SITE INFORMATION

Report Type: Closure Report

General Site Information:					
Site:	Schley Federal #11 Flow Line				
Company:	COG Operating LLC				
Well Location	Unit F	Sec 29	T 17S	R 29E	
Spill Location	Unit L	Sec 29	T 17S	R 29E	
Lease Number:	API-30-015-32134				
County:	Eddy County				
Spill GPS	32.80492° N			104.10145° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From the intersection of Hwy 82 and CR 212, travel south on CR 212 for 0.2 miles, turn right and travel 1.6 miles to the spill.				

Release Data:	
Date Released:	8/28/2010
Type Release:	Produced Fluid
Source of Contamination:	Flowline failure
Fluid Released:	11 bbls
Fluids Recovered:	10 bbls

Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>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**	

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

TETRA TECH

January 26, 2012

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

Re: Closure Report for the COG Operating LLC., Schley Federal #11 Flow line Spill, Unit L, Section 29, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Schley Federal #11 Flow line. The spill area is located in Unit L, Section 29, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80492°, W 104.10145°. 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 August 28, 2010 and released approximately eleven (11) barrels of produced liquid from a flow line. To alleviate the problem, COG personnel repaired the flow line. Ten (10) barrels of standing fluids were recovered. The spill initiated and was contained south of a lease road, affecting an area approximately 25' X 50', with some overspray. The initial C-141 form is enclosed in Appendix C.

Groundwater

According to the *Geology and Groundwater Resources of Eddy County, New Mexico* (Report 3), one well is located in Section 29, with reported depth to water of 120' below surface. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The Geology and Groundwater Resources of Eddy County, New Mexico (Report 3) well report data is shown in Appendix B.

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

Regulatory

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

Soil Assessment and Analytical Results

On September 14, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of three (3) auger holes (AH-1 through AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Auger hole (AH-1) was installed in the spill area, where the fluids pooled and AH-2 and AH-3 in the overspray area. 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 spill area and auger hole locations are shown on Figure 3.

Referring to Table 1, all the submitted samples were below RRAL for TPH and BTEX. Auger hole (AH-1) showed a chloride concentration of 4,670 mg/kg (0-1') and the area was not vertically defined. The remaining auger holes (AH-2 and AH-3) did not show an impact and had chloride concentrations below reporting limit of <200 mg/kg.

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site on July 6, 2011 through July 8, 2011. The final excavation depths of the soil remediation were met or exceeded as requested by the OCD and BLM. A total of 740 cubic yards of soil were excavated and transported to a proper disposal facility. The excavation depths are highlighted in Table 1 and shown on Figure 4. The excavation was backfilled with clean soil to grade.

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As recommended in the work plan, a backhoe was used to install a trench (T-1) by the leak source to delineate chloride impact in the area of AH-1. The confirmation sample results are shown in Table 1. Referring to Table 1, the chloride concentrations of T-1 declined with depth. As requested by the BLM, the west edge of the lease road was excavated 2.0' deep. The area measured approximately 3' x 260'. Additionally, at the request of the BLM, an area measuring approximately 20' x 120' was excavated 2.0' below surface in the pasture.

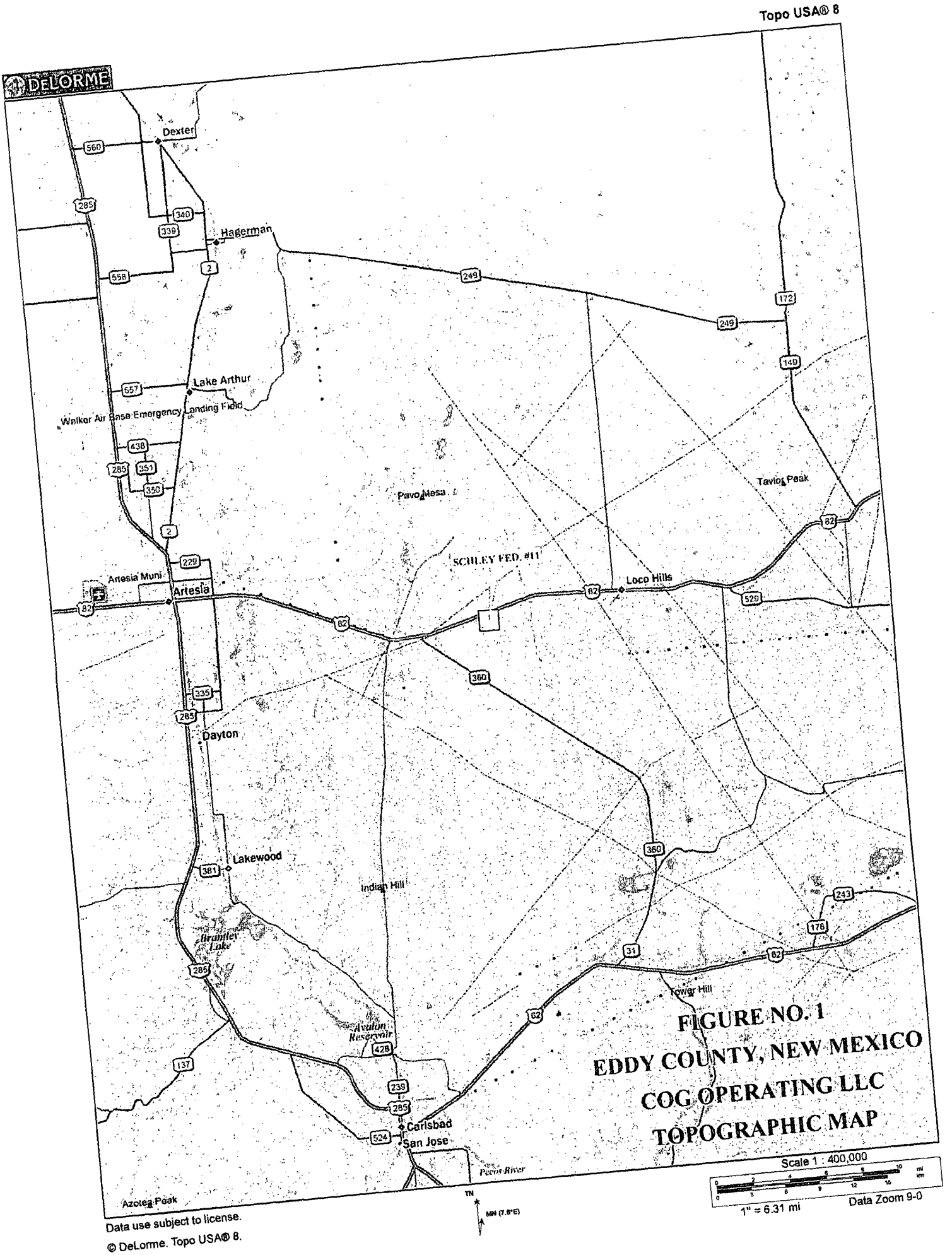
Based on the remedial activities performed, COG request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call me at (432) 682-4559.

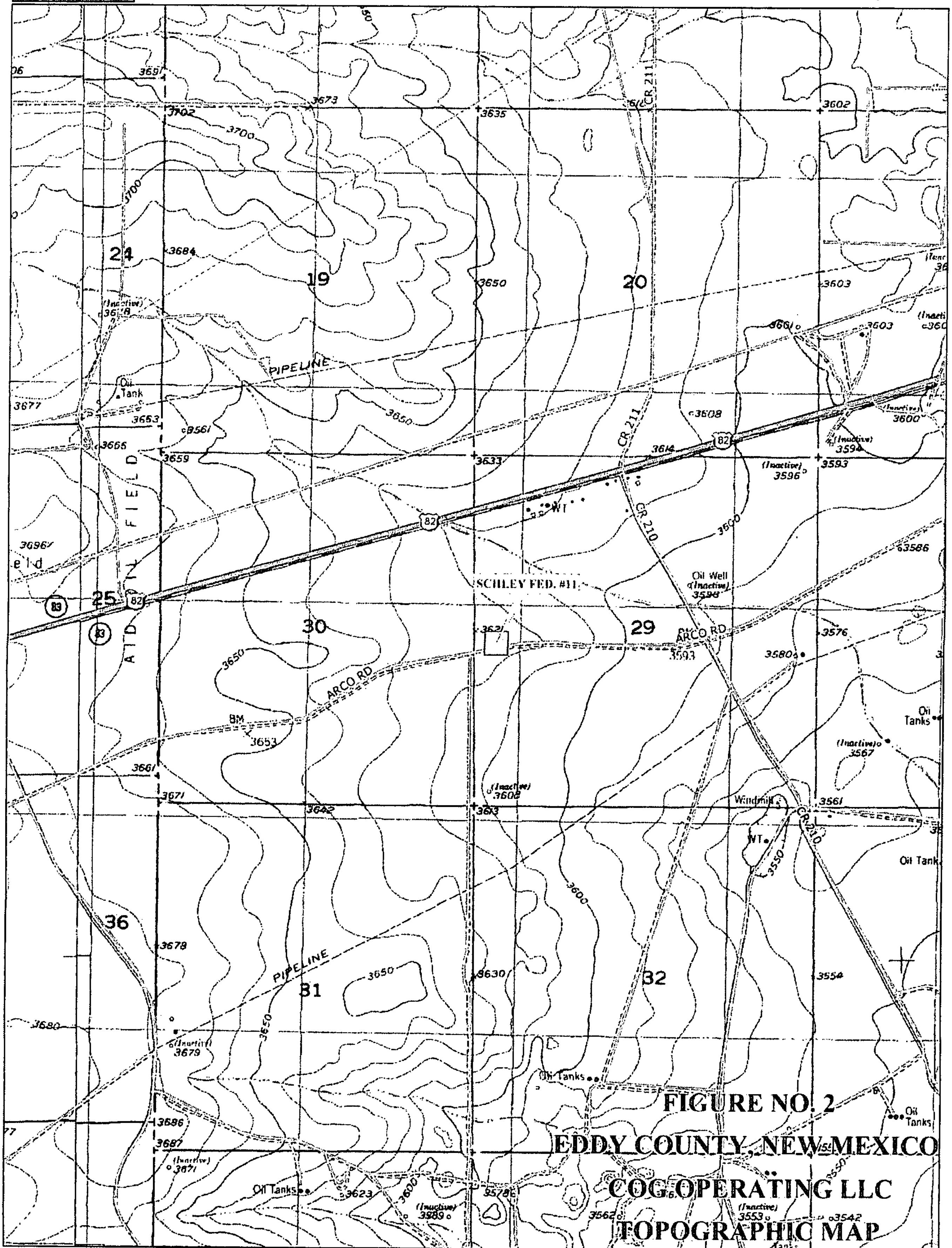
Respectfully submitted,
TETRA TECH

Ike Tavarez
Project Manager

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

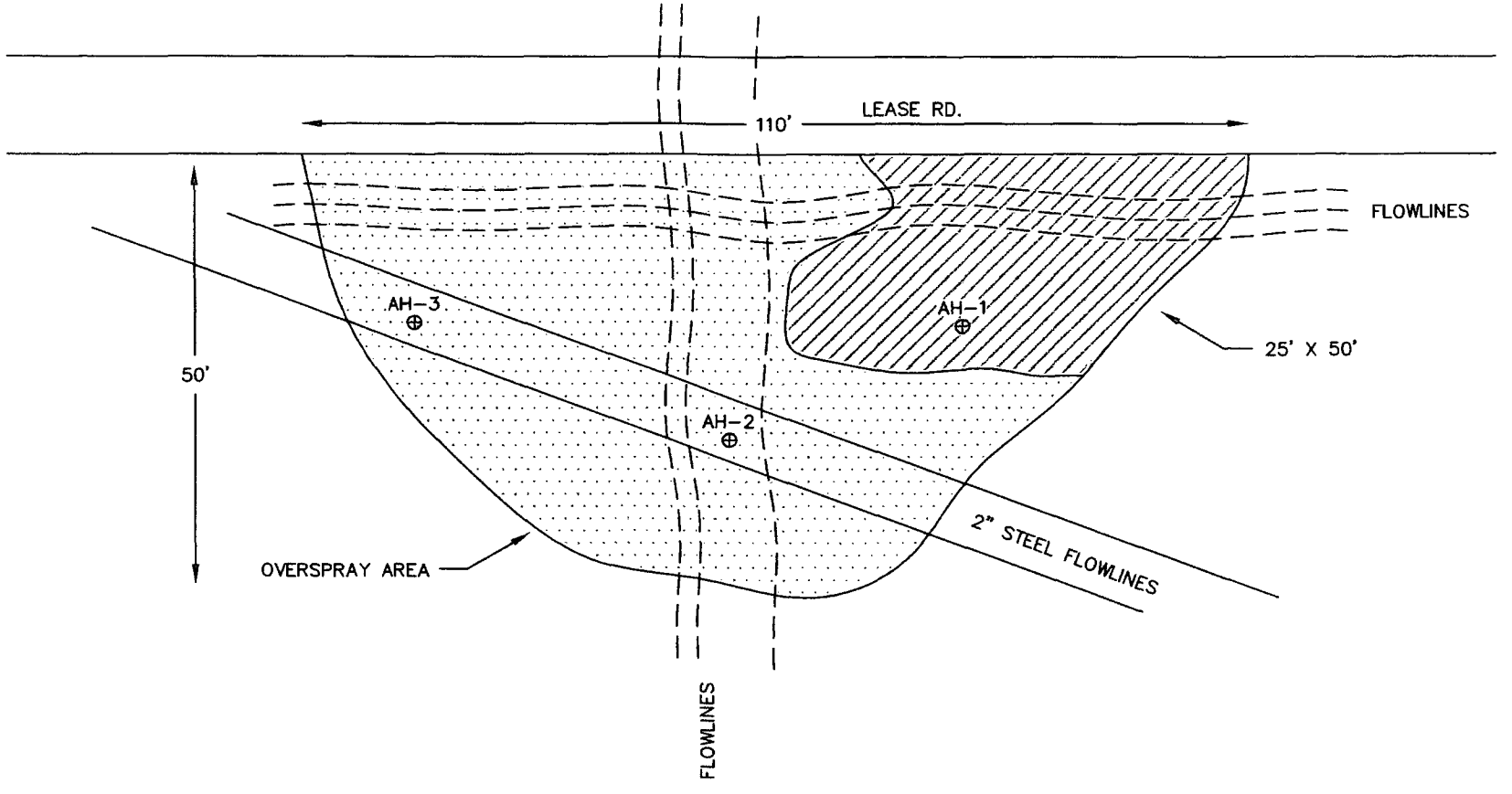
Figures


Topo USA® 8
DeLORME
Dexter
560
285
340
339
Hagerman
2
558
249
172
557
Lake Arthur
Walker Air Base Emergency Landing Field
438
285
351
350
2
Pavo Mesa
Taylor Peak
82
229
Artesia Muni
Artesia
82
SCHLEY FED. #11
Loco Hills
529
82
360
335
285
Dayton
Lakewood
381
Indian Hill
Brantley Lake
285
360
243
176
31
82
Tower Hill
82
Avalon Reservoir
428
137
239
285
Carlsbad
524
San Jose
Pecos River
Azotea Peak
TN
MN (7.8°E)
FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP
Scale 1 : 400,000
1" = 6.31 mi
Data Zoom 9-0
Data use subject to license.
© DeLorme. Topo USA® 8.
www.delorme.com



TN
MN (7.8°E)

Scale 1 : 24,000
1" = 2,000.0 ft
Data Zoom 13-0



SPILL AREA
SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 3

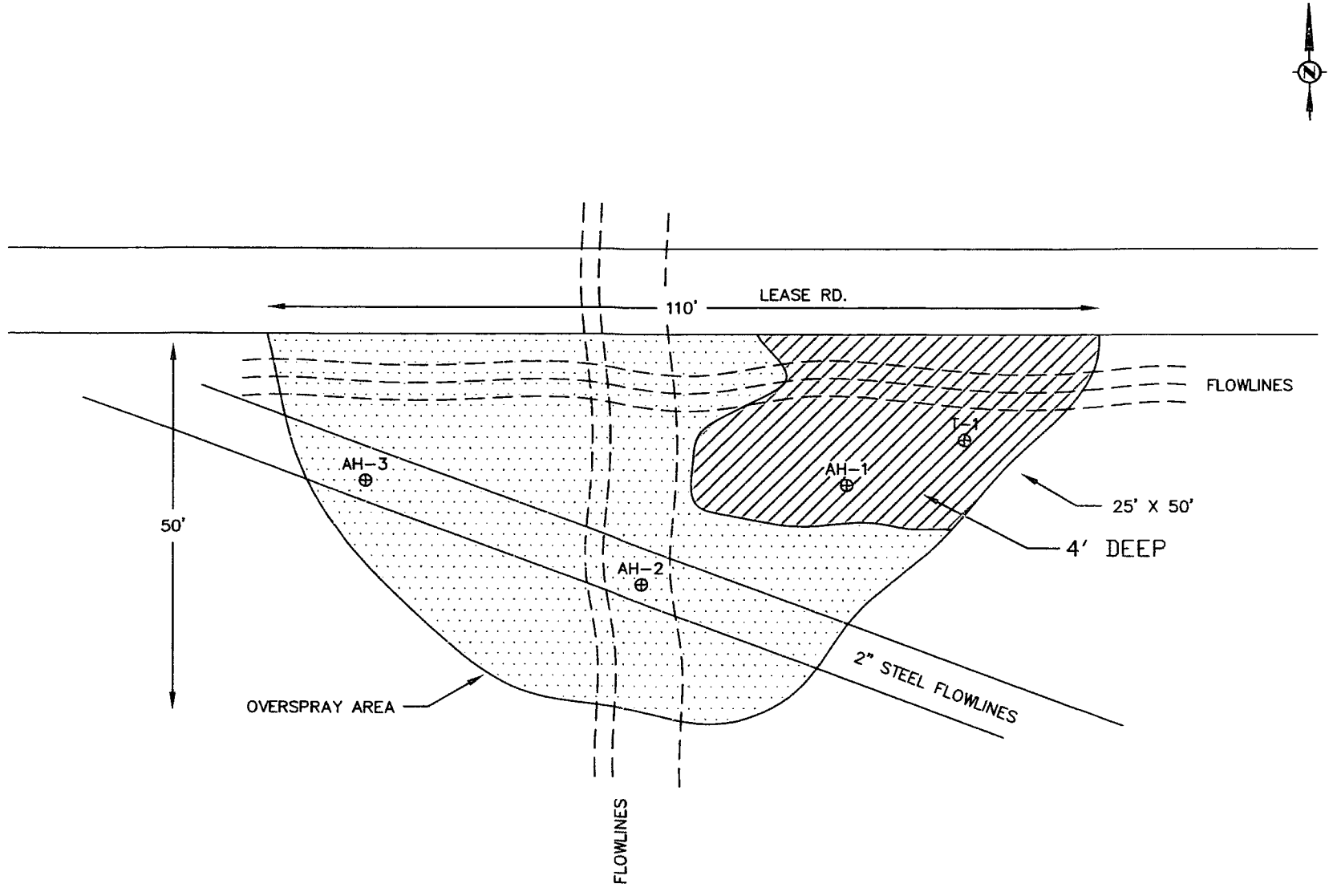
EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

SCHLEY FED. #11
SPILL ASSESSMENT

DATE: 9/14/10
DWN. BY: JJ
FILE: H:\COG\84000885 SCHLEY FED. #11

TETRA TECH, INC.
MIDLAND, TEXAS



⊕ AUGER HOLE SAMPLE LOCATIONS
⊕ TRENCH LOCATION
▨ EXCAVATED AREA

NOT TO SCALE

DATE: 1/26/2012	FIGURE NO. 4
DWN. BY: IM	EDDY COUNTY, NEW MEXICO
FILE: H:\COG\6400885 SCHLEY FED. #11	COG OPERATING LLC
	SCHLEY FED. #11 EXCAVATION AREA & DEPTHS
	TETRA TECH, INC. MIDLAND, TEXAS

Tables

Table 1
COG Operating LLC.
SCHLEY FEDERAL #11
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-1	9/14/2010	0-1'			X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	**4,670**
T-1	7/7/2011	2'		X		-	-	-	-	-	-	-	**469**
		4'		X		-	-	-	-	-	-	-	**973**
		6'		X		-	-	-	-	-	-	-	**248**
		8'		X		-	-	-	-	-	-	-	<200
AH-2	9/14/2010	0-1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<200
AH-3	9/14/2010	0-1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<200

BEB Below Excavation Bottom

(--) Not Analyzed

Excavated Material

Photos

COG Operating LLC
Schley Federal #11
Eddy County, New Mexico

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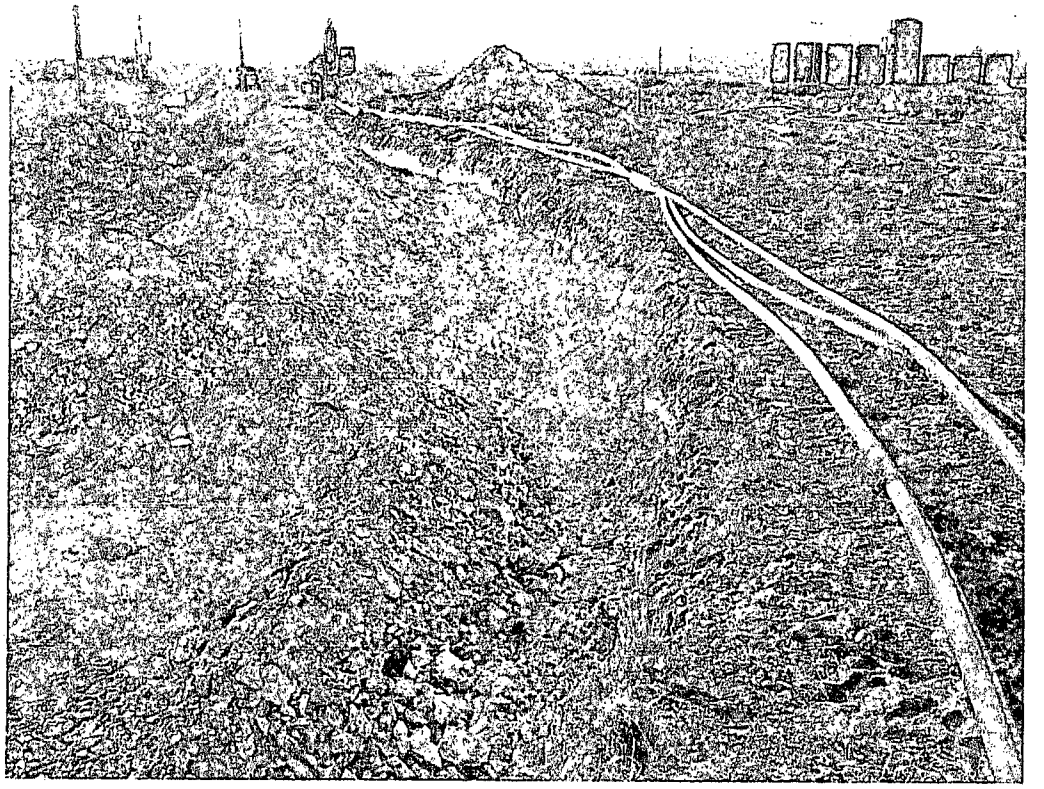
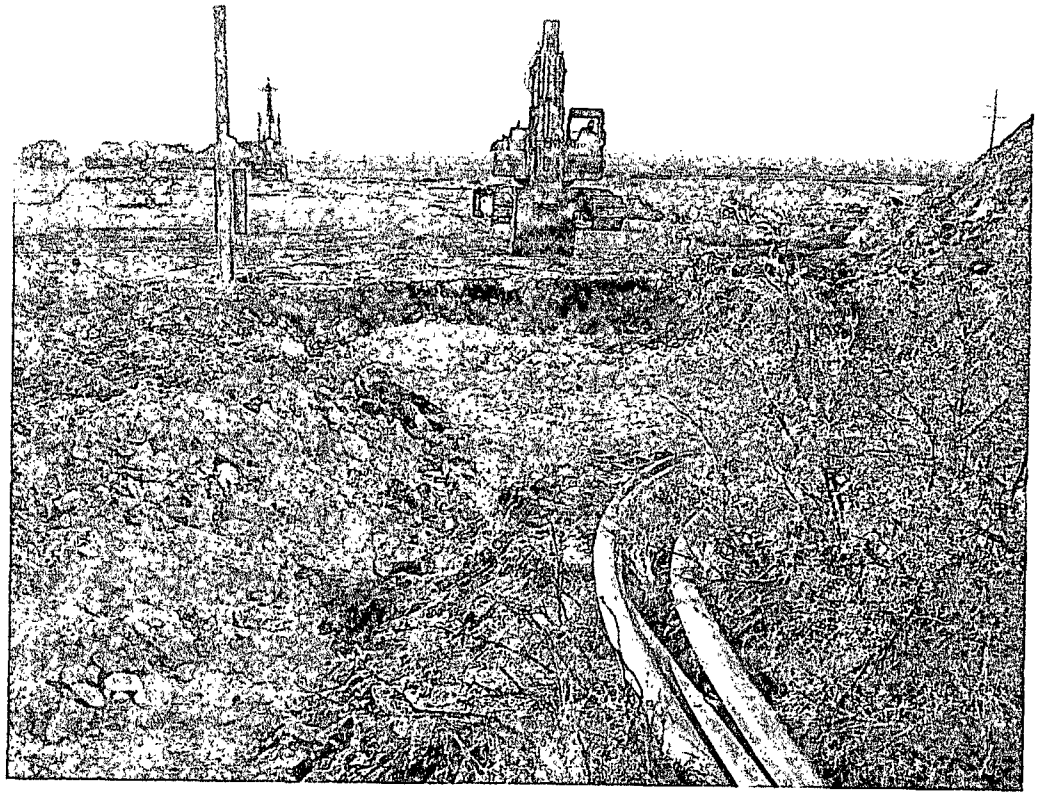
View North West – Leak Source



View South East – Lease Road

COG Operating LLC
Schley Federal #11
Eddy County, New Mexico

TETRA TECH



View South East – End of Lease Road

View South East - Pasture

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **COG Operating LLC**	Contact **Pat Ellis**
Address **550 W. Texas, Suite 1300 Midland, Texas 79701**	Telephone No. **(432) 230-0077**
Facility Name Schley Federal #11	Facility Type **Flowline**

Surface Owner: Federal	Mineral Owner	Lease No. API#30-015-32134

LOCATION OF RELEASE

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

Latitude 32 48.296 **Longitude104 06.087**

NATURE OF RELEASE

Type of Release: Produced Fluid	Volume of Release 11 bbls	Volume Recovered 10 bbls
Source of Release: Flowline	Date and Hour of Occurrence 08/28/2010	Date and Hour of Discovery 08/28/2010 9:00a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The cause of the release was due to a ruptured flowline. The section of flowline that ruptured was replaced with a new section and the flowline was put back into service.

Describe Area Affected and Cleanup Action Taken.*

The spill originated in the pasture flowed down a lease road and back out into the pasture; Tetra Tech inspected the site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 1-26-12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Repor

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	Schley Federal #11	Facility Type	Flowline

Surface Owner Federal	Mineral Owner	Lease No. API#30-015-32134

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K F	~~23~~ 29	17S	29E					Eddy

Latitude 32 48.296 **Longitude** 104 06.087

NATURE OF RELEASE

Type of Release Produced fluid	Volume of Release 11bbls	Volume Recovered 10bbls
Source of Release Flowline	Date and Hour of Occurrence 08/28/2010	Date and Hour of Discovery 08/28/2010 9:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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 cause of the release was due to a ruptured flowline. The section of flowline that ruptured was replaced with a new section and the flowline was put back into service.

Describe Area Affected and Cleanup Action Taken.*

Initially 11bbls of produced fluid was released from the flowline and we were able to recover 10bbls with a vacuum truck. The dimensions of the spill site areas measured 3' x 40' along the roadway and the oversprayed area measured 20' x 50'. The lease road has been scraped and returned to previous condition. (The closest well location to the release is the Schley Federal #3, API#30-015-30450). 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 work.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 09/08/2010 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Schley Federal #11
Eddy County, New Mexico

16 South 28 East

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

16 South 29 East

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

16 South 30 East

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

17 South 28 East

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

17 South 29 East

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

17 South 30 East

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

18 South 28 East

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

18 South 29 East

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

18 South 30 East

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

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

LOCATION NUMBER	WATER LEVEL: BELOW LAND SURFACE (feet)	WATER LEVEL: DATE OF MEASUREMENT	YIELD (g.p.m.)	METHOD OF LIFT	USE OF WATER	REMARKS
17.28.2.240	27.6	Dec. 1, 1948	3	W	S	Depth to water measured while pumping.
14.220	80	–	61	W	S & D	Driller: Cy Hinshaw. See analysis, Table 3.
19.200	224.3	Dec. 2, 1948	1.2	W	S	Depth to water measured while pumping.
22.230	45.5	Dec. 1, 1948	–	N	N	Abandoned stock well.
17.29.22.110	79.7	Nov. 29, 1948	3 E.	W	S	Depth to water measured while pumping.
29.400	210	Dec. 3, 1948	1.1	W	S	do.
17.31.34.000	271+	Dec. 6, 1948	3.5	W	S	do. See analysis, Table 3.
18.21.13.310	505	–	10 R.	W	S & D	Formerly C.C.C. well. Cased to 30 ft.
27.440	530	–	–	W	S	Cased to 120 ft.
32.430	800 (?)	–	12 R.	W	S & D	Lowered cylinder 5 ft. in 1948 because water level declined. Cased to 380 ft.
18.23.6.140	440	Jan. 12, 1950	–	W	S & D	
18.25.23.111	117.8	Jan. 1950	–	W	S	

See explanation at beginning of table.
1 Measured Dec. 3, 1948.

Appendix C

Summary Report

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

Report Date: July 14, 2011

Work Order: 11070823

Project Location: Eddy Co., NM
Project Name: COG/Schley Federal #11
Project Number: 114-6400685

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
271510	T-1 2'	soil	2011-07-07	00:00	2011-07-08
271511	T-1 4'	soil	2011-07-07	00:00	2011-07-08
271512	T-1 6'	soil	2011-07-07	00:00	2011-07-08
271513	T-1 8'	soil	2011-07-07	00:00	2011-07-08

Sample: 271510 - T-1 2'

Param	Flag	Result	Units	RL
Chloride		**469**	mg/Kg	4

Sample: 271511 - T-1 4'

Param	Flag	Result	Units	RL
Chloride		**973**	mg/Kg	4

Sample: 271512 - T-1 6'

Param	Flag	Result	Units	RL
Chloride		**248**	mg/Kg	4

Sample: 271513 - T-1 8'

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

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: July 14, 2011

Work Order: 11070823

Project Location: Eddy Co., NM
Project Name: COG/Schley Federal #11
Project Number: 114-6400685

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
271510	T-1 2'	soil	2011-07-07	00:00	2011-07-08
271511	T-1 4'	soil	2011-07-07	00:00	2011-07-08
271512	T-1 6'	soil	2011-07-07	00:00	2011-07-08
271513	T-1 8'	soil	2011-07-07	00:00	2011-07-08

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

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

Report Contents

Case Narrative

Samples for project COG/Schley Federal #11 were received by TraceAnalysis, Inc. on 2011-07-08 and assigned to work order 11070823. Samples for work order 11070823 were received intact at a temperature of 33.8 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	70469	2011-07-12 at 08:43	83005	2011-07-13 at 15:17

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 11070823 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.

Samples not on ice.

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

Analytical Report

Sample: 271510 - T-1 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**469**	mg/Kg	100	4.00

Sample: 271511 - T-1 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**973**	mg/Kg	100	4.00

Sample: 271512 - T-1 6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**248**	mg/Kg	50	4.00

Sample: 271513 - T-1 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	Sample Preparation:	2011-07-12	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 83005

QC Batch:	83005	Date Analyzed:	2011-07-13	Analyzed By:	AR
Prep Batch:	70469	QC Preparation:	2011-07-12	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 83005 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.5	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	6	20

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

Matrix Spike (MS-1) Spiked Sample: 271519

QC Batch: 83005 | Date Analyzed: 2011-07-13 | Analyzed By: AR
Prep Batch: 70469 | QC Preparation: 2011-07-12 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14700	mg/Kg	100	10000	5110	96	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			15000	mg/Kg	100	10000	5110	99	80 - 120	2	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 83005 Date Analyzed: 2011-07-13 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-07-13

Standard (CCV-1)

QC Batch: 83005 Date Analyzed: 2011-07-13 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2011-07-13

Appendix

Laboratory Certifications

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

Standard Flags

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

Attachments

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

Xwo #: 1107082 3

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400685

PROJECT NAME: Schley Federal #11 Eddy Co NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
271510	7-7		S		X	T-1 2'	1																	X				
511						T-1 4'																						
512						T-1 6'																						
513						T-1 8'																						

RELINQUISHED BY: (Signature) Date: 7-8-11 Time: 525
RECEIVED BY: (Signature) Date: 7-8-11 Time: 5:25
SAMPLED BY: (Print & Initial) TF Date: 7-7-11 Time:

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

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

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

SAMPLE CONDITION WHEN RECEIVED: 33.8°c intact
REMARKS: X All to B- Midland

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

Summary Report

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

Report Date: September 27, 2010

Work Order: 10091629

Project Location: Eddy County, NM
Project Name: COG/Schley Federal #11
Project Number: 114-6400685

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244825	AH-1 0-1'	soil	2010-09-14	00:00	2010-09-16
244826	AH-2 0-1'	soil	2010-09-14	00:00	2010-09-16
244827	AH-3 0-1'	soil	2010-09-14	00:00	2010-09-16

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
244825 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
244826 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
244827 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 244825 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**4670**	mg/Kg	4.00

Sample: 244826 - AH-2 0-1'

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

Sample: 244827 - AH-3 0-1'

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

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: September 27, 2010

Work Order: 10091629

Project Location: Eddy County, NM
Project Name: COG/Schley Federal #11
Project Number: 114-6400685

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
244825	AH-1 0-1'	soil	2010-09-14	00:00	2010-09-16
244826	AH-2 0-1'	soil	2010-09-14	00:00	2010-09-16
244827	AH-3 0-1'	soil	2010-09-14	00:00	2010-09-16

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

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

Standard Flags

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

Case Narrative

Samples for project COG/Schley Federal #11 were received by TraceAnalysis, Inc. on 2010-09-16 and assigned to work order 10091629. Samples for work order 10091629 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	63249	2010-09-21 at 16:00	73738	2010-09-21 at 22:53
Chloride (Titration)	SM 4500-Cl B	63252	2010-09-22 at 08:46	73783	2010-09-23 at 09:53
TPH DRO - NEW	S 8015 D	63137	2010-09-16 at 15:21	73586	2010-09-16 at 15:21
TPH GRO	S 8015 D	63249	2010-09-21 at 16:00	73737	2010-09-21 at 23:20

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 10091629 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 244825 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	73738	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	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)		2.13	mg/Kg	1	2.00	106	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.11	mg/Kg	1	2.00	106	38.4 - 157

Sample: 244825 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	73783	Date Analyzed:	2010-09-23	Analyzed By:	AR
Prep Batch:	63252	Sample Preparation:	2010-09-22	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**4670**	mg/Kg	100	4.00

Sample: 244825 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	73586	Date Analyzed:	2010-09-16	Analyzed By:	kg
Prep Batch:	63137	Sample Preparation:	2010-09-16	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		101	mg/Kg	1	100	101	70 - 130

Sample: 244825 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	73737	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	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)		1.86	mg/Kg	1	2.00	93	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.50	mg/Kg	1	2.00	75	42 - 159

Sample: 244826 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	73738	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	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)		2.09	mg/Kg	1	2.00	104	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.02	mg/Kg	1	2.00	101	38.4 - 157

Sample: 244826 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	73783	Date Analyzed:	2010-09-23	Analyzed By:	AR
Prep Batch:	63252	Sample Preparation:	2010-09-22	Prepared By:	AR

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

Sample: 244826 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	73586	Date Analyzed:	2010-09-16	Analyzed By:	kg
Prep Batch:	63137	Sample Preparation:	2010-09-16	Prepared By:	kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		103	mg/Kg	1	100	103	70 - 130

Sample: 244826 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	73737	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	Prepared By:	AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.46	mg/Kg	1	2.00	73	42 - 159

Sample: 244827 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	73738	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	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)		2.18	mg/Kg	1	2.00	109	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.16	mg/Kg	1	2.00	108	38.4 - 157

Sample: 244827 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	73783	Date Analyzed:	2010-09-23	Analyzed By:	AR
Prep Batch:	63252	Sample Preparation:	2010-09-22	Prepared By:	AR

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

Sample: 244827 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	73586	Date Analyzed:	2010-09-16	Analyzed By:	kg
Prep Batch:	63137	Sample Preparation:	2010-09-16	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		100	mg/Kg	1	100	100	70 - 130

Sample: 244827 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	73737	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	Sample Preparation:	2010-09-21	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)		1.92	mg/Kg	1	2.00	96	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.55	mg/Kg	1	2.00	78	42 - 159

Method Blank (1) QC Batch: 73586

QC Batch:	73586	Date Analyzed:	2010-09-16	Analyzed By:	kg
Prep Batch:	63137	QC Preparation:	2010-09-16	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		95.5	mg/Kg	1	100	96	70 - 130

Method Blank (1) QC Batch: 73737

QC Batch:	73737	Date Analyzed:	2010-09-21	Analyzed By:	AG
Prep Batch:	63249	QC Preparation:	2010-09-21	Prepared By:	AG

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)		1.80	mg/Kg	1	2.00	90	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	2.00	54	52.4 - 130

Method Blank (1) QC Batch: 73738

QC Batch: 73738 | Date Analyzed: 2010-09-21 | Analyzed By: AG
Prep Batch: 63249 | QC Preparation: 2010-09-21 | 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)		2.04	mg/Kg	1	2.00	102	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.53	mg/Kg	1	2.00	76	55.4 - 132

Method Blank (1) QC Batch: 73783

QC Batch: 73783 | Date Analyzed: 2010-09-23 | Analyzed By: AR
Prep Batch: 63252 | QC Preparation: 2010-09-22 | Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 73586 | Date Analyzed: 2010-09-16 | Analyzed By: kg
Prep Batch: 63137 | QC Preparation: 2010-09-16 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	240	mg/Kg	1	250	<14.5	96	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	256	mg/Kg	1	250	<14.5	102	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	106	110	mg/Kg	1	100	106	110	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 73737 | Date Analyzed: 2010-09-21 | Analyzed By: AG
Prep Batch: 63249 | QC Preparation: 2010-09-21 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.4	mg/Kg	1	20.0	<1.65	77	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	14.7	mg/Kg	1	20.0	<1.65	74	69.9 - 95.4	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.85	mg/Kg	1	2.00	97	92	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.70	1.64	mg/Kg	1	2.00	85	82	65.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 73738 | Date Analyzed: 2010-09-21 | Analyzed By: AG
Prep Batch: 63249 | QC Preparation: 2010-09-21 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.05	mg/Kg	1	2.00	<0.0150	102	81.9 - 108
Toluene	2.04	mg/Kg	1	2.00	<0.00950	102	81.9 - 107
Ethylbenzene	2.07	mg/Kg	1	2.00	<0.0106	104	78.4 - 107
Xylene	6.21	mg/Kg	1	6.00	<0.00930	104	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	2.07	mg/Kg	1	2.00	<0.0150	104	81.9 - 108	1	20
Toluene	2.06	mg/Kg	1	2.00	<0.00950	103	81.9 - 107	1	20
Ethylbenzene	2.09	mg/Kg	1	2.00	<0.0106	104	78.4 - 107	1	20
Xylene	6.32	mg/Kg	1	6.00	<0.00930	105	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)	1.99	2.09	mg/Kg	1	2.00	100	104	70.2 - 114
4-Bromofluorobenzene (4-BFB)	2.30	2.35	mg/Kg	1	2.00	115	118	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 73783 | Date Analyzed: 2010-09-23 | Analyzed By: AR
Prep Batch: 63252 | QC Preparation: 2010-09-22 | Prepared By: AR

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	102	mg/Kg	1	100	<2.18	102	85 - 115	5	20

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

Matrix Spike (MS-1) Spiked Sample: 244915

QC Batch: 73586 | Date Analyzed: 2010-09-16 | Analyzed By: kg
Prep Batch: 63137 | QC Preparation: 2010-09-16 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	202	mg/Kg	1	250	<14.5	81	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	209	mg/Kg	1	250	<14.5	84	35.2 - 167.1	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	95.1	95.2	mg/Kg	1	100	95	95	70 - 130

Matrix Spike (MS-1) Spiked Sample: 244875

QC Batch: 73737 | Date Analyzed: 2010-09-21 | Analyzed By: AG
Prep Batch: 63249 | QC Preparation: 2010-09-21 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.3	mg/Kg	1	20.0	<1.65	82	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	16.8	mg/Kg	1	20.0	<1.65	84	61.8 - 114	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.09	1.96	mg/Kg	1	2	104	98	50 - 162
4-Bromofluorobenzene (4-BFB)	2.03	1.87	mg/Kg	1	2	102	94	50 - 162

Matrix Spike (MS-1) Spiked Sample: 244827

QC Batch: 73738 | Date Analyzed: 2010-09-21 | Analyzed By: AG
Prep Batch: 63249 | QC Preparation: 2010-09-21 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.05	mg/Kg	1	2.00	<0.0150	102	80.5 - 112
Toluene	2.09	mg/Kg	1	2.00	<0.00950	104	82.4 - 113
Ethylbenzene	2.22	mg/Kg	1	2.00	<0.0106	111	83.9 - 114
Xylene	6.60	mg/Kg	1	6.00	<0.00930	110	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]	2.28	mg/Kg	1	2.00	<0.0150	114	80.5 - 112	11	20
Toluene	[2]	2.32	mg/Kg	1	2.00	<0.00950	116	82.4 - 113	10	20
Ethylbenzene	[3]	2.49	mg/Kg	1	2.00	<0.0106	124	83.9 - 114	12	20
Xylene	[4]	7.39	mg/Kg	1	6.00	<0.00930	123	84 - 114	11	20

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

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	[5]	2.04	2.44	mg/Kg	1	2	102	122	41.3 - 117
4-Bromofluorobenzene (4-BFB)	[6]	2.43	2.80	mg/Kg	1	2	122	140	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 244834

QC Batch: 73783 | Date Analyzed: 2010-09-23 | Analyzed By: AR
Prep Batch: 63252 | QC Preparation: 2010-09-22 | Prepared By: AR

[1]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[2]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[3]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[4]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.
[5]High surrogate recovery due to peak interference.
[6]High surrogate recovery due to peak interference.

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.

Standard (CCV-1)

QC Batch: 73586 Date Analyzed: 2010-09-16 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	214	86	80 - 120	2010-09-16

Standard (CCV-2)

QC Batch: 73586 Date Analyzed: 2010-09-16 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	253	101	80 - 120	2010-09-16

Standard (CCV-1)

QC Batch: 73737 Date Analyzed: 2010-09-21 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	0.968	97	80 - 120	2010-09-21

Standard (CCV-2)

QC Batch: 73737 Date Analyzed: 2010-09-21 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	0.887	89	80 - 120	2010-09-21

Standard (CCV-1)

QC Batch: 73738 | Date Analyzed: 2010-09-21 | 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	0.109	109	80 - 120	2010-09-21
Toluene		mg/Kg	0.100	0.109	109	80 - 120	2010-09-21
Ethylbenzene		mg/Kg	0.100	0.110	110	80 - 120	2010-09-21
Xylene		mg/Kg	0.300	0.333	111	80 - 120	2010-09-21

Standard (CCV-2)

QC Batch: 73738 | Date Analyzed: 2010-09-21 | 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	0.109	109	80 - 120	2010-09-21
Toluene		mg/Kg	0.100	0.108	108	80 - 120	2010-09-21
Ethylbenzene		mg/Kg	0.100	0.109	109	80 - 120	2010-09-21
Xylene		mg/Kg	0.300	0.327	109	80 - 120	2010-09-21

Standard (ICV-1)

QC Batch: 73783 | Date Analyzed: 2010-09-23 | 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	2010-09-23

Standard (CCV-1)

QC Batch: 73783 | Date Analyzed: 2010-09-23 | 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	2010-09-23

XWO #: 10091629

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:	SITE MANAGER:
COG	Ike Tavarez

PROJECT NO.:	PROJECT NAME:
114-C400685	Schley Federal #11 Eddy Co NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD: TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
244825	9/14		S		X	AH-1 0-1'	1				X		X	X											X				
826	↓		↓		↓	AH-2 0-1'	↓				↓		X	X											X				
827	↓		↓		↓	AH-3 0-1'	↓				↓		X	X											X				

RELINQUISHED BY: (Signature)	Date: 9-14-10 Time: 1039	RECEIVED BY: (Signature)	Date: 9/14/10 Time: 10:38
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) TF — Date: 9-14-10 Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RUSH Charges Authorized: Yes No

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

SAMPLE CONDITION WHEN RECEIVED: 3.8° C intact

REMARKS: XAll tests-Midland

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

XINO #: 10091629

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6400
PROJECT NAME: Dobley Fd. 1 #11 Eddy Co NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
244825	9/14		S		X	AH-1 0-1'	1				X		X	X											X				
826	↓		↓		↓	AH-2 0-1'	↓				↓		X	X											X				
827	↓		↓		↓	AH-3 0-1'	↓				↓		X	X											X				

RELINQUISHED BY: (Signature) [signature] Date: 9-14-10 Time: 1239
RECEIVED BY: (Signature) [signature] Date: 9/16/10 Time: 10:38
SAMPLED BY: (Print & Initial) TF Date: 9-14-10 Time:

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

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.8°C intact
REMARKS: X All tests - Midland

SEP 20 2010

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