

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

State of New Mexico
Energy Minerals and Natural Resources

HOBBS OCD

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

JAN 12 2012

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

PJXK 1535236378

4039

Form C-141
Revised October 10, 2003

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	COG Operating LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	BC Federal #40	Facility Type	Well

Surface Owner: Federal	Mineral Owner	Lease No. 30-025-39414
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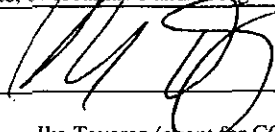
LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	20	17S	32E	330	FNL	990	FWL	Lea

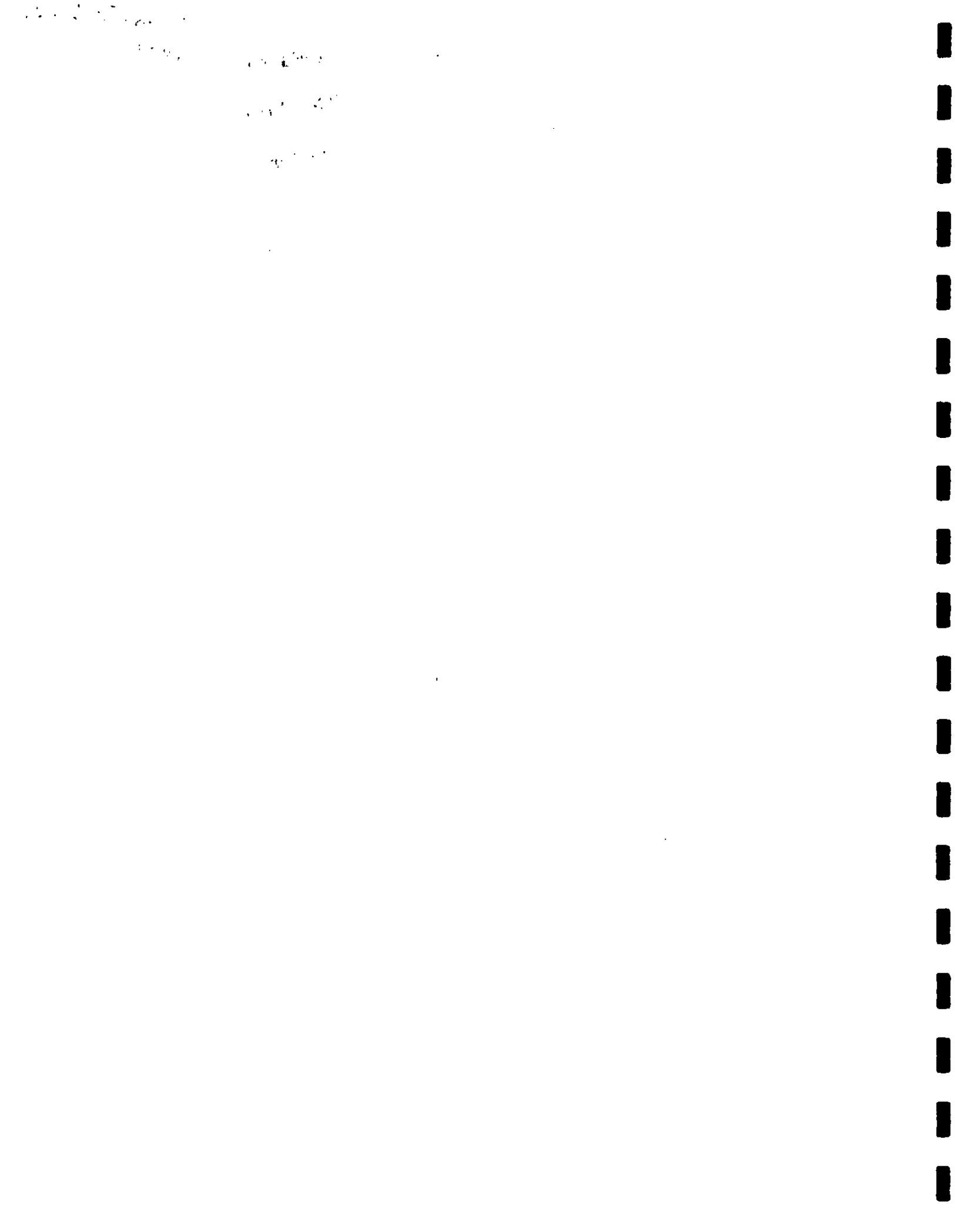
Latitude N 32.82646 Longitude W 103.79401

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release 80 bbls	Volume Recovered 60 bbls
Source of Release: flow line	Date and Hour of Occurrence 5/29/10	Date and Hour of Discovery 5/29/10
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson - OCD Geoffery Leking - OCD	
By Whom?	Date and Hour 5/5/10 10:29 am	
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 flow line coming from the BC Federal #40 Well ruptured. The flow line has been fused and put back into service.		
Describe Area Affected and Cleanup Action Taken.* Tetra Tech inspected and assessed the spill area for extents. A work plan was prepared and submitted to NMOCD and BLM for approval. Soils exceeding the RRAL and chloride impact were removed to the appropriate depths and transported to proper disposal. Once excavated to the appropriate depths, the excavation was backfilled with clean soil. 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: 12-13-11 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary



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Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	BC Federal #40	Facility Type	Well
Surface Owner	Federal	Mineral Owner	
		Lease No.	NMLC 029405A (API#) 30-025-39414

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	20	17S	32E	330	FNL	990	FWL	Lea

Latitude 32.82646 Longitude 103.79401

NATURE OF RELEASE

Type of Release	Produced Water	Volume of Release	80bbls	Volume Recovered	60bbls
Source of Release	Flowline	Date and Hour of Occurrence	05/29/2010	Date and Hour of Discovery	05/29/2010
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Larry Johnson—OCD Geoffrey Leking—OCD		
By Whom?	Josh Russo	Date and Hour	06/01/2010	8:47 a.m.	
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

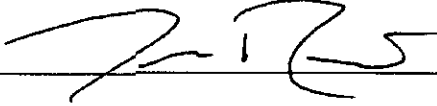
Describe Cause of Problem and Remedial Action Taken.*

The flowline coming from the BC Federal #40 well ruptured. The flowline has been fused and put back into service.

Describe Area Affected and Cleanup Action Taken.*

80bbls of produced water was initially released and affected an area with the dimensions of 40 yards x 40 yards. We were able to recover 60bbls with a vacuum truck. The produced water that was released has an estimated chloride content of 135,548 mg/l. The flowline release occurred south of the BC Federal #1 Tank Battery. (The closest well location to the release is the BC Federal #1 well, Sec. 20-T17S-R32E, 330 FNL 1575 FWL, Lea County, NM, NMLC-029405-A, API# 30-025-34733, GPS 32 49.561-103 47.538) 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 BLM/NMOCD for approval prior to any significant remediation.

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

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: Josh Russo		Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:	
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐	
Date: 06/02/2010	Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

64
100
100



SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	BC Federal #40 Flowline		
Company:	COG Operating LLC		
Section, Township and Range	Sec. 20	T17S	R32E
Lease Number:	API-30-025-34708 39414		
County:	Lea County		
GPS:	32.826086° N	103.792069° W	
Surface Owner:	Federal		
Mineral Owner:			
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 0.3 miles, turn right 0.3 miles, turn left 0.7 miles to location.		

Release Data:

Date Released:	5/29/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	80 bbls
Fluids Recovered:	60 bbls

Official Communication:

Name:	Pat Ellis	Aaron Hale
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) 661-9826
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	aaron.hale@tetratech.com

Ranking Criteria

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

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

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

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

Approved
 Scott J. Delany
 Env. Engr
 NMCO - DIST 1
 061

DEC 22 201



TETRA TECH

March 22, 2011

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

**Re: Work Plan for COG Operating LLC.
BC Federal #40 Flowline
Section 20, Township 17 South, Range 32 East
Lea County, New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #40 Flowline, located in Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.826086°, W 103.792069°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 29, 2010 and released approximately eighty (80) barrels of produced water. To alleviate the problem, COG personnel repaired the flowline. Sixty (60) barrels of standing fluids were recovered. 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' below ground surface. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well in Section 30 to a depth of 180' bgs and did not encounter groundwater. According to the New Mexico Oil Conservation Division (OCD) groundwater map, the average depth to groundwater in this area is approximately 175' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On June 14, 2010, Tetra Tech personnel inspected and sampled the spill area which measured approximately 170' x 55' east of the lease road and 65' x 15' west of the lease road. A total of seven (7) auger holes (AH-1 through AH-7) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Tetra Tech mobilized to the site again on November 10, 2010 with an air rotary drilling rig to further evaluate select areas of the spill. These areas were selected based on the laboratory data from the hand auger assessment activities. The areas around hand auger locations AH-4, AH-5, AH-6 and AH-7 were selected for further vertical delineation.

Referring to Table 1, all of the submitted samples were below the TPH RRAL. The chloride concentrations for the intervals sampled from AH-2 and AH-3 were below laboratory detection levels (200 mg/kg). The maximum chloride concentrations observed in AH-1, SB-1, SB-2, SB-3 and SB-4 were 3,720 mg/kg (5-5.5' bgs), 4,180 mg/kg (15' bgs), 3,390 mg/kg (5' bgs), 1,570 mg/kg (20' bgs) and 4,200 mg/kg (15' bgs), respectively. All five of these sample locations exhibited decreasing concentrations with depth after their maximum observed chloride concentration.



TETRA TECH

Work Plan

In order to remediate the site, COG proposes to excavate the impacted soils. The goal of the remediation is to establish surface growth and to reduce the environmental liabilities for the protection of the groundwater. For growth, a minimum of 4.0' of impacted soil will be removed from the spill area, if necessary. Concerns exist regarding a deep excavation plan. Since the impacted area is in the native sand dunes, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths are not reached, The BLM and the OCD will be notified and a 40 mil liner will be installed at depth of 4' to 5' below surface to cap the impacted area.

Tetra Tech proposes to supervise the removal of impacted material to the appropriate depth shown in attached Table 1 and Figure 4. The area adjacent to AH-1 will be excavated to a depth of approximately 8.5' bgs. The area adjacent to SB-1 and SB-2 will be excavated to approximately 15' bgs and the area adjacent to SB-3 and SB-4 will be excavated to approximately 20' bgs. The excavated soil will be transported to proper disposal. Once the areas are excavated to the appropriate depths, the excavations will be backfilled with clean soil. |

Upon completion, a final report will be submitted to the OCD and BLM. If you have any questions or comments concerning the assessment or the work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH, INC.

Aaron M. Hale
Senior Project Manager

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

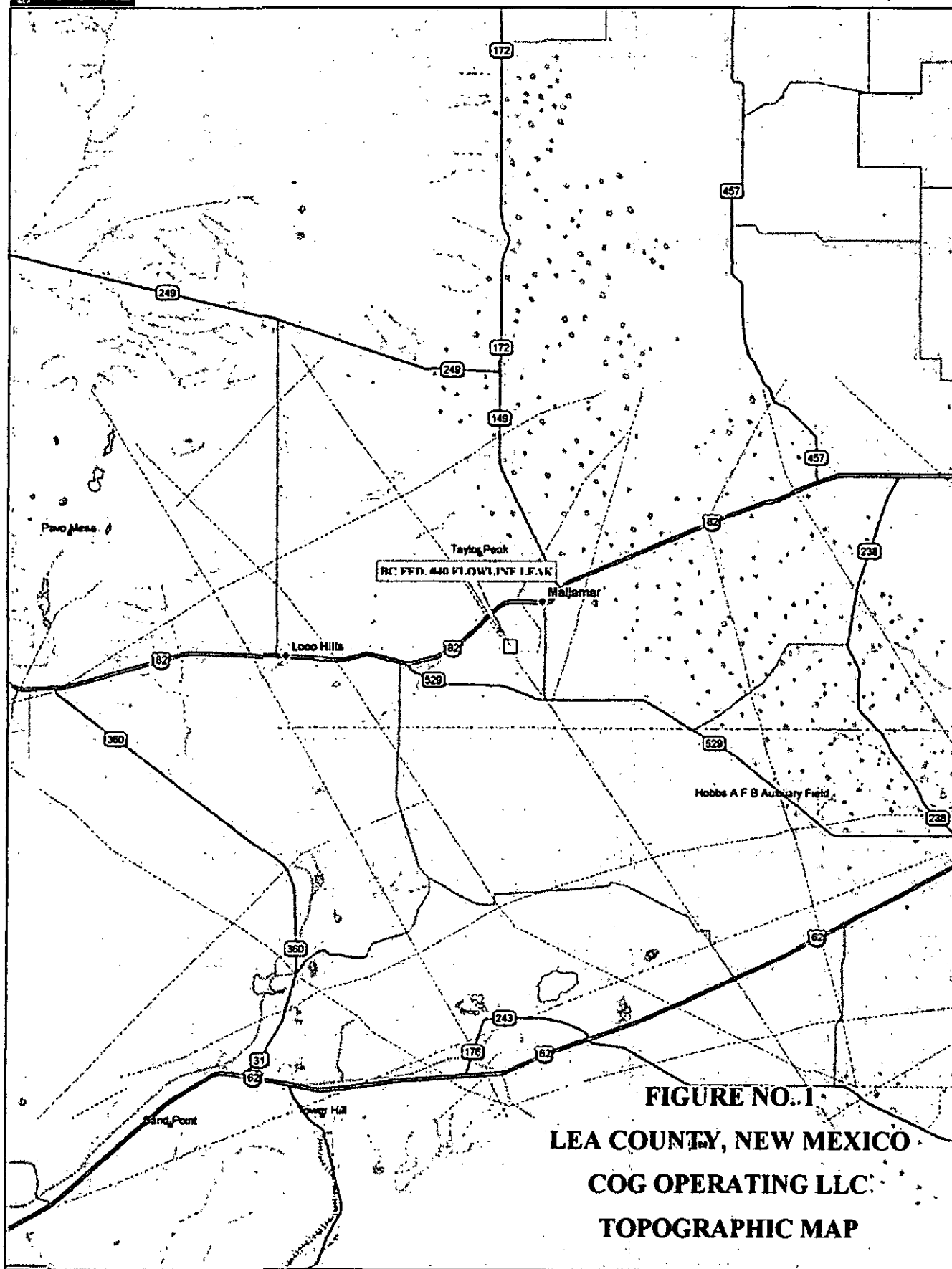
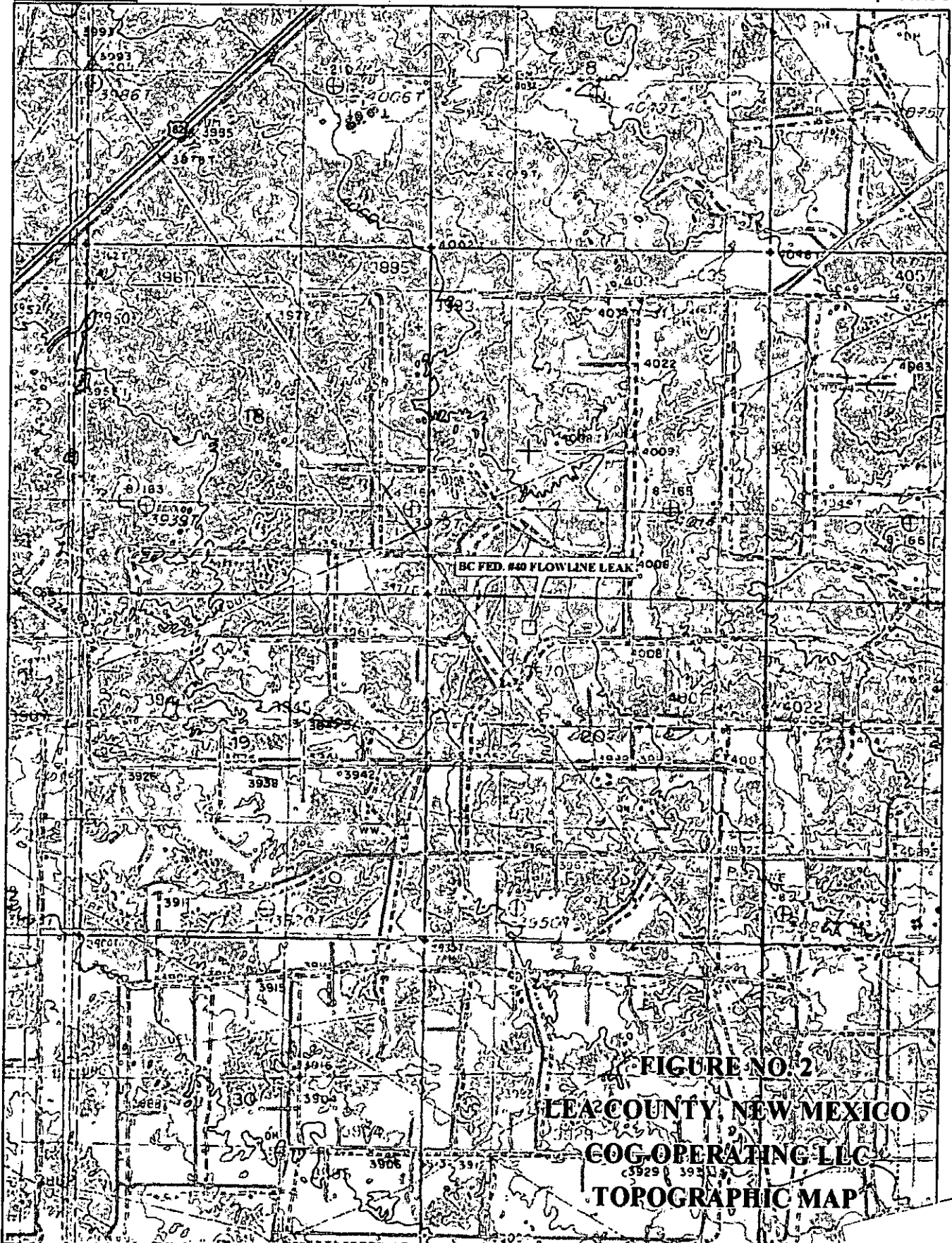


FIGURE NO.1
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP



Data use subject to license.

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www.delorme.com

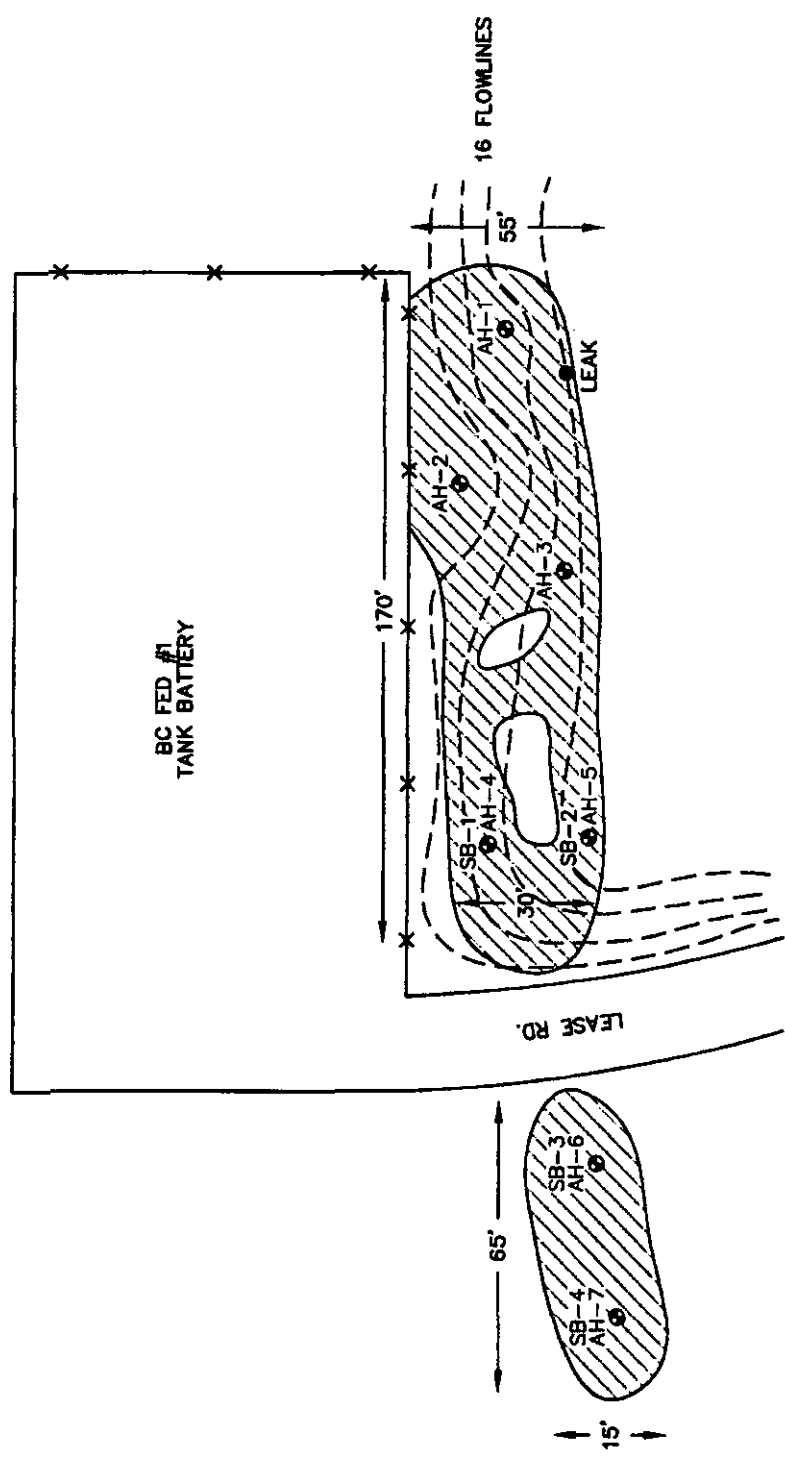


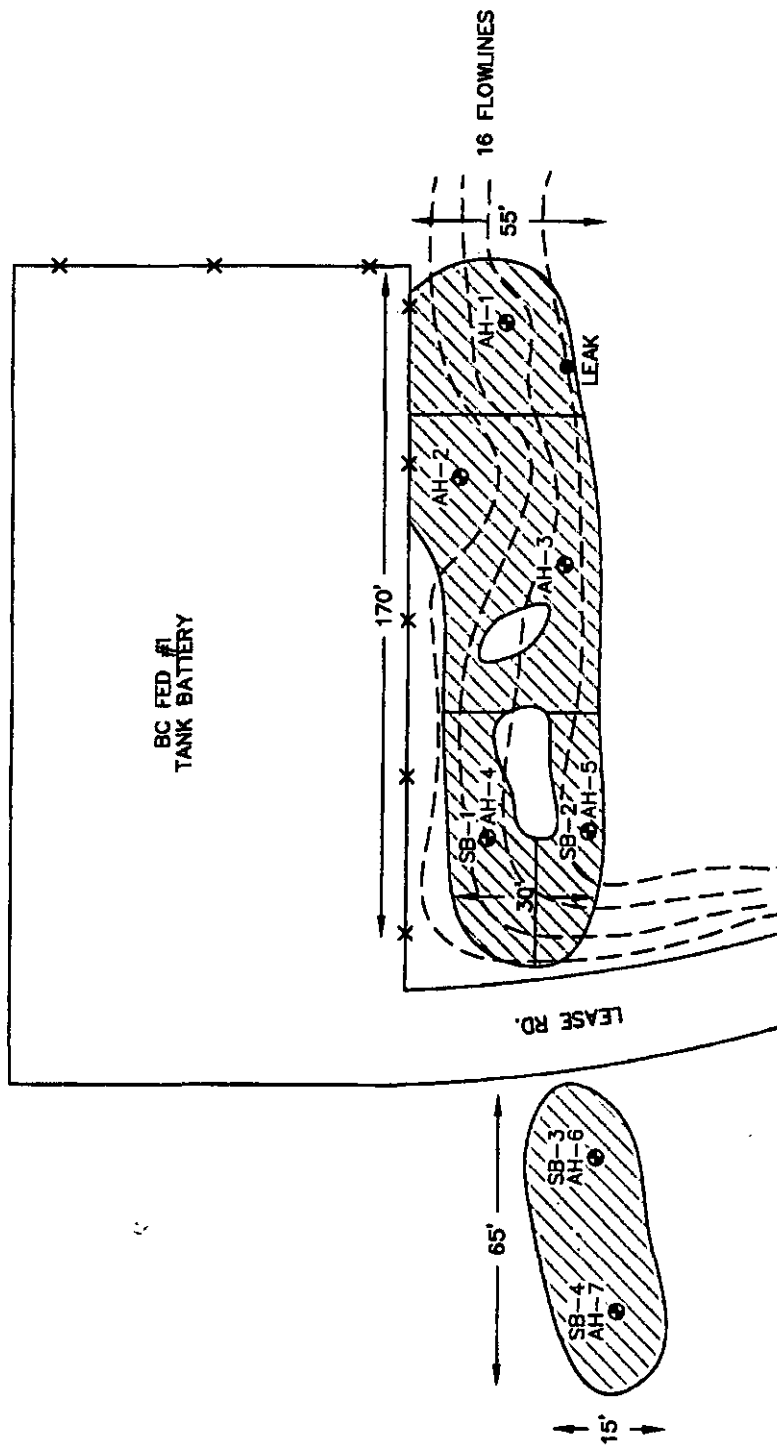
FIGURE NO. 3

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
BC FED #40 FLOWLINE LEAK
TETRA TECH, INC. MIDLAND, TEXAS

DATE:	6/25/10
DRN. BY:	JJ
FILE:	BC FED #40 FLOWLINE LEAK

NOT TO SCALE

- SPILL AREA
- AUGER HOLE SAMPLE LOCATIONS
- SOIL BORING LOCATIONS



- SPILL AREA
- EXCAVATED TO 8.5' DEEP
- EXCAVATED TO 15' DEEP
- EXCAVATED TO 20' DEEP
- AUGER HOLE SAMPLE LOCATIONS
- SOIL BORING LOCATIONS

FIGURE NO. 4

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
BC FED #40 FLOWLINE LEAK PROPOSED EXCAVATION MAP
TETRA TECH, INC. MIDLAND, TEXAS

DATE 8/25/10
DRAWN BY J.J.
FILED 8/25/10

NOT TO SCALE

Table 1

[illegible]

Table 1
COG Operating LLC.
BC Federal Tank Battery Well #40
LEA COUNTY, NEW MEXICO

[illegible]

COG Operating LLC.

COG Operating LLC.

BC Federal Tank Battery Well #40

LEA COUNTY, NEW MEXICO

[illegible]

Table 1

[illegible]

Table 1
COG Operating LLC.
BC Federal Tank Battery Well #40
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total						
AH-7	6/14/10	0-1'	N/A	X		1,000	23.9	1,024	<0.0200	<0.0200	<0.0200	<0.0200	<0.02	<200
	6/14/10	1-1.5'	N/A	X		-	-	-	-	-	-	-	-	276
	6/14/10	2-2.5'	N/A	X		-	-	-	-	-	-	-	-	1,560
	6/14/10	3-3.5'	N/A	X		-	-	-	-	-	-	-	-	1,940
	6/14/10	4-4.5'	N/A	X		-	-	-	-	-	-	-	-	1,900
	6/14/10	5-5.5'	N/A	X		-	-	-	-	-	-	-	-	1,420
	6/14/10	6-6.5'	N/A	X		-	-	-	-	-	-	-	-	2,800
	6/14/10	6.5-7'	N/A	X		-	-	-	-	-	-	-	-	2,050
SB-4	11/10/10	0-1'		X		-	-	-	-	-	-	-	-	1,870
	11/10/10	3'		X		-	-	-	-	-	-	-	-	1,700
	11/10/10	5'		X		-	-	-	-	-	-	-	-	934
	11/10/10	7'		X		-	-	-	-	-	-	-	-	830
	11/10/10	10'		X		-	-	-	-	-	-	-	-	1,370
	11/10/10	15'		X		-	-	-	-	-	-	-	-	4,200
	11/10/10	20'		X		-	-	-	-	-	-	-	-	2,120
	11/10/10	25'		X		-	-	-	-	-	-	-	-	<200
	11/10/10	30'		X		-	-	-	-	-	-	-	-	291
	11/10/10	40'		X		-	-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom
 (-) Not Analyzed
☐ Proposed Excavated Material

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #40
Lea County, New Mexico

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

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

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

16 South 32 East					
6	5	4	3	2	1
			85	285	265
7	8	9	10	11	12
					215
18	17	16	15	14	13
			221		215
19	20	21	22	23	24
220		210		210	
30	29	28	27	26	25
				243	
31	32	33	34	35	36
					260

17 South 32 East					
6	5	4	3	2	1
		82	75	60	225
7	8	9	10	11	12
				70	88
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
180 dry					
31	32	33	34	35	36

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

16 South 33 East					
6	5	4	3	2	1
	180	150	130	148	142
7	8	9	10	11	12
	200		182		142
18	17	16	15	14	13
	182	180	175	143	110
19	20	21	22	23	24
				120	
30	29	28	27	26	25
181		190	130	143	120
31	32	33	34	35	36
190	168		160		

17 South 33 East					
6	5	4	3	2	1
90		155	150	150	
7	8	9	10	11	12
167	173	181			
18	17	16	15	14	13
188	180				165
19	20	21	22	23	24
	190			115	
30	29	28	27	26	25
31	32	33	34	35	36
					155

18 South 33 East					
6	5	4	3	2	1
7	8	9	10	11	12
	100		62		143
					140
18	17	16	15	14	13
	85			36	60
19	20	21	22	23	24
>140					185
30	29	28	27	26	25
15					
31	32	33	34	35	36
			177		

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions In Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Tetra Tech temporary monitor well

Summary Report

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

Report Date: June 30, 2010

Work Order: 10061719



Project Location: Lea County, NM
Project Name: COG/BC Federal TB Well #40
Project Number: 114-6400548

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234829	AH-1 0-1'	soil	2010-06-14	00:00	2010-06-17
234830	AH-1 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234831	AH-1 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234832	AH-1 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234833	AH-1 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234834	AH-1 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234835	AH-1 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234836	AH-1 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234837	AH-1 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234838	AH-1 9-9.5'	soil	2010-06-14	00:00	2010-06-17
234839	AH-2 0-1'	soil	2010-06-14	00:00	2010-06-17
234840	AH-2 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234841	AH-2 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234842	AH-2 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234843	AH-2 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234844	AH-2 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234845	AH-2 5.5-6'	soil	2010-06-14	00:00	2010-06-17
234846	AH-3 0-1'	soil	2010-06-14	00:00	2010-06-17
234847	AH-3 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234848	AH-3 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234849	AH-3 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234850	AH-3 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234851	AH-3 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234852	AH-3 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234853	AH-4 0-1'	soil	2010-06-14	00:00	2010-06-17
234854	AH-4 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234855	AH-4 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234856	AH-4 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234857	AH-4 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234858	AH-4 5-5.5'	soil	2010-06-14	00:00	2010-06-17

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This is only a summary. Please, refer to the complete report package for quality control data.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234859	AH-4 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234860	AH-4 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234861	AH-4 7.5-8'	soil	2010-06-14	00:00	2010-06-17
234862	AH-5 0-1'	soil	2010-06-14	00:00	2010-06-17
234863	AH-5 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234864	AH-5 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234865	AH-5 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234866	AH-5 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234867	AH-5 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234868	AH-5 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234869	AH-5 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234870	AH-5 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234871	AH-5 9-9.5'	soil	2010-06-14	00:00	2010-06-17
234872	AH-6 0-1'	soil	2010-06-14	00:00	2010-06-17
234873	AH-6 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234874	AH-6 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234875	AH-6 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234876	AH-6 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234877	AH-6 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234878	AH-6 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234879	AH-6 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234880	AH-7 0-1'	soil	2010-06-14	00:00	2010-06-17
234881	AH-7 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234882	AH-7 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234883	AH-7 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234884	AH-7 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234885	AH-7 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234886	AH-7 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234887	AH-7 6.5-7'	soil	2010-06-14	00:00	2010-06-17
234888	AH-6 7.5-8'	soil	2010-06-14	00:00	2010-06-17

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
234829 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	569	<2.00
234839 - AH-2 0-1'					<50.0	<2.00
234846 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
234853 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
234862 - AH-5 0-1'					<50.0	<2.00
234872 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	0.0811	1420	<2.00
234880 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	1000	23.9

Sample: 234829 - AH-1 0-1'

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

Sample: 234830 - AH-1 1-1.5'

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

Sample: 234831 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		723	mg/Kg	4.00

Sample: 234832 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		971	mg/Kg	4.00

Sample: 234833 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		2700	mg/Kg	4.00

Sample: 234834 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		3600	mg/Kg	4.00

Sample: 234835 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		3720	mg/Kg	4.00

Sample: 234836 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2460	mg/Kg	4.00

Sample: 234837 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1640	mg/Kg	4.00

Sample: 234838 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		817	mg/Kg	4.00

Sample: 234839 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		207	mg/Kg	4.00

Sample: 234840 - AH-2 1-1.5'

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

Sample: 234841 - AH-2 2-2.5'

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

Sample: 234842 - AH-2 3-3.5'

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

Sample: 234843 - AH-2 4-4.5'

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

Sample: 234844 - AH-2 5-5.5'

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

Sample: 234845 - AH-2 5.5-6'

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

Sample: 234846 - AH-3 0-1'

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

Sample: 234847 - AH-3 1-1.5'

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

Sample: 234848 - AH-3 2-2.5'

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

Sample: 234849 - AH-3 3-3.5'

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

Sample: 234850 - AH-3 4-4.5'

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

Sample: 234851 - AH-3 5-5.5'

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

Sample: 234852 - AH-3 6-6.5'

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

Sample: 234853 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		3820	mg/Kg	4.00

Sample: 234854 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5200	mg/Kg	4.00

Sample: 234855 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		6150	mg/Kg	4.00

Sample: 234856 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4380	mg/Kg	4.00

Sample: 234857 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		6160	mg/Kg	4.00

Sample: 234858 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		2170	mg/Kg	4.00

Sample: 234859 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		2260	mg/Kg	4.00

Sample: 234860 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1490	mg/Kg	4.00

Sample: 234861 - AH-4 7.5-8'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4.00

Sample: 234862 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		2900	mg/Kg	4.00

Sample: 234863 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		6720	mg/Kg	4.00

Sample: 234864 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4250	mg/Kg	4.00

Sample: 234865 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2770	mg/Kg	4.00

Sample: 234866 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1740	mg/Kg	4.00

Sample: 234867 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 234868 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		1430	mg/Kg	4.00

Sample: 234869 - AH-5 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1340	mg/Kg	4.00

Sample: 234870 - AH-5 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1090	mg/Kg	4.00

Sample: 234871 - AH-5 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1210	mg/Kg	4.00

Sample: 234872 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		2430	mg/Kg	4.00

Sample: 234873 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1250	mg/Kg	4.00

Sample: 234874 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2850	mg/Kg	4.00

Sample: 234875 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2200	mg/Kg	4.00

Sample: 234876 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4.00

Sample: 234877 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		922	mg/Kg	4.00

Sample: 234878 - AH-6 6-6.5'

Param	Flag	Result	Units	RL
Chloride		1500	mg/Kg	4.00

Sample: 234879 - AH-6 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2790	mg/Kg	4.00

Sample: 234880 - AH-7 0-1'

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

Sample: 234881 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		276	mg/Kg	4.00

Sample: 234882 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1560	mg/Kg	4.00

Sample: 234883 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1940	mg/Kg	4.00

Sample: 234884 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1900	mg/Kg	4.00

Sample: 234885 - AH-7 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1420	mg/Kg	4.00

Sample: 234886 - AH-7 6-6.5'

Param	Flag	Result	Units	RL
Chloride		2800	mg/Kg	4.00

Sample: 234887 - AH-7 6.5-7'

Param	Flag	Result	Units	RL
Chloride		2050	mg/Kg	4.00

Sample: 234888 - AH-6 7.5-8'

Param	Flag	Result	Units	RL
Chloride		2850	mg/Kg	4.00

Summary Report

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

Report Date: November 19, 2010

Work Order: 10111510



Project Location: Lea Co., NM
Project Name: COG/BC Federal #40 Flowline
Project Number: 114-6400548

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250425	SB-1 0-1'	soil	2010-11-10	00:00	2010-11-15
250426	SB-1 3'	soil	2010-11-10	00:00	2010-11-15
250427	SB-1 5'	soil	2010-11-10	00:00	2010-11-15
250428	SB-1 7'	soil	2010-11-10	00:00	2010-11-15
250429	SB-1 10'	soil	2010-11-10	00:00	2010-11-15
250430	SB-1 15'	soil	2010-11-10	00:00	2010-11-15
250431	SB-1 20'	soil	2010-11-10	00:00	2010-11-15
250432	SB-1 25'	soil	2010-11-10	00:00	2010-11-15
250433	SB-1 30'	soil	2010-11-10	00:00	2010-11-15
250434	SB-1 40'	soil	2010-11-10	00:00	2010-11-15
250435	SB-2 0-1'	soil	2010-11-10	00:00	2010-11-15
250436	SB-2 3'	soil	2010-11-10	00:00	2010-11-15
250437	SB-2 5'	soil	2010-11-10	00:00	2010-11-15
250438	SB-2 7'	soil	2010-11-10	00:00	2010-11-15
250439	SB-2 10'	soil	2010-11-10	00:00	2010-11-15
250440	SB-2 15'	soil	2010-11-10	00:00	2010-11-15
250441	SB-2 20'	soil	2010-11-10	00:00	2010-11-15
250442	SB-2 25'	soil	2010-11-10	00:00	2010-11-15
250443	SB-2 30'	soil	2010-11-10	00:00	2010-11-15
250444	SB-2 40'	soil	2010-11-10	00:00	2010-11-15
250445	SB-3 0-1'	soil	2010-11-10	00:00	2010-11-15
250446	SB-3 3'	soil	2010-11-10	00:00	2010-11-15
250447	SB-3 5'	soil	2010-11-10	00:00	2010-11-15
250448	SB-3 7'	soil	2010-11-10	00:00	2010-11-15
250449	SB-3 10'	soil	2010-11-10	00:00	2010-11-15
250450	SB-3 15'	soil	2010-11-10	00:00	2010-11-15
250451	SB-3 20'	soil	2010-11-10	00:00	2010-11-15
250452	SB-3 25'	soil	2010-11-10	00:00	2010-11-15
250453	SB-3 30'	soil	2010-11-10	00:00	2010-11-15
250454	SB-3 40'	soil	2010-11-10	00:00	2010-11-15

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This is only a summary. Please, refer to the complete report package for quality control data.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250455	SB-4 0-1'	soil	2010-11-10	00:00	2010-11-15
250456	SB-4 3'	soil	2010-11-10	00:00	2010-11-15
250457	SB-4 5'	soil	2010-11-10	00:00	2010-11-15
250458	SB-4 7'	soil	2010-11-10	00:00	2010-11-15
250459	SB-4 10'	soil	2010-11-10	00:00	2010-11-15
250460	SB-4 15'	soil	2010-11-10	00:00	2010-11-15
250461	SB-4 20'	soil	2010-11-10	00:00	2010-11-15
250462	SB-4 25'	soil	2010-11-10	00:00	2010-11-15
250463	SB-4 30'	soil	2010-11-10	00:00	2010-11-15
250464	SB-4 40'	soil	2010-11-10	00:00	2010-11-15

Sample: 250425 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		1580	mg/Kg	4.00

Sample: 250426 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		964	mg/Kg	4.00

Sample: 250427 - SB-1 5'

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

Sample: 250428 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		495	mg/Kg	4.00

Sample: 250429 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		990	mg/Kg	4.00

Sample: 250430 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		4180	mg/Kg	4.00

Sample: 250431 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		2610	mg/Kg	4.00

Sample: 250432 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		328	mg/Kg	4.00

Sample: 250433 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		203	mg/Kg	4.00

Sample: 250434 - SB-1 40'

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

Sample: 250435 - SB-2 0-1'

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

Sample: 250436 - SB-2 3'

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

Sample: 250437 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		3390	mg/Kg	4.00

Sample: 250438 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		2430	mg/Kg	4.00

Sample: 250439 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		1860	mg/Kg	4.00

Sample: 250440 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		2640	mg/Kg	4.00

Sample: 250441 - SB-2 20'

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

Sample: 250442 - SB-2 25'

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

Sample: 250443 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		231	mg/Kg	4.00

Sample: 250444 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		273	mg/Kg	4.00

Sample: 250445 - SB-3 0-1'

Param	Flag	Result	Units	RL
Chloride		219	mg/Kg	4.00

Sample: 250446 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		239	mg/Kg	4.00

Sample: 250447 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		677	mg/Kg	4.00

Sample: 250448 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		479	mg/Kg	4.00

Sample: 250449 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 250450 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		1020	mg/Kg	4.00

Sample: 250451 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		1570	mg/Kg	4.00

Sample: 250452 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		770	mg/Kg	4.00

Sample: 250453 - SB-3 30'

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

Sample: 250454 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		338	mg/Kg	4.00

Sample: 250455 - SB-4 0-1'

Param	Flag	Result	Units	RL
Chloride		1870	mg/Kg	4.00

Sample: 250456 - SB-4 3'

Param	Flag	Result	Units	RL
Chloride		1700	mg/Kg	4.00

Sample: 250457 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		934	mg/Kg	4.00

Sample: 250458 - SB-4 7'

Param	Flag	Result	Units	RL
Chloride		830	mg/Kg	4.00

Sample: 250459 - SB-4 10'

Param	Flag	Result	Units	RL
Chloride		1370	mg/Kg	4.00

Sample: 250460 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4.00

Sample: 250461 - SB-4 20'

Param	Flag	Result	Units	RL
Chloride		2120	mg/Kg	4.00

Sample: 250462 - SB-4 25'

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

Sample: 250463 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		291	mg/Kg	4.00

Sample: 250464 - SB-4 40'

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

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	BC Federal #40 Flowline				
Company:	COG Operating LLC				
Section, Township and Range	Sec. 20	T17S	R32E		
Lease Number:	API-30-025-34783 39414				
County:	Lea County				
GPS:	32.826086° N			103.792069° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 0.3 miles, turn right 0.3 miles, turn left 0.7 miles to location.				

Release Data:

Date Released:	5/29/2010
Type Release:	Produced Water
Source of Contamination:	Flowline failure
Fluid Released:	80 bbls
Fluids Recovered:	60 bbls

Official Communication:

Name:	Pat Ellis		Aaron Hale
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) 661-9826
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		aaron.hale@tetrattech.com

Ranking Criteria

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

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

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

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

HOBBS OCD

JAN 12 2012

RECEIVED

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1234567890
1234567890





TETRA TECH

December 13, 2011

HOBBS OCD

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

JAN 12 2012

RECEIVED

**Re: Closure Request for COG Operating LLC.
BC Federal #40 Flow Line
Section 20, Township 17 South, Range 32 East
Lea County, New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #40 Flowline, located in Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.826086°, W 103.792069°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 29, 2010 and released approximately eighty (80) barrels of produced water. To alleviate the problem, COG personnel repaired the flowline. Sixty (60) barrels of standing fluids were recovered. 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' below ground surface. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well in Section 30 to a depth of 180' bgs and did not encounter groundwater. According to the New Mexico Oil Conservation Division (OCD) groundwater map, the average depth to groundwater in this area is approximately 175' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On June 14, 2010, Tetra Tech personnel inspected and sampled the spill area which measured approximately 170' x 55' east of the lease road and 65' x 15' west of the lease road. A total of seven (7) auger holes (AH-1 through AH-7) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Tetra Tech mobilized to the site again on November 10, 2010 with an air rotary drilling rig to further evaluate select areas of the spill. These areas were selected based on the laboratory data from the hand auger assessment activities. The areas around hand auger locations AH-4, AH-5, AH-6 and AH-7 were selected for further vertical delineation.

Referring to Table 1, all of the submitted samples were below the TPH RRAL. The chloride concentrations for the intervals sampled from AH-2 and AH-3 were below laboratory detection levels (200 mg/kg). The maximum chloride concentrations observed in AH-1, SB-1, SB-2, SB-3 and SB-4 were 3,720 mg/kg (5-5.5' bgs), 4,180 mg/kg (15' bgs), 3,390 mg/kg (5' bgs), 1,570 mg/kg (20' bgs) and 4,200 mg/kg (15' bgs), respectively. All five of these sample locations exhibited decreasing concentrations with depth after their maximum observed chloride concentration.



TETRA TECH

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The final excavation depths of the soil remediation were met or exceeded, as stated in the approved work plan. The area adjacent to AH-1 was excavated to a depth of approximately 8.5' bgs. The area adjacent to SB-1 and SB-2 was excavated to approximately 15' bgs and the area adjacent to SB-3 and SB-4 was excavated to approximately 20' bgs. A total of 3,680 cubic yards of soil were excavated and hauled to proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4. Prior to backfilling, the excavations were inspected by the BLM and approved the backfilling. The excavations were backfilled with clean soil to grade.

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

Respectfully submitted,
TETRA TECH, INC.



Ike Tavaraz, PG
Senior Project Manager

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

FIGURES



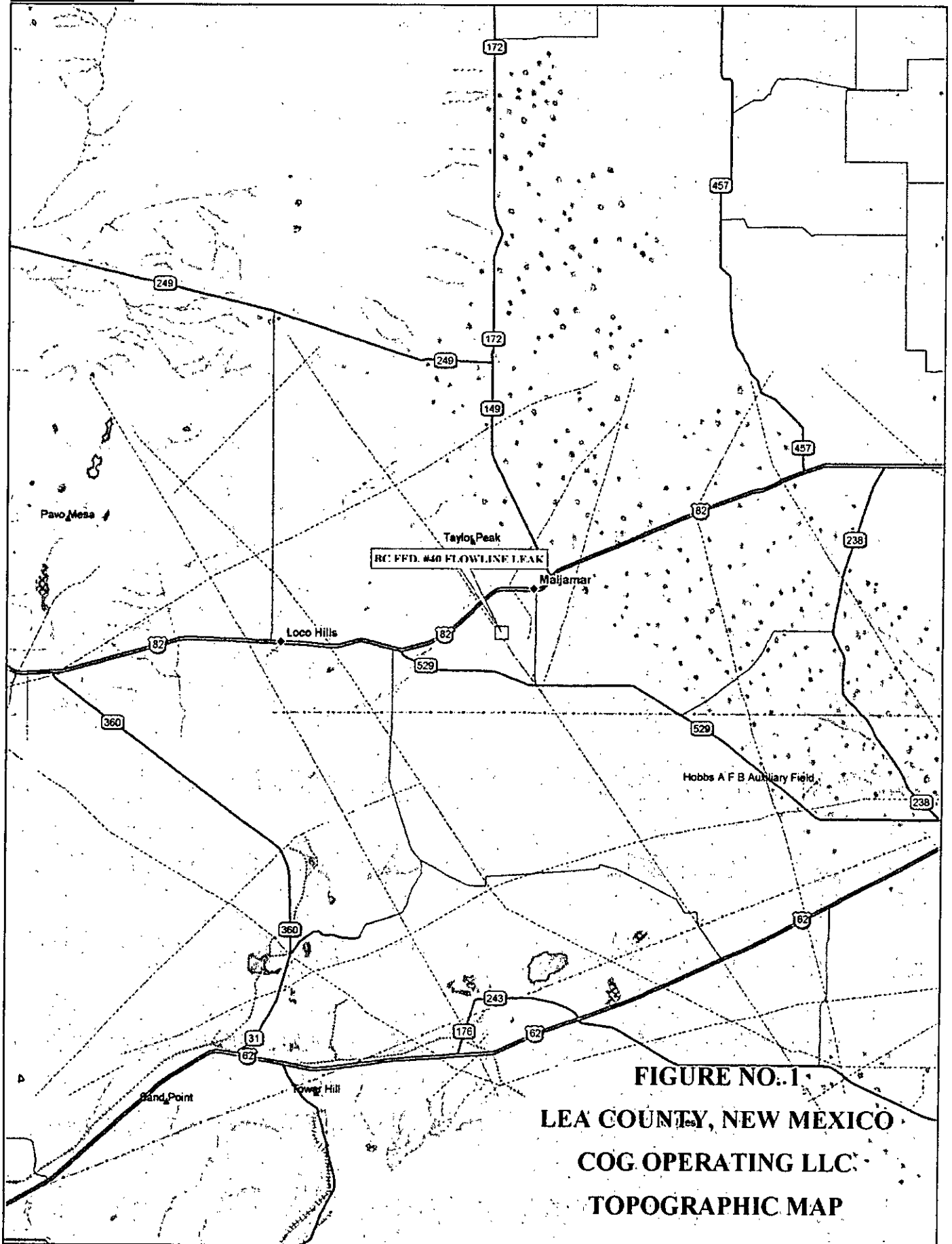
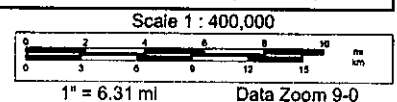
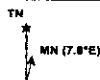


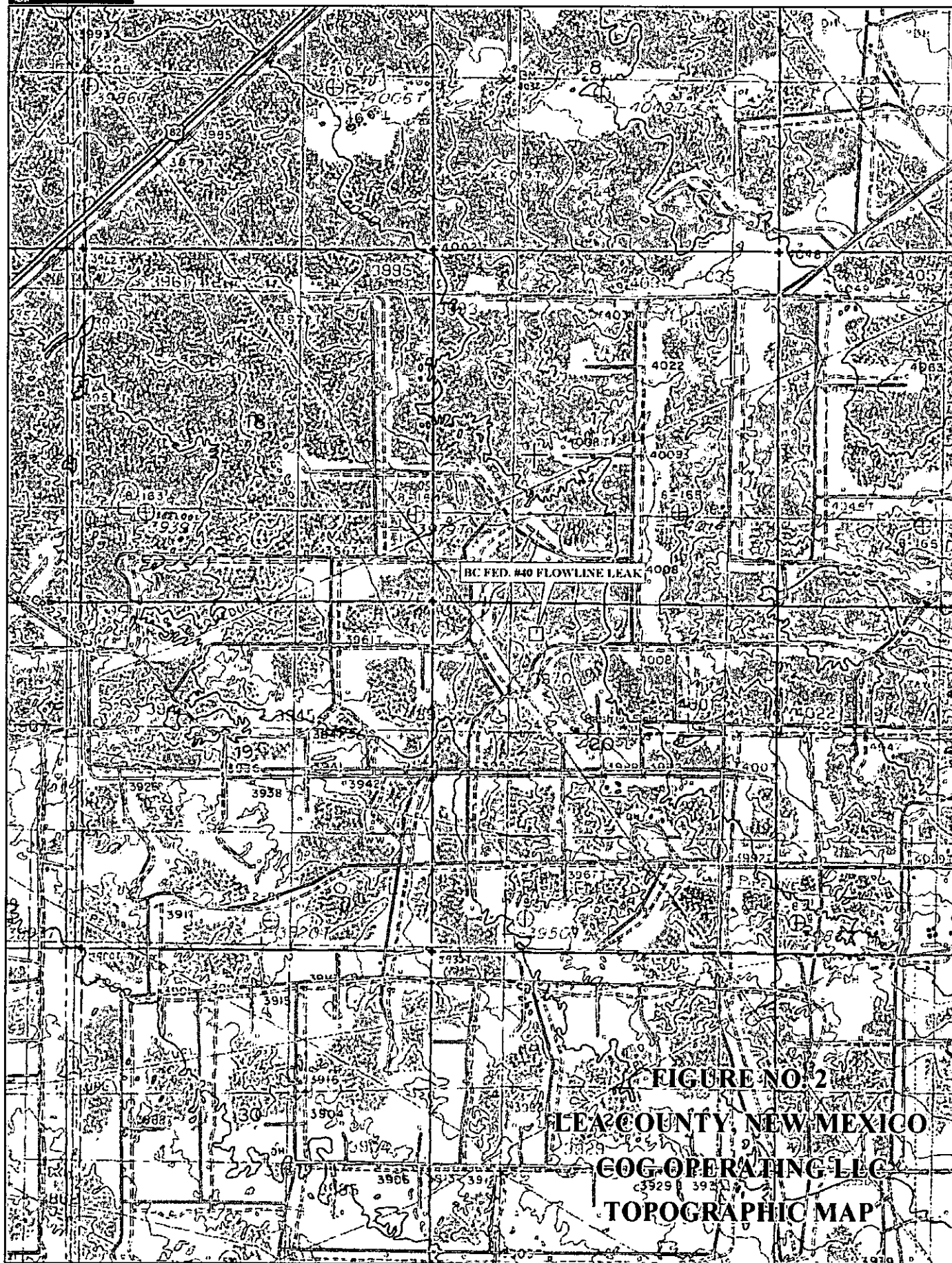
FIGURE NO.1
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

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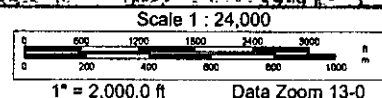
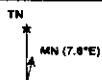




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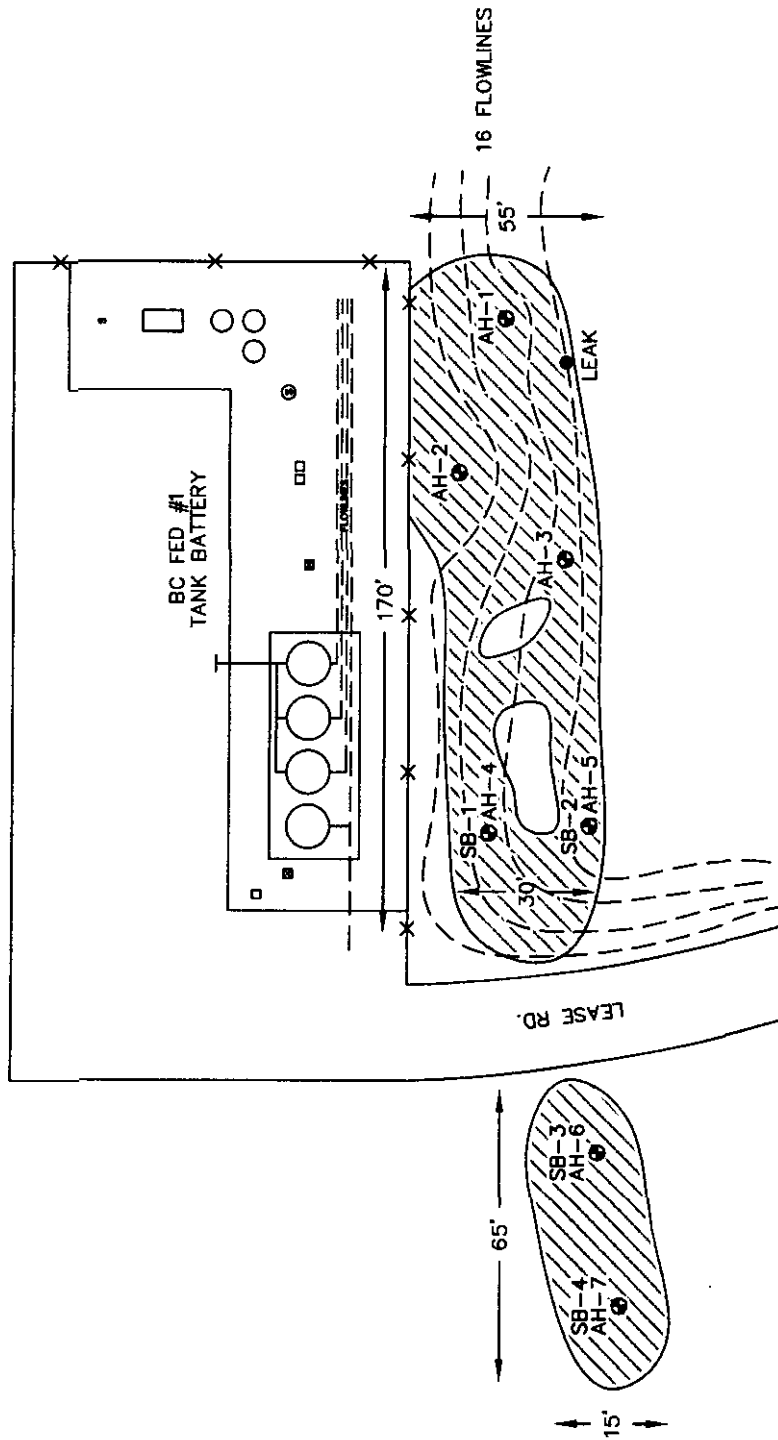


FIGURE NO. 3

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
BC FED #40 FLOWLINE LEAK
TETRA TECH, INC. MIDLAND, TEXAS

DATE:	6/25/10
DRAWN BY:	JJ
FILE:	BC FED #40 FLOWLINE LEAK

NOT TO SCALE

- ☒ SPILL AREA
- ☒ AUGER HOLE SAMPLE LOCATIONS
- ☒ SOIL BORING SAMPLE LOCATIONS



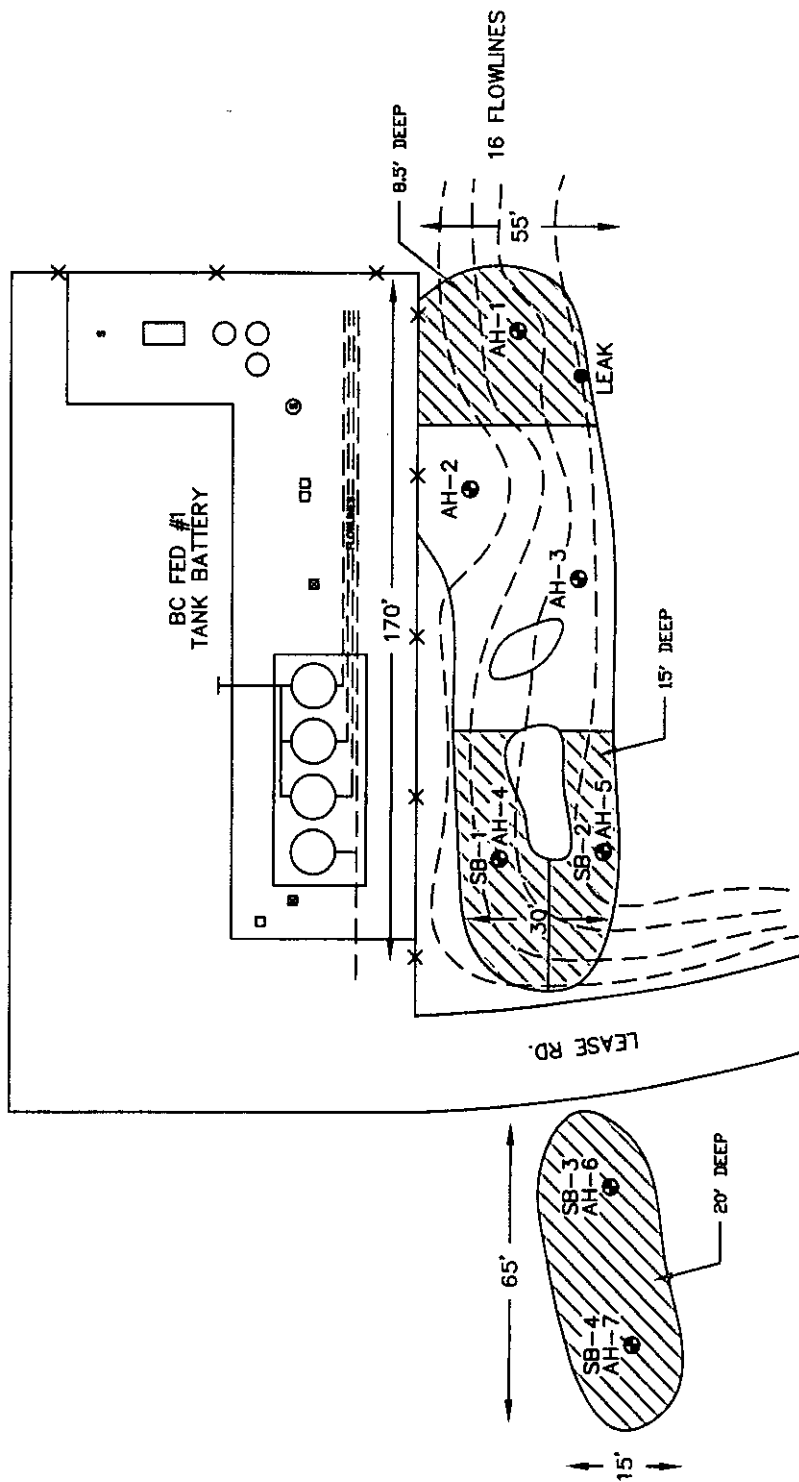


FIGURE NO. 4

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

BC FED #40 FLOWLINE LEAK
EXCAVATION MAP

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 12/14/2011

DRAWN BY: TM

FILE: H:\COG\6400348
BC FED #40

NOT TO SCALE

- EXCAVATED AREA
- AUGER HOLE SAMPLE LOCATIONS
- SOIL BORING SAMPLE LOCATIONS

TABLES

**COG Operating LLC.
BC Federal Tank Battery Well #40
LEA COUNTY, NEW MEXICO**

[illegible]

Table 1

[illegible]

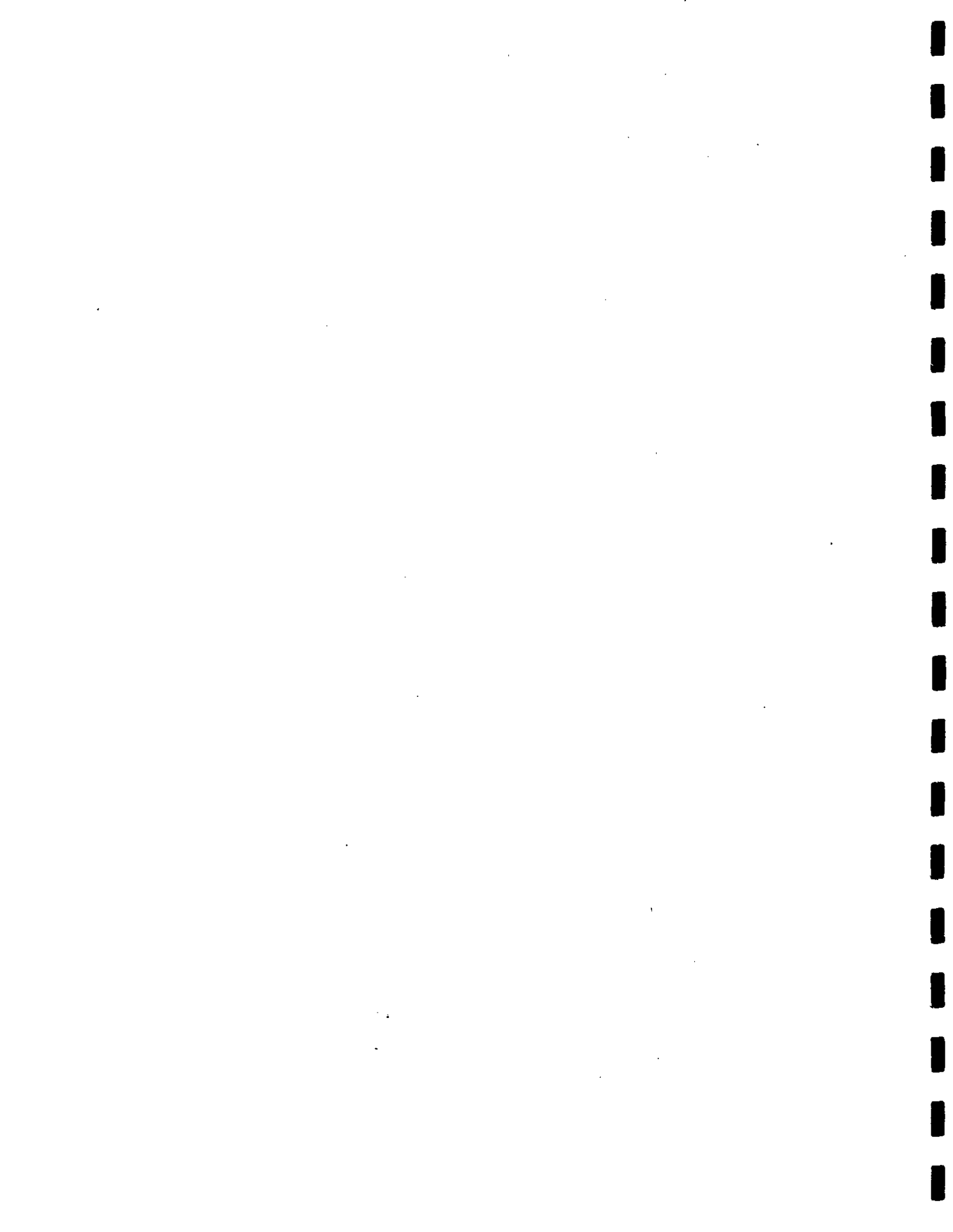


Table 1

[illegible]

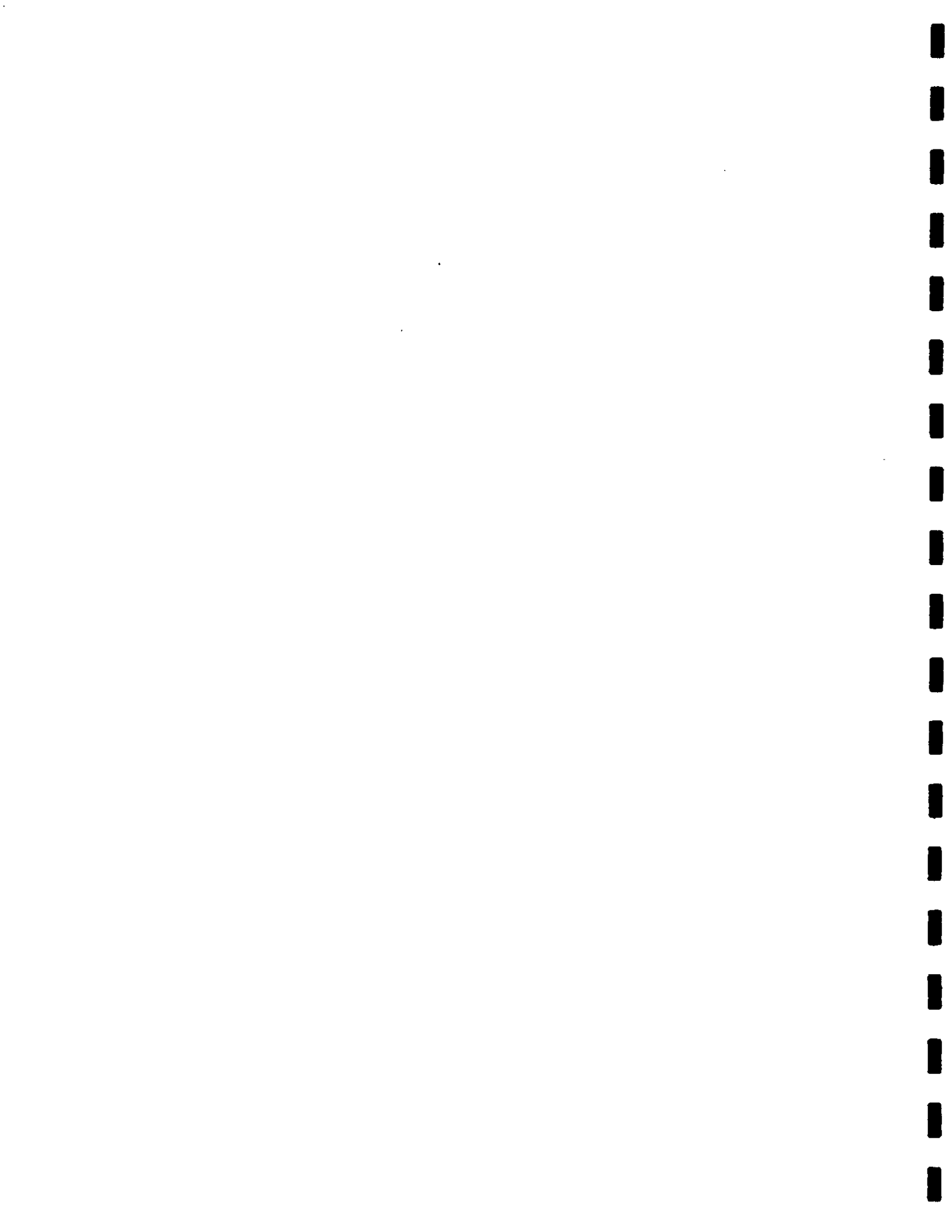


Table 1

COG Operating LLC.
BC Federal Tank Battery Well #40
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total						
AH-7	6/14/10	0-1'	N/A		X	1,000	23.9	1,024	<0.0200	<0.0200	<0.0200	<0.0200	<0.02	<200
	6/14/10	1-1.5'	N/A		X	-	-	-	-	-	-	-	-	276
	6/14/10	2-2.5'	N/A		X	-	-	-	-	-	-	-	-	1,560
	6/14/10	3-3.5'	N/A		X	-	-	-	-	-	-	-	-	1,940
	6/14/10	4-4.5'	N/A		X	-	-	-	-	-	-	-	-	1,900
	6/14/10	5-5.5'	N/A		X	-	-	-	-	-	-	-	-	1,420
	6/14/10	6-6.5'	N/A		X	-	-	-	-	-	-	-	-	2,800
	6/14/10	6.5-7'	N/A		X	-	-	-	-	-	-	-	-	2,050
SB-4	11/10/10	0-1'			X	-	-	-	-	-	-	-	-	1,870
	11/10/10	3'			X	-	-	-	-	-	-	-	-	1,700
	11/10/10	5'			X	-	-	-	-	-	-	-	-	934
	11/10/10	7'			X	-	-	-	-	-	-	-	-	830
	11/10/10	10'			X	-	-	-	-	-	-	-	-	1,370
	11/10/10	15'			X	-	-	-	-	-	-	-	-	4,200
	11/10/10	20'			X	-	-	-	-	-	-	-	-	2,120
	11/10/10	25'		X		-	-	-	-	-	-	-	-	<200
	11/10/10	30'		X		-	-	-	-	-	-	-	-	291
	11/10/10	40'		X		-	-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom

(-) Not Analyzed

 Excavated Material and Depths

APPENDIX A

2000

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #40
Lea County, New Mexico

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

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

18 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
					400
18	17	16	15	14	13
					317
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					281

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

17 South 32 East					
6	5	4	3	2	1
		82	875	60	225
7	8	9	10	11	12
				70	
18	17	16	15	14	13
					88
19	20	21	22	23	24
30	29	28	27	26	25
180 dry					
31	32	33	34	35	36

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

16 South 33 East					
6	5	4	3	2	1
	180	150	130		
7	8	9	10	11	12
	200		182		142
18	17	16	15	14	13
	182	180	175	143	110
19	20	21	22	23	24
				120	
30	29	28	27	26	25
191		190	130	143	120
31	32	33	34	35	36
190	168		160		

17 South 33 East					
6	5	4	3	2	1
90			155	158	150
7	8	9	10	11	12
167					
	173	161			
18	17	16	15	14	13
188	180				165
19	20	21	22	23	24
	190			115	
30	29	28	27	26	25
31	32	33	34	35	36
				155	

18 South 33 East					
6	5	4	3	2	1
7	8	9	10	11	12
	100				143
			62		140
18	17	16	15	14	13
	85			38	60
19	20	21	22	23	24
>140					195
30	29	28	27	26	25
35					
31	32	33	34	35	36
			177		

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Tetra Tech temporary monitor well



Summary Report

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

Report Date: June 30, 2010

Work Order: 10061719



Project Location: Lea County, NM
Project Name: COG/BC Federal TB Well #40
Project Number: 114-6400548

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234829	AH-1 0-1'	soil	2010-06-14	00:00	2010-06-17
234830	AH-1 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234831	AH-1 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234832	AH-1 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234833	AH-1 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234834	AH-1 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234835	AH-1 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234836	AH-1 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234837	AH-1 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234838	AH-1 9-9.5'	soil	2010-06-14	00:00	2010-06-17
234839	AH-2 0-1'	soil	2010-06-14	00:00	2010-06-17
234840	AH-2 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234841	AH-2 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234842	AH-2 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234843	AH-2 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234844	AH-2 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234845	AH-2 5.5-6'	soil	2010-06-14	00:00	2010-06-17
234846	AH-3 0-1'	soil	2010-06-14	00:00	2010-06-17
234847	AH-3 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234848	AH-3 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234849	AH-3 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234850	AH-3 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234851	AH-3 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234852	AH-3 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234853	AH-4 0-1'	soil	2010-06-14	00:00	2010-06-17
234854	AH-4 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234855	AH-4 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234856	AH-4 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234857	AH-4 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234858	AH-4 5-5.5'	soil	2010-06-14	00:00	2010-06-17

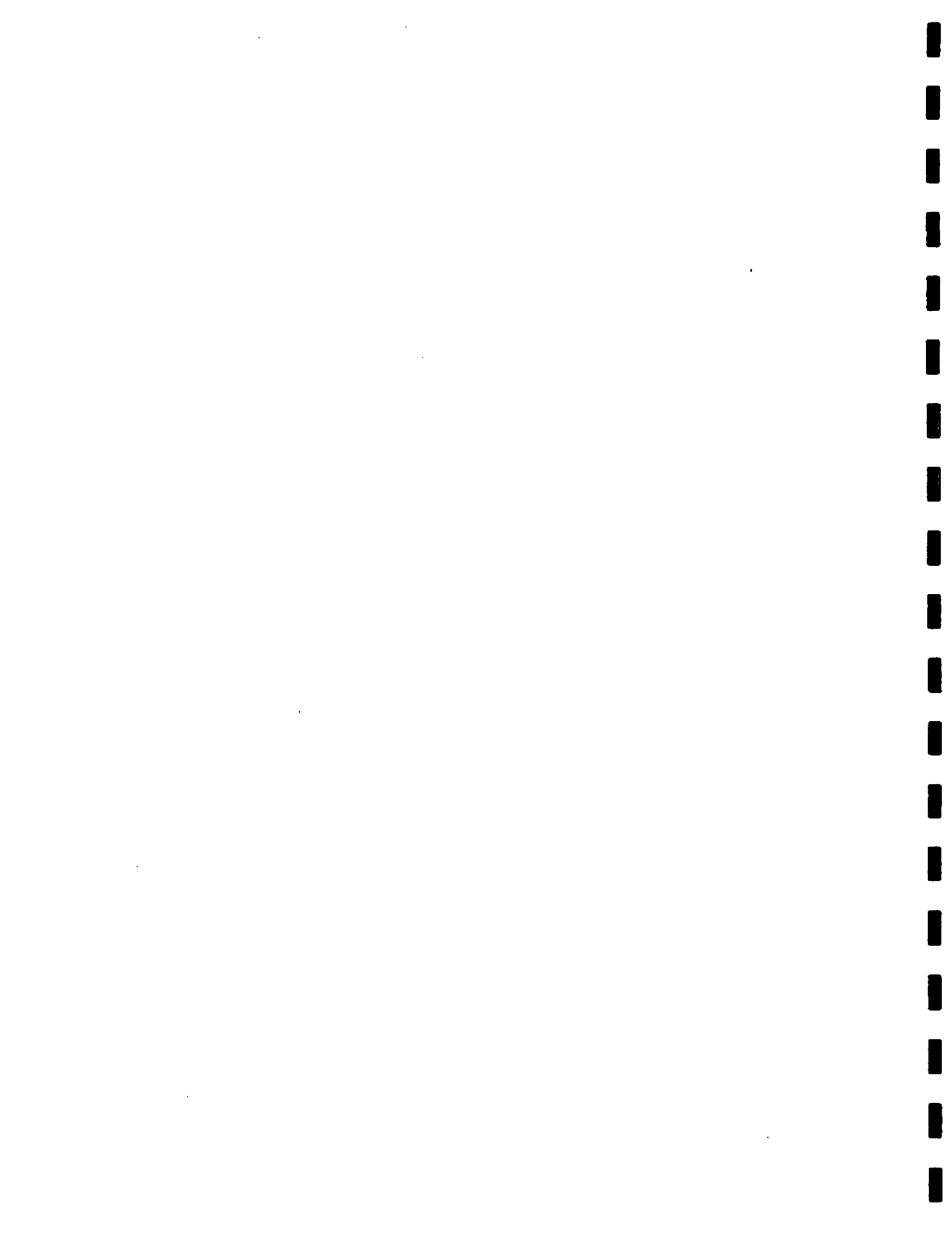


Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234859	AH-4 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234860	AH-4 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234861	AH-4 7.5-8'	soil	2010-06-14	00:00	2010-06-17
234862	AH-5 0-1'	soil	2010-06-14	00:00	2010-06-17
234863	AH-5 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234864	AH-5 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234865	AH-5 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234866	AH-5 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234867	AH-5 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234868	AH-5 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234869	AH-5 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234870	AH-5 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234871	AH-5 9-9.5'	soil	2010-06-14	00:00	2010-06-17
234872	AH-6 0-1'	soil	2010-06-14	00:00	2010-06-17
234873	AH-6 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234874	AH-6 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234875	AH-6 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234876	AH-6 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234877	AH-6 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234878	AH-6 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234879	AH-6 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234880	AH-7 0-1'	soil	2010-06-14	00:00	2010-06-17
234881	AH-7 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234882	AH-7 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234883	AH-7 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234884	AH-7 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234885	AH-7 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234886	AH-7 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234887	AH-7 6.5-7'	soil	2010-06-14	00:00	2010-06-17
234888	AH-6 7.5-8'	soil	2010-06-14	00:00	2010-06-17

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
234829 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	569	<2.00
234839 - AH-2 0-1'					<50.0	<2.00
234846 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
234853 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
234862 - AH-5 0-1'					<50.0	<2.00
234872 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	0.0811	1420	<2.00
234880 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	1000	23.9

Sample: 234829 - AH-1 0-1'

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



Sample: 234830 - AH-1 1-1.5'

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

Sample: 234831 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		723	mg/Kg	4.00

Sample: 234832 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		971	mg/Kg	4.00

Sample: 234833 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		2700	mg/Kg	4.00

Sample: 234834 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		3600	mg/Kg	4.00

Sample: 234835 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		3720	mg/Kg	4.00

Sample: 234836 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2460	mg/Kg	4.00

Sample: 234837 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1640	mg/Kg	4.00

Sample: 234838 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		817	mg/Kg	4.00

Sample: 234839 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		207	mg/Kg	4.00

Sample: 234840 - AH-2 1-1.5'

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

Sample: 234841 - AH-2 2-2.5'

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

Sample: 234842 - AH-2 3-3.5'

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

Sample: 234843 - AH-2 4-4.5'

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

Sample: 234844 - AH-2 5-5.5'

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

Sample: 234845 - AH-2 5.5-6'

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



Sample: 234846 - AH-3 0-1'

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

Sample: 234847 - AH-3 1-1.5'

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

Sample: 234848 - AH-3 2-2.5'

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

Sample: 234849 - AH-3 3-3.5'

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

Sample: 234850 - AH-3 4-4.5'

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

Sample: 234851 - AH-3 5-5.5'

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

Sample: 234852 - AH-3 6-6.5'

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

Sample: 234853 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		3820	mg/Kg	4.00



Sample: 234854 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5200	mg/Kg	4.00

Sample: 234855 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		6150	mg/Kg	4.00

Sample: 234856 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4380	mg/Kg	4.00

Sample: 234857 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		6160	mg/Kg	4.00

Sample: 234858 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		2170	mg/Kg	4.00

Sample: 234859 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		2260	mg/Kg	4.00

Sample: 234860 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1490	mg/Kg	4.00

Sample: 234861 - AH-4 7.5-8'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4.00



Sample: 234862 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		2900	mg/Kg	4.00

Sample: 234863 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		6720	mg/Kg	4.00

Sample: 234864 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4250	mg/Kg	4.00

Sample: 234865 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2770	mg/Kg	4.00

Sample: 234866 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1740	mg/Kg	4.00

Sample: 234867 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 234868 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		1430	mg/Kg	4.00

Sample: 234869 - AH-5 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1340	mg/Kg	4.00

Sample: 234870 - AH-5 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1090	mg/Kg	4.00

Sample: 234871 - AH-5 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1210	mg/Kg	4.00

Sample: 234872 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		2430	mg/Kg	4.00

Sample: 234873 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1250	mg/Kg	4.00

Sample: 234874 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2850	mg/Kg	4.00

Sample: 234875 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2200	mg/Kg	4.00

Sample: 234876 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4.00

Sample: 234877 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		922	mg/Kg	4.00

Sample: 234878 - AH-6 6-6.5'

Param	Flag	Result	Units	RL
Chloride		1500	mg/Kg	4.00

Sample: 234879 - AH-6 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2790	mg/Kg	4.00

Sample: 234880 - AH-7 0-1'

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

Sample: 234881 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		276	mg/Kg	4.00

Sample: 234882 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1560	mg/Kg	4.00

Sample: 234883 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1940	mg/Kg	4.00

Sample: 234884 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1900	mg/Kg	4.00

Sample: 234885 - AH-7 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1420	mg/Kg	4.00



Sample: 234886 - AH-7 6-6.5'

Param	Flag	Result	Units	RL
Chloride		2800	mg/Kg	4.00

Sample: 234887 - AH-7 6.5-7'

Param	Flag	Result	Units	RL
Chloride		2050	mg/Kg	4.00

Sample: 234888 - AH-6 7.5-8'

Param	Flag	Result	Units	RL
Chloride		2850	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
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: June 30, 2010

Work Order: 10061719



Project Location: Lea County, NM
Project Name: COG/BC Federal TB Well #40
Project Number: 114-6400548

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
234829	AH-1 0-1'	soil	2010-06-14	00:00	2010-06-17
234830	AH-1 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234831	AH-1 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234832	AH-1 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234833	AH-1 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234834	AH-1 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234835	AH-1 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234836	AH-1 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234837	AH-1 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234838	AH-1 9-9.5'	soil	2010-06-14	00:00	2010-06-17



Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234839	AH-2 0-1'	soil	2010-06-14	00:00	2010-06-17
234840	AH-2 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234841	AH-2 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234842	AH-2 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234843	AH-2 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234844	AH-2 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234845	AH-2 5.5-6'	soil	2010-06-14	00:00	2010-06-17
234846	AH-3 0-1'	soil	2010-06-14	00:00	2010-06-17
234847	AH-3 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234848	AH-3 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234849	AH-3 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234850	AH-3 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234851	AH-3 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234852	AH-3 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234853	AH-4 0-1'	soil	2010-06-14	00:00	2010-06-17
234854	AH-4 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234855	AH-4 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234856	AH-4 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234857	AH-4 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234858	AH-4 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234859	AH-4 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234860	AH-4 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234861	AH-4 7.5-8'	soil	2010-06-14	00:00	2010-06-17
234862	AH-5 0-1'	soil	2010-06-14	00:00	2010-06-17
234863	AH-5 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234864	AH-5 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234865	AH-5 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234866	AH-5 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234867	AH-5 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234868	AH-5 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234869	AH-5 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234870	AH-5 8-8.5'	soil	2010-06-14	00:00	2010-06-17
234871	AH-5 9-9.5'	soil	2010-06-14	00:00	2010-06-17
234872	AH-6 0-1'	soil	2010-06-14	00:00	2010-06-17
234873	AH-6 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234874	AH-6 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234875	AH-6 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234876	AH-6 4-4.5'	soil	2010-06-14	00:00	2010-06-17
234877	AH-6 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234878	AH-6 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234879	AH-6 7-7.5'	soil	2010-06-14	00:00	2010-06-17
234880	AH-7 0-1'	soil	2010-06-14	00:00	2010-06-17
234881	AH-7 1-1.5'	soil	2010-06-14	00:00	2010-06-17
234882	AH-7 2-2.5'	soil	2010-06-14	00:00	2010-06-17
234883	AH-7 3-3.5'	soil	2010-06-14	00:00	2010-06-17
234884	AH-7 4-4.5'	soil	2010-06-14	00:00	2010-06-17



Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234885	AH-7 5-5.5'	soil	2010-06-14	00:00	2010-06-17
234886	AH-7 6-6.5'	soil	2010-06-14	00:00	2010-06-17
234887	AH-7 6.5-7'	soil	2010-06-14	00:00	2010-06-17
234888	AH-6 7.5-8'	soil	2010-06-14	00:00	2010-06-17

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 46 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/BC Federal TB Well #40 were received by TraceAnalysis, Inc. on 2010-06-17 and assigned to work order 10061719. Samples for work order 10061719 were received intact at a temperature of 3.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	60862	2010-06-19 at 17:15	71050	2010-06-19 at 19:03
BTEX	S 8021B	60936	2010-06-24 at 09:00	71176	2010-06-24 at 10:53
Chloride (Titration)	SM 4500-Cl B	60878	2010-06-22 at 11:56	71155	2010-06-24 at 15:35
Chloride (Titration)	SM 4500-Cl B	60879	2010-06-22 at 13:57	71156	2010-06-24 at 15:36
Chloride (Titration)	SM 4500-Cl B	60880	2010-06-22 at 13:57	71157	2010-06-24 at 15:37
Chloride (Titration)	SM 4500-Cl B	60881	2010-06-22 at 13:58	71158	2010-06-24 at 15:38
Chloride (Titration)	SM 4500-Cl B	60914	2010-06-23 at 12:05	71204	2010-06-25 at 15:09
Chloride (Titration)	SM 4500-Cl B	60915	2010-06-23 at 12:06	71205	2010-06-25 at 15:10
Chloride (Titration)	SM 4500-Cl B	60917	2010-06-23 at 12:07	71246	2010-06-28 at 13:44
TPH DRO - NEW	S 8015 D	60928	2010-06-23 at 16:50	71122	2010-06-23 at 16:50
TPH GRO	S 8015 D	60862	2010-06-19 at 17:15	71051	2010-06-19 at 19:28
TPH GRO	S 8015 D	60936	2010-06-24 at 09:00	71177	2010-06-24 at 11:21

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 10061719 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: June 30, 2010
114-6400548

Work Order: 10061719
COG/BC Federal TB Well #40

Page Number: 5 of 46
Lea County, NM

Analytical Report

Sample: 234829 - AH-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 71050
Prep Batch: 60862

Analytical Method: S 8021B
Date Analyzed: 2010-06-19
Sample Preparation: 2010-06-19

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.59	mg/Kg	1	2.00	80	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.44	mg/Kg	1	2.00	72	38.4 - 157

Sample: 234829 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71155
Prep Batch: 60878

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-22

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: 234829 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 71122
Prep Batch: 60928

Analytical Method: S 8015 D
Date Analyzed: 2010-06-23
Sample Preparation: 2010-06-23

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		569	mg/Kg	1	50.0

Report Date: June 30, 2010
114-6400548

Work Order: 10061719
COG/BC Federal TB Well #40

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Lea County, NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	1	198	mg/Kg	1	100	198	70 - 130

Sample: 234829 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 71051 Date Analyzed: 2010-06-19 Analyzed By: AG
Prep Batch: 60862 Sample Preparation: 2010-06-19 Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.88	mg/Kg	1	2.00	94	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.60	mg/Kg	1	2.00	80	42 - 159

Sample: 234830 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71155 Date Analyzed: 2010-06-24 Analyzed By: AR
Prep Batch: 60878 Sample Preparation: 2010-06-22 Prepared By: AR

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

Sample: 234831 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71155 Date Analyzed: 2010-06-24 Analyzed By: AR
Prep Batch: 60878 Sample Preparation: 2010-06-22 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		723	mg/Kg	50	4.00

¹ High surrogate recovery due to peak interference.

Report Date: June 30, 2010
114-6400548

Work Order: 10061719
COG/BC Federal TB Well #40

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Lea County, NM

Sample: 234832 - AH-1 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71155	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60878				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		971	mg/Kg	100	4.00

Sample: 234833 - AH-1 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71155	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60878				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2700	mg/Kg	100	4.00

Sample: 234834 - AH-1 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71155	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60878				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3600	mg/Kg	100	4.00

Sample: 234835 - AH-1 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71155	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60878				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3720	mg/Kg	100	4.00

Report Date: June 30, 2010
114-6400548

Work Order: 10061719
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Lea County, NM

Sample: 234836 - AH-1 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2460	mg/Kg	100	4.00

Sample: 234837 - AH-1 8-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1640	mg/Kg	100	4.00

Sample: 234838 - AH-1 9-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		817	mg/Kg	100	4.00

Sample: 234839 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		207	mg/Kg	50	4.00

Report Date: June 30, 2010
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Work Order: 10061719
COG/BC Federal TB Well #40

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Lea County, NM

Sample: 234839 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRÖ - NEW	Date Analyzed:	2010-06-23	Analyzed By:	kg
QC Batch:	71122	Sample Preparation:	2010-06-23	Prepared By:	kg
Prep Batch:	60928				

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		119	mg/Kg	1	100	119	70 - 130

Sample: 234839 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-06-19	Analyzed By:	AG
QC Batch:	71051	Sample Preparation:	2010-06-19	Prepared By:	AG
Prep Batch:	60862				

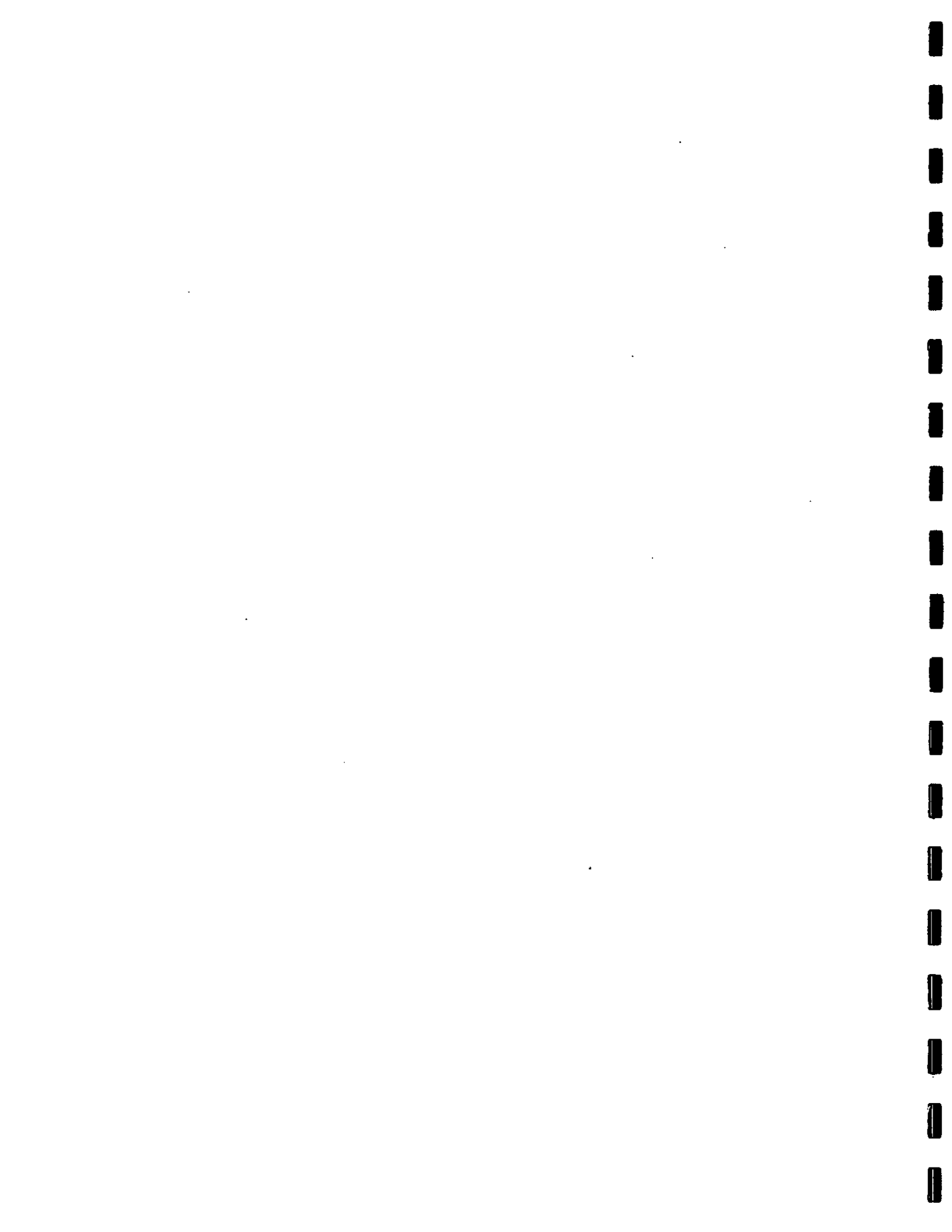
Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.11	mg/Kg	1	2.00	106	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.78	mg/Kg	1	2.00	89	42 - 159

Sample: 234840 - AH-2 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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



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Sample: 234841 - AH-2 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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

Sample: 234842 - AH-2 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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

Sample: 234843 - AH-2 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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

Sample: 234844 - AH-2 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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

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Sample: 234845 - AH-2 5.5-6'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71156	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60879				

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

Sample: 234846 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-06-19	Analyzed By:	AG
QC Batch:	71050	Sample Preparation:	2010-06-19	Prepared By:	AG
Prep Batch:	60862				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.18	mg/Kg	1	2.00	109	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.97	mg/Kg	1	2.00	98	38.4 - 157

Sample: 234846 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

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

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Sample: 234846 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 71122

Prep Batch: 60928

Analytical Method: S 8015 D

Date Analyzed: 2010-06-23

Sample Preparation: 2010-06-23

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		112	mg/Kg	1	100	112	70 - 130

Sample: 234846 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 71051

Prep Batch: 60862

Analytical Method: S 8015 D

Date Analyzed: 2010-06-19

Sample Preparation: 2010-06-19

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.59	mg/Kg	1	2.00	130	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.17	mg/Kg	1	2.00	108	42 - 159

Sample: 234847 - AH-3 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 71157

Prep Batch: 60880

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-06-24

Sample Preparation: 2010-06-22

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: 234848 - AH-3 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

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

Sample: 234849 - AH-3 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

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

Sample: 234850 - AH-3 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

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

Sample: 234851 - AH-3 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

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

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Sample: 234852 - AH-3 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71157 Date Analyzed: 2010-06-24 Analyzed By: AR
Prep Batch: 60880 Sample Preparation: 2010-06-22 Prepared By: AR

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

Sample: 234853 - AH-4 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 71176 Date Analyzed: 2010-06-24 Analyzed By: AG
Prep Batch: 60936 Sample Preparation: 2010-06-24 Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.63	mg/Kg	1	2.00	132	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.37	mg/Kg	1	2.00	118	38.4 - 157

Sample: 234853 - AH-4 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71157 Date Analyzed: 2010-06-24 Analyzed By: AR
Prep Batch: 60880 Sample Preparation: 2010-06-22 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3820	mg/Kg	100	4.00

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Sample: 234853 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-06-23	Analyzed By:	kg
QC Batch:	71122	Sample Preparation:	2010-06-23	Prepared By:	kg
Prep Batch:	60928				

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		112	mg/Kg	1	100	112	70 - 130

Sample: 234853 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-06-24	Analyzed By:	AG
QC Batch:	71177	Sample Preparation:	2010-06-24	Prepared By:	AG
Prep Batch:	60936				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		3.04	mg/Kg	1	2.00	152	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.55	mg/Kg	1	2.00	128	42 - 159

Sample: 234854 - AH-4 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71157	Sample Preparation:	2010-06-22	Prepared By:	AR
Prep Batch:	60880				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5200	mg/Kg	100	4.00

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Sample: 234855 - AH-4 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71157
Prep Batch: 60880

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-22

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6150	mg/Kg	100	4.00

Sample: 234856 - AH-4 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71158
Prep Batch: 60881

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-23

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4380	mg/Kg	100	4.00

Sample: 234857 - AH-4 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71158
Prep Batch: 60881

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-23

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6160	mg/Kg	100	4.00

Sample: 234858 - AH-4 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71158
Prep Batch: 60881

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-23

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

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

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Sample: 234859 - AH-4 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2260	mg/Kg	100	4.00

Sample: 234860 - AH-4 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

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

Sample: 234861 - AH-4 7.5-8'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

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

Sample: 234862 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2900	mg/Kg	100	4.00

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Sample: 234862 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 71122
Prep Batch: 60928

Analytical Method: S 8015 D
Date Analyzed: 2010-06-23
Sample Preparation: 2010-06-23

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: 234862 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 71177
Prep Batch: 60936

Analytical Method: S 8015 D
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-24

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.63	mg/Kg	1	2.00	132	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.23	mg/Kg	1	2.00	112	42 - 159

Sample: 234863 - AH-5 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71158
Prep Batch: 60881

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-23

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

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

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Sample: 234864 - AH-5 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4250	mg/Kg	100	4.00

Sample: 234865 - AH-5 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-24	Analyzed By:	AR
QC Batch:	71158	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60881				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2770	mg/Kg	100	4.00

Sample: 234866 - AH-5 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1740	mg/Kg	100	4.00

Sample: 234867 - AH-5 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1300	mg/Kg	100	4.00

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Sample: 234868 - AH-5 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1430	mg/Kg	100	4.00

Sample: 234869 - AH-5 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1340	mg/Kg	100	4.00

Sample: 234870 - AH-5 8-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1090	mg/Kg	100	4.00

Sample: 234871 - AH-5 9-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1210	mg/Kg	100	4.00

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Sample: 234872 - AH-6 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 71176
Prep Batch: 60936

Analytical Method: S 8021B
Date Analyzed: 2010-06-24
Sample Preparation: 2010-06-24

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<0.0200	mg/Kg	1	0.0200
Ethylbenzene		<0.0200	mg/Kg	1	0.0200
Xylene		0.0811	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.57	mg/Kg	1	2.00	78	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.51	mg/Kg	1	2.00	76	38.4 - 157

Sample: 234872 - AH-6 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71204
Prep Batch: 60914

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-25
Sample Preparation: 2010-06-23

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

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

Sample: 234872 - AH-6 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 71122
Prep Batch: 60928

Analytical Method: S 8015 D
Date Analyzed: 2010-06-23
Sample Preparation: 2010-06-23

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1420	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²	335	mg/Kg	1	100	335	70 - 130

²High surrogate recovery due to peak interference.

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Sample: 234872 - AH-6 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-06-24	Analyzed By:	AG
QC Batch:	71177	Sample Preparation:	2010-06-24	Prepared By:	AG
Prep Batch:	60936				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO	³	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	⁴	1.8449	mg/Kg	1	2.00		48.5 - 152
4-Bromofluorobenzene (4-BFB)	⁵	2.9554	mg/Kg	1	2.00		42 - 159

Sample: 234873 - AH-6 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1250	mg/Kg	100	4.00

Sample: 234874 - AH-6 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2850	mg/Kg	100	4.00

Sample: 234875 - AH-6 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71204	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60914				

³ Not entered

⁴ Not entered

⁵ Not entered

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2200	mg/Kg	100	4.00

Sample: 234876 - AH-6 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71205 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60915 Sample Preparation: 2010-06-23 Prepared By: AR

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

Sample: 234877 - AH-6 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71205 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60915 Sample Preparation: 2010-06-23 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		922	mg/Kg	100	4.00

Sample: 234878 - AH-6 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71205 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60915 Sample Preparation: 2010-06-23 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1500	mg/Kg	100	4.00

Sample: 234879 - AH-6 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 71205 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60915 Sample Preparation: 2010-06-23 Prepared By: AR



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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2790	mg/Kg	100	4.00

Sample: 234880 - AH-7 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 71050

Prep Batch: 60862

Analytical Method: S 8021B

Date Analyzed: 2010-06-19

Sample Preparation: 2010-06-19

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1.64	mg/Kg	1	2.00	82	38.4 - 157

Sample: 234880 - AH-7 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 71205

Prep Batch: 60915

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-06-25

Sample Preparation: 2010-06-23

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: 234880 - AH-7 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 71122

Prep Batch: 60928

Analytical Method: S 8015 D

Date Analyzed: 2010-06-23

Sample Preparation: 2010-06-23

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1000	mg/Kg	1	50.0

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁶	245	mg/Kg	1	100	245	70 - 130

Sample: 234880 - AH-7 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 71051
Prep Batch: 60862

Analytical Method: S 8015 D
Date Analyzed: 2010-06-19
Sample Preparation: 2010-06-19

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		23.9	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.09	mg/Kg	1	2.00	104	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.83	mg/Kg	1	2.00	92	42 - 159

Sample: 234881 - AH-7 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71205
Prep Batch: 60915

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-25
Sample Preparation: 2010-06-23

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		276	mg/Kg	50	4.00

Sample: 234882 - AH-7 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 71205
Prep Batch: 60915

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-25
Sample Preparation: 2010-06-23

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

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

⁶High surrogate recovery due to peak interference.



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Sample: 234883 - AH-7 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71205	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60915				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1940	mg/Kg	100	4.00

Sample: 234884 - AH-7 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71205	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60915				

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

Sample: 234885 - AH-7 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-25	Analyzed By:	AR
QC Batch:	71205	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60915				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1420	mg/Kg	100	4.00

Sample: 234886 - AH-7 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-28	Analyzed By:	AR
QC Batch:	71246	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60917				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2800	mg/Kg	100	4.00

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Sample: 234887 - AH-7 6.5-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-28	Analyzed By:	AR
QC Batch:	71246	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60917				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2050	mg/Kg	100	4.00

Sample: 234888 - AH-6 7.5-8'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-06-28	Analyzed By:	AR
QC Batch:	71246	Sample Preparation:	2010-06-23	Prepared By:	AR
Prep Batch:	60917				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2850	mg/Kg	100	4.00

Method Blank (1) QC Batch: 71050

QC Batch:	71050	Date Analyzed:	2010-06-19	Analyzed By:	AG
Prep Batch:	60862	QC Preparation:	2010-06-19	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0150	mg/Kg	0.02
Toluene		<0.00950	mg/Kg	0.02
Ethylbenzene		<0.0106	mg/Kg	0.02
Xylene		<0.00930	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.16	mg/Kg	1	2.00	108	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.70	mg/Kg	1	2.00	85	55.4 - 104

Method Blank (1) QC Batch: 71051

QC Batch:	71051	Date Analyzed:	2010-06-19	Analyzed By:	AG
Prep Batch:	60862	QC Preparation:	2010-06-19	Prepared By:	AG



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Parameter	Flag	MDL Result	Units	RL
GRO		<1.65	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.57	mg/Kg	1	2.00	128	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.90	mg/Kg	1	2.00	95	52.4 - 130

Method Blank (1) QC Batch: 71122

QC Batch: 71122
Prep Batch: 60928

Date Analyzed: 2010-06-23
QC Preparation: 2010-06-23

Analyzed By: kg
Prepared By: kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		91.1	mg/Kg	1	100	91	70 - 130

Method Blank (1) QC Batch: 71155

QC Batch: 71155
Prep Batch: 60878

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 71156

QC Batch: 71156
Prep Batch: 60879

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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

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Method Blank (1) QC Batch: 71157

QC Batch: 71157
Prep Batch: 60880

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 71158

QC Batch: 71158
Prep Batch: 60881

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 71176

QC Batch: 71176
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0150	mg/Kg	0.02
Toluene		<0.00950	mg/Kg	0.02
Ethylbenzene		<0.0106	mg/Kg	0.02
Xylene		<0.00930	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.16	mg/Kg	1	2.00	108	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.75	mg/Kg	1	2.00	88	55.4 - 104

Method Blank (1) QC Batch: 71177

QC Batch: 71177
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
GRO		<1.65	mg/Kg	2

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.52	mg/Kg	1	2.00	126	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.92	mg/Kg	1	2.00	96	52.4 - 130

Method Blank (1) QC Batch: 71204

QC Batch: 71204 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60914 QC Preparation: 2010-06-23 Prepared By: AR

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

Method Blank (1) QC Batch: 71205

QC Batch: 71205 Date Analyzed: 2010-06-25 Analyzed By: AR
Prep Batch: 60915 QC Preparation: 2010-06-23 Prepared By: AR

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

Method Blank (1) QC Batch: 71246

QC Batch: 71246 Date Analyzed: 2010-06-28 Analyzed By: AR
Prep Batch: 60917 QC Preparation: 2010-06-23 Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 71050 Date Analyzed: 2010-06-19 Analyzed By: AG
Prep Batch: 60862 QC Preparation: 2010-06-19 Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.92	mg/Kg	1	2.00	<0.0150	96	81.9 - 108
Toluene	1.93	mg/Kg	1	2.00	<0.00950	96	81.9 - 107

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control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Ethylbenzene	1.82	mg/Kg	1	2.00	<0.0106	91	78.4 - 107
Xylene	5.47	mg/Kg	1	6.00	<0.00930	91	79.1 - 107

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	1.95	mg/Kg	1	2.00	<0.0150	98	81.9 - 108	2	20
Toluene	1.92	mg/Kg	1	2.00	<0.00950	96	81.9 - 107	0	20
Ethylbenzene	1.85	mg/Kg	1	2.00	<0.0106	92	78.4 - 107	2	20
Xylene	5.59	mg/Kg	1	6.00	<0.00930	93	79.1 - 107	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.98	1.91	mg/Kg	1	2.00	99	96	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.83	1.73	mg/Kg	1	2.00	92	86	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 71051
Prep Batch: 60862

Date Analyzed: 2010-06-19
QC Preparation: 2010-06-19

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.8	mg/Kg	1	20.0	<1.65	74	69.9 - 95.4

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
GRO	14.9	mg/Kg	1	20.0	<1.65	74	69.9 - 95.4	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.57	2.54	mg/Kg	1	2.00	128	127	61.9 - 142
4-Bromofluorobenzene (4-BFB)	2.14	2.09	mg/Kg	1	2.00	107	104	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 71122
Prep Batch: 60928

Date Analyzed: 2010-06-23
QC Preparation: 2010-06-23

Analyzed By: kg
Prepared By: kg

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	306	mg/Kg	1	250	<14.5	122	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	326	mg/Kg	1	250	<14.5	130	57.4 - 133.4	6	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	105	108	mg/Kg	1	100	105	108	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 71155
Prep Batch: 60878

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 71156
Prep Batch: 60879

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

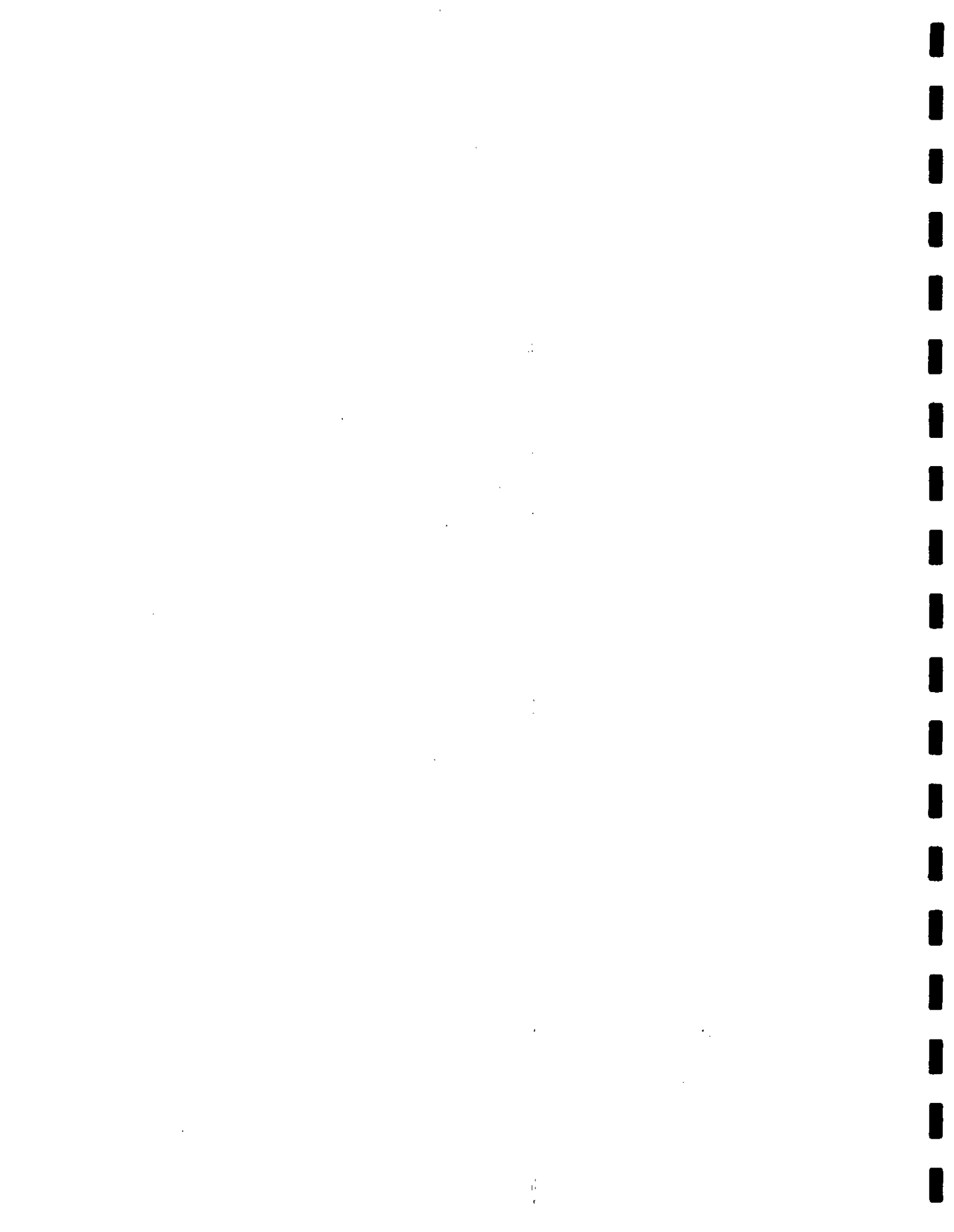
Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.2	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	102	mg/Kg	1	100	<2.18	102	85 - 115	3	20

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



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Laboratory Control Spike (LCS-1)

QC Batch: 71157
Prep Batch: 60880

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.0	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	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	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: 71158
Prep Batch: 60881

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.5	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCS 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	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: 71176
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.00	mg/Kg	1	2.00	<0.0150	100	81.9 - 108
Toluene	1.98	mg/Kg	1	2.00	<0.00950	99	81.9 - 107
Ethylbenzene	1.92	mg/Kg	1	2.00	<0.0106	96	78.4 - 107
Xylene	5.72	mg/Kg	1	6.00	<0.00930	95	79.1 - 107

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.97	mg/Kg	1	2.00	<0.0150	98	81.9 - 108	2	20
Toluene	1.95	mg/Kg	1	2.00	<0.00950	98	81.9 - 107	2	20
Ethylbenzene	1.90	mg/Kg	1	2.00	<0.0106	95	78.4 - 107	1	20
Xylene	5.71	mg/Kg	1	6.00	<0.00930	95	79.1 - 107	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.22	2.18	mg/Kg	1	2.00	111	109	70.2 - 114
4-Bromofluorobenzene (4-BFB)	2.07	1.98	mg/Kg	1	2.00	104	99	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 71177
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.6	mg/Kg	1	20.0	<1.65	78	69.9 - 95.4

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
GRO	15.7	mg/Kg	1	20.0	<1.65	78	69.9 - 95.4	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.60	2.56	mg/Kg	1	2.00	130	128	61.9 - 142
4-Bromofluorobenzene (4-BFB)	2.18	2.14	mg/Kg	1	2.00	109	107	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 71204
Prep Batch: 60914

Date Analyzed: 2010-06-25
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.7	mg/Kg	1	100	<2.18	98	85 - 115

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



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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.8	mg/Kg	1	100	<2.18	100	85 - 115	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: 71205
Prep Batch: 60915

Date Analyzed: 2010-06-25
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.9	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: 71246
Prep Batch: 60917

Date Analyzed: 2010-06-28
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.5	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	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.

Matrix Spike (MS-1) Spiked Sample: 234953

QC Batch: 71050
Prep Batch: 60862

Date Analyzed: 2010-06-19
QC Preparation: 2010-06-19

Analyzed By: AG
Prepared By: AG

continued ...



matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.01	mg/Kg	1	2.00	<0.0150	100	80.5 - 112
Toluene	2.01	mg/Kg	1	2.00	<0.00950	100	82.4 - 113
Ethylbenzene	1.98	mg/Kg	1	2.00	<0.0106	99	83.9 - 114
Xylene	5.93	mg/Kg	1	6.00	<0.00930	99	84 - 114

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	2.29	mg/Kg	1	2.00	<0.0150	114	80.5 - 112	13	20
Toluene	2.29	mg/Kg	1	2.00	<0.00950	114	82.4 - 113	13	20
Ethylbenzene	2.26	mg/Kg	1	2.00	<0.0106	113	83.9 - 114	13	20
Xylene	6.80	mg/Kg	1	6.00	<0.00930	113	84 - 114	14	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)	1.61	1.55	mg/Kg	1	2	80	78	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1.52	1.49	mg/Kg	1	2	76	74	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 234897

QC Batch: 71051
Prep Batch: 60862

Date Analyzed: 2010-06-19
QC Preparation: 2010-06-19

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	17.8	mg/Kg	1	20.0	<1.65	89	61.8 - 114

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	18.5	mg/Kg	1	20.0	<1.65	92	61.8 - 114	4	20

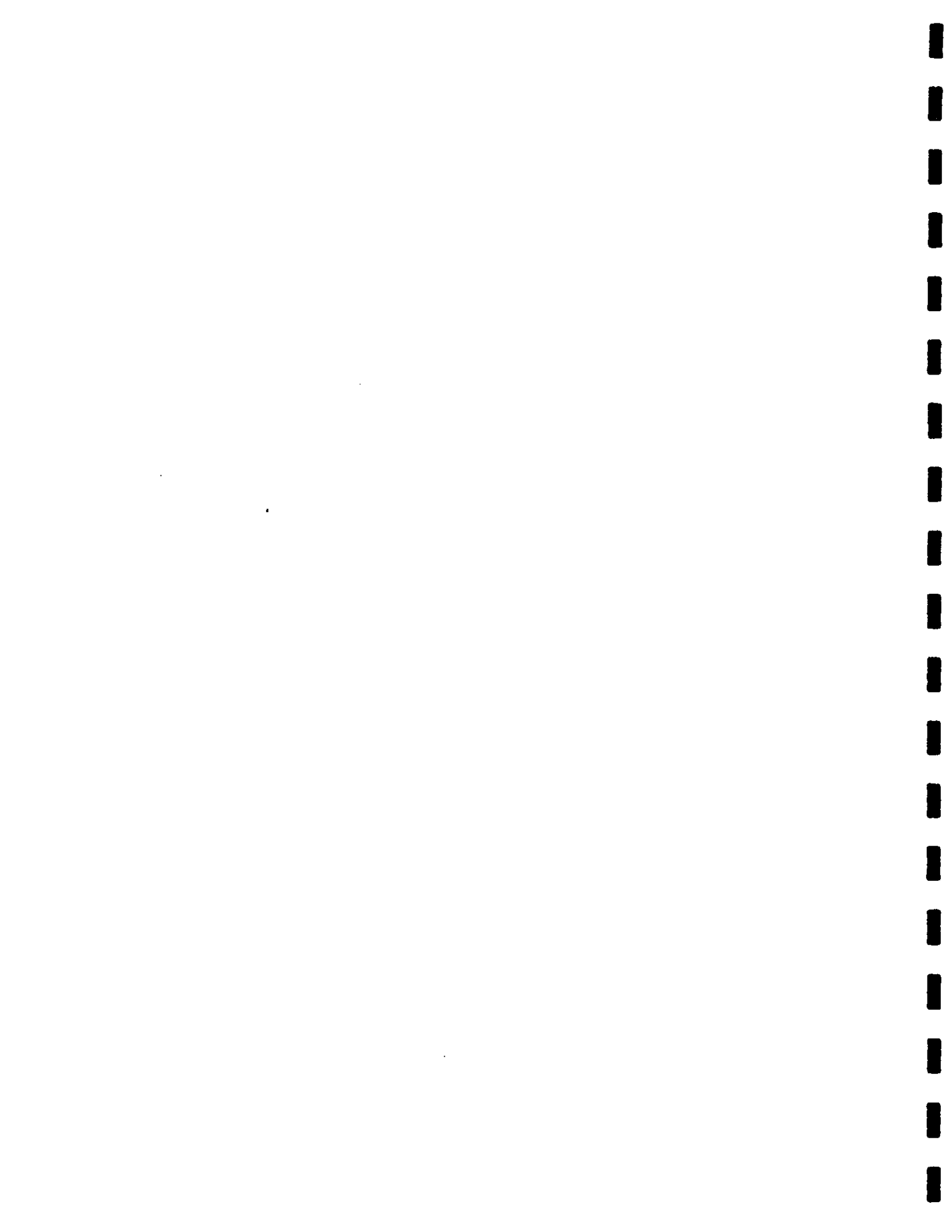
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.35	2.42	mg/Kg	1	2	118	121	50 - 162

continued ...

⁷MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

⁸MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.



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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.16	2.24	mg/Kg	1	2	108	112	50 - 162

Matrix Spike (MS-1) Spiked Sample: 234839

QC Batch: 71122
Prep Batch: 60928

Date Analyzed: 2010-06-23
QC Preparation: 2010-06-23

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	311	mg/Kg	1	250	30.6	112	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	315	mg/Kg	1	250	30.6	114	35.2 - 167.1	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	114	112	mg/Kg	1	100	114	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 234835

QC Batch: 71155
Prep Batch: 60878

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13800	mg/Kg	100	10000	3720	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	14000	mg/Kg	100	10000	3720	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: 234845

QC Batch: 71156
Prep Batch: 60879

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

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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	10300	mg/Kg	100	10000	<218	103	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: 234855

QC Batch: 71157
Prep Batch: 60880

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16600	mg/Kg	100	10000	6150	104	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	16800	mg/Kg	100	10000	6150	106	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: 234865

QC Batch: 71158
Prep Batch: 60881

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-22

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12700	mg/Kg	100	10000	2770	99	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	12900	mg/Kg	100	10000	2770	101	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: 235527

QC Batch: 71176
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.07	mg/Kg	1	2.00	<0.0150	104	80.5 - 112
Toluene	2.08	mg/Kg	1	2.00	<0.00950	104	82.4 - 113
Ethylbenzene	2.06	mg/Kg	1	2.00	<0.0106	103	83.9 - 114
Xylene	6.22	mg/Kg	1	6.00	0.0675	102	84 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.88	mg/Kg	1	2.00	<0.0150	94	80.5 - 112	10	20
Toluene	1.91	mg/Kg	1	2.00	<0.00950	96	82.4 - 113	8	20
Ethylbenzene	1.89	mg/Kg	1	2.00	<0.0106	94	83.9 - 114	9	20
Xylene	5.70	mg/Kg	1	6.00	0.0675	94	84 - 114	9	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)	1.65	2.00	mg/Kg	1	2	82	100	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1.60	1.84	mg/Kg	1	2	80	92	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 235523

QC Batch: 71177
Prep Batch: 60936

Date Analyzed: 2010-06-24
QC Preparation: 2010-06-24

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	<1.65	70	61.8 - 114

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	⁹ 17.6	mg/Kg	1	20.0	<1.65	88	61.8 - 114	24	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	2.02	mg/Kg	1	2	75	101	50 - 162
4-Bromofluorobenzene (4-BFB)	1.41	1.89	mg/Kg	1	2	70	94	50 - 162

⁹MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

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Matrix Spike (MS-1) Spiked Sample: 234875

QC Batch: 71204
Prep Batch: 60914

Date Analyzed: 2010-06-25
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12300	mg/Kg	100	10000	2200	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	12400	mg/Kg	100	10000	2200	102	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: 234885

QC Batch: 71205
Prep Batch: 60915

Date Analyzed: 2010-06-25
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11100	mg/Kg	100	10000	1420	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	11300	mg/Kg	100	10000	1420	99	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: 234903

QC Batch: 71246
Prep Batch: 60917

Date Analyzed: 2010-06-28
QC Preparation: 2010-06-23

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	mg/Kg	100	10000	297	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	10600	mg/Kg	100	10000	297	103	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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Standard (CCV-1)

QC Batch: 71050

Date Analyzed: 2010-06-19

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	0.0953	95	80 - 120	2010-06-19
Toluene		mg/Kg	0.100	0.0927	93	80 - 120	2010-06-19
Ethylbenzene		mg/Kg	0.100	0.0878	88	80 - 120	2010-06-19
Xylene		mg/Kg	0.300	0.262	87	80 - 120	2010-06-19

Standard (CCV-2)

QC Batch: 71050

Date Analyzed: 2010-06-19

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	0.0966	97	80 - 120	2010-06-19
Toluene		mg/Kg	0.100	0.0956	96	80 - 120	2010-06-19
Ethylbenzene		mg/Kg	0.100	0.0907	91	80 - 120	2010-06-19
Xylene		mg/Kg	0.300	0.273	91	80 - 120	2010-06-19

Standard (CCV-1)

QC Batch: 71051

Date Analyzed: 2010-06-19

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	0.972	97	80 - 120	2010-06-19

Standard (CCV-2)

QC Batch: 71051

Date Analyzed: 2010-06-19

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	1.19	119	80 - 120	2010-06-19

Standard (CCV-1)

QC Batch: 71122

Date Analyzed: 2010-06-23

Analyzed By: kg

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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	290	116	80 - 120	2010-06-23

Standard (CCV-2)

QC Batch: 71122

Date Analyzed: 2010-06-23

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	242	97	80 - 120	2010-06-23

Standard (CCV-3)

QC Batch: 71122

Date Analyzed: 2010-06-23

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	235	94	80 - 120	2010-06-23

Standard (CCV-4)

QC Batch: 71122

Date Analyzed: 2010-06-23

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	239	96	80 - 120	2010-06-23

Standard (ICV-1)

QC Batch: 71155

Date Analyzed: 2010-06-24

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	2010-06-24

Standard (CCV-1)

QC Batch: 71155

Date Analyzed: 2010-06-24

Analyzed By: AR



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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	2010-06-24

Standard (ICV-1)

QC Batch: 71156

Date Analyzed: 2010-06-24

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	2010-06-24

Standard (CCV-1)

QC Batch: 71156

Date Analyzed: 2010-06-24

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	2010-06-24

Standard (ICV-1)

QC Batch: 71157

Date Analyzed: 2010-06-24

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.7	99	85 - 115	2010-06-24

Standard (CCV-1)

QC Batch: 71157

Date Analyzed: 2010-06-24

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	2010-06-24

Standard (ICV-1)

QC Batch: 71158

Date Analyzed: 2010-06-24

Analyzed By: AR

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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	98.2	98	85 - 115	2010-06-24

Standard (CCV-1)

QC Batch: 71158

Date Analyzed: 2010-06-24

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	2010-06-24

Standard (CCV-1)

QC Batch: 71176

Date Analyzed: 2010-06-24

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	0.0918	92	80 - 120	2010-06-24
Toluene		mg/Kg	0.100	0.0900	90	80 - 120	2010-06-24
Ethylbenzene		mg/Kg	0.100	0.0854	85	80 - 120	2010-06-24
Xylene		mg/Kg	0.300	0.257	86	80 - 120	2010-06-24

Standard (CCV-2)

QC Batch: 71176

Date Analyzed: 2010-06-24

Analyzed By: AG

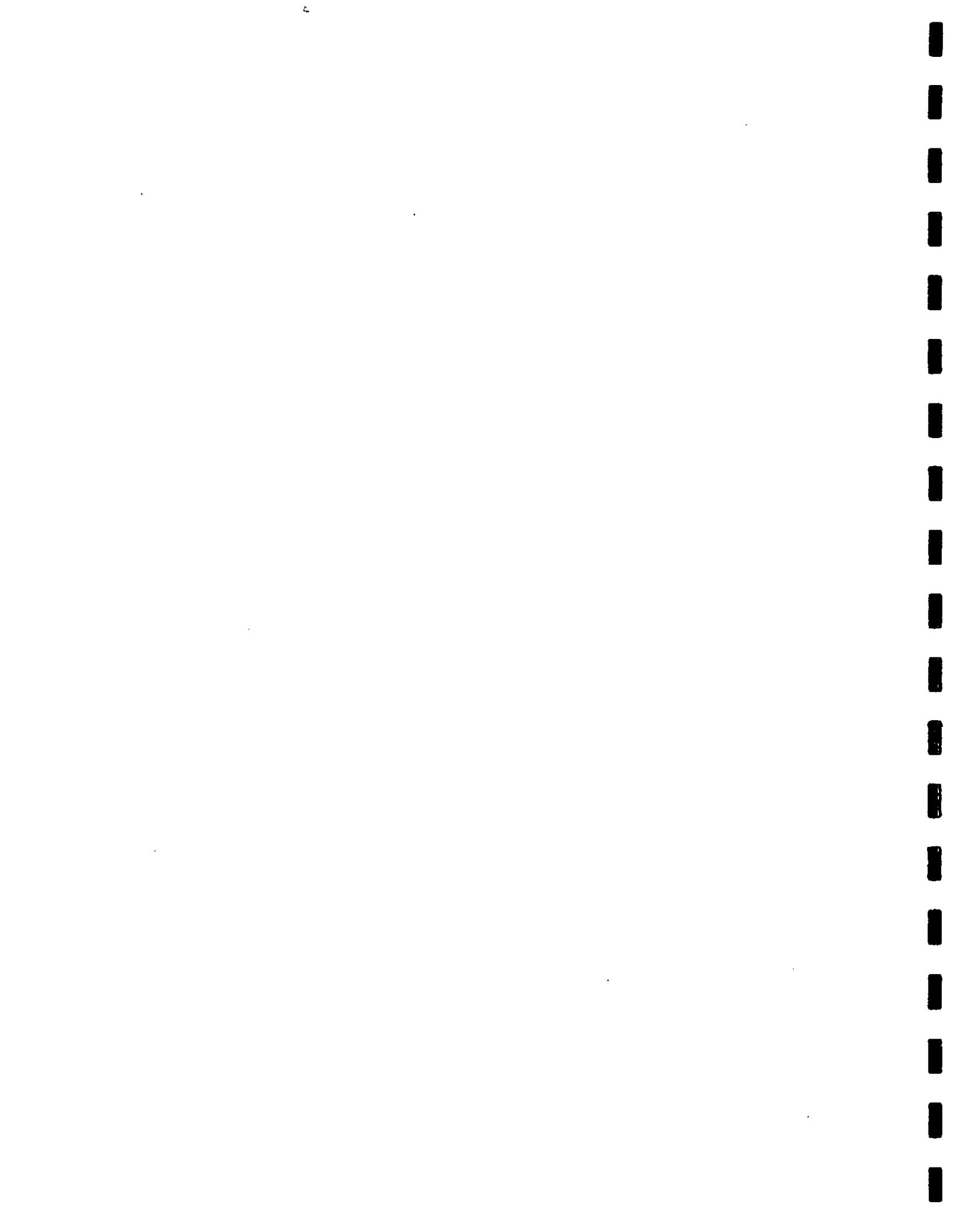
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0981	98	80 - 120	2010-06-24
Toluene		mg/Kg	0.100	0.0967	97	80 - 120	2010-06-24
Ethylbenzene		mg/Kg	0.100	0.0918	92	80 - 120	2010-06-24
Xylene		mg/Kg	0.300	0.277	92	80 - 120	2010-06-24

Standard (CCV-1)

QC Batch: 71177

Date Analyzed: 2010-06-24

Analyzed By: AG



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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	2010-06-24

Standard (CCV-2)

QC Batch: 71177

Date Analyzed: 2010-06-24

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	1.20	120	80 - 120	2010-06-24

Standard (ICV-1)

QC Batch: 71204

Date Analyzed: 2010-06-25

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.9	99	85 - 115	2010-06-25

Standard (CCV-1)

QC Batch: 71204

Date Analyzed: 2010-06-25

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	2010-06-25

Standard (ICV-1)

QC Batch: 71205

Date Analyzed: 2010-06-25

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	2010-06-25

Standard (CCV-1)

QC Batch: 71205

Date Analyzed: 2010-06-25

Analyzed By: AR

Report Date: June 30, 2010
114-6400548

Work Order: 10061719
COG/BC Federal TB Well #40

Page Number: 46 of 46
Lea County, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.6	100	85 - 115	2010-06-25

Standard (ICV-1)

QC Batch: 71246

Date Analyzed: 2010-06-28

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	2010-06-28

Standard (CCV-1)

QC Batch: 71246

Date Analyzed: 2010-06-28

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.4	98	85 - 115	2010-06-28



Lab # 10061719

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: COC SITE MANAGER: Ike Taurer

PROJECT NO.: 1146400548 PROJECT NAME: COC / BC Federal TB well #40

LAB I.D. NUMBER: 234829 DATE: 2210 TIME: 6/14

SAMPLE IDENTIFICATION: Lea County, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	PRESERVATIVE METHOD				NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE
234829	6/14		S		X					1				X	
830										1				X	
831										1				X	
832										1				X	
833										1				X	
834										1				X	
835										1				X	
836										1				X	
837										1				X	
838										1				X	

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVING LABORATORY: TRACE

ADDRESS: Midland STATE: TX ZIP: PHONE:

CITY: Midland STATE: TX ZIP: PHONE:

CONTACT:

REMARKS: IFTPH > 5000 milligrams per sample - own (5) highest TPH for BTEX

3.8% intact

LABORATORY retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

ANALYSIS REQUEST

(Circle or Specify Method No.)

PAH 8270	
TCRA Metals Ag As Ba Cd Cr Pb Hg Se	
TCLP Metals Ag As Ba Cd Cr Pb Hg Se	
TCLP Volatiles	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8240/8260/624	
GC/MS Semi. Vol. 8270/625	
PCB's 8080/608	
Post. 808/608	
Chloride	X
Gamma Spec.	
Alpha Beta (Air)	
PLM (Asbestos)	
Major Anions/Cations, pH, TDS	

SAMPLED BY: (Print & Initial) Kim Date: 6/22/10 Time:

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RELINQUISHED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVED BY: (Signature) [Signature] Date: 6/22/10 Time: 1415

RECEIVING LABORATORY: TRACE

ADDRESS: Midland STATE: TX ZIP: PHONE:

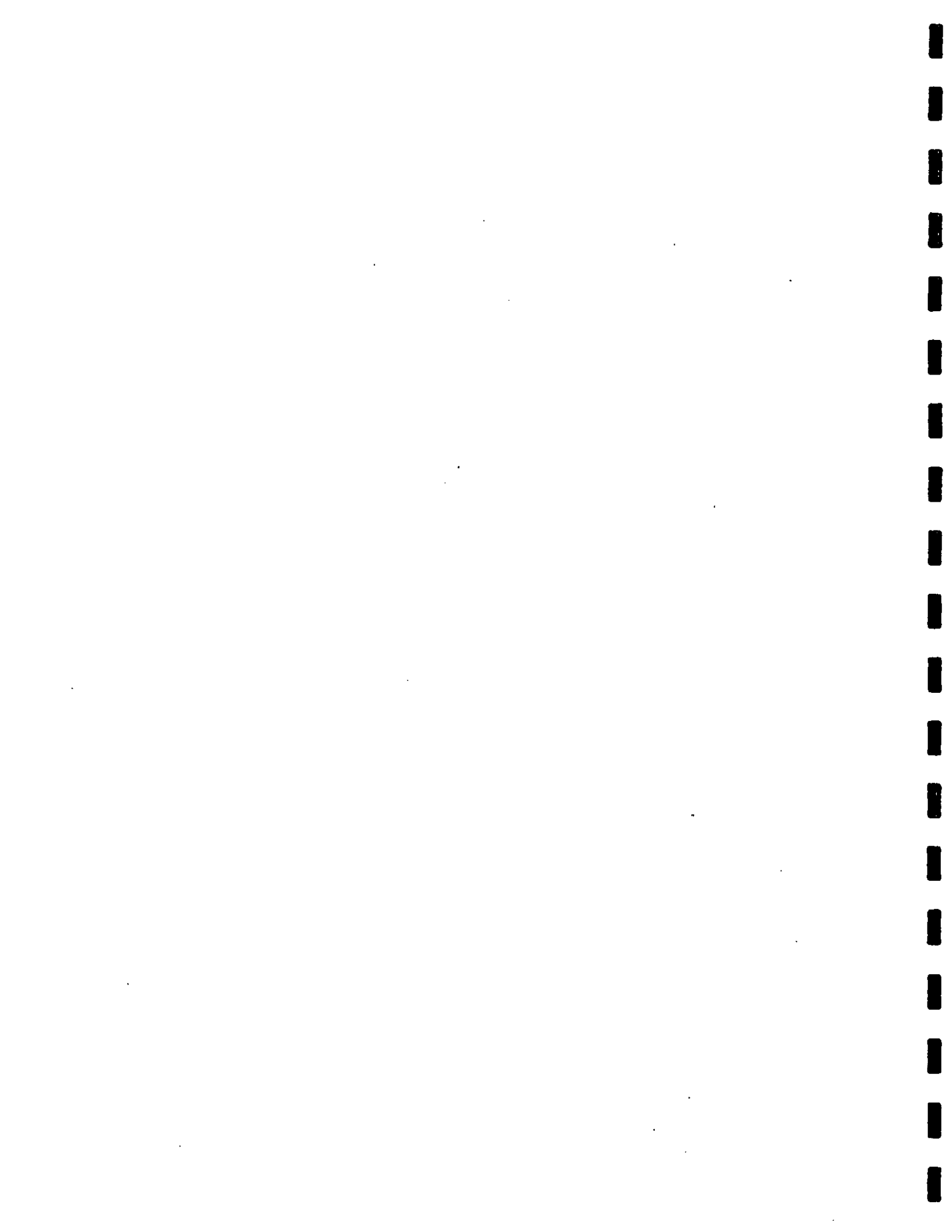
CITY: Midland STATE: TX ZIP: PHONE:

CONTACT:

REMARKS: IFTPH > 5000 milligrams per sample - own (5) highest TPH for BTEX

3.8% intact

LABORATORY retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.



Analysis Request of Chain of Custody Record

PAGE: 5 OF: 6



TETRA TECH

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

CLIENT NAME: COG		SITE MANAGER: Ike Taveruz	
PROJECT NO.: 114-6400548		PROJECT NAME: COG/BC Federal TB Well #40	
LAB ID. NUMBER	DATE	TIME	GRAB
231869	2010	6/14	S
870			
871			
872			
873			
874			
875			
876			
877			
878			

DATE	TIME	DATE	TIME
6/14/10	14:15	6/14/10	14:15

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RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)

RECEIVING LABORATORY:	STATE:	ZIP:	PHONE:
CITY: Midland	TX		
CONTACT: Frank			

SAMPLE CONDITION WHEN RECEIVED:	
3.8°C	intact

REMARKS:	
If TPH > 5,000 mg/kg, send samples - can (5) request TPH for BTEX	

PRESERVATIVE METHOD

NUMBER OF CONTAINERS

1

1

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HCL
HNO3
ICE
NONE

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

DATE: 6/14/10
TIME: 14:15

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TIME: 14:15

DATE: 6/14/10
TIME: 14:15

3.8°C intact If TPH > 5,000 mg/kg, send samples - can (5) request TPH for BTEX

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

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 Tovar	
PROJECT NO.: 117-6400549		PROJECT NAME: COG / BC Federal TB well #40	
LAB I.D. NUMBER	DATE	TIME	MATRIX
234879	6/14		S
880			
881			
882			
883			
884			
885			
886			
887	6/14		S
888	6/14		S

GRAB	COMP	TIME	MATRIX	DATE	TIME	LAB I.D. NUMBER
X				6/14		234879
						880
						881
						882
						883
						884
						885
						886
						887
						888

RECEIVED BY (Signature)	DATE: 6/14/13	TIME: 14:15
RECEIVED BY (Signature)	DATE: 6/14/13	TIME: 14:15
RECEIVED BY (Signature)	DATE: 6/14/13	TIME: 14:15
RECEIVED BY (Signature)	DATE: 6/14/13	TIME: 14:15

RECEIVING LABORATORY: Tovar		ADDRESS: TX		CITY: TX		STATE: TX		ZIP: TX		PHONE: TX	
REMARKS: 3.8 c intact											
SAMPLE CONDITION WHEN RECEIVED: 3.8 c intact											
LABORATORY RETAINS YELLOW COPY - RETURN ORIGINAL COPY TO TETRA TECH - PROJECT MANAGER RETAINS PINK COPY - ACCOUNTING RECEIVES GOLD COPY.											

PAGE: **6** OF: **6**

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	

DATE: **6/14/13** TIME: **14:15**

SAMPLE SHIPPED BY: (Circle) **BUS**

FEDEX **FEDEX** UPS **UPS**

TETRA TECH CONTACT PERSON: **Ike Tovar**

RESULTS BY: **Ike Tovar**

RUSH CHARGES AUTHORIZED: **Yes**



Summary Report

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

Report Date: November 19, 2010

Work Order: 10111510



Project Location: Lea Co., NM
Project Name: COG/BC Federal #40 Flowline
Project Number: 114-6400548

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250425	SB-1 0-1'	soil	2010-11-10	00:00	2010-11-15
250426	SB-1 3'	soil	2010-11-10	00:00	2010-11-15
250427	SB-1 5'	soil	2010-11-10	00:00	2010-11-15
250428	SB-1 7'	soil	2010-11-10	00:00	2010-11-15
250429	SB-1 10'	soil	2010-11-10	00:00	2010-11-15
250430	SB-1 15'	soil	2010-11-10	00:00	2010-11-15
250431	SB-1 20'	soil	2010-11-10	00:00	2010-11-15
250432	SB-1 25'	soil	2010-11-10	00:00	2010-11-15
250433	SB-1 30'	soil	2010-11-10	00:00	2010-11-15
250434	SB-1 40'	soil	2010-11-10	00:00	2010-11-15
250435	SB-2 0-1'	soil	2010-11-10	00:00	2010-11-15
250436	SB-2 3'	soil	2010-11-10	00:00	2010-11-15
250437	SB-2 5'	soil	2010-11-10	00:00	2010-11-15
250438	SB-2 7'	soil	2010-11-10	00:00	2010-11-15
250439	SB-2 10'	soil	2010-11-10	00:00	2010-11-15
250440	SB-2 15'	soil	2010-11-10	00:00	2010-11-15
250441	SB-2 20'	soil	2010-11-10	00:00	2010-11-15
250442	SB-2 25'	soil	2010-11-10	00:00	2010-11-15
250443	SB-2 30'	soil	2010-11-10	00:00	2010-11-15
250444	SB-2 40'	soil	2010-11-10	00:00	2010-11-15
250445	SB-3 0-1'	soil	2010-11-10	00:00	2010-11-15
250446	SB-3 3'	soil	2010-11-10	00:00	2010-11-15
250447	SB-3 5'	soil	2010-11-10	00:00	2010-11-15
250448	SB-3 7'	soil	2010-11-10	00:00	2010-11-15
250449	SB-3 10'	soil	2010-11-10	00:00	2010-11-15
250450	SB-3 15'	soil	2010-11-10	00:00	2010-11-15
250451	SB-3 20'	soil	2010-11-10	00:00	2010-11-15
250452	SB-3 25'	soil	2010-11-10	00:00	2010-11-15
250453	SB-3 30'	soil	2010-11-10	00:00	2010-11-15
250454	SB-3 40'	soil	2010-11-10	00:00	2010-11-15



Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250455	SB-4 0-1'	soil	2010-11-10	00:00	2010-11-15
250456	SB-4 3'	soil	2010-11-10	00:00	2010-11-15
250457	SB-4 5'	soil	2010-11-10	00:00	2010-11-15
250458	SB-4 7'	soil	2010-11-10	00:00	2010-11-15
250459	SB-4 10'	soil	2010-11-10	00:00	2010-11-15
250460	SB-4 15'	soil	2010-11-10	00:00	2010-11-15
250461	SB-4 20'	soil	2010-11-10	00:00	2010-11-15
250462	SB-4 25'	soil	2010-11-10	00:00	2010-11-15
250463	SB-4 30'	soil	2010-11-10	00:00	2010-11-15
250464	SB-4 40'	soil	2010-11-10	00:00	2010-11-15

Sample: 250425 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		1560	mg/Kg	4.00

Sample: 250426 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		964	mg/Kg	4.00

Sample: 250427 - SB-1 5'

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

Sample: 250428 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		495	mg/Kg	4.00

Sample: 250429 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		990	mg/Kg	4.00

Sample: 250430 - SB-1 15'



Param	Flag	Result	Units	RL
Chloride		4180	mg/Kg	4.00

Sample: 250431 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		2610	mg/Kg	4.00

Sample: 250432 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		328	mg/Kg	4.00

Sample: 250433 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		203	mg/Kg	4.00

Sample: 250434 - SB-1 40'

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

Sample: 250435 - SB-2 0-1'

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

Sample: 250436 - SB-2 3'

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

Sample: 250437 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		3390	mg/Kg	4.00



Sample: 250438 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		2430	mg/Kg	4.00

Sample: 250439 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		1860	mg/Kg	4.00

Sample: 250440 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		2640	mg/Kg	4.00

Sample: 250441 - SB-2 20'

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

Sample: 250442 - SB-2 25'

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

Sample: 250443 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		231	mg/Kg	4.00

Sample: 250444 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		273	mg/Kg	4.00

Sample: 250445 - SB-3 0-1'

Param	Flag	Result	Units	RL
Chloride		219	mg/Kg	4.00



Sample: 250446 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		239	mg/Kg	4.00

Sample: 250447 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		677	mg/Kg	4.00

Sample: 250448 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		479	mg/Kg	4.00

Sample: 250449 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 250450 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		1020	mg/Kg	4.00

Sample: 250451 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		1570	mg/Kg	4.00

Sample: 250452 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		770	mg/Kg	4.00

Sample: 250453 - SB-3 30'

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

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Sample: 250454 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		338	mg/Kg	4.00

Sample: 250455 - SB-4 0-1'

Param	Flag	Result	Units	RL
Chloride		1870	mg/Kg	4.00

Sample: 250456 - SB-4 3'

Param	Flag	Result	Units	RL
Chloride		1700	mg/Kg	4.00

Sample: 250457 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		934	mg/Kg	4.00

Sample: 250458 - SB-4 7'

Param	Flag	Result	Units	RL
Chloride		830	mg/Kg	4.00

Sample: 250459 - SB-4 10'

Param	Flag	Result	Units	RL
Chloride		1370	mg/Kg	4.00

Sample: 250460 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4.00

Sample: 250461 - SB-4 20'

Param	Flag	Result	Units	RL
Chloride		2120	mg/Kg	4.00



Sample: 250462 - SB-4 25'

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

Sample: 250463 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		291	mg/Kg	4.00

Sample: 250464 - SB-4 40'

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•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•505•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: November 19, 2010

Work Order: 10111510



Project Location: Lea Co., NM
Project Name: COG/BC Federal #40 Flowline
Project Number: 114-6400548

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
250425	SB-1 0-1'	soil	2010-11-10	00:00	2010-11-15
250426	SB-1 3'	soil	2010-11-10	00:00	2010-11-15
250427	SB-1 5'	soil	2010-11-10	00:00	2010-11-15
250428	SB-1 7'	soil	2010-11-10	00:00	2010-11-15
250429	SB-1 10'	soil	2010-11-10	00:00	2010-11-15
250430	SB-1 15'	soil	2010-11-10	00:00	2010-11-15
250431	SB-1 20'	soil	2010-11-10	00:00	2010-11-15
250432	SB-1 25'	soil	2010-11-10	00:00	2010-11-15
250433	SB-1 30'	soil	2010-11-10	00:00	2010-11-15
250434	SB-1 40'	soil	2010-11-10	00:00	2010-11-15



Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250435	SB-2 0-1'	soil	2010-11-10	00:00	2010-11-15
250436	SB-2 3'	soil	2010-11-10	00:00	2010-11-15
250437	SB-2 5'	soil	2010-11-10	00:00	2010-11-15
250438	SB-2 7'	soil	2010-11-10	00:00	2010-11-15
250439	SB-2 10'	soil	2010-11-10	00:00	2010-11-15
250440	SB-2 15'	soil	2010-11-10	00:00	2010-11-15
250441	SB-2 20'	soil	2010-11-10	00:00	2010-11-15
250442	SB-2 25'	soil	2010-11-10	00:00	2010-11-15
250443	SB-2 30'	soil	2010-11-10	00:00	2010-11-15
250444	SB-2 40'	soil	2010-11-10	00:00	2010-11-15
250445	SB-3 0-1'	soil	2010-11-10	00:00	2010-11-15
250446	SB-3 3'	soil	2010-11-10	00:00	2010-11-15
250447	SB-3 5'	soil	2010-11-10	00:00	2010-11-15
250448	SB-3 7'	soil	2010-11-10	00:00	2010-11-15
250449	SB-3 10'	soil	2010-11-10	00:00	2010-11-15
250450	SB-3 15'	soil	2010-11-10	00:00	2010-11-15
250451	SB-3 20'	soil	2010-11-10	00:00	2010-11-15
250452	SB-3 25'	soil	2010-11-10	00:00	2010-11-15
250453	SB-3 30'	soil	2010-11-10	00:00	2010-11-15
250454	SB-3 40'	soil	2010-11-10	00:00	2010-11-15
250455	SB-4 0-1'	soil	2010-11-10	00:00	2010-11-15
250456	SB-4 3'	soil	2010-11-10	00:00	2010-11-15
250457	SB-4 5'	soil	2010-11-10	00:00	2010-11-15
250458	SB-4 7'	soil	2010-11-10	00:00	2010-11-15
250459	SB-4 10'	soil	2010-11-10	00:00	2010-11-15
250460	SB-4 15'	soil	2010-11-10	00:00	2010-11-15
250461	SB-4 20'	soil	2010-11-10	00:00	2010-11-15
250462	SB-4 25'	soil	2010-11-10	00:00	2010-11-15
250463	SB-4 30'	soil	2010-11-10	00:00	2010-11-15
250464	SB-4 40'	soil	2010-11-10	00:00	2010-11-15

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 19 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/BC Federal #40 Flowline were received by TraceAnalysis, Inc. on 2010-11-15 and assigned to work order 10111510. Samples for work order 10111510 were received intact at a temperature of 3.0 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	64661	2010-11-16 at 08:29	75445	2010-11-17 at 15:26
Chloride (Titration)	SM 4500-Cl B	64661	2010-11-16 at 08:29	75446	2010-11-17 at 15:27
Chloride (Titration)	SM 4500-Cl B	64661	2010-11-16 at 08:29	75447	2010-11-17 at 15:28
Chloride (Titration)	SM 4500-Cl B	64661	2010-11-16 at 08:29	75448	2010-11-17 at 15:29

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 10111510 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.



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Analytical Report

Sample: 250425 - SB-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75445	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250426 - SB-1 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75445	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		964	mg/Kg	50	4.00

Sample: 250427 - SB-1 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75445	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250428 - SB-1 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75445	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

continued ...



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sample 250428 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		495	mg/Kg	50	4.00

Sample: 250429 - SB-1 10'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2010-11-17	Analyzed By: AR
QC Batch: 75445	Sample Preparation: 2010-11-16	Prepared By: AR
Prep Batch: 64661		

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		990	mg/Kg	100	4.00

Sample: 250430 - SB-1 15'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2010-11-17	Analyzed By: AR
QC Batch: 75445	Sample Preparation: 2010-11-16	Prepared By: AR
Prep Batch: 64661		

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4180	mg/Kg	100	4.00

Sample: 250431 - SB-1 20'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2010-11-17	Analyzed By: AR
QC Batch: 75445	Sample Preparation: 2010-11-16	Prepared By: AR
Prep Batch: 64661		

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2610	mg/Kg	100	4.00



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Sample: 250432 - SB-1 25'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	75445	Date Analyzed:	2010-11-17
Prep Batch:	64661	Sample Preparation:	2010-11-16
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		328	mg/Kg	50	4.00

Sample: 250433 - SB-1 30'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	75445	Date Analyzed:	2010-11-17
Prep Batch:	64661	Sample Preparation:	2010-11-16
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 250434 - SB-1 40'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	75445	Date Analyzed:	2010-11-17
Prep Batch:	64661	Sample Preparation:	2010-11-16
		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: 250435 - SB-2 0-1'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	75446	Date Analyzed:	2010-11-17
Prep Batch:	64661	Sample Preparation:	2010-11-16
		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: 250436 - SB-2 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250437 - SB-2 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3390	mg/Kg	100	4.00

Sample: 250438 - SB-2 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250439 - SB-2 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1860	mg/Kg	100	4.00



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Sample: 250440 - SB-2 15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250441 - SB-2 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250442 - SB-2 25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250443 - SB-2 30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		231	mg/Kg	50	4.00

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Sample: 250444 - SB-2 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75446	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		273	mg/Kg	50	4.00

Sample: 250445 - SB-3 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		219	mg/Kg	50	4.00

Sample: 250446 - SB-3 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		239	mg/Kg	50	4.00

Sample: 250447 - SB-3 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		677	mg/Kg	50	4.00



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Sample: 250448 - SB-3 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		479	mg/Kg	50	4.00

Sample: 250449 - SB-3 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1300	mg/Kg	100	4.00

Sample: 250450 - SB-3 15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1020	mg/Kg	100	4.00

Sample: 250451 - SB-3 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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



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Sample: 250452 - SB-3 25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		770	mg/Kg	50	4.00

Sample: 250453 - SB-3 30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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

Sample: 250454 - SB-3 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75447	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		338	mg/Kg	50	4.00

Sample: 250455 - SB-4 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75448	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1870	mg/Kg	100	4.00



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Sample: 250456 - SB-4 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75448	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1700	mg/Kg	100	4.00

Sample: 250457 - SB-4 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75448	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		934	mg/Kg	50	4.00

Sample: 250458 - SB-4 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75448	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		830	mg/Kg	50	4.00

Sample: 250459 - SB-4 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-11-17	Analyzed By:	AR
QC Batch:	75448	Sample Preparation:	2010-11-16	Prepared By:	AR
Prep Batch:	64661				

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



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Sample: 250460 - SB-4 15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 75448 Date Analyzed: 2010-11-17 Analyzed By: AR
Prep Batch: 64661 Sample Preparation: 2010-11-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4200	mg/Kg	100	4.00

Sample: 250461 - SB-4 20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 75448 Date Analyzed: 2010-11-17 Analyzed By: AR
Prep Batch: 64661 Sample Preparation: 2010-11-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2120	mg/Kg	100	4.00

Sample: 250462 - SB-4 25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 75448 Date Analyzed: 2010-11-17 Analyzed By: AR
Prep Batch: 64661 Sample Preparation: 2010-11-16 Prepared By: AR

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

Sample: 250463 - SB-4 30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 75448 Date Analyzed: 2010-11-17 Analyzed By: AR
Prep Batch: 64661 Sample Preparation: 2010-11-16 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		291	mg/Kg	50	4.00



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Sample: 250464 - SB-4 40'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 75448
Prep Batch: 64661

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-11-17
Sample Preparation: 2010-11-16

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

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

Method Blank (1) QC Batch: 75445

QC Batch: 75445
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 75446

QC Batch: 75446
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 75447

QC Batch: 75447
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

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



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Method Blank (1) QC Batch: 75448

QC Batch: 75448
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 75445
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.6	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	103	mg/Kg	1	100	<2.18	103	85 - 115	5	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: 75446
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.9	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	103	mg/Kg	1	100	<2.18	103	85 - 115	5	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: 75447
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR



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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.3	mg/Kg	1	100	<2.18	97	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	104	mg/Kg	1	100	<2.18	104	85 - 115	7	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 75448
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.4	mg/Kg	1	100	<2.18	97	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	103	mg/Kg	1	100	<2.18	103	85 - 115	6	20

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

Matrix Spike (MS-1) Spiked Sample: 250434

QC Batch: 75445
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	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	10600	mg/Kg	100	10000	<218	104	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 250444

QC Batch: 75446
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

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Report Date: November 19, 2010
114-6400548

Work Order: 10111510
COG/BC Federal #40 Flowline

Page Number: 17 of 19
Lea Co., NM

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10100	mg/Kg	100	10000	273	98	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	273	100	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 250454

QC Batch: 75447
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10300	mg/Kg	100	10000	338	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	10600	mg/Kg	100	10000	338	103	85 - 115	3	20

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

Matrix Spike (MS-1) Spiked Sample: 250464

QC Batch: 75448
Prep Batch: 64661

Date Analyzed: 2010-11-17
QC Preparation: 2010-11-16

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	mg/Kg	100	10000	<218	103	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	10600	mg/Kg	100	10000	<218	105	85 - 115	2	20

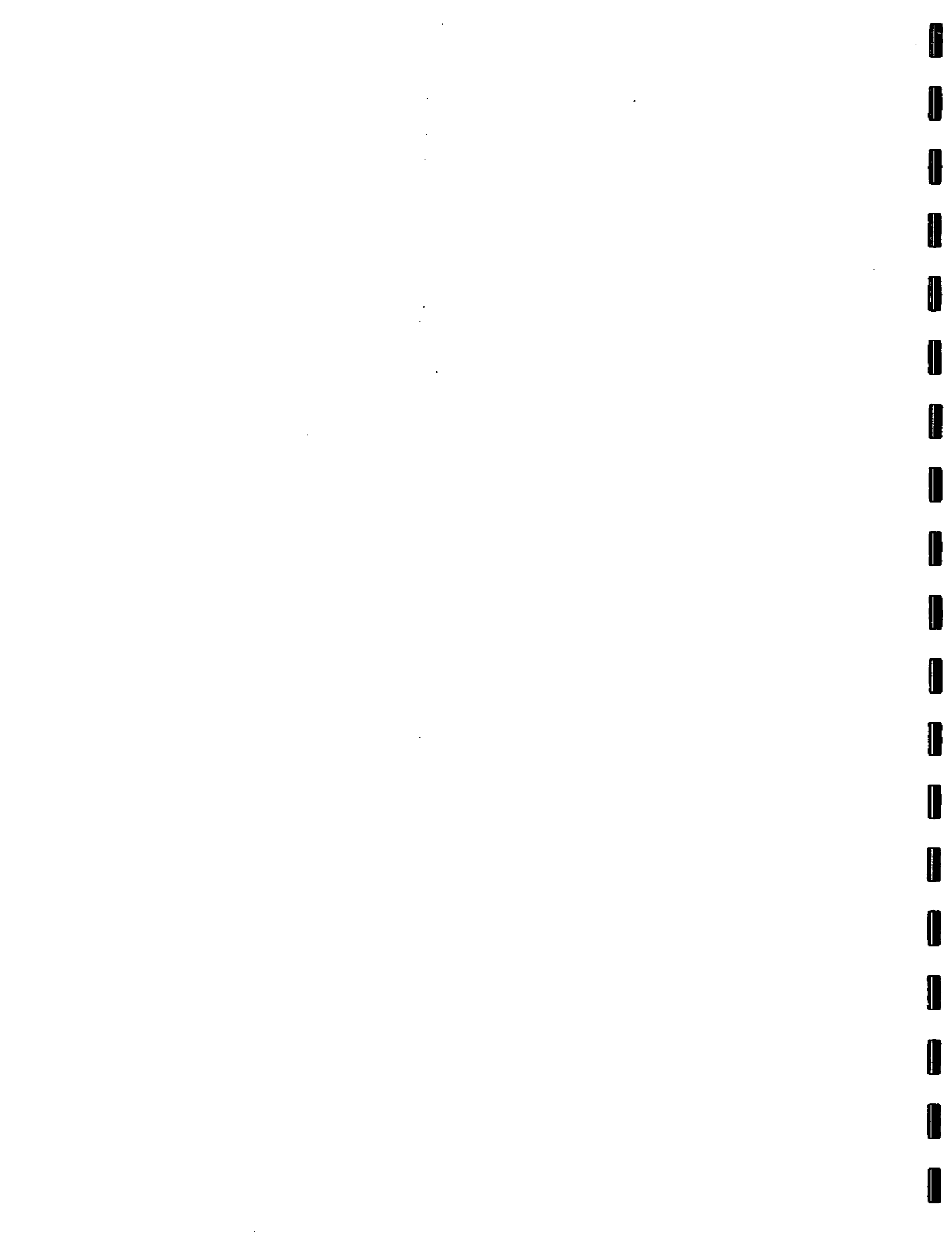
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 75445

Date Analyzed: 2010-11-17

Analyzed By: AR



Report Date: November 19, 2010
114-6400548

Work Order: 10111510
COG/BC Federal #40 Flowline

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Lea Co., NM

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	2010-11-17

Standard (CCV-1)

QC Batch: 75445

Date Analyzed: 2010-11-17

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	2010-11-17

Standard (ICV-1)

QC Batch: 75446

Date Analyzed: 2010-11-17

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-11-17

Standard (CCV-1)

QC Batch: 75446

Date Analyzed: 2010-11-17

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.3	99	85 - 115	2010-11-17

Standard (ICV-1)

QC Batch: 75447

Date Analyzed: 2010-11-17

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.6	99	85 - 115	2010-11-17

Standard (CCV-1)

QC Batch: 75447

Date Analyzed: 2010-11-17

Analyzed By: AR



Report Date: November 19, 2010
114-6400548

Work Order: 10111510
COG/BC Federal #40 Flowline

Page Number: 19 of 19
Lea Co., NM

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	2010-11-17

Standard (ICV-1)

QC Batch: 75448

Date Analyzed: 2010-11-17

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-11-17

Standard (CCV-1)

QC Batch: 75448

Date Analyzed: 2010-11-17

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.9	99	85 - 115	2010-11-17

2000 #: 1011510

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 Tamariz	
PROJECT NO.: 114-6400548		PROJECT NAME: COG / BC Federal #40 Flowline	
LAB ID. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
420426	11/10		SB-1 0-1'
426			SB-1 3'
427			SB-1 5'
428			SB-1 7'
429			SB-1 10'
430			SB-1 15'
431			SB-1 20'
432			SB-1 25'
433			SB-1 30'
434			SB-1 40'

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE: 11/10	TIME: 14:40
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE: 11/10	TIME: 14:40
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE: 11/10	TIME: 14:40
RECEIVING LABORATORY:	RECEIVED BY: (Signature)	DATE: 11/15/10	TIME: 12:40
ADDRESS:	STATE:	ZIP:	
CITY:	PHONE:		
CONTACT:			

SAMPLE CONDITION WHEN RECEIVED:
3.0% in oil

REMARKS:
test 3-Midland

ANALYSIS REQUEST

(Circle or Specify Method No.)

PAGE: 4

OF: 4

BTEX 80218	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	PCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8290/824	GC/MS Semi. Vol. 8270/825	PCB's 8080/808	Post. 808/808	Chlordane	Gamma Spec.	Alpha Beta (A/B)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
------------	------------------------------------	----------	-------------------------------------	-------------------------------------	----------------	---------------------	-----	--------------------------	---------------------------	----------------	---------------	-----------	-------------	------------------	----------------	-------------------------------

Results by: **Ike Tamariz**

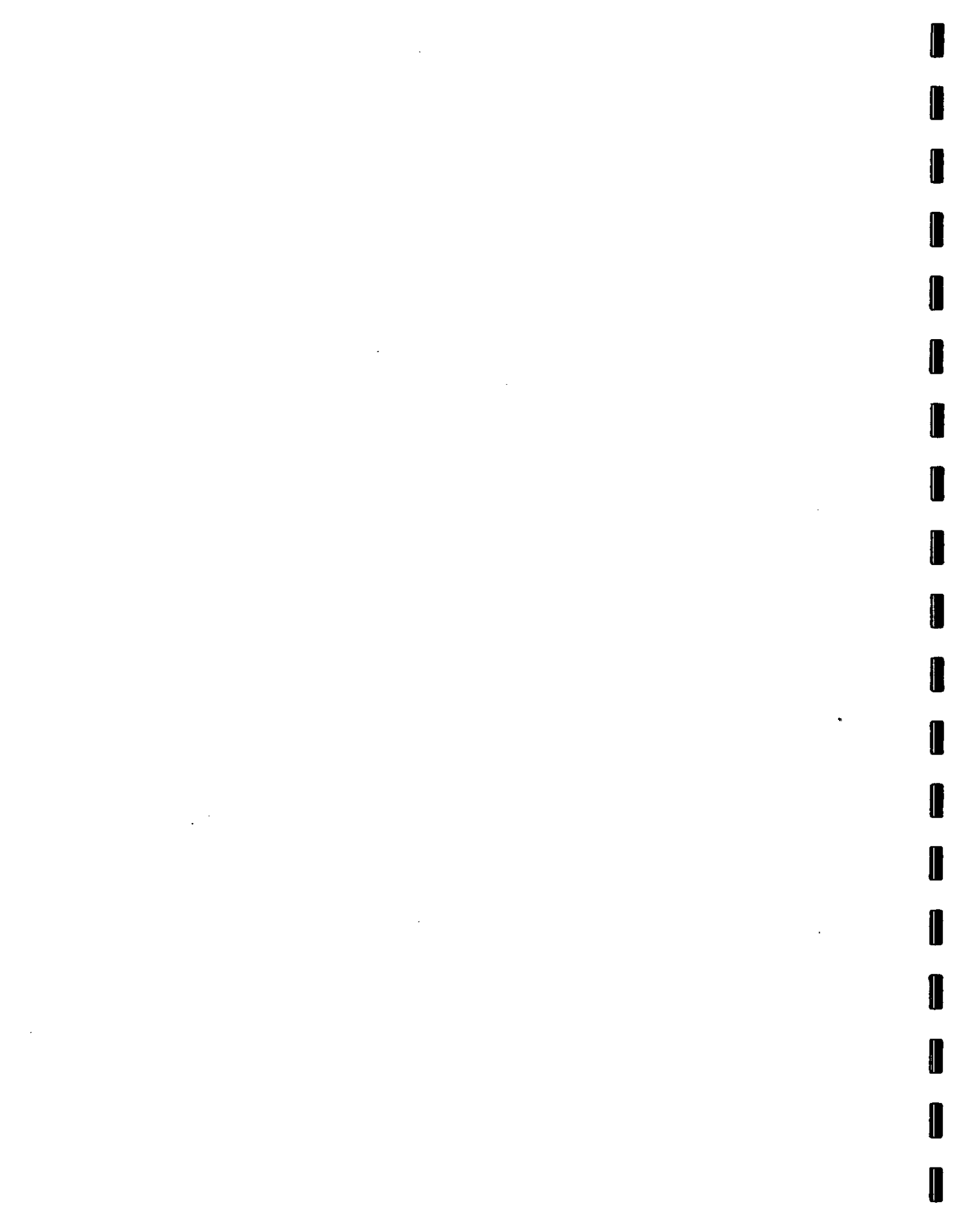
RUSH Charges Authorized: Yes

Results by: **Ike Tamariz**

Sample Shipped By: (Circle) **FEDX** **UPS**

TETRA TECH CONTACT PERSON: **Ike Tamariz**

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



Analysis Request of Chain of Custody Record

PAGE: 7 OF: 9

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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: CCG

SITE MANAGER:

WAGEH: Like Tawa / 077

PROJECT NAME:

PROJECT NAME:
COG/BC Federal #40 Flowline

Lea Co., an
SAMPLE IDENTIFICATION

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HIX

TIME

ATE

LAB I.D.

200435	11/10	S	X	SB-2	0-1'
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486 SB-2 3'

437 SB-2 S

438	SB-2	71
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15h	SB-Z	10'
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151	2-05			440
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52	7.95	146
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940	25
20-7	

[illegible]

RELINQUISHED BY: (Signature)	Date: <u>11/15/10</u>	RECEIVED
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RELINQUISHED BY: (Signature) _____

Date: _____

Time: _____

RECEIVED _____

RECEIVED BY: _____
DATE: _____
TIME: _____
RECEIVED BY: _____
DATE: _____
TIME: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____
CONTACT: _____ PHONE: _____ DATE: _____

SAMPLE CONDITION WHEN RECEIVED: 3.0° centigrade

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

