installed around 2001 by Mack Energy Corporation and the reserve pit was located west of the well pad. In 2009, COG installed the MC Federal #37 and drilled the well using a closed loop system (no reserve pit).

Based on the soil boring profile and the deeper chloride impact, the area of SB-2 (AH-3) appears to be near or in a closed reserve pit and adjacent to a pipeline ROW.

Remediation and Conclusion

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site in April 2012. The final excavation depths of the soil remediation were met or exceeded as stated in the approved work plan. The areas (AH-1 and AH-2) on the pad were excavated approximately 1.5' to 3.0' below surface. The impacted area in the pasture was excavated to a depth of approximately 5.0 below surface and then capped with a 40 mil liner at approximately 4.0 below surface.

A total of 340 cubic yards of soil were excavated and hauled to proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 5. The excavations were backfilled with clean soil to grade.



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 Tavaraz
Project Manager

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

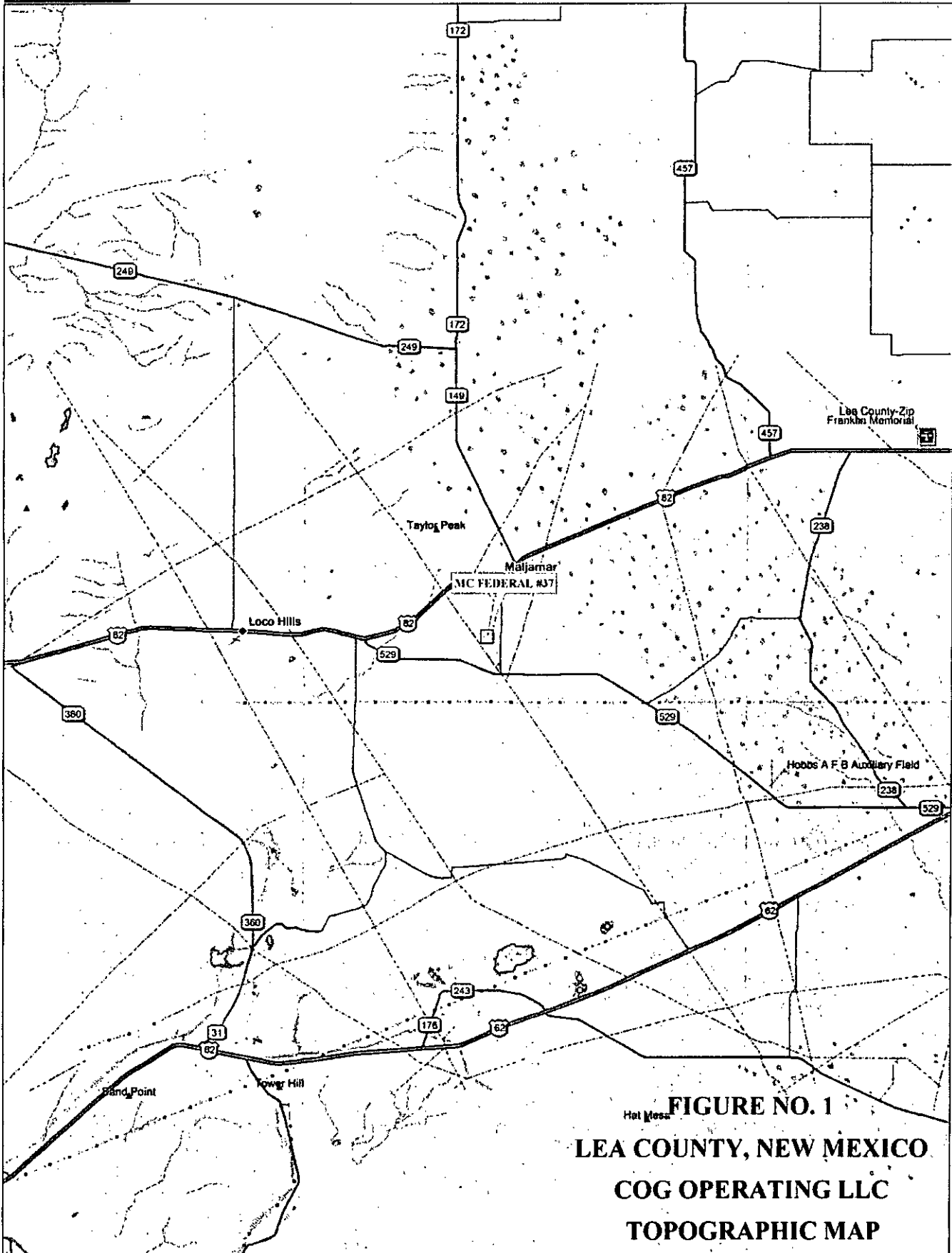
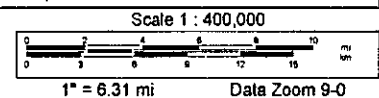


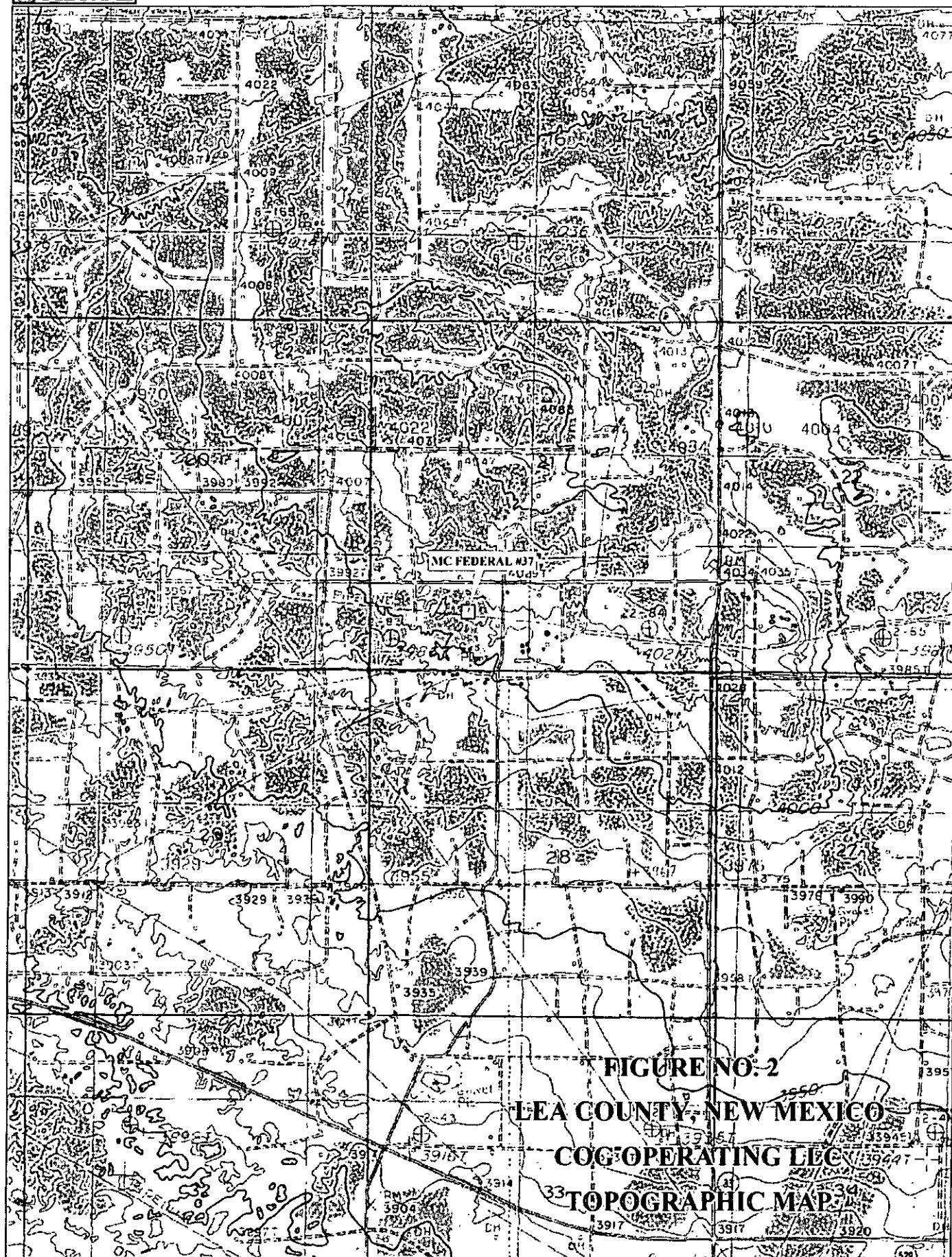
FIGURE NO. 1
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

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www.delorme.com

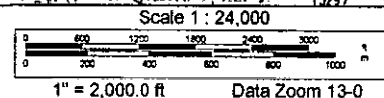


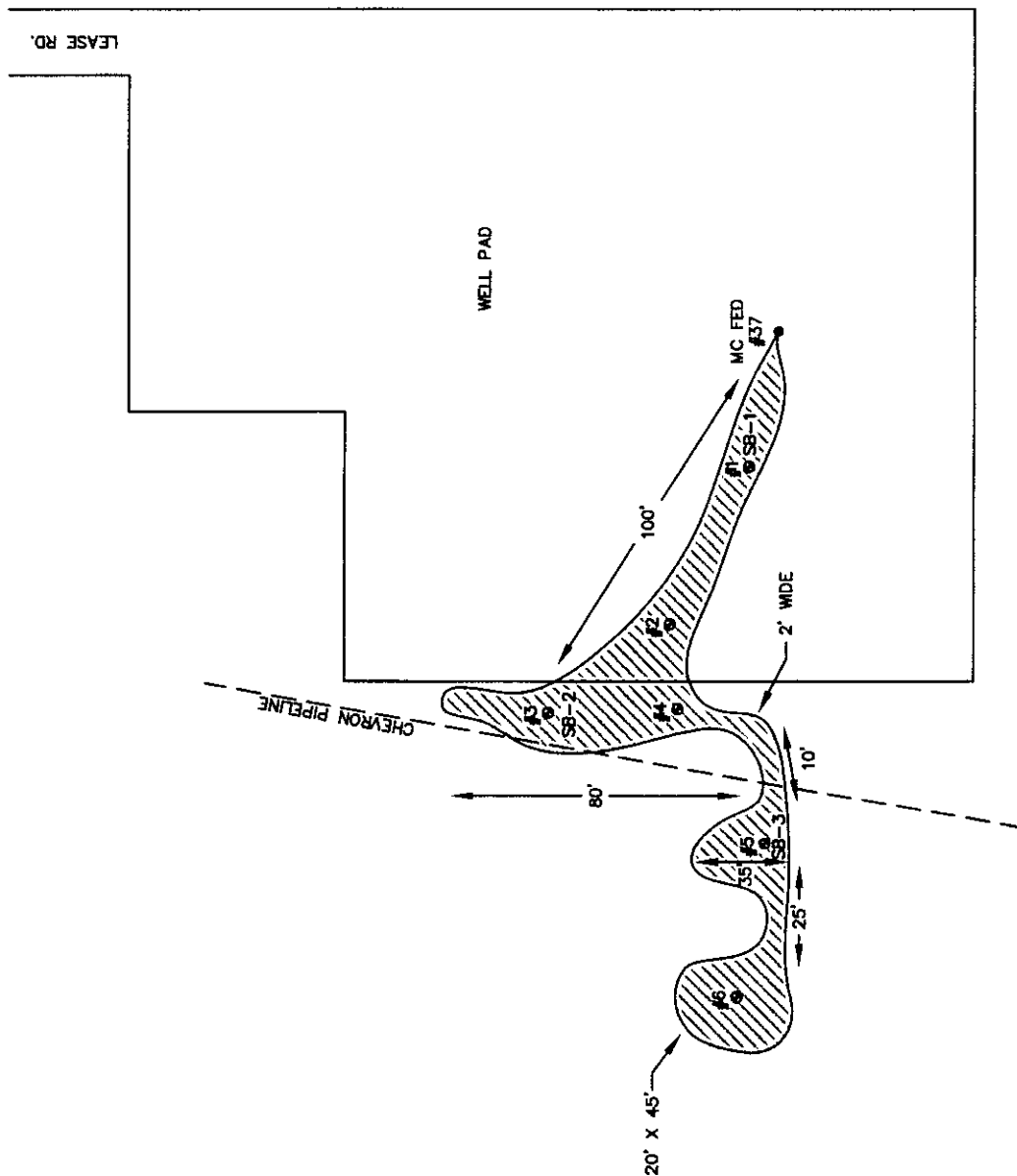


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☐ SPILL AREA
● SAMPLE LOCATIONS
● SOIL BORING LOCATIONS

NOT TO SCALE

FIGURE NO. 3

LEA COUNTY, NEW MEXICO

COG OPERATING

MC FEDERAL #37

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 2/9/10
OWN. BY: JJ
FILE: H:\COB\00003567

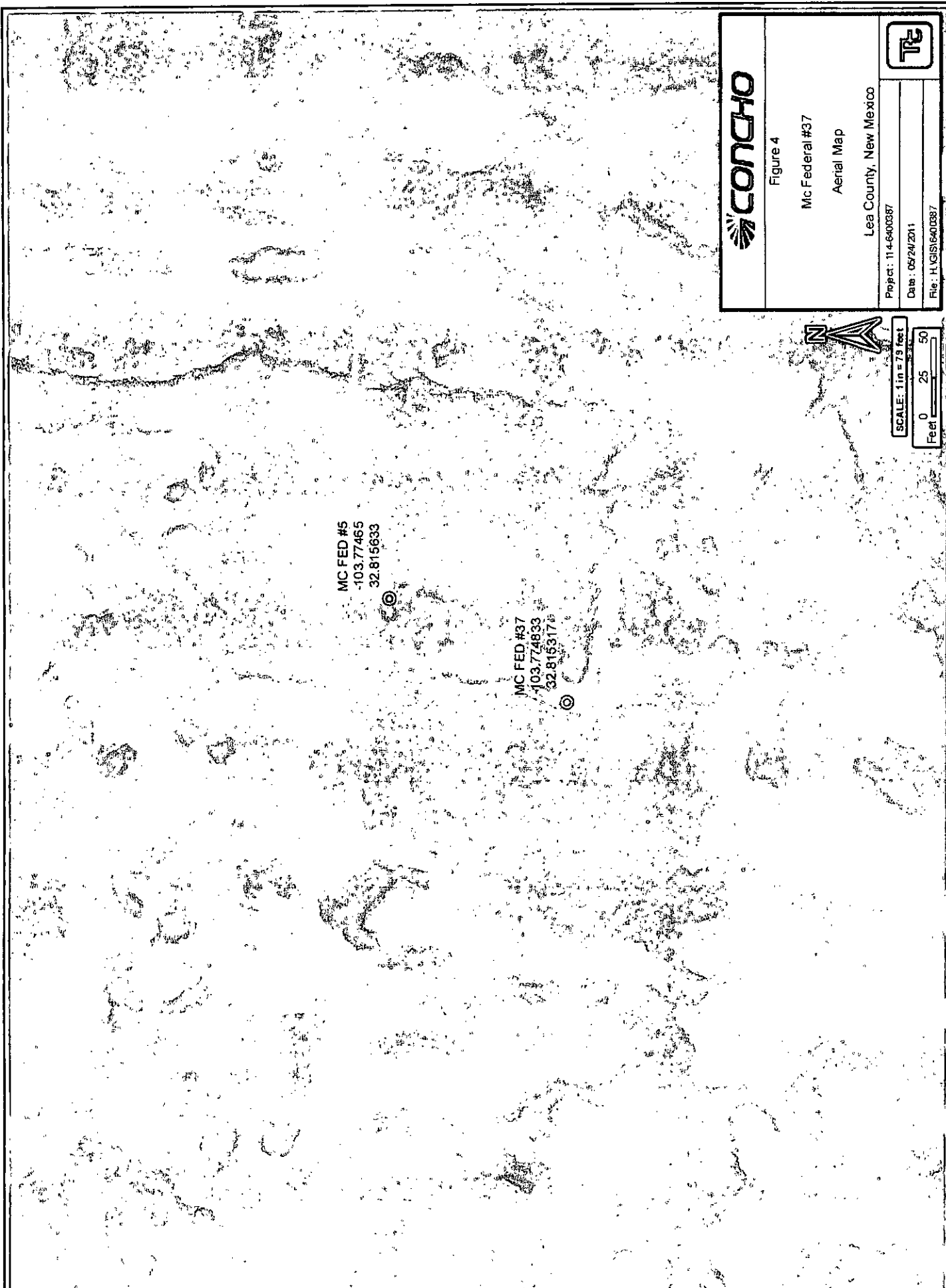


Figure 4

Mc Federal #37

Aerial Map

Lea County, New Mexico

Project: 11-4-600387

Date: 05/24/2011

File: H:\GIS\6400387

SCALE: 1 in = 79 feet

0 25 50
Feet

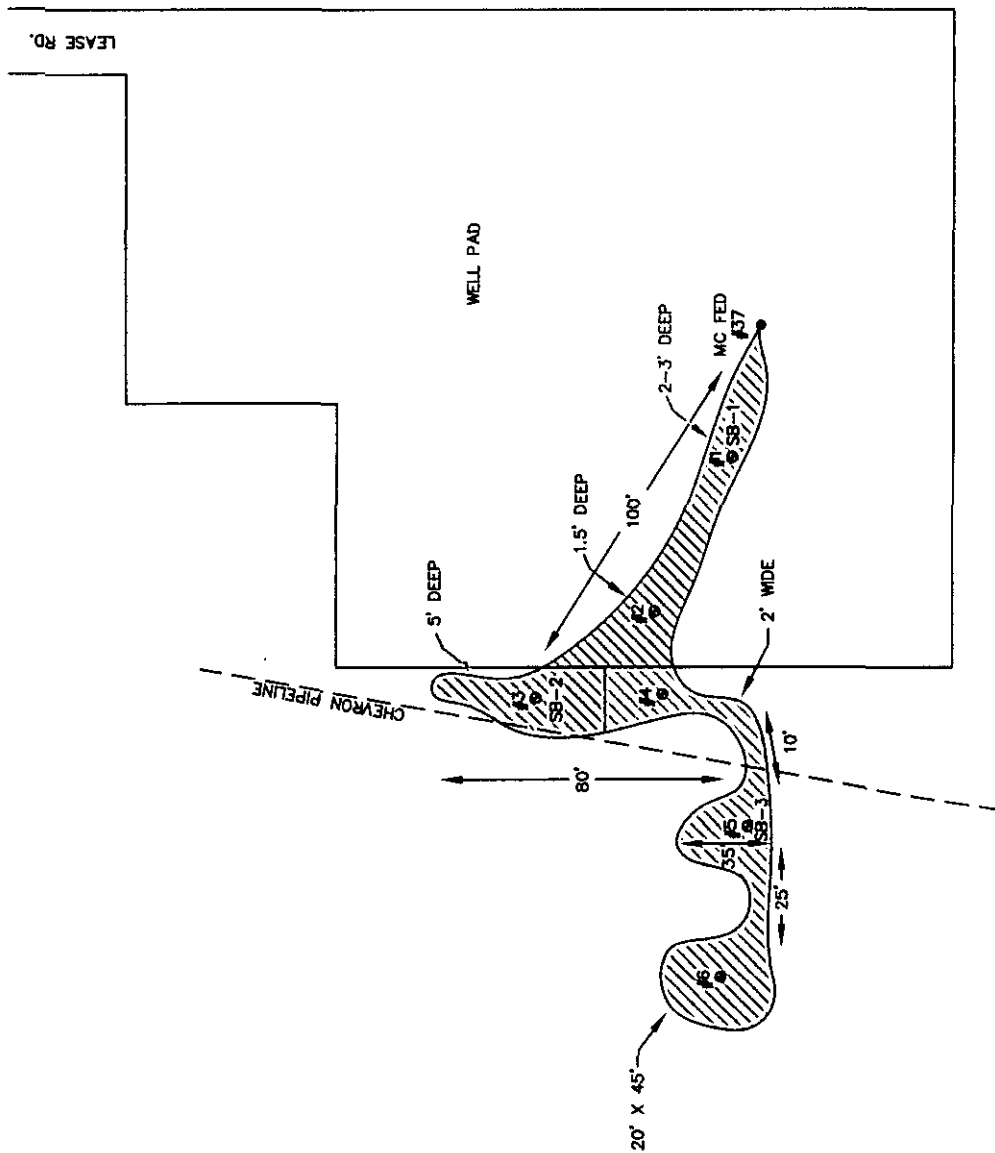


FIGURE NO. 5

LEA COUNTY, NEW MEXICO

COG OPERATING

MC FEDERAL #37

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 5/24/2011
DRAWN BY: JM
FILE: 1410064400037

NOT TO SCALE

- ☒ SPILL AREA
- SAMPLE LOCATIONS
- SOIL BORING LOCATIONS

Table 1

[illegible]

LEA COUNTY, NEW MEXICO

OFF WELLPAD (PASTURE AREA)

Table 1
COG Operating LLC.
MC Federal #37
LEA COUNTY, NEW MEXICO

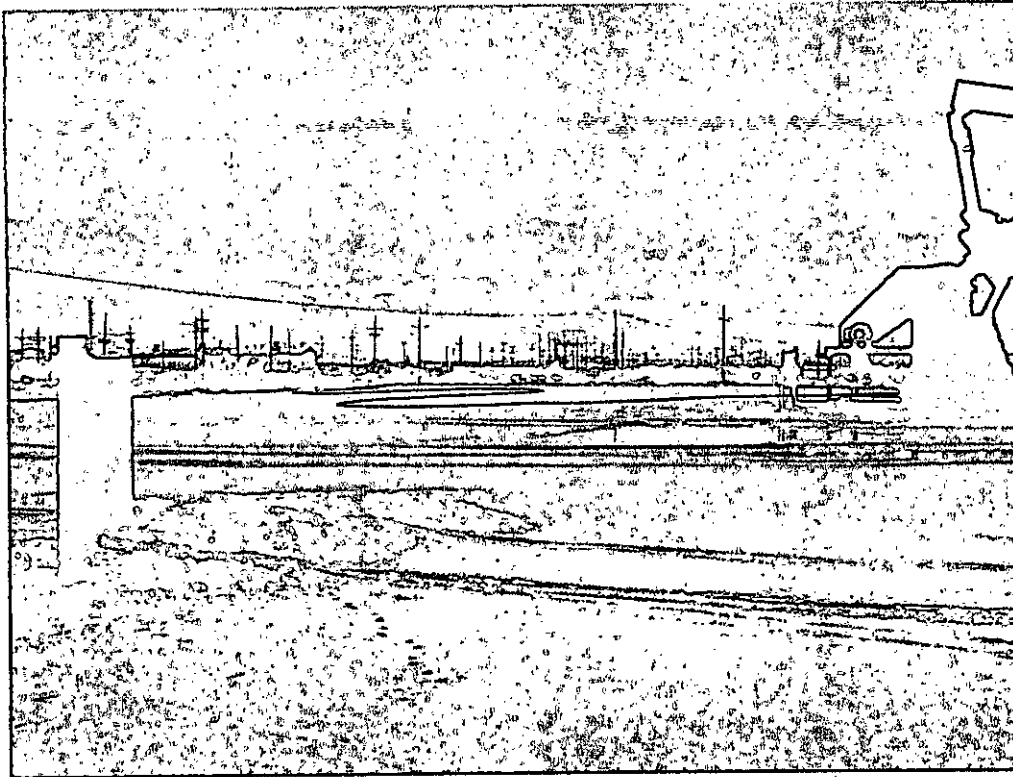
Sample ID	Date Sampled	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-4	2/8/2010	0-1'		X		<50.0	<1.00	<50.0	--	--	--	--	<200
		1-1.5'		X		--	--	--	--	--	--	--	<200
		2-2.5'		X		--	--	--	--	--	--	--	<200
		3-3.5'		X		--	--	--	--	--	--	--	<200
AH-5	2/8/2010	0-1'		X		<50.0	<1.00	<50.0	<0.100	2.11	4.82	8.17	<200
		1-1.5'		X		351	<1.00	351	--	--	--	--	<200
		2-2.5'		X		--	--	--	--	--	--	--	320
		3-3.5'		X		--	--	--	--	--	--	--	540
		4-4.5'		X		--	--	--	--	--	--	--	3,300
SB-3	4/22/2010	3'		X		--	--	--	--	--	--	--	<200
		5'		X		--	--	--	--	--	--	--	<200
		7'		X		--	--	--	--	--	--	--	466
		10'		X		--	--	--	--	--	--	--	<200
		15'		X		--	--	--	--	--	--	--	<200
AH-6	2/8/2010	0-1'		X		637	80.2	717.2	<0.0100	0.171	0.882	1.72	<200
		1-1.5'		X		--	--	--	--	--	--	--	<200
		2-2.5'		X		--	--	--	--	--	--	--	<200
		3-3.5'		X		--	--	--	--	--	--	--	<200
		4-4.5'		X		--	--	--	--	--	--	--	<200

BEB Below Excavation Bottom
 (--) Not Analyzed
 ☐ Excavation Depth
 — Liner (40 mil)

COG Operating LLC
MC Federal #37
Lea County, New Mexico



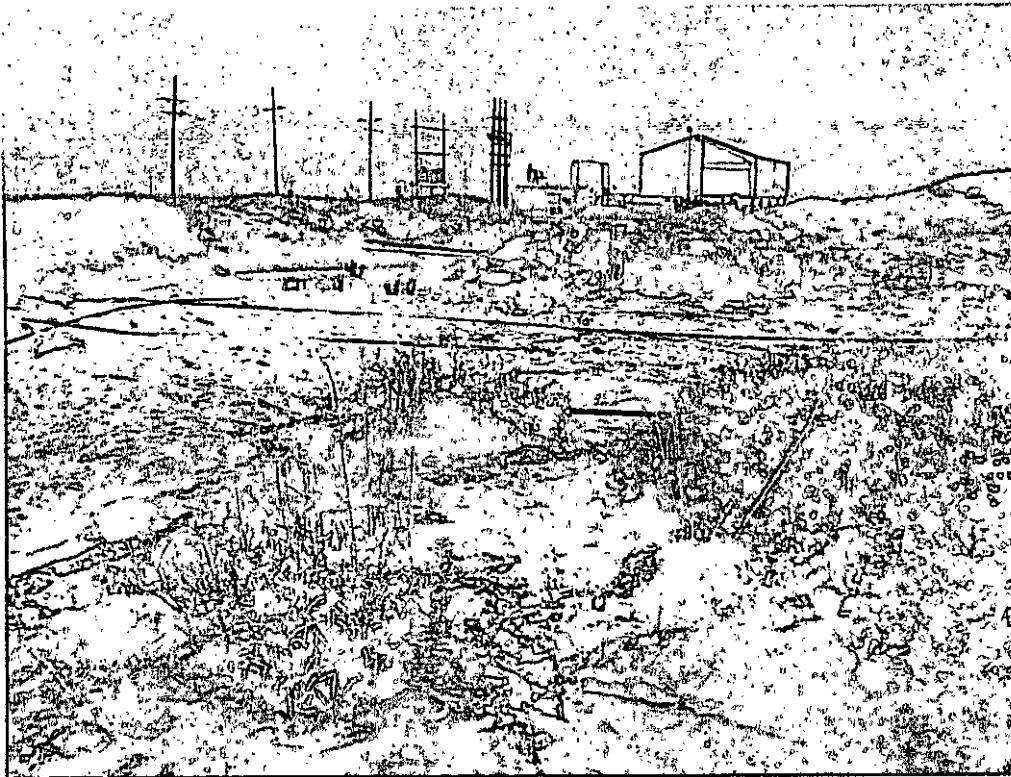
TETRA TECH



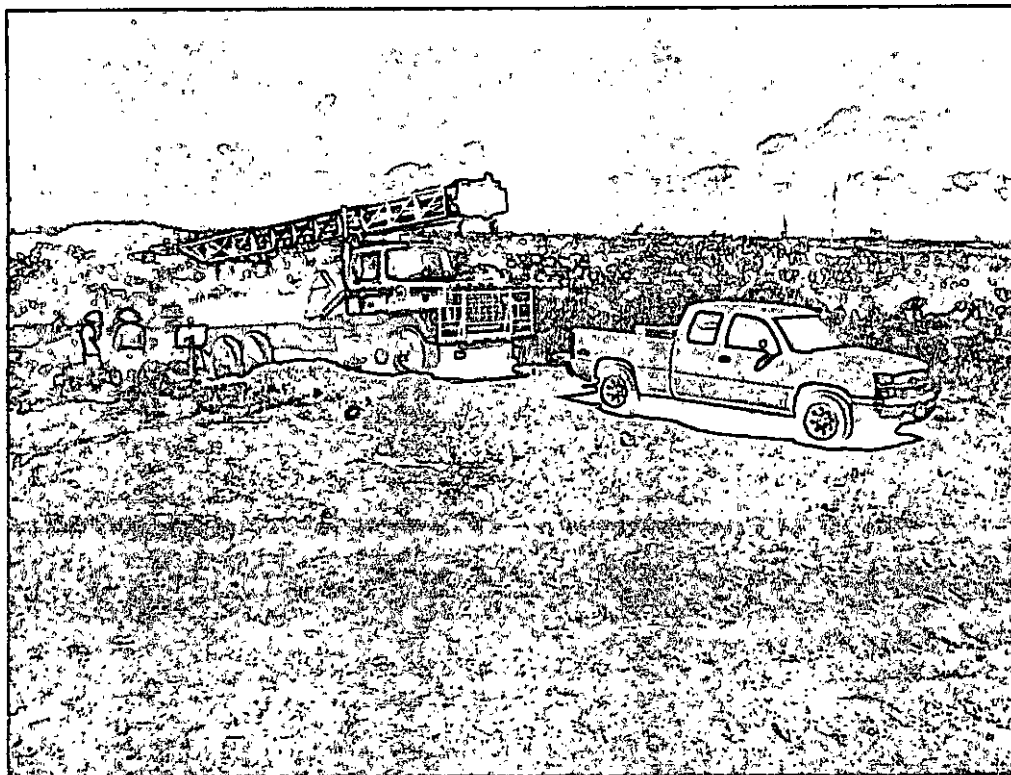
View East – AH-1, AH-2



View West – AH-3, AH-4



View West – AH-5, AH-6

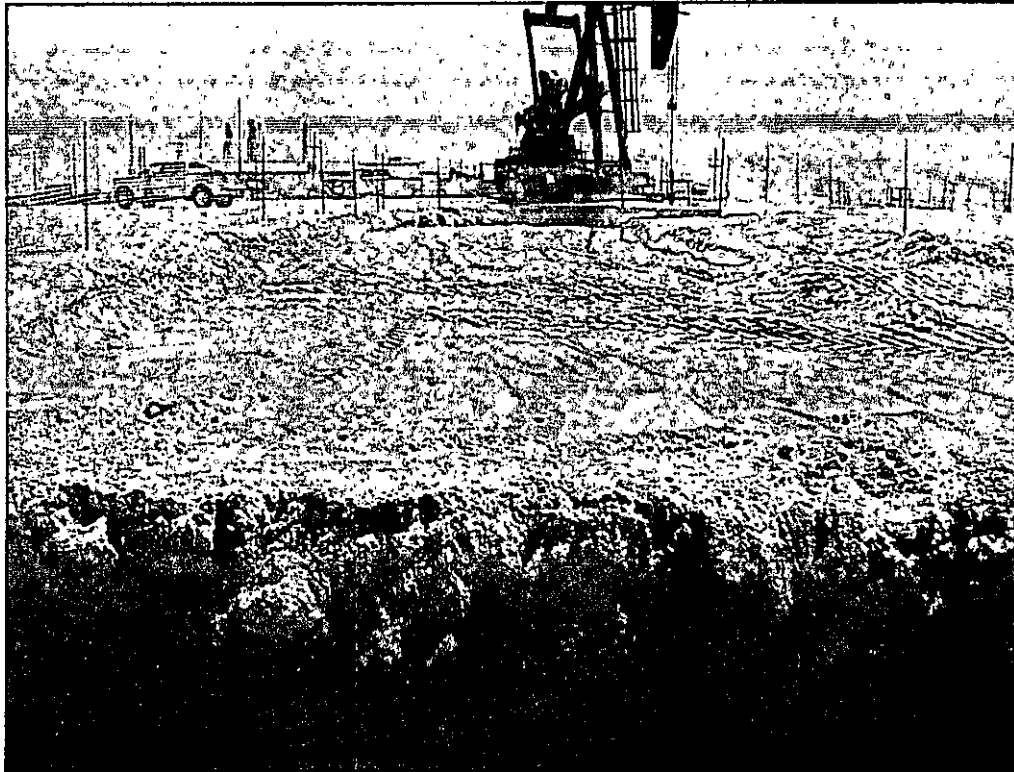


Installing SB in low lying pasture area off of well pad location

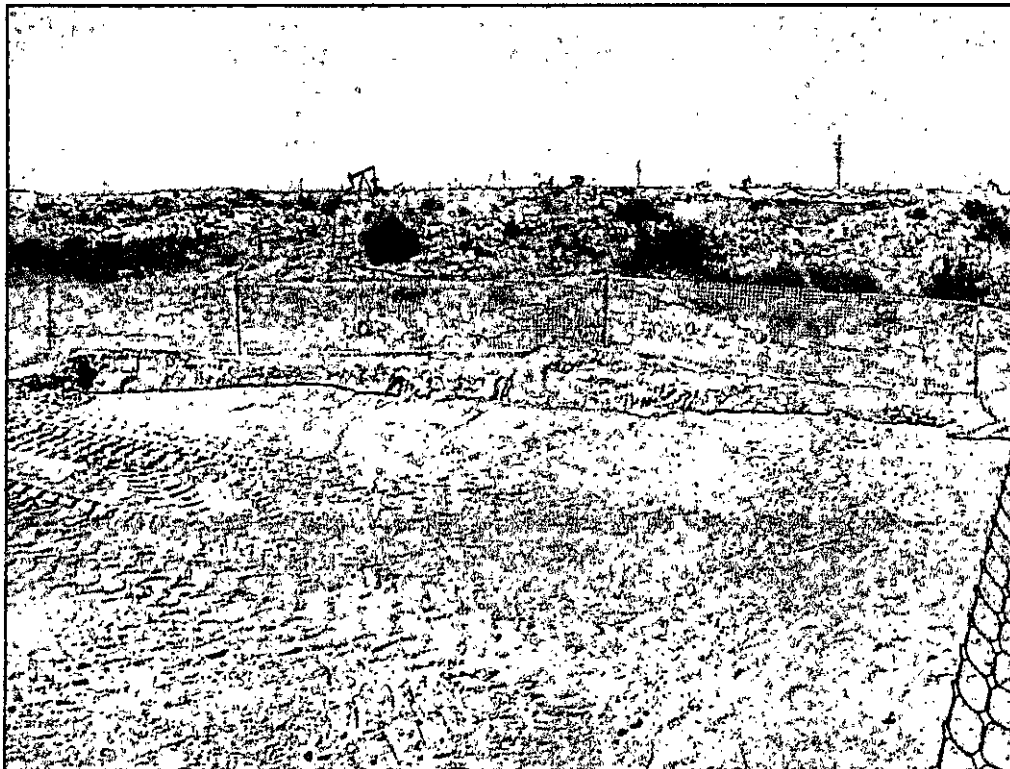
COG Operating LLC
MC Federal #37
Lea County, New Mexico



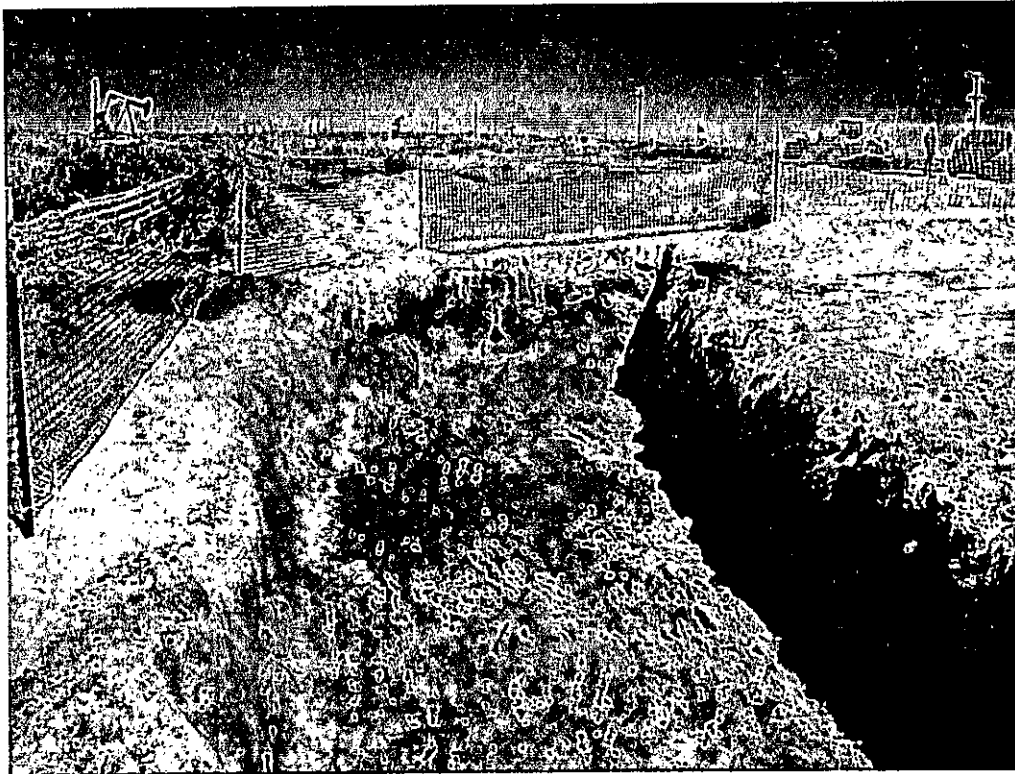
TETRA TECH



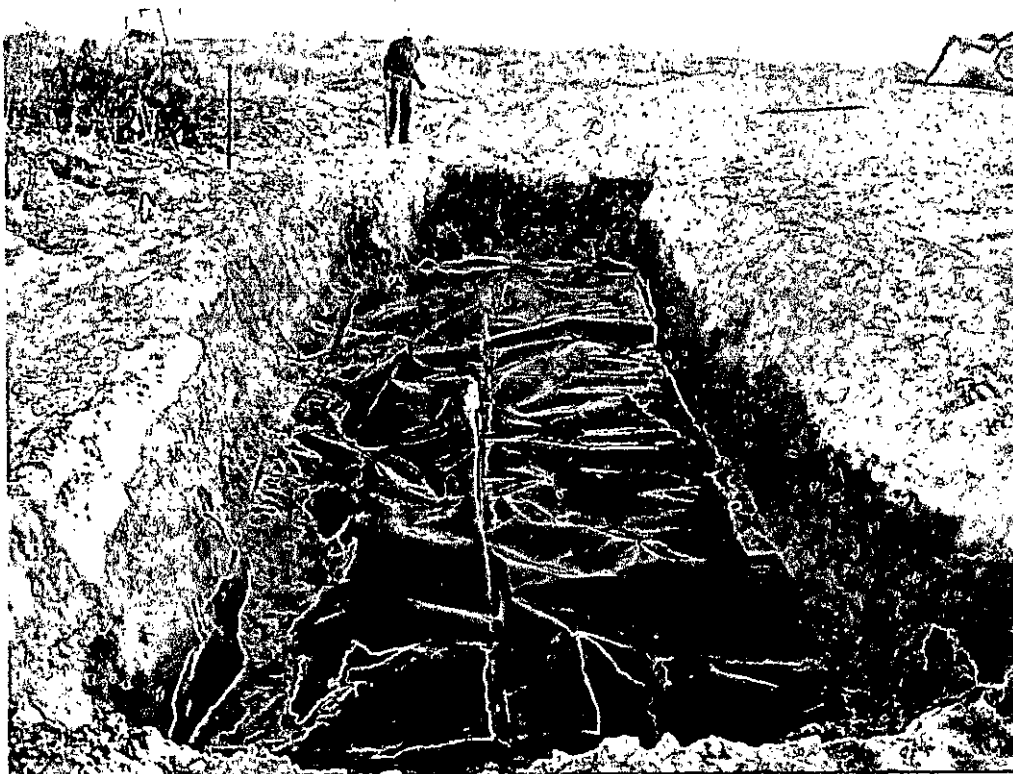
View East – Well pad location excavated near AH-1 and AH-2



View west – Well pad excavated looking at deeper excavation on edge of location near AH-3



View North – Area of AH-3 final excavation depth



View North – Area of AH-3 at 4.0' bgs with liner installed

Water Well Data
Average Depth to Groundwater (ft)
COG - MC Federal #37
Eddy 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

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

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

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

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

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 Lea County, NM
-  NMOCD - Groundwater Data

Summary Report

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

Report Date: February 19, 2010

Work Order: 10021203



Project Location: Lea Co., NM
Project Name: COG/MC Federal #37
Project Number: 114-6400387

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
222150	AH-1 0-1'	soil	2010-02-08	00:00	2010-02-11
222151	AH-1 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222152	AH-1 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222153	AH-1 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222154	AH-2 0-1'	soil	2010-02-08	00:00	2010-02-11
222155	AH-2 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222156	AH-2 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222157	AH-2 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222158	AH-2 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222159	AH-3 0-1'	soil	2010-02-08	00:00	2010-02-11
222160	AH-3 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222161	AH-3 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222162	AH-3 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222163	AH-3 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222164	AH-3 5'-5.5'	soil	2010-02-08	00:00	2010-02-11
222165	AH-3 6'-6.5'	soil	2010-02-08	00:00	2010-02-11
222166	AH-3 7'-7.5'	soil	2010-02-08	00:00	2010-02-11
222167	AH-3 8'-8.5'	soil	2010-02-08	00:00	2010-02-11
222168	AH-3 9'-9.5'	soil	2010-02-08	00:00	2010-02-11
222169	AH-4 0-1'	soil	2010-02-08	00:00	2010-02-11
222170	AH-4 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222171	AH-4 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222172	AH-4 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222173	AH-5 0-1'	soil	2010-02-08	00:00	2010-02-11
222174	AH-5 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222175	AH-5 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222176	AH-5 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222177	AH-5 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222178	AH-6 0-1'	soil	2010-02-08	00:00	2010-02-11
222179	AH-6 1'-1.5'	soil	2010-02-08	00:00	2010-02-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
222180	AH-6 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222181	AH-6 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222182	AH-6 4'-4.5'	soil	2010-02-08	00:00	2010-02-11

Sample - Field Code	BTX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
222150 - AH-1 0-1'					<50.0	<1.00
222154 - AH-2 0-1'					<50.0	<1.00
222159 - AH-3 0-1'	<0.0100	<0.0100	0.0684	0.177	294	36.1
222169 - AH-4 0-1'					<50.0	<1.00
222173 - AH-5 0-1'	<0.100	2.11	4.82	8.17	5510	419
222174 - AH-5 1'-1.5'					<50.0	<1.00
222175 - AH-5 2'-2.5'					351	<1.00
222178 - AH-6 0-1'	<0.0100	0.171	0.882	1.72	637	80.2

Sample: 222150 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2740	mg/Kg	4.00

Sample: 222151 - AH-1 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		397	mg/Kg	4.00

Sample: 222152 - AH-1 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		437	mg/Kg	4.00

Sample: 222153 - AH-1 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		1150	mg/Kg	4.00

Sample: 222154 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		5980	mg/Kg	4.00

Sample: 222155 - AH-2 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		1890	mg/Kg	4.00

Sample: 222156 - AH-2 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		390	mg/Kg	4.00

Sample: 222157 - AH-2 3'-3.5'

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

Sample: 222158 - AH-2 4'-4.5'

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

Sample: 222159 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		1380	mg/Kg	4.00

Sample: 222160 - AH-3 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		592	mg/Kg	4.00

Sample: 222161 - AH-3 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		2400	mg/Kg	4.00

Sample: 222162 - AH-3 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		4070	mg/Kg	4.00

Sample: 222163 - AH-3 4'-4.5'

Param	Flag	Result	Units	RL
Chloride		5700	mg/Kg	4.00

Sample: 222164 - AH-3 5'-5.5'

Param	Flag	Result	Units	RL
Chloride		5290	mg/Kg	4.00

Sample: 222165 - AH-3 6'-6.5'

Param	Flag	Result	Units	RL
Chloride		416	mg/Kg	4.00

Sample: 222166 - AH-3 7'-7.5'

Param	Flag	Result	Units	RL
Chloride		727	mg/Kg	4.00

Sample: 222167 - AH-3 8'-8.5'

Param	Flag	Result	Units	RL
Chloride		1120	mg/Kg	4.00

Sample: 222168 - AH-3 9'-9.5'

Param	Flag	Result	Units	RL
Chloride		3560	mg/Kg	4.00

Sample: 222169 - AH-4 0-1'

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

Sample: 222170 - AH-4 1'-1.5'

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

Sample: 222171 - AH-4 2'-2.5'

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

Sample: 222172 - AH-4 3'-3.5'

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

Sample: 222173 - AH-5 0-1'

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

Sample: 222174 - AH-5 1'-1.5'

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

Sample: 222175 - AH-5 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		320	mg/Kg	4.00

Sample: 222176 - AH-5 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		540	mg/Kg	4.00

Sample: 222177 - AH-5 4'-4.5'

Param	Flag	Result	Units	RL
Chloride		3300	mg/Kg	4.00

Sample: 222178 - AH-6 0-1'

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

Sample: 222179 - AH-6 1'-1.5'

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

Sample: 222180 - AH-6 2'-2.5'

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

Sample: 222181 - AH-6 3'-3.5'

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

Sample: 222182 - AH-6 4'-4.5'

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



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Certifications

WBENC: 237019 HUB: 1752439743100-86536 DBE: VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX El Paso: T104704221-08-TX Midland: T104704392-08-TX
LELAP-02003 LELAP-02002
Kansas E-10317

Analytical and Quality Control Report

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

Report Date: February 19, 2010

Work Order: 10021203



Project Location: Lea Co., NM
Project Name: COG/MC Federal #37
Project Number: 114-6400387

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
222150	AH-1 0-1'	soil	2010-02-08	00:00	2010-02-11
222151	AH-1 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222152	AH-1 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222153	AH-1 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222154	AH-2 0-1'	soil	2010-02-08	00:00	2010-02-11
222155	AH-2 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222156	AH-2 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222157	AH-2 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222158	AH-2 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222159	AH-3 0-1'	soil	2010-02-08	00:00	2010-02-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
222160	AH-3 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222161	AH-3 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222162	AH-3 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222163	AH-3 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222164	AH-3 5'-5.5'	soil	2010-02-08	00:00	2010-02-11
222165	AH-3 6'-6.5'	soil	2010-02-08	00:00	2010-02-11
222166	AH-3 7'-7.5'	soil	2010-02-08	00:00	2010-02-11
222167	AH-3 8'-8.5'	soil	2010-02-08	00:00	2010-02-11
222168	AH-3 9'-9.5'	soil	2010-02-08	00:00	2010-02-11
222169	AH-4 0-1'	soil	2010-02-08	00:00	2010-02-11
222170	AH-4 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222171	AH-4 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222172	AH-4 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222173	AH-5 0-1'	soil	2010-02-08	00:00	2010-02-11
222174	AH-5 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222175	AH-5 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222176	AH-5 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222177	AH-5 4'-4.5'	soil	2010-02-08	00:00	2010-02-11
222178	AH-6 0-1'	soil	2010-02-08	00:00	2010-02-11
222179	AH-6 1'-1.5'	soil	2010-02-08	00:00	2010-02-11
222180	AH-6 2'-2.5'	soil	2010-02-08	00:00	2010-02-11
222181	AH-6 3'-3.5'	soil	2010-02-08	00:00	2010-02-11
222182	AH-6 4'-4.5'	soil	2010-02-08	00:00	2010-02-11

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 34 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/MC Federal #37 were received by TraceAnalysis, Inc. on 2010-02-11 and assigned to work order 10021203. Samples for work order 10021203 were received intact at a temperature of 4.0 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	57812	2010-02-16 at 15:00	67583	2010-02-16 at 12:07
Chloride (Titration)	SM 4500-Cl B	57782	2010-02-16 at 09:25	67548	2010-02-16 at 13:55
Chloride (Titration)	SM 4500-Cl B	57822	2010-02-16 at 12:20	67601	2010-02-17 at 15:28
Chloride (Titration)	SM 4500-Cl B	57823	2010-02-16 at 12:21	67602	2010-02-17 at 15:29
Chloride (Titration)	SM 4500-Cl B	57824	2010-02-16 at 12:22	67603	2010-02-17 at 15:30
TPH DRO - NEW	Mod. 8015B	57769	2010-02-15 at 10:19	67532	2010-02-15 at 10:19
TPH DRO - NEW	Mod. 8015B	57836	2010-02-17 at 15:18	67614	2010-02-17 at 15:18
TPH GRO	S 8015B	57812	2010-02-16 at 15:00	67584	2010-02-16 at 12:35
TPH GRO	S 8015B	57833	2010-02-17 at 15:30	67611	2010-02-17 at 07:49

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 10021203 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 19, 2010
114-6400387

Work Order: 10021203
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Lea Co., NM

Analytical Report

Sample: 222150 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-16	Analyzed By:	AR
QC Batch:	67548	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57782				

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

Sample: 222150 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-15	Analyzed By:	kg
QC Batch:	67532	Sample Preparation:	2010-02-15	Prepared By:	kg
Prep Batch:	57769				

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		113	mg/Kg	1	100	113	70 - 130

Sample: 222150 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-02-16	Analyzed By:	AG
QC Batch:	67584	Sample Preparation:	2010-02-16	Prepared By:	AG
Prep Batch:	57812				

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)		1.85	mg/Kg	1	2.00	92	65.3 - 145
4-Bromofluorobenzene (4-BFB)		1.80	mg/Kg	1	2.00	90	61.7 - 131.1

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Sample: 222151 - AH-1 1'-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-16	Analyzed By:	AR
QC Batch:	67548	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57782				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		397	mg/Kg	50	4.00

Sample: 222152 - AH-1 2'-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-16	Analyzed By:	AR
QC Batch:	67548	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57782				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		437	mg/Kg	50	4.00

Sample: 222153 - AH-1 3'-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-16	Analyzed By:	AR
QC Batch:	67548	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57782				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1150	mg/Kg	50	4.00

Sample: 222154 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67601	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57822				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5980	mg/Kg	100	4.00

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Sample: 222154 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67532
Prep Batch: 57769

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-15
Sample Preparation: 2010-02-15

Prep Method: N/A
Analyzed By: kg
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		108	mg/Kg	1	100	108	70 - 130

Sample: 222154 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67584
Prep Batch: 57812

Analytical Method: S 8015B
Date Analyzed: 2010-02-16
Sample Preparation: 2010-02-16

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)		1.92	mg/Kg	1	2.00	96	65.3 - 145
4-Bromofluorobenzene (4-BFB)		1.86	mg/Kg	1	2.00	93	61.7 - 131.1

Sample: 222155 - AH-2 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67601
Prep Batch: 57822

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1890	mg/Kg	50	4.00

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Sample: 222156 - AH-2 2'-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67601	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57822				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		390	mg/Kg	50	4.00

Sample: 222157 - AH-2 3'-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67601	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57822				

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

Sample: 222158 - AH-2 4'-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67601	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57822				

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

Sample: 222159 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-02-16	Analyzed By:	AG
QC Batch:	67583	Sample Preparation:	2010-02-16	Prepared By:	AG
Prep Batch:	57812				

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

continued ...

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sample 222159 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Ethylbenzene		0.0684	mg/Kg	1	0.0100
Xylene		0.177	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.97	mg/Kg	1	2.00	98	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.10	mg/Kg	1	2.00	105	43.1 - 158.4

Sample: 222159 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67601 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57822 Sample Preparation: 2010-02-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1380	mg/Kg	50	4.00

Sample: 222159 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: Mod. 8015B Prep Method: N/A
QC Batch: 67532 Date Analyzed: 2010-02-15 Analyzed By: kg
Prep Batch: 57769 Sample Preparation: 2010-02-15 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		294	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		129	mg/Kg	1	100	129	70 - 130

Sample: 222159 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035
QC Batch: 67584 Date Analyzed: 2010-02-16 Analyzed By: AG
Prep Batch: 57812 Sample Preparation: 2010-02-16 Prepared By: AG

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Parameter	Flag	RL Result	Units	Dilution	RL
GRO		36.1	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.09	mg/Kg	1	2.00	104	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.21	mg/Kg	1	2.00	110	61.7 - 131.1

Sample: 222160 - AH-3 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67601 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57822 Sample Preparation: 2010-02-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		592	mg/Kg	50	4.00

Sample: 222161 - AH-3 2'-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67601 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57822 Sample Preparation: 2010-02-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2400	mg/Kg	100	4.00

Sample: 222162 - AH-3 3'-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 67601 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57822 Sample Preparation: 2010-02-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4070	mg/Kg	100	4.00

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Sample: 222163 - AH-3 4'-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67601	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57822				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5700	mg/Kg	100	4.00

Sample: 222164 - AH-3 5'-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5290	mg/Kg	100	4.00

Sample: 222165 - AH-3 6'-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		416	mg/Kg	50	4.00

Sample: 222166 - AH-3 7'-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		727	mg/Kg	50	4.00

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Sample: 222167 - AH-3 8'-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1120	mg/Kg	50	4.00

Sample: 222168 - AH-3 9'-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3560	mg/Kg	100	4.00

Sample: 222169 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

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

Sample: 222169 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-02-15	Analyzed By:	kg
QC Batch:	67532	Sample Preparation:	2010-02-15	Prepared By:	kg
Prep Batch:	57769				

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

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

Sample: 222169 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67584
Prep Batch: 57812

Analytical Method: S 8015B
Date Analyzed: 2010-02-16
Sample Preparation: 2010-02-16

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)		2.25	mg/Kg	1	2.00	112	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.26	mg/Kg	1	2.00	113	61.7 - 131.1

Sample: 222170 - AH-4 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67602
Prep Batch: 57823

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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: 222171 - AH-4 2'-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67602
Prep Batch: 57823

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

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

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Sample: 222172 - AH-4 3'-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

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

Sample: 222173 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-02-16	Analyzed By:	AG
QC Batch:	67583	Sample Preparation:	2010-02-16	Prepared By:	AG
Prep Batch:	57812				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.100	mg/Kg	10	0.0100
Toluene		2.11	mg/Kg	10	0.0100
Ethylbenzene		4.82	mg/Kg	10	0.0100
Xylene		8.17	mg/Kg	10	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.22	mg/Kg	10	10.0	92	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		12.2	mg/Kg	10	10.0	122	43.1 - 158.4

Sample: 222173 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67602	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57823				

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

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Sample: 222173 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67532
Prep Batch: 57769

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-15
Sample Preparation: 2010-02-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		5510	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	1	205	mg/Kg	1	100	205	70 - 130

Sample: 222173 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67584
Prep Batch: 57812

Analytical Method: S 8015B
Date Analyzed: 2010-02-16
Sample Preparation: 2010-02-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		419	mg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.84	mg/Kg	10	10.0	98	65.3 - 145
4-Bromofluorobenzene (4-BFB)	2	13.3	mg/Kg	10	10.0	133	61.7 - 131.1

Sample: 222174 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67603
Prep Batch: 57824

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

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

¹ High surrogate recovery due to peak interference.

² High surrogate recovery due to peak interference.

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Sample: 222174 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67614
Prep Batch: 57836

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-17

Prep Method: N/A
Analyzed By: kg
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		121	mg/Kg	1	100	121	70 - 130

Sample: 222174 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67611
Prep Batch: 57833

Analytical Method: S 8015B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-17

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)		2.30	mg/Kg	1	2.00	115	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.26	mg/Kg	1	2.00	113	61.7 - 131.1

Sample: 222175 - AH-5 2'-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67603
Prep Batch: 57824

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		320	mg/Kg	50	4.00

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Sample: 222175 - AH-5 2'-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67614
Prep Batch: 57836

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-17

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		351	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	3	137	mg/Kg	1	100	137	70 - 130

Sample: 222175 - AH-5 2'-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67611
Prep Batch: 57833

Analytical Method: S 8015B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-17

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)		2.25	mg/Kg	1	2.00	112	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.18	mg/Kg	1	2.00	109	61.7 - 131.1

Sample: 222176 - AH-5 3'-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67603
Prep Batch: 57824

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		540	mg/Kg	50	4.00

³High surrogate recovery due to peak interference.

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Sample: 222177 - AH-5 4'-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67603	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57824				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3300	mg/Kg	100	4.00

Sample: 222178 - AH-6 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-02-16	Analyzed By:	AG
QC Batch:	67583	Sample Preparation:	2010-02-16	Prepared By:	AG
Prep Batch:	57812				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		0.171	mg/Kg	1	0.0100
Ethylbenzene		0.882	mg/Kg	1	0.0100
Xylene		1.72	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.85	mg/Kg	1	2.00	92	64.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.43	mg/Kg	1	2.00	122	43.1 - 158.4

Sample: 222178 - AH-6 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67603	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57824				

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

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Sample: 222178 - AH-6 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 67532
Prep Batch: 57769

Analytical Method: Mod. 8015B
Date Analyzed: 2010-02-15
Sample Preparation: 2010-02-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		637	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	4	162	mg/Kg	1	100	162	70 - 130

Sample: 222178 - AH-6 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 67584
Prep Batch: 57812

Analytical Method: S 8015B
Date Analyzed: 2010-02-16
Sample Preparation: 2010-02-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		80.2	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.97	mg/Kg	1	2.00	98	65.3 - 145
4-Bromofluorobenzene (4-BFB)		2.46	mg/Kg	1	2.00	123	61.7 - 131.1

Sample: 222179 - AH-6 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 67603
Prep Batch: 57824

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-02-17
Sample Preparation: 2010-02-16

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

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

⁴High surrogate recovery due to peak interference.

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Sample: 222180 - AH-6 2'-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67603	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57824				

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

Sample: 222181 - AH-6 3'-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67603	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57824				

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

Sample: 222182 - AH-6 4'-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-02-17	Analyzed By:	AR
QC Batch:	67603	Sample Preparation:	2010-02-16	Prepared By:	AR
Prep Batch:	57824				

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

Method Blank (1) QC Batch: 67532

QC Batch:	67532	Date Analyzed:	2010-02-15	Analyzed By:	kg
Prep Batch:	57769	QC Preparation:	2010-02-15	Prepared By:	kg

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

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		127	mg/Kg	1	100	127	70 - 130

Method Blank (1) QC Batch: 67548

QC Batch: 67548 Date Analyzed: 2010-02-16 Analyzed By: AR
Prep Batch: 57782 QC Preparation: 2010-02-16 Prepared By: AR

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

Method Blank (1) QC Batch: 67583

QC Batch: 67583 Date Analyzed: 2010-02-16 Analyzed By: AG
Prep Batch: 57812 QC Preparation: 2010-02-16 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)		2.08	mg/Kg	1	2.00	104	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.95	mg/Kg	1	2.00	98	43.9 - 141.9

Method Blank (1) QC Batch: 67584

QC Batch: 67584 Date Analyzed: 2010-02-16 Analyzed By: AG
Prep Batch: 57812 QC Preparation: 2010-02-16 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)		1.98	mg/Kg	1	2.00	99	62 - 120.5

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Method Blank (1) QC Batch: 67601

QC Batch: 67601 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57822 QC Preparation: 2010-02-16 Prepared By: AR

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

Method Blank (1) QC Batch: 67602

QC Batch: 67602 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57823 QC Preparation: 2010-02-16 Prepared By: AR

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

Method Blank (1) QC Batch: 67603

QC Batch: 67603 Date Analyzed: 2010-02-17 Analyzed By: AR
Prep Batch: 57824 QC Preparation: 2010-02-16 Prepared By: AR

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

Method Blank (1) QC Batch: 67611

QC Batch: 67611 Date Analyzed: 2010-02-17 Analyzed By: AG
Prep Batch: 57833 QC Preparation: 2010-02-17 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)		2.19	mg/Kg	1	2.00	110	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.95	mg/Kg	1	2.00	98	62 - 120.5

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Method Blank (1) QC Batch: 67614

QC Batch: 67614
Prep Batch: 57836

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-17

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		120	mg/Kg	1	100	120	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 67532
Prep Batch: 57769

Date Analyzed: 2010-02-15
QC Preparation: 2010-02-15

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	253	mg/Kg	1	250	<5.86	101	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	261	mg/Kg	1	250	<5.86	104	57.4 - 133.4	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	107	108	mg/Kg	1	100	107	108	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 67548
Prep Batch: 57782

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.4	mg/Kg	1	100	<2.18	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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control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.7	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: 67583
Prep Batch: 57812

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.77	mg/Kg	1	2.00	<0.00410	88	75.4 - 115.7
Toluene	1.96	mg/Kg	1	2.00	<0.00310	98	78.4 - 113.6
Ethylbenzene	2.04	mg/Kg	1	2.00	<0.00240	102	76 - 114.2
Xylene	6.10	mg/Kg	1	6.00	<0.00650	102	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	1.70	mg/Kg	1	2.00	<0.00410	85	75.4 - 115.7	4	20
Toluene	1.88	mg/Kg	1	2.00	<0.00310	94	78.4 - 113.6	4	20
Ethylbenzene	1.94	mg/Kg	1	2.00	<0.00240	97	76 - 114.2	5	20
Xylene	5.85	mg/Kg	1	6.00	<0.00650	98	76.9 - 113.6	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)	1.94	2.07	mg/Kg	1	2.00	97	104	65 - 142.9
4-Bromofluorobenzene (4-BFB)	2.00	2.14	mg/Kg	1	2.00	100	107	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 67584
Prep Batch: 57812

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.7	mg/Kg	1	20.0	<0.396	84	52.5 - 114.3

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

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	17.8	mg/Kg	1	20.0	<0.396	89	52.5 - 114.3	6	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)	2.15	2.19	mg/Kg	1	2.00	108	110	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.13	2.19	mg/Kg	1	2.00	106	110	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 67601
Prep Batch: 57822

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.6	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	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 67602
Prep Batch: 57823

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	98.8	mg/Kg	1	100	<2.18	99	85 - 115	2	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: 67603
Prep Batch: 57824

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.3	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.

Laboratory Control Spike (LCS-1)

QC Batch: 67611
Prep Batch: 57833

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-17

Analyzed By: AG
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	15.6	mg/Kg	1	20.0	<0.396	78	52.5 - 114.3	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.15	2.02	mg/Kg	1	2.00	108	101	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.08	1.96	mg/Kg	1	2.00	104	98	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 67614
Prep Batch: 57836

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-17

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	300	mg/Kg	1	250	<5.86	120	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	303	mg/Kg	1	250	<5.86	121	57.4 - 133.4	1	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
n-Tricosane	112	114	mg/Kg	1	100	112	114	70 - 130

Matrix Spike (MS-1) Spiked Sample: 222080

QC Batch: 67532
Prep Batch: 57769

Date Analyzed: 2010-02-15
QC Preparation: 2010-02-15

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	226	mg/Kg	1	250	<5.86	90	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
DRO	212	mg/Kg	1	250	<5.86	85	35.2 - 167.1	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
n-Tricosane	103	98.7	mg/Kg	1	100	103	99	70 - 130

Matrix Spike (MS-1) Spiked Sample: 222560

QC Batch: 67548
Prep Batch: 57782

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10600	mg/Kg	100	10000	588	100	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	10700	mg/Kg	100	10000	588	101	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: 222072

QC Batch: 67583
Prep Batch: 57812

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AG
Prepared By: AG

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.45	mg/Kg	1	2.00	<0.00410	122	57.7 - 140.7
Toluene	2.47	mg/Kg	1	2.00	<0.00310	124	53.4 - 146.6
Ethylbenzene	2.54	mg/Kg	1	2.00	<0.00240	127	62.1 - 141.6
Xylene	7.59	mg/Kg	1	6.00	<0.00650	126	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	2.26	mg/Kg	1	2.00	<0.00410	113	57.7 - 140.7	8	20
Toluene	2.29	mg/Kg	1	2.00	<0.00310	114	53.4 - 146.6	8	20
Ethylbenzene	2.35	mg/Kg	1	2.00	<0.00240	118	62.1 - 141.6	8	20
Xylene	7.05	mg/Kg	1	6.00	<0.00650	118	61.2 - 142.7	7	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)	1.50	1.63	mg/Kg	1	2	75	82	62.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.55	1.67	mg/Kg	1	2	78	84	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 222213

QC Batch: 67584
Prep Batch: 57812

Date Analyzed: 2010-02-16
QC Preparation: 2010-02-16

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.4	mg/Kg	1	20.0	<0.396	77	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	17.5	mg/Kg	1	20.0	<0.396	88	10 - 198.3	13	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)	⁵ 1.11	2.45	mg/Kg	1	2	56	122	65.5 - 143
4-Bromofluorobenzene (4-BFB)	⁶ 1.15	2.44	mg/Kg	1	2	58	122	58.6 - 140

⁵Surrogate out due to peak interference.

⁶Surrogate out due to peak interference.

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Matrix Spike (MS-1) Spiked Sample: 222163

QC Batch: 67601
Prep Batch: 57822

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16200	mg/Kg	100	10000	5700	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	16400	mg/Kg	100	10000	5700	107	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: 222173

QC Batch: 67602
Prep Batch: 57823

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10200	mg/Kg	100	10000	<218	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	10300	mg/Kg	100	10000	<218	103	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: 222182

QC Batch: 67603
Prep Batch: 57824

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9340	mg/Kg	100	10000	<218	93	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	9520	mg/Kg	100	10000	<218	95	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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Matrix Spike (MS-1) Spiked Sample: 222240

QC Batch: 67611
Prep Batch: 57833

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-17

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	13.9	mg/Kg	1	20.0	<0.396	70	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	20	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)	2.45	2.68	mg/Kg	1	2	122	134	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.46	2.69	mg/Kg	1	2	123	134	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 222174

QC Batch: 67614
Prep Batch: 57836

Date Analyzed: 2010-02-17
QC Preparation: 2010-02-17

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	274	mg/Kg	1	250	<5.86	110	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
DRO	281	mg/Kg	1	250	<5.86	112	35.2 - 167.1	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
n-Tricosane	108	113	mg/Kg	1	100	108	113	70 - 130

Standard (CCV-1)

QC Batch: 67532

Date Analyzed: 2010-02-15

Analyzed By: kg

⁷MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	260	104	80 - 120	2010-02-15

Standard (CCV-2)

QC Batch: 67532 Date Analyzed: 2010-02-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	269	108	80 - 120	2010-02-15

Standard (CCV-3)

QC Batch: 67532 Date Analyzed: 2010-02-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	257	103	80 - 120	2010-02-15

Standard (ICV-1)

QC Batch: 67548 Date Analyzed: 2010-02-16 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.6	98	85 - 115	2010-02-16

Standard (CCV-1)

QC Batch: 67548 Date Analyzed: 2010-02-16 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-02-16

Standard (CCV-1)

QC Batch: 67583 Date Analyzed: 2010-02-16 Analyzed By: AG

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0914	91	80 - 120	2010-02-16
Toluene		mg/Kg	0.100	0.0980	98	80 - 120	2010-02-16
Ethylbenzene		mg/Kg	0.100	0.0963	96	80 - 120	2010-02-16
Xylene		mg/Kg	0.300	0.289	96	80 - 120	2010-02-16

Standard (CCV-2)

QC Batch: 67583

Date Analyzed: 2010-02-16

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	0.0977	98	80 - 120	2010-02-16
Toluene		mg/Kg	0.100	0.0969	97	80 - 120	2010-02-16
Ethylbenzene		mg/Kg	0.100	0.0982	98	80 - 120	2010-02-16
Xylene		mg/Kg	0.300	0.292	97	80 - 120	2010-02-16

Standard (CCV-3)

QC Batch: 67583

Date Analyzed: 2010-02-16

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	0.101	101	80 - 120	2010-02-16
Toluene		mg/Kg	0.100	0.100	100	80 - 120	2010-02-16
Ethylbenzene		mg/Kg	0.100	0.0986	99	80 - 120	2010-02-16
Xylene		mg/Kg	0.300	0.295	98	80 - 120	2010-02-16

Standard (CCV-1)

QC Batch: 67584

Date Analyzed: 2010-02-16

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	1.15	115	80 - 120	2010-02-16

Standard (CCV-2)

QC Batch: 67584

Date Analyzed: 2010-02-16

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.02	102	80 - 120	2010-02-16

Standard (CCV-3)

QC Batch: 67584

Date Analyzed: 2010-02-16

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	1.04	104	80 - 120	2010-02-16

Standard (ICV-1)

QC Batch: 67601

Date Analyzed: 2010-02-17

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	2010-02-17

Standard (CCV-1)

QC Batch: 67601

Date Analyzed: 2010-02-17

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	2010-02-17

Standard (ICV-1)

QC Batch: 67602

Date Analyzed: 2010-02-17

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.6	100	85 - 115	2010-02-17

Standard (CCV-1)

QC Batch: 67602

Date Analyzed: 2010-02-17

Analyzed By: AR

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Work Order: 10021203
COG/MC Federal #37

Page Number: 33 of 34
Lea Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-02-17

Standard (ICV-1)

QC Batch: 67603

Date Analyzed: 2010-02-17

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-02-17

Standard (CCV-1)

QC Batch: 67603

Date Analyzed: 2010-02-17

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-02-17

Standard (CCV-1)

QC Batch: 67611

Date Analyzed: 2010-02-17

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	0.994	99	80 - 120	2010-02-17

Standard (CCV-2)

QC Batch: 67611

Date Analyzed: 2010-02-17

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	2010-02-17

Standard (CCV-2)

QC Batch: 67614

Date Analyzed: 2010-02-17

Analyzed By: kg

Report Date: February 19, 2010
114-6400387

Work Order: 10021203
COG/MC Federal #37

Page Number: 34 of 34
Lea Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	297	119	80 - 120	2010-02-17

Standard (CCV-3)

QC Batch: 67614

Date Analyzed: 2010-02-17

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	298	119	80 - 120	2010-02-17

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>COG</u>		SITE MANAGER: <u>Ilk Tavariz</u>	
PROJECT NO.: <u>114-6402387</u>		PROJECT NAME: <u>COG/114 Federal Lease, N/A</u>	
LAB ID. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
222150	2/8		0-1'
151			1-1.5'
152			2-2.5'
153			3-3.5'
154			0-1'
155			1-1.5'
156			2-2.5'
157			3-3.5'
158			4-4.5'
159	✓		0-1'

RELINQUISHED BY: (Signature) <u>Robert Greubbs</u>	Date: <u>2-11-10</u>	RECEIVED BY: (Signature) <u>Ilk Tavariz</u>	Date: <u>2-11-10</u>
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:

RECEIVING LABORATORY: CITY: <u>Midland</u> STATE: <u>TX</u> ZIP: <u>79701</u>	DATE: <u>2-11-10</u>
SAMPLE CONDITION WHEN RECEIVED: <u>4.0°C intact</u>	
REMARKS: <u>If final TPH exceeds 1,000 mg/kg run duplicate samples</u>	

PAGE: <u>1</u> OF: <u>4</u>	
ANALYSIS REQUEST (Circle or Specify Method No.)	
☐ PAH 8270 ☐ TPH 8015 MOD ☒ BTEX 8021B ☐ RCI ☐ GC/MS Vol. 8240/8260/624 ☐ GC/MS Semi. Vol. 8270/625 ☐ PCB's 8080/608 ☐ Pest. 808/608 ☒ Chloride ☐ Gamma Spec. ☐ Alpha Beta (Air) ☐ PLM (Asbestos) ☐ Major Anions/Cations, pH, TDS	SAMPLED BY: (Print & Initial) <u>Robert Greubbs</u> Date: <u>2-11-10</u> Time: <u>0850</u> SAMPLE SHIPPED BY: (Circle) FEDEX ☐ BUS ☐ UPS ☐ HAND DELIVERED ☒ TETRA TECH CONTACT PERSON: <u>Ilk Tavariz</u> Results by: <u>Ilk Tavariz</u> RUSH Charges Authorized: ☐ Yes ☐ No

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 4

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: COB		SITE MANAGER: Mike Tovar	
PROJECT NO.: 114-6400387		PROJECT NAME: COB / McFadden #37	
LAB I.D. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
222160	2/18		1-1.5'
161			2-2.5'
162			3-3.5'
163			4-4.5'
164			5-5.5'
165			6-6.5'
166			7-7.5'
167			8-8.5'
168			9-9.5'
169			0-1'

RELINQUISHED BY: (Signature) <i>Robert Carabba</i>	RECEIVED BY: (Signature) <i>Mike Tovar</i>
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)

RECEIVING LABORATORY: CITY: Midland STATE: TX	DATE: 2-18-10
CONTACT: Mike Tovar PHONE: 682-4559	TIME: 1600

REMARKS: **400' intact** **114 total TPH cards 1,000 m³/kg run deeper samples**

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

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 V Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/825	PCB's 8080/608	Pest. 808/608	Chlordane	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
BTEX 8021B															

SAMPLED BY: (Print & Initial)
Robert Carabba

DATE: **2-18-10**

TIME: **1600**

SAMPLE SHIPPED BY: (Circle)
FEDEX

OTHER: **BUS**

RESULTS BY:
Mike Tovar

RUSH Charges Authorized:
Yes

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 4

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:		PROJECT NAME:		SITE MANAGER:		PRESERVATIVE METHOD	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS
20270	2/8		S	X		1-1.5'	1
171						2-2.5'	
172						3-3.5'	
173						0-1'	
174						1-1.5'	
175						2-2.5'	
176						3-3.5'	
177						4-4.5'	
178						0-1'	
179						1-1.5'	

RELINQUISHED BY: (Signature)	Date: 2/21/10	Time: 12:00	RECEIVED BY: (Signature)	Date: 2/21/10	Time: 16:00
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
RECEIVING LABORATORY:	RECEIVED BY: (Signature)				
ADDRESS:	DATE:				
CITY:	STATE:	ZIP:	TIME:		
CONTACT:	PHONE:				

SAMPLE CONDITION WHEN RECEIVED: 4.0°C intact

REMARKS: It is 1 TPH exceeds 1,000 mg/kg run deeper samples

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

SAMPLED BY: (Print & Initial) Robert Campbell

DATE: 2-21-10

SAMPLE SHIPPED BY: (Circle) FEDEX BUS UPS

AIRBILL #:

OTHER:

TETRA TECH CONTACT PERSON: [Signature]

Results by:

RUSH Charges Authorized: Yes No

Run 3 BTEX on highest TPH

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4

ANALYSIS REQUEST
(Circle or Specify Method No.)

TETRA TECH

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

[illegible]

Z₆₀ 3 BTEX on 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.

Summary Report

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

Report Date: May 12, 2010

Work Order: 10042616



Project Location: Lea Co., NM
Project Name: COG/MC Federal #37
Project Number: 114-6400387

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
229576	SB-1 2'	soil	2010-04-22	00:00	2010-04-23
229577	SB-1 5'	soil	2010-04-22	00:00	2010-04-23
229578	SB-1 7'	soil	2010-04-22	00:00	2010-04-23
229579	SB-1 10'	soil	2010-04-22	00:00	2010-04-23
229580	SB-1 12'	soil	2010-04-22	00:00	2010-04-23
229581	SB-2 7'	soil	2010-04-22	00:00	2010-04-23
229582	SB-2 10'	soil	2010-04-22	00:00	2010-04-23
229583	SB-2 15'	soil	2010-04-22	00:00	2010-04-23
229584	SB-2 20'	soil	2010-04-22	00:00	2010-04-23
229585	SB-2 25'	soil	2010-04-22	00:00	2010-04-23
229586	SB-2 30'	soil	2010-04-22	00:00	2010-04-23
229587	SB-2 40'	soil	2010-04-22	00:00	2010-04-23
229588	SB-2 50'	soil	2010-04-22	00:00	2010-04-23
229589	SB-2 60'	soil	2010-04-22	00:00	2010-04-23
229590	SB-2 70'	soil	2010-04-22	00:00	2010-04-23
229591	SB-2 80'	soil	2010-04-22	00:00	2010-04-23
229592	SB-3 3'	soil	2010-04-22	00:00	2010-04-23
229593	SB-3 5'	soil	2010-04-22	00:00	2010-04-23
229594	SB-3 7'	soil	2010-04-22	00:00	2010-04-23
229595	SB-3 10'	soil	2010-04-22	00:00	2010-04-23
229596	SB-3 15'	soil	2010-04-22	00:00	2010-04-23

Sample: 229576 - SB-1 2'

Param	Flag	Result	Units	RL
Chloride		1800	mg/Kg	4.00

Sample: 229577 - SB-1 5'

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

Sample: 229578 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		360	mg/Kg	4.00

Sample: 229579 - SB-1 10'

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

Sample: 229580 - SB-1 12'

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

Sample: 229581 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		260	mg/Kg	4.00

Sample: 229582 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4.00

Sample: 229583 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		9990	mg/Kg	4.00

Sample: 229584 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		8640	mg/Kg	4.00

Sample: 229585 - SB-2 25'

Param	Flag	Result	Units	RL
Chloride		6720	mg/Kg	4.00

Sample: 229586 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		4610	mg/Kg	4.00

Sample: 229587 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		3560	mg/Kg	4.00

Sample: 229588 - SB-2 50'

Param	Flag	Result	Units	RL
Chloride		3320	mg/Kg	4.00

Sample: 229589 - SB-2 60'

Param	Flag	Result	Units	RL
Chloride		2850	mg/Kg	4.00

Sample: 229590 - SB-2 70'

Param	Flag	Result	Units	RL
Chloride		2680	mg/Kg	4.00

Sample: 229591 - SB-2 80'

Param	Flag	Result	Units	RL
Chloride		3130	mg/Kg	4.00

Sample: 229592 - SB-3 3'

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

Sample: 229593 - SB-3 5'

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

Sample: 229594 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		466	mg/Kg	4.00

Sample: 229595 - SB-3 10'

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

Sample: 229596 - SB-3 15'

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



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

Certifications

WBENC: 237019 HUB: 1752439743100-86536 DBE: VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX El Paso: T104704221-08-TX Midland: T104704392-08-TX
LELAP-02003 LELAP-02002
Kansas E-10317

Analytical and Quality Control Report

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

Report Date: May 12, 2010

Work Order: 10042616



Project Location: Lea Co., NM
Project Name: COG/MC Federal #37
Project Number: 114-6400387

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
229576	SB-1 2'	soil	2010-04-22	00:00	2010-04-23
229577	SB-1 5'	soil	2010-04-22	00:00	2010-04-23
229578	SB-1 7'	soil	2010-04-22	00:00	2010-04-23
229579	SB-1 10'	soil	2010-04-22	00:00	2010-04-23
229580	SB-1 12'	soil	2010-04-22	00:00	2010-04-23
229581	SB-2 7'	soil	2010-04-22	00:00	2010-04-23
229582	SB-2 10'	soil	2010-04-22	00:00	2010-04-23
229583	SB-2 15'	soil	2010-04-22	00:00	2010-04-23
229584	SB-2 20'	soil	2010-04-22	00:00	2010-04-23
229585	SB-2 25'	soil	2010-04-22	00:00	2010-04-23

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
229586	SB-2 30'	soil	2010-04-22	00:00	2010-04-23
229587	SB-2 40'	soil	2010-04-22	00:00	2010-04-23
229588	SB-2 50'	soil	2010-04-22	00:00	2010-04-23
229589	SB-2 60'	soil	2010-04-22	00:00	2010-04-23
229590	SB-2 70'	soil	2010-04-22	00:00	2010-04-23
229591	SB-2 80'	soil	2010-04-22	00:00	2010-04-23
229592	SB-3 3'	soil	2010-04-22	00:00	2010-04-23
229593	SB-3 5'	soil	2010-04-22	00:00	2010-04-23
229594	SB-3 7'	soil	2010-04-22	00:00	2010-04-23
229595	SB-3 10'	soil	2010-04-22	00:00	2010-04-23
229596	SB-3 15'	soil	2010-04-22	00:00	2010-04-23

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 16 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/MC Federal #37 were received by TraceAnalysis, Inc. on 2010-04-23 and assigned to work order 10042616. Samples for work order 10042616 were received intact at a temperature of 24.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	59457	2010-04-28 at 08:51	69630	2010-05-03 at 15:07
Chloride (Titration)	SM 4500-Cl B	59458	2010-04-28 at 08:52	69631	2010-05-03 at 15:08
Chloride (Titration)	SM 4500-Cl B	59459	2010-04-28 at 08:52	69632	2010-05-03 at 15:09
Chloride (Titration)	SM 4500-Cl B	59669	2010-05-04 at 12:41	69754	2010-05-05 at 16:32
Chloride (Titration)	SM 4500-Cl B	59847	2010-05-06 at 10:00	69919	2010-05-12 at 08:00

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 10042616 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: May 12, 2010
114-6400387

Work Order: 10042616
COG/MC Federal #37

Page Number: 4 of 16
Lea Co., NM

Analytical Report

Sample: 229576 - SB-1 2'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69630	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59457				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1800	mg/Kg	50	4.00

Sample: 229577 - SB-1 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69630	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59457				

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

Sample: 229578 - SB-1 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69630	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59457				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		360	mg/Kg	50	4.00

Sample: 229579 - SB-1 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69630	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59457				

continued ...

Report Date: May 12, 2010
114-6400387

Work Order: 10042616
COG/MC Federal #37

Page Number: 5 of 16
Lea Co., NM

sample 229579 continued ...

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

Sample: 229580 - SB-1 12'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 69631 Date Analyzed: 2010-05-03 Analyzed By: AR
Prep Batch: 59458 Sample Preparation: 2010-04-28 Prepared By: AR

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

Sample: 229581 - SB-2 7'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 69631 Date Analyzed: 2010-05-03 Analyzed By: AR
Prep Batch: 59458 Sample Preparation: 2010-04-28 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		260	mg/Kg	50	4.00

Sample: 229582 - SB-2 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 69631 Date Analyzed: 2010-05-03 Analyzed By: AR
Prep Batch: 59458 Sample Preparation: 2010-04-28 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10900	mg/Kg	100	4.00

Report Date: May 12, 2010
114-6400387

Work Order: 10042616
COG/MC Federal #37

Page Number: 6 of 16
Lea Co., NM

Sample: 229583 - SB-2 15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9990	mg/Kg	100	4.00

Sample: 229584 - SB-2 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8640	mg/Kg	100	4.00

Sample: 229585 - SB-2 25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6720	mg/Kg	100	4.00

Sample: 229586 - SB-2 30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4610	mg/Kg	100	4.00

Report Date: May 12, 2010
114-6400387

Work Order: 10042616
COG/MC Federal #37

Page Number: 7 of 16
Lea Co., NM

Sample: 229587 - SB-2 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-05	Analyzed By:	AR
QC Batch:	69754	Sample Preparation:	2010-05-05	Prepared By:	AR
Prep Batch:	59669				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3560	mg/Kg	100	4.00

Sample: 229588 - SB-2 50'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-05	Analyzed By:	AR
QC Batch:	69754	Sample Preparation:	2010-05-05	Prepared By:	AR
Prep Batch:	59669				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3320	mg/Kg	100	4.00

Sample: 229589 - SB-2 60'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-12	Analyzed By:	AG
QC Batch:	69919	Sample Preparation:	2010-05-06	Prepared By:	AG
Prep Batch:	59847				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2850	mg/Kg	50	4.00

Sample: 229590 - SB-2 70'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-12	Analyzed By:	AG
QC Batch:	69919	Sample Preparation:	2010-05-06	Prepared By:	AG
Prep Batch:	59847				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2680	mg/Kg	50	4.00

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Sample: 229591 - SB-2 80'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-12	Analyzed By:	AG
QC Batch:	69919	Sample Preparation:	2010-05-06	Prepared By:	AG
Prep Batch:	59847				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3130	mg/Kg	50	4.00

Sample: 229592 - SB-3 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

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

Sample: 229593 - SB-3 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

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

Sample: 229594 - SB-3 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69631	Sample Preparation:	2010-04-28	Prepared By:	AR
Prep Batch:	59458				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		466	mg/Kg	50	4.00

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Sample: 229595 - SB-3 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69632	Sample Preparation:	2010-04-30	Prepared By:	AR
Prep Batch:	59459				

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

Sample: 229596 - SB-3 15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-05-03	Analyzed By:	AR
QC Batch:	69632	Sample Preparation:	2010-04-30	Prepared By:	AR
Prep Batch:	59459				

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

Method Blank (1) QC Batch: 69630

QC Batch:	69630	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59457	QC Preparation:	2010-04-28	Prepared By:	AR

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

Method Blank (1) QC Batch: 69631

QC Batch:	69631	Date Analyzed:	2010-05-03	Analyzed By:	AR
Prep Batch:	59458	QC Preparation:	2010-04-28	Prepared By:	AR

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

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Method Blank (1) QC Batch: 69632

QC Batch: 69632
Prep Batch: 59459

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 69754

QC Batch: 69754
Prep Batch: 59669

Date Analyzed: 2010-05-05
QC Preparation: 2010-05-04

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 69919

QC Batch: 69919
Prep Batch: 59847

Date Analyzed: 2010-05-12
QC Preparation: 2010-05-06

Analyzed By: AG
Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 69630
Prep Batch: 59457

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	101	mg/Kg	1	100	<2.18	101	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	0	20

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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: 69631
Prep Batch: 59458

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

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	100	mg/Kg	1	100	<2.18	100	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 69632
Prep Batch: 59459

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.5	mg/Kg	1	100	<2.18	100	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	100	mg/Kg	1	100	<2.18	100	85 - 115	0	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: 69754
Prep Batch: 59669

Date Analyzed: 2010-05-05
QC Preparation: 2010-05-04

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.0	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.

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 69919
Prep Batch: 59847

Date Analyzed: 2010-05-12
QC Preparation: 2010-05-06

Analyzed By: AG
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	100	mg/Kg	1	100	<2.18	100	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	99.6	mg/Kg	1	100	<2.18	100	85 - 115	0	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: 229579

QC Batch: 69630
Prep Batch: 59457

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10200	mg/Kg	100	10000	<218	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	10300	mg/Kg	100	10000	<218	103	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: 229594

QC Batch: 69631
Prep Batch: 59458

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

continued ...

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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
Chloride	10100	mg/Kg	100	10000	466	96	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	10300	mg/Kg	100	10000	466	98	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: 229824

QC Batch: 69632
Prep Batch: 59459

Date Analyzed: 2010-05-03
QC Preparation: 2010-04-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9740	mg/Kg	100	10000	<218	97	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	9860	mg/Kg	100	10000	<218	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: 230044

QC Batch: 69754
Prep Batch: 59669

Date Analyzed: 2010-05-05
QC Preparation: 2010-05-04

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10100	mg/Kg	100	10000	<218	101	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	10200	mg/Kg	100	10000	<218	102	85 - 115	1	20

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

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Matrix Spike (MS-1) Spiked Sample: 230437

QC Batch: 69919
Prep Batch: 59847

Date Analyzed: 2010-05-12
QC Preparation: 2010-05-06

Analyzed By: AG
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16400	mg/Kg	100	10000	5130	113	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	16500	mg/Kg	100	10000	5130	114	85 - 115	1	20

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

Standard (ICV-1)

QC Batch: 69630

Date Analyzed: 2010-05-03

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.6	99	85 - 115	2010-05-03

Standard (CCV-1)

QC Batch: 69630

Date Analyzed: 2010-05-03

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	2010-05-03

Standard (ICV-1)

QC Batch: 69631

Date Analyzed: 2010-05-03

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-05-03

Standard (CCV-1)

QC Batch: 69631

Date Analyzed: 2010-05-03

Analyzed By: AR

Report Date: May 12, 2010
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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.9	100	85 - 115	2010-05-03

Standard (ICV-1)

QC Batch: 69632

Date Analyzed: 2010-05-03

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-05-03

Standard (CCV-1)

QC Batch: 69632

Date Analyzed: 2010-05-03

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.3	98	85 - 115	2010-05-03

Standard (ICV-1)

QC Batch: 69754

Date Analyzed: 2010-05-05

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-05-05

Standard (CCV-1)

QC Batch: 69754

Date Analyzed: 2010-05-05

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-05-05

Standard (ICV-1)

QC Batch: 69919

Date Analyzed: 2010-05-12

Analyzed By: AG

Report Date: May 12, 2010
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Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2010-05-12

Standard (CCV-1)

QC Batch: 69919

Date Analyzed: 2010-05-12

Analyzed By: AG

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	2010-05-12

Order #: 10042616

Analysis Request of Chain of Custody Record



TETRA TECH

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

CLIENT NAME: COG		SITE MANAGER: Ike Tavaraz		PROJECT NAME: COG / MC Federal #37		PRESERVATIVE METHOD	
LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMB	GRAB	NUMBER OF CONTAINERS	NUMBER OF CONTAINERS
576	4/22		S		X	SB-1 2'	1
577	4/22		S		X	SB-1 5'	1
578	4/22		S		X	SB-1 7'	1
579	4/22		S		X	SB-1 10'	1
580	4/22		S		X	SB-1 12'	1
581	4/22		S		X	SB-2 7'	1
582	4/22		S		X	SB-2 10'	1
583	4/22		S		X	SB-2 15'	1
584	4/22		S		X	SB-2 20'	1
585	4/22		S		X	SB-2 25'	1

RELINQUISHED BY (Signature)		RECEIVED BY (Signature)		DATE	
Signature	Date	Signature	Date	Time	Time
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10	12:00	12:00
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		
<i>[Signature]</i>	4/22/10	<i>[Signature]</i>	4/22/10		

RECEIVING LABORATORY:		REMARKS:	
ADDRESS:	DATE:	Signature	Time
CITY: Midland	4/22/10	<i>[Signature]</i>	12:00
STATE: TX			
ZIP: 79705			
PHONE: (432) 682-4559			
SAMPLE CONDITION WHEN RECEIVED: 24°C intact			
REMARKS: 24°C intact			

ANALYSIS REQUEST
(Circle or Specify Method No.)

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 Cr Pb Hg Se	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8240/8260/824	
GC/MS Semi. Vol. 8270/825	
PCB's 8080/808	
Pest. 808/808	
Chloride	X
Gamma Spec.	X
Alpha Beta (A/B)	X
PLM (Asbestos)	X
Major Anions/Cations, pH, TDS	

SAMPLED BY: (Print & Initial)		DATE	
Signature	Date	Time	Time
<i>[Signature]</i>	4/22/10		
SAMPLE SHIPPED BY: (Circle)		AIRBILL #:	
FEDEX			
BUS			
UPS			
OTHER			
TETRA TECH CONTACT PERSON:		Results by:	
Ike Tavaraz		RUSH Charges Authorized:	
		Yes	
		No	

Analysis Request of Chain of Custody Record

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ANALYSIS REQUEST
(Circle or Specify Method No.)

TETRA TECH

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

(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: COG		SITE MANAGER: Ike Tavaré		PROJECT NAME: COG / MC Federal #37		SAMPLE IDENTIFICATION		PRESERVATIVE METHOD		NUMBER OF CONTAINERS		FILTERED (Y/N)		HCL		HNO3		ICE		NONE	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMPR	GRAB	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16	
586	4/22		S	X	X	SB-2	30'														
587	4/22		S	X	X	SB-2	40'														
588	4/22		S	X	X	SB-2	50'														
589	4/22		S	X	X	SB-2	60'														
590	4/22		S	X	X	SB-2	70'														
591	4/22		S	X	X	SB-2	80'														
592	4/22		S	X	X	SB-3	3'														
593	4/22		S	X	X	SB-3	5'														
594	4/22		S	X	X	SB-3	7'														
595	4/22		S	X	X	SB-3	10'														

RECEIVED BY: (Signature) **[Signature]** Date: **4/23/10** Time: **12:00**

RECEIVED BY: (Signature) **[Signature]** Date: **4/23/10** Time: **12:00**

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RECEIVED BY: (Signature) **[Signature]** Date: **4/23/10** Time: **12:00**

RECEIVING LABORATORY: **TRACE**

ADDRESS: **114-6400387**

CITY: **MAINE** STATE: **TX** ZIP: **75401**

CONTACT: **COG** PHONE: **972-234-1111**

REMARKS: **24.0% intact**

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

