

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

JUN 30 2009

Form C-141  
Revised June 10, 2003

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

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

30-015-36467

Release Notification and Corrective Action

NMLB 0920853986

OPERATOR

Initial Report  Final Report

Name of Company: COG Operating LLC 229137	Contact: Pat Ellis
Address: 550 W. Texas, Suite 1300, Midland, Tx 79701	Telephone No. (432) 683-7443
Facility Name: Electra Federal North Battery	Facility Type: Tank Battery

Surface Owner Charles Martin	Mineral Owner Unknown	Lease No. API# 30-015-36467
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LOCATION OF RELEASE

Unit Letter B	Section 10	Township 17S	Range 30E	Feet from the 1170'	North Line North	Feet from the 2310'	East Line East	County Eddy
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NATURE OF RELEASE

Type of Release Oil	Volume of Release 150 BBLs	Volume Recovered 90 BBLs
Source of Release Tank Overflowed	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 03/05/09 - 8:00 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? C	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.\*

Tank overflowed and was contained within firewall. Site was vacuumed and soils excavated.

Describe Area Affected and Cleanup Action Taken.\*

All oil was contained within firewall. COG Operating LLC vacuumed all liquids from ground and as of 03/06/09 dug and removed soils. Tetra Tech sampled site on 03/10/09. Upon completion of delineation, remaining hydrocarbon impacted soils were excavated and removed offsite for proper disposal.

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: <i>Jeffrey Kindley</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Jeffrey Kindley as agent for COG	Signed By <i>M. L. Brannon</i> Approved by District Supervisor:	
Title: Division Senior Environmental Geologist	Approval Date: JUL 27 2009	Expiration Date: N/A
E-mail Address: jeff.kindley@tetrattech.com	Conditions of Approval: N/A	Attached <input type="checkbox"/>
Date: 06/24/09 Phone: (432) 682-4559		

\* Attach Additional Sheets If Necessary

2RP-324

**SITE INFORMATION**

**REPORT TYPE: Assessment Report**

**Report Date: June 24, 2009**

**General Site Information:**

<b>Site:</b>	Electra Federal North Battery
<b>Company:</b>	COG Operating LLC
<b>Section, Township and Range</b>	Section 10 Township 17S Range 30E
<b>Unit Letter:</b>	B
<b>Lease Number:</b>	API # 30-015-36468
<b>County:</b>	Eddy County
<b>GPS:</b>	N32° 51' 10.59" W103° 57' 29.47"
<b>Surface Owner:</b>	Charles Martin
<b>Mineral Owner:</b>	Unknown
<b>Directions:</b>	From Lovington, NM go west on Hwy 82 to CR215. Turn right on CR215 and travel 1.7 miles to four way and turn right (east) and travel for 0.8 miles to four way and turn left (north) and travel for 0.4 miles and turn right (east) and travel 0.3 miles to TB

**Release Data:**

<b>Date Released:</b>	3/5/2009
<b>Type Release:</b>	Oil
<b>Source of Contamination:</b>	Tank overflowed
<b>Fluid Released:</b>	150 BBLS
<b>Fluids Recovered:</b>	90 BBLS

**Official Communication:**

<b>Name:</b>	Phyllis A. Edwards	Ike Tavares
<b>Company:</b>	COG Operating LLC	Tetra Tech, Inc.
<b>Address:</b>	550 W. Texas, Suite 1300	1910 N. Big Spring
<b>P.O. Box</b>		
<b>City:</b>	Midland, Tx 79701	Midland, Texas 79705
<b>Phone number:</b>	(432) 685-4340	(432) 682-4559
<b>Email:</b>	edward@conchoresources.co	ike.tavares@tetrattech.com

**Ranking Criteria**

<b>Depth to Groundwater:</b>	<b>Ranking Score</b>	<b>Site Data</b>
<50 ft	20	
50-99 ft	10	
>100 ft.	0	Average Depth >350
<b>WellHead Protection:</b>	<b>Ranking Score</b>	<b>Site Data</b>
Water Source <1,000 ft., Private <200 ft.	20	None
Water Source >1,000 ft., Private >200 ft.	0	
<b>Surface Body of Water:</b>	<b>Ranking Score</b>	<b>Site Data</b>
<200 ft.	20	None
200 ft - 1,000 ft.	10	None
>1,000 ft.	0	
<b>Total Ranking Score:</b>	<b>0</b>	

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



**TETRA TECH**

June 24, 2009

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

**Re: Assessment and Closure Report for the COG Operating LLC., Electra Federal North Battery, Unit B, Section 10, Township 17 South, Range 30 East, Eddy County, New Mexico.**

Mr. Bratcher:

Tetra Tech, Inc. was contacted by COG Operating, LLC (COG) to assess a spill from the Electra Federal North Battery, located in Unit B, Section 10, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32° 51' 10.59", W 103° 57' 29.47". 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 March 5, 2009. Approximately 150 barrels of oil were released, when a tank overflowed. The spill covered a 35 foot by 90 foot area and 160 foot by 10 to 20 foot area within the berm of the tank battery. Of the 150 barrels released approximately 90 barrels were recovered by vacuum trucks. The soils within the berm were scraped to a maximum depth of 1 foot below ground surface on March 6, 2009. The initial and final C-141 is enclosed in Appendix A.

### **Groundwater**

No water wells were found within Township 17 South and Range 37 East. However, according to the ChevronTexaco *Eddy County Depth to Groundwater Water Well Facility Map*, the approximate depth to groundwater in the region is approximately 350 feet below ground surface (bgs). Copies of the groundwater depth information for this site are included in Appendix B.

### **Regulatory**

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene,

Tetra Tech

1910 North Big Spring, Midland TX 79705

Tel 432 682 4559 Fax 432 682.3946 [www.tetrattech.com](http://www.tetrattech.com)



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 Results**

On March 10, 2009, Tetra Tech inspected and sampled the spill area. A total of eight (8) auger holes (AH-1 through AH-8) were installed using a stainless steel hand auger to assess the impacted soils within the tank battery. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. All of the samples analyzed were below the RRAL for both BTEX and TPH with the exception of auger hole AH-2, AH-3, and AH-4 at 0 to 1 foot below excavation bottom (BEB). All chloride concentrations were less than 20 mg/kg in all samples collected and analyzed. All sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The spill area and the auger hole locations are shown on Figure 3.

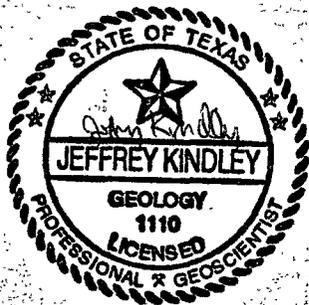
**Soil Remediation**

Upon completion of the sampling at the site, COG excavated the first foot of hydrocarbon impacted soils from around auger hole AH-2, AH-3, and AH-4. Soils from the excavation were transported offsite for proper disposal.

**Conclusions**

The remedial activities performed at the site leave no residual TPH or BTEX concentrations that exceed the RRAL. With groundwater depth at approximately 350 feet bgs, it does not appear that any residual hydrocarbons remaining within the soils would pose an imminent threat to groundwater.

Based upon the results of the assessment and work performed at this site, COG requests closure of this site. If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

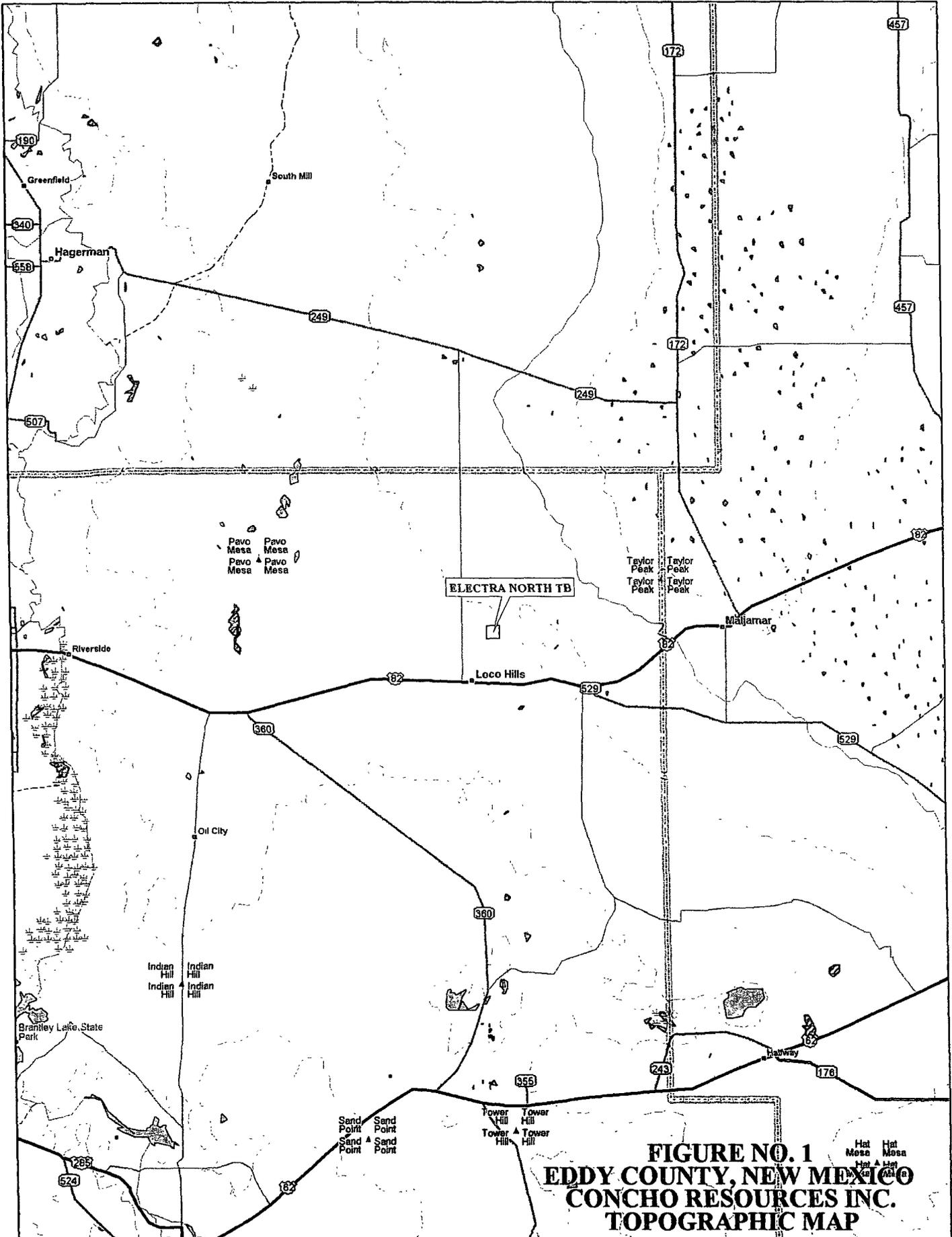


Respectfully submitted,  
TETRA TECH, Inc.

*Jeffrey Kindley*  
Jeffrey Kindley, P.G.  
Sr. Project Manager

cc: Pat Ellis – COG

**FIGURES**

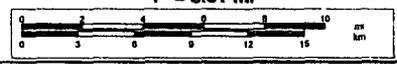


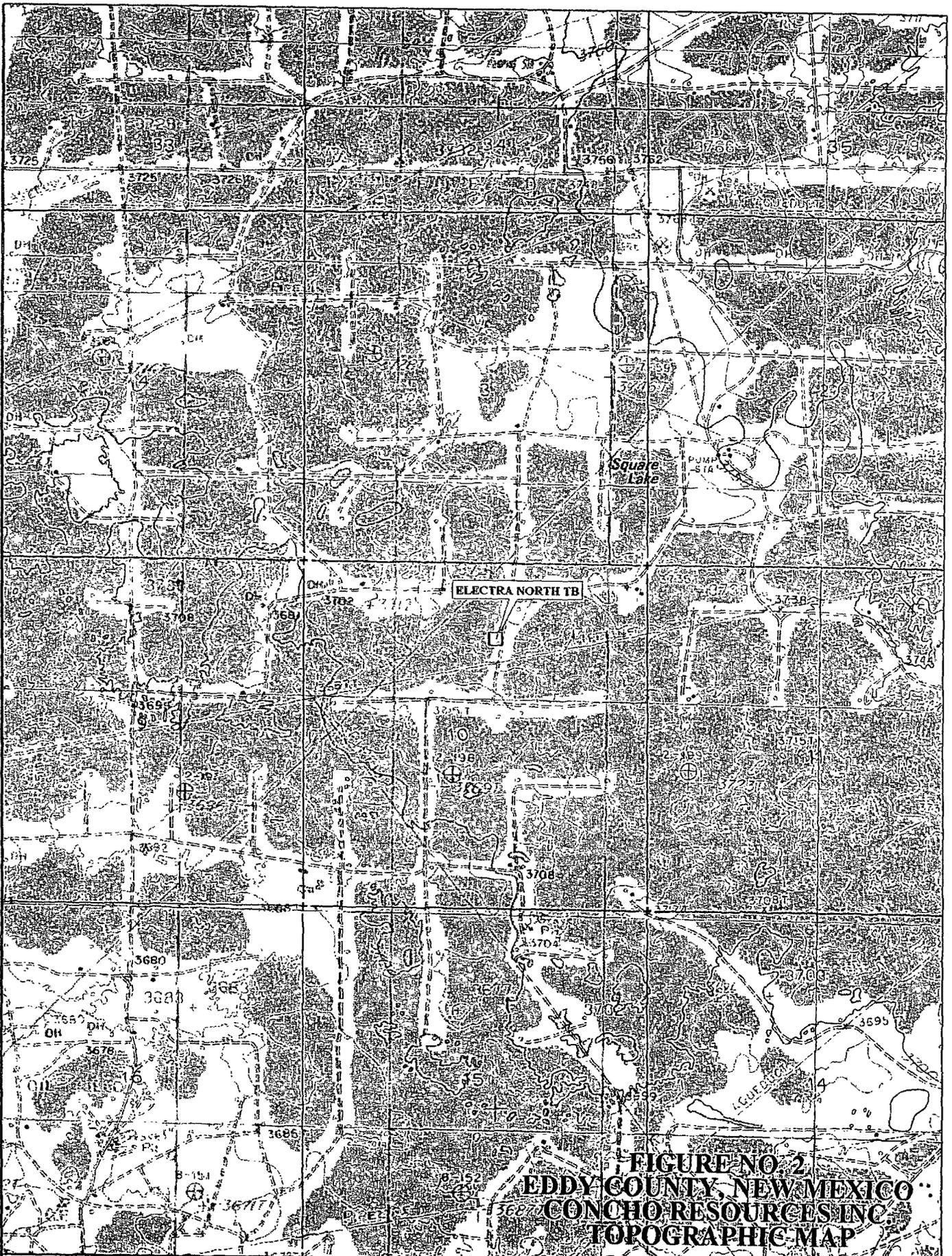
**FIGURE NO. 1**  
**EDDY COUNTY, NEW MEXICO**  
**CONCHO RESOURCES INC.**  
**TOPOGRAPHIC MAP**



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 www.delorme.com

Scale 1 : 400,000  
 1" = 6.31 mi





ELECTRA NORTH TB

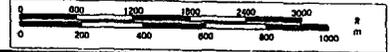
Square Lake

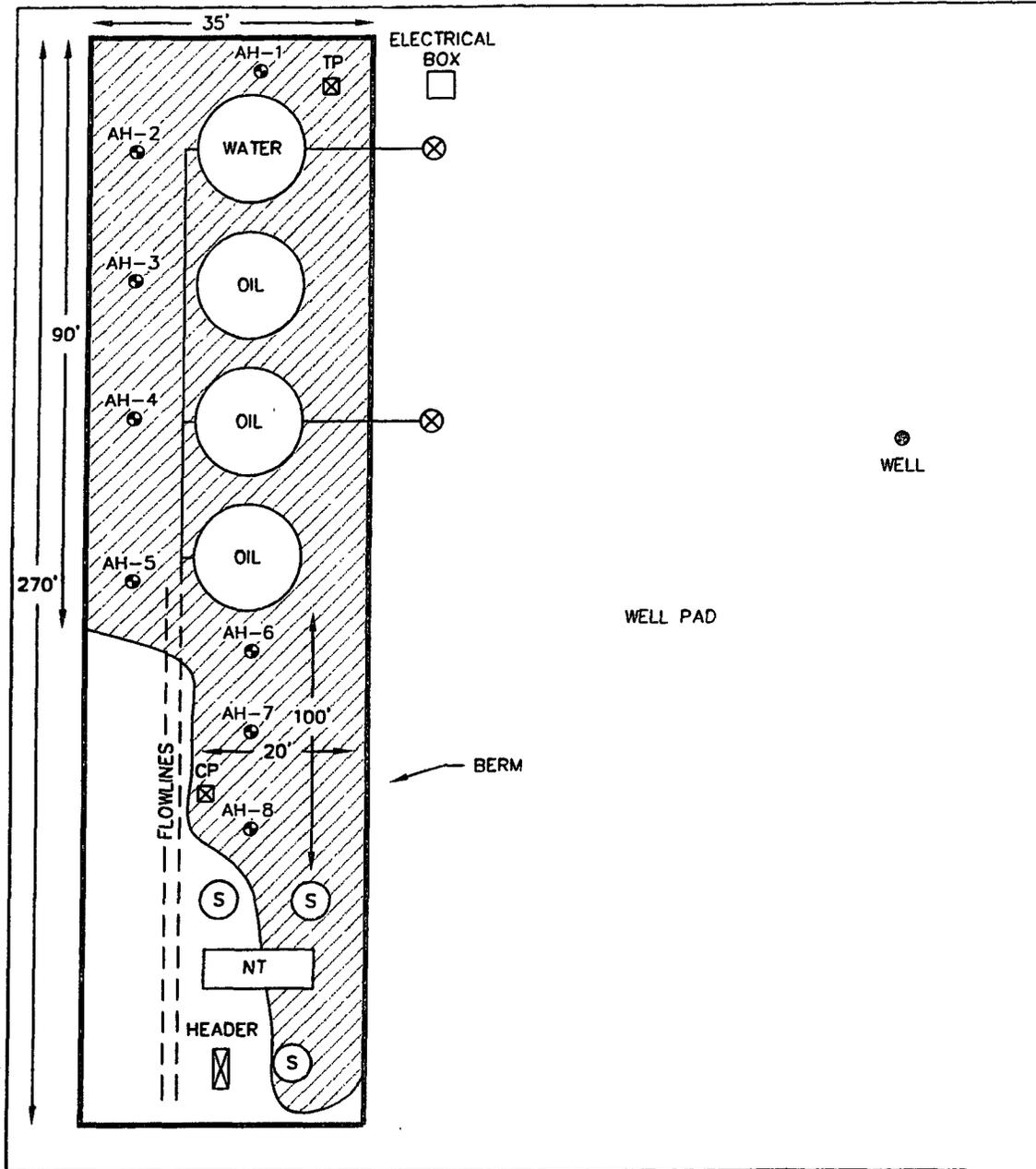
FIGURE NO. 2  
 EDDY COUNTY, NEW MEXICO  
 CONCHO RESOURCES INC  
 TOPOGRAPHIC MAP



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 www.delorme.com

Scale 1 : 24,000  
 1" = 2000 ft





 SPILL AREA  
 SAMPLE LOCATIONS

NOT TO SCALE

DATE:  
 3/30/09  
 DWN. BY:  
 JJ  
 FILE:  
 H:\CDON\8400125  
 ELECTRA NORTH TB

FIGURE NO. 3
EDDY COUNTY, NEW MEXICO
CONCHO RESOURCES INC.
ELECTRA NORTH TB
TETRA TECH, INC. MIDLAND, TEXAS

Table 1  
COG  
Electra Tank Battery  
Eddy County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	DRO	GRO	Total					
AH-1	3/10/2009	0-1 BEB (2.0')	X		<50.0	11.7	11.7	-	-	-	-	<200
AH-2	3/10/2009	0-1 BEB (4")		X	8,090	5,740	13,830	68.6	196	139	183	<200
	3/10/2009	1-1.5 BEB (4")	X		<50.0	<1.00	<50.0	<0.0100	0.123	0.129	0.370	-
	3/10/2009	2-2.5 BEB (4")	X		<50.0	<1.00	<50.0	-	-	-	-	-
AH-3	3/10/2009	0-1 BEB (4")		X	5,580	2,910	8,490	29.0	104	85.2	121	<200
	3/10/2009	1-1.5 BEB (4")	X		<50.0	<1.00	<50.0	<0.0100	<0.0100	0.123	0.342	-
AH-4	3/10/2009	0-1 BEB (4")		X	2,860	3,100	5,960	18.5	81.1	65.8	89.3	<200
	3/10/2009	1-1.5 BEB (4")	X		<50.0	<1.00	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	-
AH-5	3/10/2009	0-1 BEB (4")	X		591	263	854	0.294	2.02	3.09	4.58	<200
AH-6	3/10/2009	0-1 BEB (1.0)	X		421	115	536	-	-	-	-	<200
AH-7	3/10/2009	0-1 BEB (6")	X		<50.0	5.23	5.23	-	-	-	-	<200
AH-8	3/10/2009	0-1.0'	X		99.2	4.69	103.89	-	-	-	-	<200

(-) Not Analyzed

**APPENDIX A  
INITIAL AND FINAL C-141**

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	Phyllis A. Edwards
Address	550 W. Texas, Suite 1300 Midland, TX 79701	Telephone No.	432-685-4340
Facility Name	Electra Federal North Battery	Facility Type	Battery

Surface Owner	Charles Martin	Mineral Owner		Lease No.	API# 30-015-36468
---------------	----------------	---------------	--	-----------	-------------------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	10	17S	30E	1170	North	2310	East	Eddy

Latitude 32.852941 Longitude 103.958186

**NATURE OF RELEASE**

Type of Release-	OIL	Volume of Release-	150 BBLS	Volume Recovered-	90 BBLS
Source of Release-	tank overflowed	Date and Hour of Occurrence-	Unknown	Date and Hour of Discovery	3/5/09- 8:00am
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

All oil was contained in the firewall. 90 BBLS was recovered & 60 BBLS was lost according to gauges. COG Operating LLC has vacuumed all liquids from ground & as of 3-6-09 has started digging & removing contaminated caliche. COG Operating LLC has contacted TetraTech to sample & delineate this spill.

Describe Area Affected and Cleanup Action Taken.\*

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:	<i>Phyllis A. Edwards</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name:	Phyllis A. Edwards	Approved by District Supervisor:	
Title:	Regulatory Analyst	Approval Date:	Expiration Date:
E-mail Address	pedwards@conchoresources.com	Conditions of Approval:	
Date:	3/12/09	Phone:	432-685-4340
			Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary

**APPENDIX B  
WATER WELL DATA**

**Water Well Data**  
**COG - Electra Federal North Tank Battery**  
**Average Depth to Groundwater (ft)**

**16 South 29 East**

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

**16 South 30 East**

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

**16 South 31 East**

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

**17 South 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	210	28	27	26
31	208'	32	33	34	35
					36

**17 South 30 East**

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

**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 29 East**

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

**18 South 30 East**

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

**18 South 31 East**

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

- 88 New Mexico State Engineers Well Reports
- 105 USGS Well Reports
- 90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)  
 Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34 NMOCD - Groundwater Data
- 123 Field water level

New Mexico Office of the State Engineer  
POD Reports and Downloads

Township: 17S Range: 30E Sections:

NAD27 X: Y: Zone:  Search Radius:

County:  Basin:  Number: Suffix:

Owner Name: (First) (Last)  Non-Domestic  Domestic  All

AVERAGE DEPTH OF WATER REPORT 04/01/2009

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg

No Records found, try again

New Mexico Office of the State Engineer  
POD Reports and Downloads

Township: 16S Range: 30E Sections:

NAD27 X: Y: Zone:  Search Radius:

County:  Basin:  Number: Suffix:

Owner Name: (First) (Last)  Non-Domestic  Domestic  All

AVERAGE DEPTH OF WATER REPORT 04/01/2009

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
-----	-----	-----	-----	------	---	---	-------	-----	-----	-----

No Records found, try again

New Mexico Office of the State Engineer  
POD Reports and Downloads

Township: 17S Range: 31E Sections:

NAD27 X: Y: Zone:  Search Radius:

County:  Basin:  Number: Suffix:

Owner Name: (First) (Last)  Non-Domestic  Domestic  All

AVERAGE DEPTH OF WATER REPORT 04/01/2009

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
-----	-----	-----	-----	------	---	---	-------	-----	-----	-----

No Records found, try again

New Mexico Office of the State Engineer  
POD Reports and Downloads

Township: 18S Range: 30E Sections:

NAD27 X: Y: Zone:  Search Radius:

County:  Basin:  Number: Suffix:

Owner Name: (First) (Last)  Non-Domestic  Domestic  All

AVERAGE DEPTH OF WATER REPORT 04/01/2009

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg

No Records found, try again

**APPENDIX C**  
**LABORATORY ANALYTICAL**

# TRACE ANALYSIS, INC.

8701 American Avenue, Suite B Lubbock, Texas 79424 806•378•1295 806•794•1296 FAX 806•794•1296  
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 915•585•3443 FAX 915•585•4944  
5832 Basin Street, Suite A7 Midland, Texas 79705 432•689•6301 FAX 432•589•6313  
6615 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: [info@traceanalysis.com](mailto:info@traceanalysis.com)

## Certifications

WBENC: 237019 HUB: 1752439743100-86536 DBE: VN 20657  
NCTRCA WFVB38444Y0909

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

Report Date: March 17, 2009

Work Order: 9031110



Project Location: Eddy Co., NM  
Project Name: COG/Electra TB  
Project Number: 114-6400141

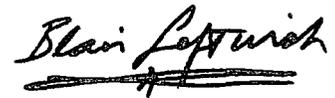
Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
189774	AH-1 0-1' 2' BEB	soil	2009-03-10	00:00	2009-03-11
189777	AH-2 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189778	AH-2 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189779	AH-2 2'-2.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189781	AH-3 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189782	AH-3 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189785	AH-4 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189786	AH-4 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189788	AH-5 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189791	AH-6 0-1' 1' BEB	soil	2009-03-10	00:00	2009-03-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
189794	AH-7 0-1' 6 in. BEB	soil	2009-03-10	00:00	2009-03-11
189797	AH-8 0-1'	soil	2009-03-10	00:00	2009-03-11

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

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director

**Standard Flags**

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

## Case Narrative

Samples for project COG/Electra TB were received by TraceAnalysis, Inc. on 2009-03-11 and assigned to work order 9031110. Samples for work order 9031110 were received intact at a temperature of 5.1 deg. 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	49138	2009-03-11 at 12:58	57524	2009-03-12 at 09:11
TPH DRO	Mod. 8015B	49181	2009-03-12 at 12:00	57583	2009-03-12 at 13:50
TPH DRO	Mod. 8015B	49244	2009-03-16 at 09:00	57661	2009-03-16 at 10:00
TPH GRO	S 8015B	49146	2009-03-11 at 13:09	57523	2009-03-11 at 13:09
TPH GRO	S 8015B	49197	2009-03-12 at 10:25	57588	2009-03-12 at 10:25
TPH GRO	S 8015B	49239	2009-03-13 at 15:19	57636	2009-03-13 at 15:19

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 9031110 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: 189774 - AH-1 0-1' 2' BEB**

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2009-03-12	Analyzed By: AR
QC Batch: 57524	Sample Preparation: 2009-03-11	Prepared By: AR
Prep Batch: 49138		

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

**Sample: 189774 - AH-1 0-1' 2' BEB**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-12	Analyzed By: LD
QC Batch: 57583	Sample Preparation: 2009-03-12	Prepared By: LD
Prep Batch: 49181		

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-Triacontane		52.2	mg/Kg	1	100	52	13.2 - 219.3

**Sample: 189774 - AH-1 0-1' 2' BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-11	Analyzed By: ME
QC Batch: 57523	Sample Preparation: 2009-03-11	Prepared By: ME
Prep Batch: 49146		

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		11.7	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.969	mg/Kg	1	1.00	97	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.944	mg/Kg	1	1.00	94	52 - 117

**Sample: 189777 - AH-2 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
 QC Batch: 57524 Date Analyzed: 2009-03-12 Analyzed By: AR  
 Prep Batch: 49138 Sample Preparation: 2009-03-11 Prepared By: AR

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

**Sample: 189777 - AH-2 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A  
 QC Batch: 57583 Date Analyzed: 2009-03-12 Analyzed By: LD  
 Prep Batch: 49181 Sample Preparation: 2009-03-12 Prepared By: LD

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		8090	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	1	438	mg/Kg	5	100	438	13.2 - 219.3

**Sample: 189777 - AH-2 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
 QC Batch: 57588 Date Analyzed: 2009-03-12 Analyzed By: ME  
 Prep Batch: 49197 Sample Preparation: 2009-03-12 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5740	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		88.1	mg/Kg	100	100	88	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	2	147	mg/Kg	100	100	147	52 - 117

<sup>1</sup>High surrogate recovery due to peak interference.

<sup>2</sup>High surrogate recovery due to peak interference.

**Sample: 189778 - AH-2 1'-1.5' 4 in. BEB**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-16	Analyzed By: LD
QC Batch: 57661	Sample Preparation: 2009-03-16	Prepared By: LD
Prep Batch: 49244		

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-Triacontane		134	mg/Kg	1	100	134	13.2 - 219.3

**Sample: 189778 - AH-2 1'-1.5' 4 in. BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-13	Analyzed By: ME
QC Batch: 57636	Sample Preparation: 2009-03-13	Prepared By: ME
Prep Batch: 49239		

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.915	mg/Kg	1	1.00	92	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.666	mg/Kg	1	1.00	67	52 - 117

**Sample: 189779 - AH-2 2'-2.5' 4 in. BEB.**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-16	Analyzed By: LD
QC Batch: 57661	Sample Preparation: 2009-03-16	Prepared By: LD
Prep Batch: 49244		

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-Triacontane		89.9	mg/Kg	1	100	90	13.2 - 219.3

**Sample: 189779 - AH-2 2'-2.5' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
 QC Batch: 57636 Date Analyzed: 2009-03-13 Analyzed By: ME  
 Prep Batch: 49239 Sample Preparation: 2009-03-13 Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.958	mg/Kg	1	1.00	96	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.640	mg/Kg	1	1.00	64	52 - 117

**Sample: 189781 - AH-3 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
 QC Batch: 57524 Date Analyzed: 2009-03-12 Analyzed By: AR  
 Prep Batch: 49138 Sample Preparation: 2009-03-11 Prepared By: AR

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

**Sample: 189781 - AH-3 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A  
 QC Batch: 57583 Date Analyzed: 2009-03-12 Analyzed By: LD  
 Prep Batch: 49181 Sample Preparation: 2009-03-12 Prepared By: LD

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		5580	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	<sup>3</sup>	340	mg/Kg	5	100	340	13.2 - 219.3

<sup>3</sup>High surrogate recovery due to peak interference.

**Sample: 189781 - AH-3 0-1' 4 in. BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-12	Analyzed By: ME
QC Batch: 57588	Sample Preparation: 2009-03-12	Prepared By: ME
Prep Batch: 49197		

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		2910	mg/Kg	100	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		83.6	mg/Kg	100	100	84	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	4	125	mg/Kg	100	100	125	52 - 117

**Sample: 189782 - AH-3 1'-1.5' 4 in. BEB**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-16	Analyzed By: LD
QC Batch: 57661	Sample Preparation: 2009-03-16	Prepared By: LD
Prep Batch: 49244		

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-Triacontane		101	mg/Kg	1	100	101	13.2 - 219.3

**Sample: 189782 - AH-3 1'-1.5' 4 in. BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-13	Analyzed By: ME
QC Batch: 57636	Sample Preparation: 2009-03-13	Prepared By: ME
Prep Batch: 49239		

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

<sup>4</sup>High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.01	mg/Kg	1	1.00	101	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.649	mg/Kg	1	1.00	65	52 - 117

**Sample: 189785 - AH-4 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
 QC Batch: 57524 Date Analyzed: 2009-03-12 Analyzed By: AR  
 Prep Batch: 49138 Sample Preparation: 2009-03-11 Prepared By: AR

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

**Sample: 189785 - AH-4 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A  
 QC Batch: 57583 Date Analyzed: 2009-03-12 Analyzed By: LD  
 Prep Batch: 49181 Sample Preparation: 2009-03-12 Prepared By: LD

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2860	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	<sup>5</sup>	232	mg/Kg	1	100	232	13.2 - 219.3

**Sample: 189785 - AH-4 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
 QC Batch: 57588 Date Analyzed: 2009-03-12 Analyzed By: ME  
 Prep Batch: 49197 Sample Preparation: 2009-03-12 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3100	mg/Kg	50	1.00

<sup>5</sup>High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		45.5	mg/Kg	50	50.0	91	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	6	77.3	mg/Kg	50	50.0	155	52 - 117

**Sample: 189786 - AH-4 1'-1.5' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH DRO                      Analytical Method: Mod. 8015B                      Prep Method: N/A  
 QC Batch: 57661                      Date Analyzed: 2009-03-16                      Analyzed By: LD  
 Prep Batch: 49244                      Sample Preparation: 2009-03-16                      Prepared By: LD

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-Triacontane		108	mg/Kg	1	100	108	13.2 - 219.3

**Sample: 189786 - AH-4 1'-1.5' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH GRO                      Analytical Method: S 8015B                      Prep Method: S 5035  
 QC Batch: 57636                      Date Analyzed: 2009-03-13                      Analyzed By: ME  
 Prep Batch: 49239                      Sample Preparation: 2009-03-13                      Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.959	mg/Kg	1	1.00	96	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.634	mg/Kg	1	1.00	63	52 - 117

**Sample: 189788 - AH-5 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: Chloride (Titration)                      Analytical Method: SM 4500-Cl B                      Prep Method: N/A  
 QC Batch: 57524                      Date Analyzed: 2009-03-12                      Analyzed By: AR  
 Prep Batch: 49138                      Sample Preparation: 2009-03-11                      Prepared By: AR

<sup>6</sup>High surrogate recovery due to peak interference.

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

**Sample: 189788 - AH-5 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: Mod. 8015B      Prep Method: N/A  
 QC Batch: 57583      Date Analyzed: 2009-03-12      Analyzed By: LD  
 Prep Batch: 49181      Sample Preparation: 2009-03-12      Prepared By: LD

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		591	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		122	mg/Kg	1	100	122	13.2 - 219.3

**Sample: 189788 - AH-5 0-1' 4 in. BEB**

Laboratory: Midland  
 Analysis: TPH GRO      Analytical Method: S 8015B      Prep Method: S 5035  
 QC Batch: 57523      Date Analyzed: 2009-03-11      Analyzed By: ME  
 Prep Batch: 49146      Sample Preparation: 2009-03-11      Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		263	mg/Kg	2	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.07	mg/Kg	2	2.00	104	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	<sup>7</sup>	4.41	mg/Kg	2	2.00	220	52 - 117

**Sample: 189791 - AH-6 0-1' 1' BEB**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 57524      Date Analyzed: 2009-03-12      Analyzed By: AR  
 Prep Batch: 49138      Sample Preparation: 2009-03-11      Prepared By: AR

*continued ...*

<sup>7</sup>High surrogate recovery due to peak interference.

sample 189791 continued ...

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

**Sample: 189791 - AH-6 0-1' 1' BEB**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-12	Analyzed By: LD
QC Batch: 57583	Sample Preparation: 2009-03-12	Prepared By: LD
Prep Batch: 49181		

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		421	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		104	mg/Kg	1	100	104	13.2 - 219.3

**Sample: 189791 - AH-6 0-1' 1' BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-11	Analyzed By: ME
QC Batch: 57523	Sample Preparation: 2009-03-11	Prepared By: ME
Prep Batch: 49146		

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		115	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.05	mg/Kg	1	1.00	105	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	<sup>8</sup>	1.91	mg/Kg	1	1.00	191	52 - 117

<sup>8</sup>High surrogate recovery due to peak interference.

**Sample: 189794 - AH-7 0-1' 6 in. BEB**

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2009-03-12	Analyzed By: AR
QC Batch: 57524	Sample Preparation: 2009-03-11	Prepared By: AR
Prep Batch: 49138		

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

**Sample: 189794 - AH-7 0-1' 6 in. BEB**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-12	Analyzed By: LD
QC Batch: 57583	Sample Preparation: 2009-03-12	Prepared By: LD
Prep Batch: 49181		

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-Triacontane		68.8	mg/Kg	1	100	69	13.2 - 219.3

**Sample: 189794 - AH-7 0-1' 6 in. BEB**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-11	Analyzed By: ME
QC Batch: 57523	Sample Preparation: 2009-03-11	Prepared By: ME
Prep Batch: 49146		

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5.23	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.02	mg/Kg	1	1.00	102	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.927	mg/Kg	1	1.00	93	52 - 117

**Sample: 189797 - AH-8 0-1'**

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2009-03-12	Analyzed By: AR
QC Batch: 57524	Sample Preparation: 2009-03-11	Prepared By: AR
Prep Batch: 49138		

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

**Sample: 189797 - AH-8 0-1'**

Laboratory: Midland	Analytical Method: Mod. 8015B	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2009-03-12	Analyzed By: LD
QC Batch: 57583	Sample Preparation: 2009-03-12	Prepared By: LD
Prep Batch: 49181		

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		99.2	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		62.4	mg/Kg	1	100	62	13.2 - 219.3

**Sample: 189797 - AH-8 0-1'**

Laboratory: Midland	Analytical Method: S 8015B	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2009-03-11	Analyzed By: ME
QC Batch: 57523	Sample Preparation: 2009-03-11	Prepared By: ME
Prep Batch: 49146		

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4.69	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.05	mg/Kg	1	1.00	105	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		0.898	mg/Kg	1	1.00	90	52 - 117

Method Blank (1)      QC Batch: 57523

QC Batch: 57523      Date Analyzed: 2009-03-11      Analyzed By: ME  
Prep Batch: 49146      QC Preparation: 2009-03-11      Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.482	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.862	mg/Kg	1	1.00	86	75.8 - 98.5
4-Bromofluorobenzene (4-BFB)		0.888	mg/Kg	1	1.00	89	56.5 - 109.5

Method Blank (1)      QC Batch: 57524

QC Batch: 57524      Date Analyzed: 2009-03-12      Analyzed By: AR  
Prep Batch: 49138      QC Preparation: 2009-03-11      Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.01	mg/Kg	4

Method Blank (1)      QC Batch: 57583

QC Batch: 57583      Date Analyzed: 2009-03-12      Analyzed By: LD  
Prep Batch: 49181      QC Preparation: 2009-03-12      Prepared By: LD

Parameter	Flag	MDL Result	Units	RL
DRO		<13.4	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		77.9	mg/Kg	1	100	78	13 - 178.5

Method Blank (1)      QC Batch: 57588

QC Batch: 57588      Date Analyzed: 2009-03-12      Analyzed By: ME  
Prep Batch: 49197      QC Preparation: 2009-03-12      Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.482	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.878	mg/Kg	1	1.00	88	75.8 - 98.5
4-Bromofluorobenzene (4-BFB)		0.905	mg/Kg	1	1.00	90	56.5 - 109.5

**Method Blank (1)**      QC Batch: 57636

QC Batch: 57636      Date Analyzed: 2009-03-13      Analyzed By: ME  
Prep Batch: 49239      QC Preparation: 2009-03-13      Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.482	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.865	mg/Kg	1	1.00	86	75.8 - 98.5
4-Bromofluorobenzene (4-BFB)		0.702	mg/Kg	1	1.00	70	56.5 - 109.5

**Method Blank (1)**      QC Batch: 57661

QC Batch: 57661      Date Analyzed: 2009-03-16      Analyzed By: LD  
Prep Batch: 49244      QC Preparation: 2009-03-16      Prepared By: LD

Parameter	Flag	MDL Result	Units	RL
DRO		24.6	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		173	mg/Kg	1	100	173	13 - 178.5

**Laboratory Control Spike (LCS-1)**

QC Batch: 57523      Date Analyzed: 2009-03-11      Analyzed By: ME  
Prep Batch: 49146      QC Preparation: 2009-03-11      Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	7.32	mg/Kg	1	10.0	<0.482	73	60.5 - 100.1

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
GRO	7.30	mg/Kg	1	10.0	<0.482	73	60.5 - 100.1	0	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.888	0.893	mg/Kg	1	1.00	89	89	78.8 - 104.7
4-Bromofluorobenzene (4-BFB)	0.902	0.914	mg/Kg	1	1.00	90	91	66.1 - 107.3

**Laboratory Control Spike (LCS-1)**

QC Batch: 57524  
Prep Batch: 49138

Date Analyzed: 2009-03-12  
QC Preparation: 2009-03-11

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	100	mg/Kg	1	100	<2.01	100	85 - 115

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	98.8	mg/Kg	1	100	<2.01	99	85 - 115	2	20

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

**Laboratory Control Spike (LCS-1)**

QC Batch: 57583  
Prep Batch: 49181

Date Analyzed: 2009-03-12  
QC Preparation: 2009-03-12

Analyzed By: LD  
Prepared By: LD

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	236	mg/Kg	1	250	<13.4	94	57.4 - 133.4

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
DRO	232	mg/Kg	1	250	<13.4	93	57.4 - 133.4	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: 57661  
Prep Batch: 49244

Date Analyzed: 2009-03-16  
QC Preparation: 2009-03-16

Analyzed By: LD  
Prepared By: LD

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	280	mg/Kg	1	250	24.6	102	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	268	mg/Kg	1	250	24.6	97	57.4 - 133.4	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	122	119	mg/Kg	1	100	122	119	48.5 - 146.7

**Matrix Spike (MS-1) Spiked Sample: 189006**

QC Batch: 57523  
Prep Batch: 49146

Date Analyzed: 2009-03-11  
QC Preparation: 2009-03-11

Analyzed By: ME  
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	10.2	mg/Kg	1	10.0	<0.482	100	12.8 - 175.2

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	10.0	mg/Kg	1	10.0	<0.482	98	12.8 - 175.2	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.02	1.03	mg/Kg	1	1	102	103	60.8 - 132.1
4-Bromofluorobenzene (4-BFB)	0.912	0.912	mg/Kg	1	1	91	91	31.3 - 161.7

**Matrix Spike (MS-1) Spiked Sample: 189797**

QC Batch: 57524  
Prep Batch: 49138

Date Analyzed: 2009-03-12  
QC Preparation: 2009-03-11

Analyzed By: AR  
Prepared By: AR



Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	10.2	mg/Kg	1	10.0	<0.482	100	12.8 - 175.2	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)	1.11	1.11	mg/Kg	1	1	111	111	60.8 - 132.1
4-Bromofluorobenzene (4-BFB)	0.921	0.921	mg/Kg	1	1	92	92	31.3 - 161.7

**Matrix Spike (MS-1) Spiked Sample: 189786**

QC Batch: 57636 Date Analyzed: 2009-03-13 Analyzed By: ME  
Prep Batch: 49239 QC Preparation: 2009-03-13 Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	9.09	mg/Kg	1	10.0	<0.482	91	12.8 - 175.2

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	9.32	mg/Kg	1	10.0	<0.482	93	12.8 - 175.2	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.00	1.01	mg/Kg	1	1	100	101	60.8 - 132.1
4-Bromofluorobenzene (4-BFB)	0.677	0.682	mg/Kg	1	1	68	68	31.3 - 161.7

**Matrix Spike (MS-1) Spiked Sample: 189778**

QC Batch: 57661 Date Analyzed: 2009-03-16 Analyzed By: LD  
Prep Batch: 49244 QC Preparation: 2009-03-16 Prepared By: LD

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	248	mg/Kg	1	250	35.8	85	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	227	mg/Kg	1	250	35.8	76	35.2 - 167.1	9	20

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













## Summary Report

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

Report Date: March 19, 2009

Work Order: 9031110



Project Location: Eddy Co., NM  
Project Name: COG/Electra TB  
Project Number: 114-6400141

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
189777	AH-2 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189778	AH-2 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189781	AH-3 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189782	AH-3 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189785	AH-4 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189786	AH-4 1'-1.5' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11
189788	AH-5 0-1' 4 in. BEB	soil	2009-03-10	00:00	2009-03-11

Sample - Field Code	BTEX			
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)
189777 - AH-2 0-1' 4 in. BEB	68.6	196	139	183
189778 - AH-2 1'-1.5' 4 in. BEB	<0.0100	0.123	0.129	0.370
189781 - AH-3 0-1' 4 in. BEB	29.0	104	85.2	121
189782 - AH-3 1'-1.5' 4 in. BEB	<0.0100	<0.0100	0.123	0.342
189785 - AH-4 0-1' 4 in. BEB	18.5	81.1	65.8	89.3
189786 - AH-4 1'-1.5' 4 in. BEB	<0.0100	<0.0100	<0.0100	<0.0100
189788 - AH-5 0-1' 4 in. BEB	0.294	2.02	3.09	4.58