

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	SRO State Unit Com 102 SWD					
Company:	COG Operating LLC					
Section, Township and Range	Unit G	Sec. 16	T-26-S	R-28-E		
Lease Number:	API 30-015-21398					
County:	Eddy County					
GPS:	32.04424° N			104.09037° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From Hwy 285 and CR-274 (White City Road) travel west on 274 for 2.0 miles, turn left 1.6 miles, turn right 0.1 miles to location					

Release Data:

Date Released:	12/16/2011
Type Release:	Produced Fluids
Source of Contamination:	Faulty drain valve on trucking off load filter pot
Fluid Released:	600 bbls
Fluids Recovered:	500 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@tetrattech.com

Ranking Criteria

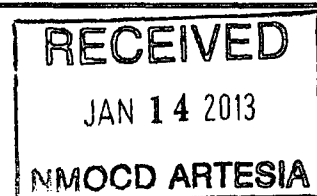
Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	10
>100 ft.	0	

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

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

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





TETRA TECH

November 13, 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., SRO State Unit Com 102 SWD, Unit G, Section 16, Township 26 South, Range 28 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 SRO State Unit Com 102 SWD, Unit G, Section 16, Township 26 South, Range 28 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.04424°, W 104.09037 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on December 16, 2011, and released approximately 600 barrels of produced water due to a faulty drain valve on the trucking off load filter pot. Water from gun barrel backed up through filter pot. Approximately 500 barrels of produced water was recovered from the spill area. The spill initiated inside the lined facility and spilled over onto the caliche pad on the front side of the battery impacting an area approximately 50' x 130'. A second area was impacted on the back side of the battery breaching the berm and impacting an area approximately 10' x 40', within a secondary bermed containment area on the pad. The initial Form C-141 is enclosed in Appendix A.

Tetra Tech

1910 North Fog Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.662.3946

www.tetrattech.com



Groundwater

According to the USGS, no water wells are listed in Section 16. One water well is reported in Section, with a depth to groundwater of 25' bgs. According to the NMOCD groundwater map the depth to groundwater is approximately 80.0' below surface. The groundwater data is shown in Appendix B.

Regulatory

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

Soil Assessment

On January 17, 2012, Tetra Tech personnel inspected and sampled the spill area. Six (6) auger holes (AH-1 through AH-6) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the auger hole sample locations were below the RRAL for TPH and BTEX. Elevated chloride concentrations were detected in all of the auger holes with chloride concentrations ranging from 2,010 mg/kg to 7,900 mg/kg. The auger hole locations were not vertically defined. In order to define the extents, deeper samples would be collected utilizing an air rotary drilling rig.

On March 22, 2012, Tetra Tech personnel supervised the installation of five (5) boreholes (BH-1 through BH-5). In the area of AH-6, a borehole was not installed area due to access issue (equipment and lines). Soil samples were collected to depth of 25' below surface. Selected samples were analyzed for chlorides. The results of the sampling are summarized in



TETRA TECH

Table 1. Referring to Table 1, the chloride concentrations significantly declined with depth at approximately 14'-15' below surface. The area of BH-5 showed a shallower impact to a depth of approximately 6-7' below surface.

In addition, a background borehole (BG-1) was installed and showed a chloride high of 1,030 mg/kg at 14-15' below surface.

Site Remediation

Based on the results, Tetra Tech submitted a work plan to the NMOCD for review and approval. In May, Tetra Tech supervised the excavation of the impacted soils. The excavation depths are highlighted (green) in Table 1 and shown on Figure 4. The excavation depths ranged from 2.0' to 6.0' below surface. In the area of AH-6, a backhoe trench (T-1) was installed to define the chloride extents. Based on the results, the area was excavated to a depth of 6.0' below surface. Once excavated to the appropriate depths, the excavation bottoms in the areas of AH-1, AH-2, AH-3 and AH-4 were capped with a 40 mil liner at 4.0' below surface. Once completed, the excavations were backfilled with clean soil to grade. Approximately 1,580 cubic yards of soil were excavated and transported to R360 for proper disposal.

Upon completion, a final report will be submitted to the NMOCD. A copy of the final C-141 is included in Appendix A. If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaréz
Senior Project Manager

cc: Pat Ellis – COG

FIGURES

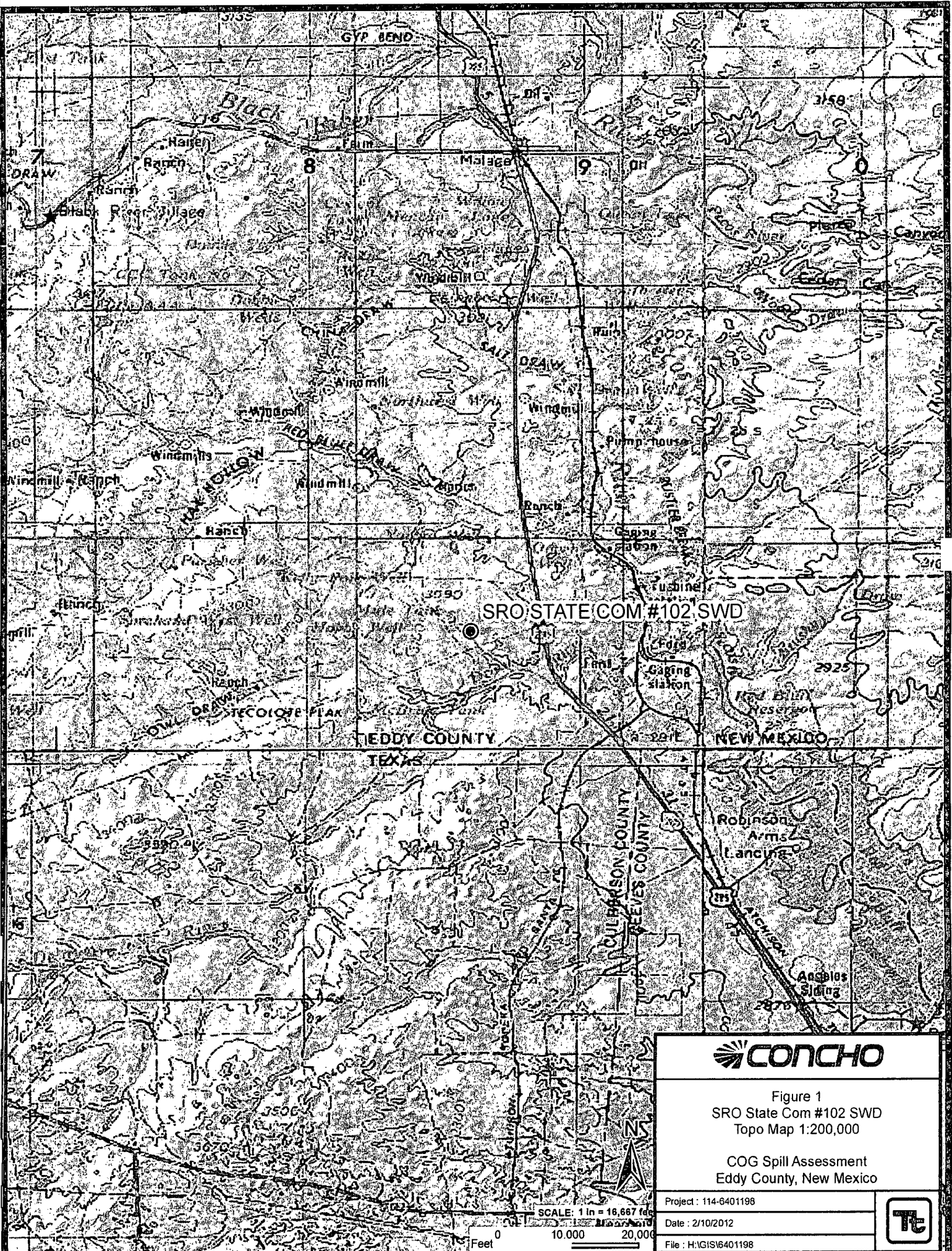


Figure 1
SRO State Com #102 SWD
Topo Map 1:200,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401198
Date : 2/10/2012
File : H:\GIS\6401198



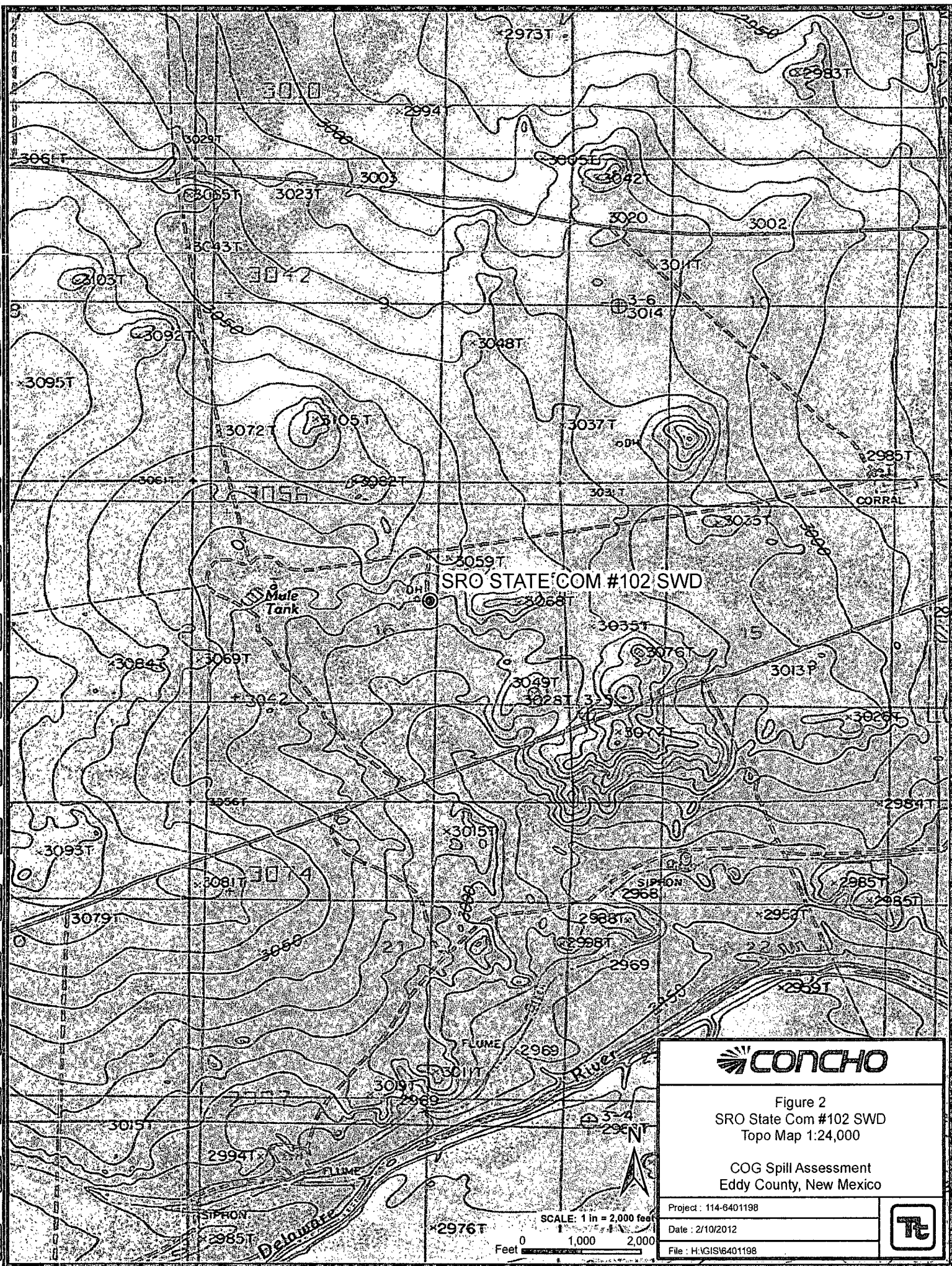


Figure 2
SRO State Com #102 SWD
Topo Map 1:24,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401198

Date : 2/10/2012

File : H:\GIS\6401198



PASTURE

ELEC. POLE

BG-1

LEASE ROAD

PAD

130'

60'

50'

160'

80'

PUMP

500

WATER

750

WATER

300

OIL

CHEM. TANK

500

WATER

FACILITY LINED (40 MIL)

LEAK SOURCE

ELEC. PANEL

ELEC. POLE

CONCRETE PAD

20'

10'

20'

40'

EXPLANATION

- ☆ LEAK SOURCE
- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ BORE HOLE SAMPLE LOCATIONS
- ⊙ BACKGROUND SAMPLE LOCATION
- ELEC. POLE
- ELEC. LINE
- LINE
- ▨ SPILL AREA



Figure 3

SRO State Com #102 SWD

Spill Assessment Map

Eddy County, New Mexico

Project : 114-6401198

Date : 2/10/2012

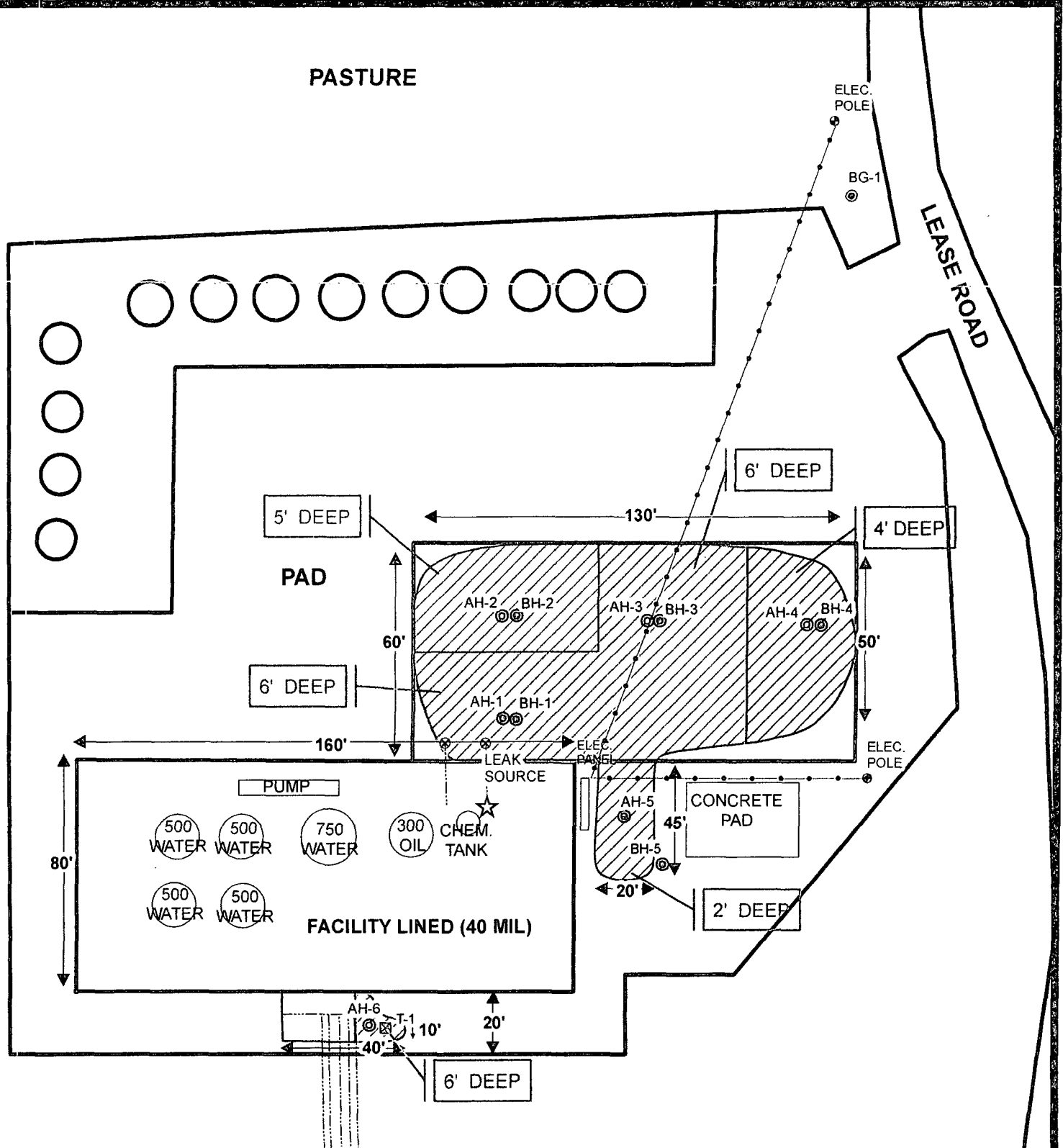
File : H:\GIS\6401198



SCALE: 1 in = 50 feet

0 25 50
Feet

PASTURE



EXPLANATION

- ☆ LEAK SOURCE
- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ BORE HOLE SAMPLE LOCATIONS
- ⊙ BACKGROUND SAMPLE LOCATION
- ⊙ ELEC. POLE
- ⊙ TRENCH LOCATION
- ▭ INSTALLED LINER
- ELEC. LINE
- LINE
- ▨ EXCAVATED AREAS



SCALE: 1 in = 50 feet

Feet 0 25 50



Figure 4

SRO State Com #102 SWD
Excavation Areas & Depths Map
Eddy County, New Mexico

Project : 114-6401198

Date : 2/10/2012

File : H:\GIS\6401198



TABLES

Table 1
COG Operating LLC.
SRO SWD 102 Tank Battery
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
SRO SWD 102 Tank Battery
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
SRO SWD 102 Tank Battery
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
SRO SWD 102 Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
BG-1	3/22/2012	0-1	X		-	-	-	-	-	-	-	-	<200
	"	2-3	X		-	-	-	-	-	-	-	-	243
	"	4-5	X		-	-	-	-	-	-	-	-	421
	"	6-7	X		-	-	-	-	-	-	-	-	455
	"	9-10	X		-	-	-	-	-	-	-	-	495
	"	14-15	X		-	-	-	-	-	-	-	-	1,030
	"	19-20	X		-	-	-	-	-	-	-	-	846
	"	24-25	X		-	-	-	-	-	-	-	-	851

(--)

Not Analyzed

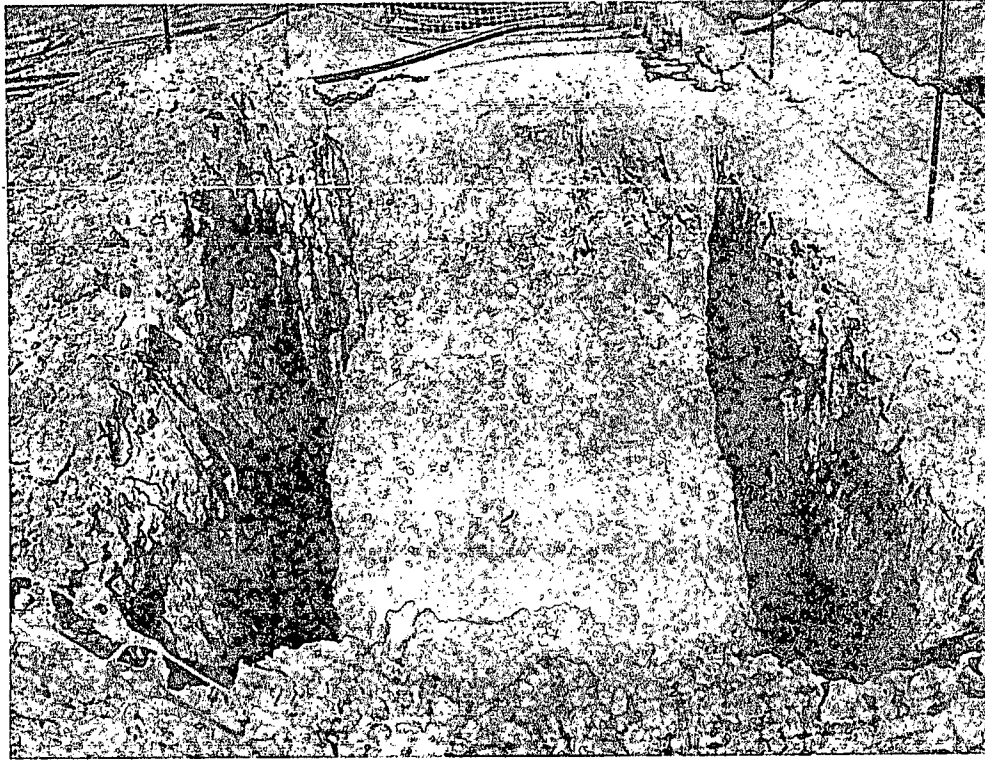


Excavated Depths

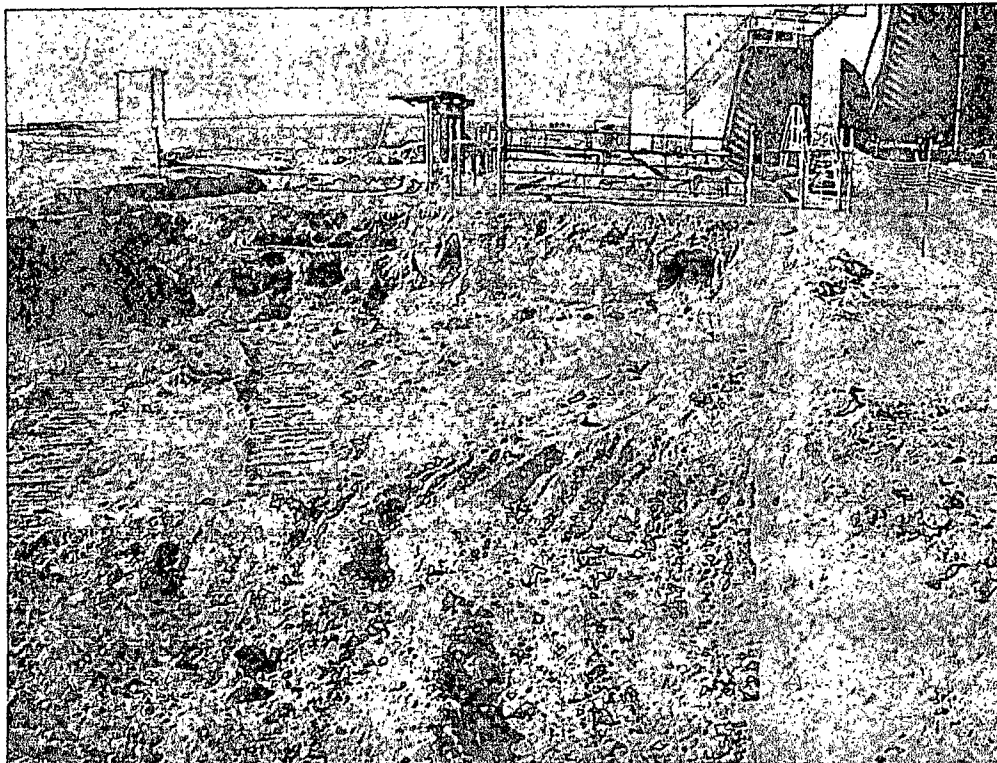


40 mil liner installed

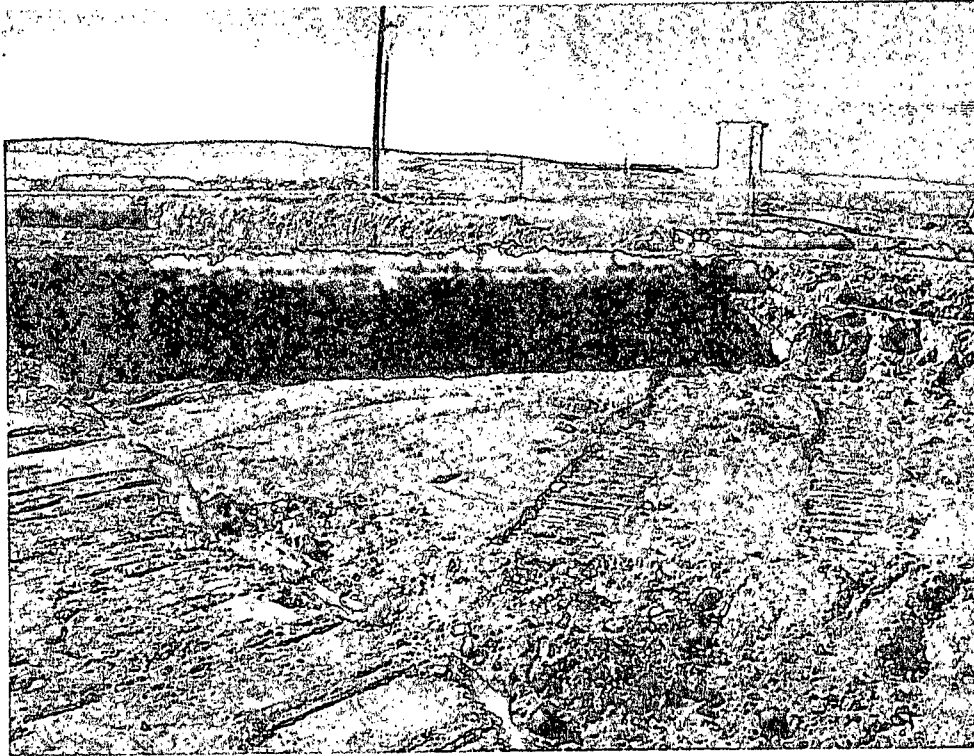
PHOTOGRAPHS



View West – Excavation of AH-6.



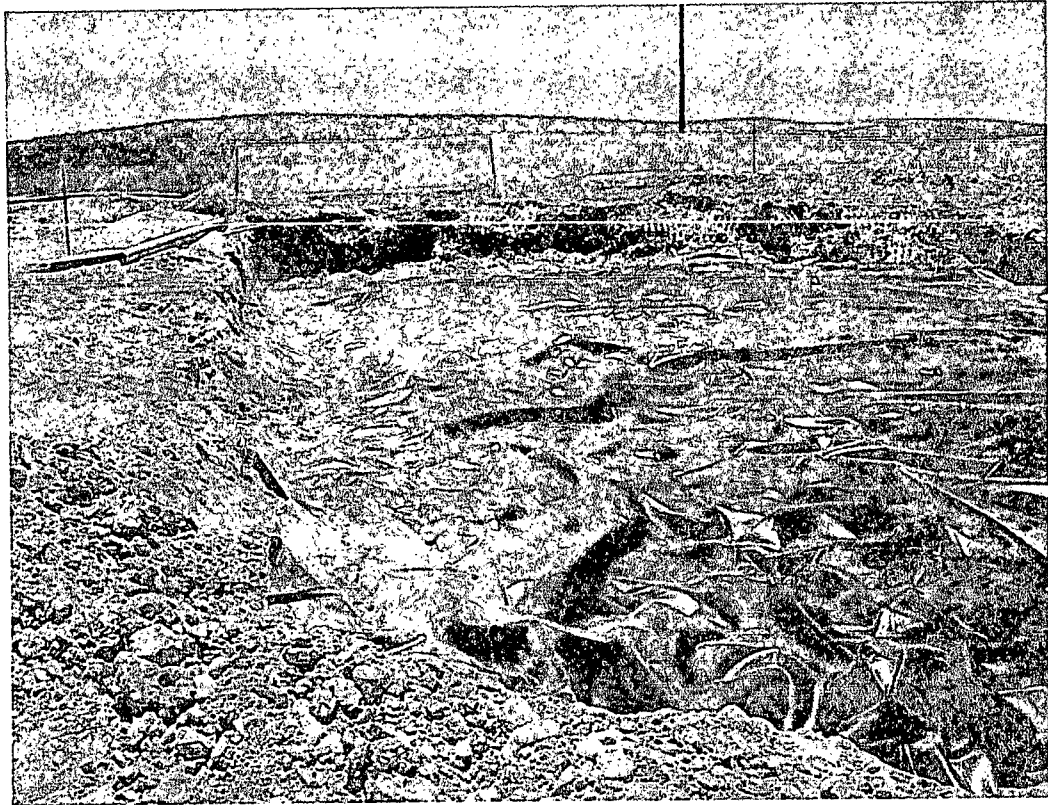
View East – Excavation of AH-1.



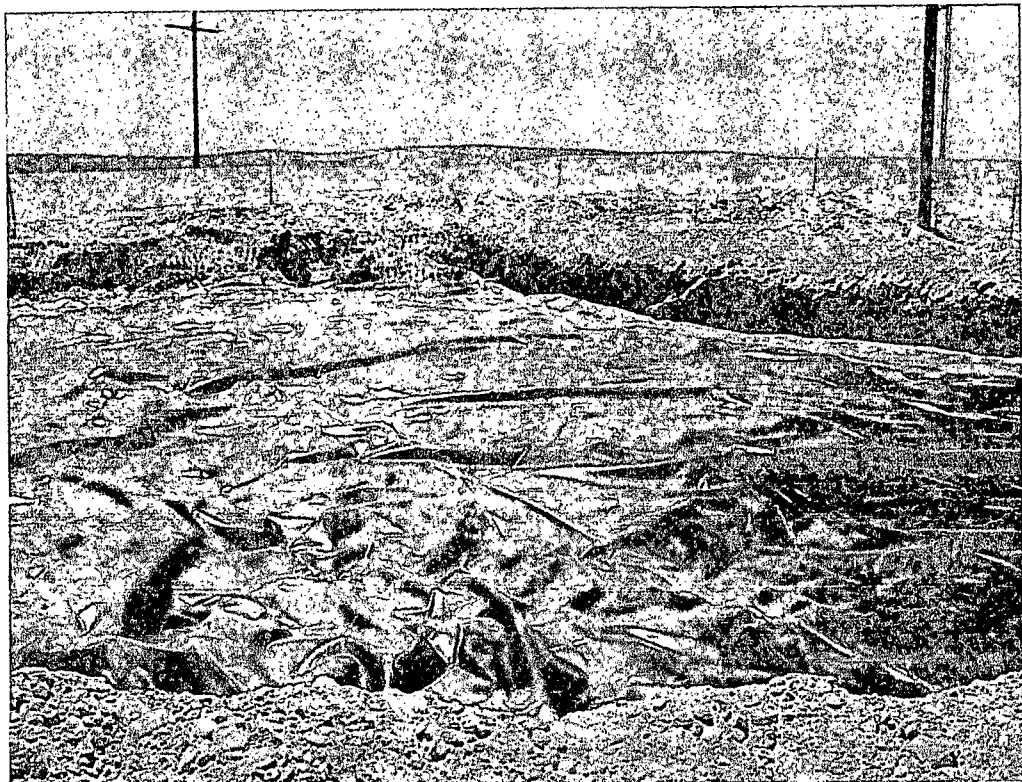
View Northeast – Excavation of AH-3.



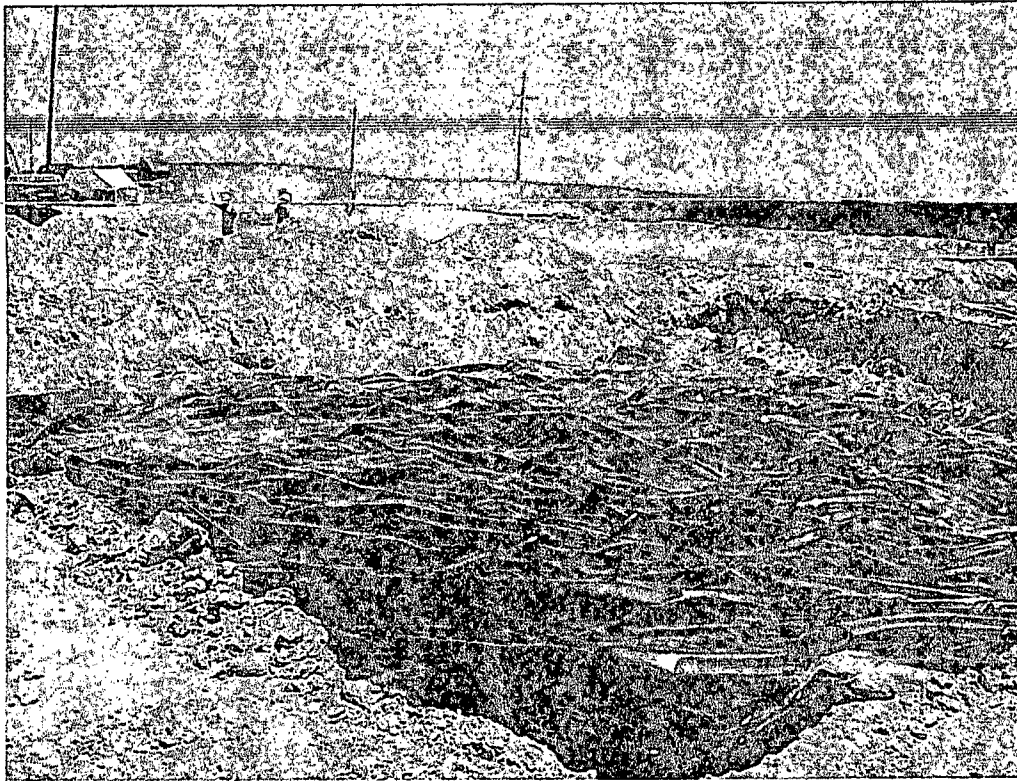
View Northeast– Excavation of AH- 4.



View North– Liner installed in excavation of AH-1.



View North – Liner installed in excavation of AH-3.



View Northwest – Backfill

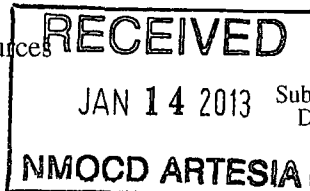


View North – Backfill

APPENDIX A

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

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



Form C-141
Revised October 10, 2003
Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

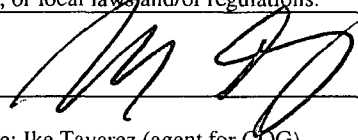
Name of Company	COG Operating LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100 Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	SRO State Unit COM 102	Facility Type	SWD Facility
Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-21398	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	16	26S	28E					Eddy

Latitude N 32 02.650° Longitude W 104 05.433°

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release 600 bbls	Volume Recovered 500 bbls
Source of Release: Filter Pot	Date and Hour of Occurrence 12/16/2011	Date and Hour of Discovery 12/16/2011 12:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom? Josh Russo	Date and Hour 12/19/2011 11:07 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* Faulty drain valve on the trucking off load filter pot and water from gun barrel backed up through the filter pot. Problem has been repaired.		
Describe Area Affected and Cleanup Action Taken.* Tetra Tech personnel inspected the site and collected samples to define the spill extents. Impacted soil exceeding the RRAL and elevated chlorides were removed and transported to proper disposal. Once excavated to the appropriate depths, the excavations were backfilled with clean soil to grade. Tetra Tech prepared a closure report and submitted it to NMOC D 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 NMOC D 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 NMOC D 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, NMOC D 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: 11-14-12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
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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 Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	SRO STATE UNIT COM 102 SWD	Facility Type	SWD Facility

Surface Owner	State	Mineral Owner		Lease No. (API#)	30-015-21398
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	16	26S	28E					Eddy

Latitude 32 02.650 Longitude 104 05.433

NATURE OF RELEASE

Type of Release Produced water		Volume of Release 600bbls	Volume Recovered 500bbls
Source of Release Filter pot		Date and Hour of Occurrence 12/16/2011	Date and Hour of Discovery 12/16/2011 12:00p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required		If YES, To Whom? Mike Bratcher-OCD	
By Whom? Josh Russo		Date and Hour 12/19/2011 11:07 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No		If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Faulty drain valve on the trucking off load filter pot and water from gun barrel backed up through filter pot. The problem has been repaired.

Describe Area Affected and Cleanup Action Taken.*

Initially 600bbls were released inside of the tank battery walls and we were able to recover 500bbls with vacuum trucks. Most of the release was contained inside the facility; however, some fluid did overflow the walls and ran onto the location. The facility is lined with a 40mil plastic liner and the entire pad location is bermed. Contaminated material has been scraped from the pad location and hauled to disposal. Tetra Tech will sample the spill site area on the pad location to delineate any possible contamination from the release and we will present a remediation work to the 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:



Printed Name: Josh Russo

Title: HSE Coordinator

E-mail Address: jrusso@conchoresources.com

Date: 12/27/2011 Phone: 432-212-2399

OIL CONSERVATION DIVISION

Approved by District Supervisor:

Approval Date:

Expiration Date:

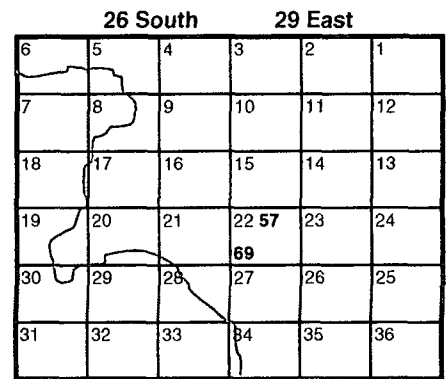
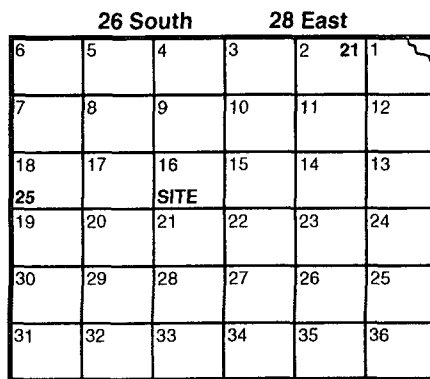
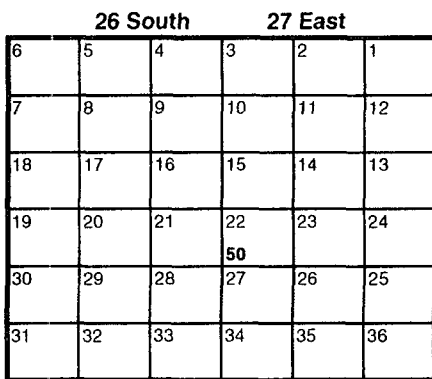
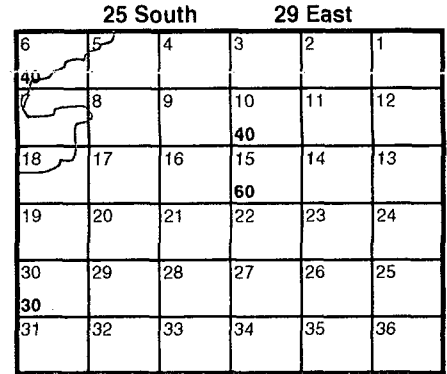
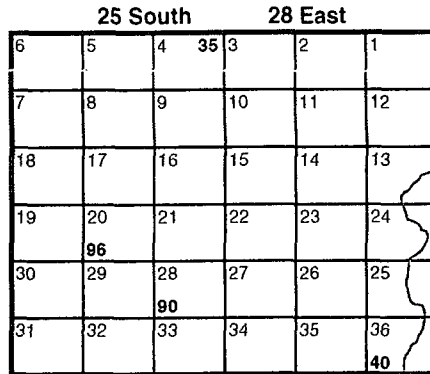
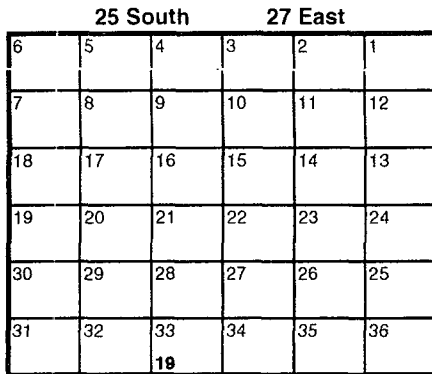
Conditions of Approval:

Attached ☐

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - SRO State Unit Com 102 SWD
Eddy County, New Mexico



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

APPENDIX C

Summary Report

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

Report Date: January 31, 2012

Work Order: 12011930

Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
286887	AH-1 0-1'	soil	2012-01-17	00:00	2012-01-19
286888	AH-1 1-1.5'	soil	2012-01-17	00:00	2012-01-19
286889	AH-2 0-1'	soil	2012-01-17	00:00	2012-01-19
286890	AH-3 0-1'	soil	2012-01-17	00:00	2012-01-19
286891	AH-4 0-1'	soil	2012-01-17	00:00	2012-01-19
286892	AH-5 0-1'	soil	2012-01-17	00:00	2012-01-19
286893	AH-5 1-1.5'	soil	2012-01-17	00:00	2012-01-19
286894	AH-6 0-1'	soil	2012-01-17	00:00	2012-01-19
286895	AH-6 1-1.5'	soil	2012-01-17	00:00	2012-01-19

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
286887 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	97.8	3.08
286888 - AH-1 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	811	2.23 Qs
286889 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	105	3.34
286890 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	5.57
286891 - AH-4 0-1'					<50.0	3.86
286892 - AH-5 0-1'					<50.0	8.00
286894 - AH-6 0-1'					<50.0	2.81

Sample: 286887 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		3580	mg/Kg	4

Sample: 286888 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3830	mg/Kg	4

Sample: 286889 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		7090	mg/Kg	4

Sample: 286890 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		9860	mg/Kg	4

Sample: 286891 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		7900	mg/Kg	4

Sample: 286892 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		5410	mg/Kg	4

Sample: 286893 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1720	mg/Kg	4

Sample: 286894 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		2010	mg/Kg	4

Sample: 286895 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		6400	mg/Kg	4



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

Report Date: January 31, 2012

Work Order: 12011930

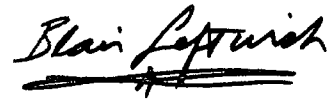
Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

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
286887	AH-1 0-1'	soil	2012-01-17	00:00	2012-01-19
286888	AH-1 1-1.5'	soil	2012-01-17	00:00	2012-01-19
286889	AH-2 0-1'	soil	2012-01-17	00:00	2012-01-19
286890	AH-3 0-1'	soil	2012-01-17	00:00	2012-01-19
286891	AH-4 0-1'	soil	2012-01-17	00:00	2012-01-19
286892	AH-5 0-1'	soil	2012-01-17	00:00	2012-01-19
286893	AH-5 1-1.5'	soil	2012-01-17	00:00	2012-01-19
286894	AH-6 0-1'	soil	2012-01-17	00:00	2012-01-19
286895	AH-6 1-1.5'	soil	2012-01-17	00:00	2012-01-19

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

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent flourish at the end.

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

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Case Narrative

Samples for project COG/SRO SWD 102 TB were received by TraceAnalysis, Inc. on 2012-01-19 and assigned to work order 12011930. Samples for work order 12011930 were received intact at a temperature of 5.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	74695	2012-01-20 at 09:00	87963	2012-01-23 at 10:00
BTEX	S 8021B	74836	2012-01-27 at 10:10	88141	2012-01-27 at 14:28
Chloride (Titration)	SM 4500-Cl B	74739	2012-01-24 at 08:56	88050	2012-01-25 at 11:05
TPH DRO - NEW	S 8015 D	74693	2012-01-20 at 09:00	87960	2012-01-21 at 19:34
TPH DRO - NEW	S 8015 D	74819	2012-01-26 at 09:11	88125	2012-01-27 at 10:12
TPH GRO	S 8015 D	74695	2012-01-20 at 09:00	87964	2012-01-23 at 10:00
TPH GRO	S 8015 D	74757	2012-01-24 at 09:00	88054	2012-01-24 at 00:15

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 12011930 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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Analytical Report

Sample: 286887 - AH-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 87963
Prep Batch: 74695

Analytical Method: S 8021B
Date Analyzed: 2012-01-23
Sample Preparation: 2012-01-20

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	70.6 - 179

Sample: 286887 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88050
Prep Batch: 74739

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-01-25
Sample Preparation: 2012-01-24

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3580	mg/Kg	50	4.00

Sample: 286887 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 87960
Prep Batch: 74693

Analytical Method: S 8015 D
Date Analyzed: 2012-01-21
Sample Preparation: 2012-01-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	97.8	mg/Kg	1	50.0

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.8	mg/Kg	1	100	99	53.5 - 147.1

Sample: 286887 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 87964
Prep Batch: 74695

Analytical Method: S 8015 D
Date Analyzed: 2012-01-23
Sample Preparation: 2012-01-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	3.08	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	22.4 - 149

Sample: 286888 - AH-1 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 88141
Prep Batch: 74836

Analytical Method: S 8021B
Date Analyzed: 2012-01-27
Sample Preparation: 2012-01-27

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.51	mg/Kg	1	2.00	126	70.6 - 179

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Sample: 286888 - AH-1 1-1.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88050	Date Analyzed:	2012-01-25
Prep Batch:	74739	Sample Preparation:	2012-01-24
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3830	mg/Kg	100	4.00

Sample: 286888 - AH-1 1-1.5'

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	88125	Date Analyzed:	2012-01-27
Prep Batch:	74819	Sample Preparation:	2012-01-26
		Prep Method:	N/A
		Analyzed By:	DA
		Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO			811	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			137	mg/Kg	5	100	137	53.5 - 147.1

Sample: 286888 - AH-1 1-1.5'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	88054	Date Analyzed:	2012-01-24
Prep Batch:	74757	Sample Preparation:	2012-01-24
		Prep Method:	S 5035
		Analyzed By:	tc
		Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs		2.23	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.39	mg/Kg	1	2.00	70	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.16	mg/Kg	1	2.00	58	22.4 - 149

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Sample: 286889 - AH-2 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 87963

Prep Batch: 74695

Analytical Method: S 8021B

Date Analyzed: 2012-01-23

Sample Preparation: 2012-01-20

Prep Method: S 5035

Analyzed By: DA

Prepared By: DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70.6 - 179

Sample: 286889 - AH-2 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88050

Prep Batch: 74739

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-01-25

Sample Preparation: 2012-01-24

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7090	mg/Kg	100	4.00

Sample: 286889 - AH-2 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 87960

Prep Batch: 74693

Analytical Method: S 8015 D

Date Analyzed: 2012-01-21

Sample Preparation: 2012-01-20

Prep Method: N/A

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	105	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.0	mg/Kg	1	100	98	53.5 - 147.1

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Sample: 286889 - AH-2 0-1'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	87964	Date Analyzed:	2012-01-23
Prep Batch:	74695	Sample Preparation:	2012-01-20
		Prep Method:	S 5035
		Analyzed By:	DA
		Prepared By:	DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	3.34	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	22.4 - 149

Sample: 286890 - AH-3 0-1'

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	87963	Date Analyzed:	2012-01-23
Prep Batch:	74695	Sample Preparation:	2012-01-20
		Prep Method:	S 5035
		Analyzed By:	DA
		Prepared By:	DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70.6 - 179

Sample: 286890 - AH-3 0-1'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88050	Date Analyzed:	2012-01-25
Prep Batch:	74739	Sample Preparation:	2012-01-24
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

continued ...

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sample 286890 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9860	mg/Kg	100	4.00

Sample: 286890 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 87960
Prep Batch: 74693

Analytical Method: S 8015 D
Date Analyzed: 2012-01-21
Sample Preparation: 2012-01-20

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			88.1	mg/Kg	1	100	88	53.5 - 147.1

Sample: 286890 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 87964
Prep Batch: 74695

Analytical Method: S 8015 D
Date Analyzed: 2012-01-23
Sample Preparation: 2012-01-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	5.57	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1	2.00	107	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	22.4 - 149

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Sample: 286891 - AH-4 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88050 Date Analyzed: 2012-01-25 Analyzed By: AR
Prep Batch: 74739 Sample Preparation: 2012-01-24 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7900	mg/Kg	100	4.00

Sample: 286891 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 87960 Date Analyzed: 2012-01-21 Analyzed By: tc
Prep Batch: 74693 Sample Preparation: 2012-01-20 Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			88.1	mg/Kg	1	100	88	53.5 - 147.1

Sample: 286891 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 87964 Date Analyzed: 2012-01-23 Analyzed By: DA
Prep Batch: 74695 Sample Preparation: 2012-01-20 Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	3.86	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.17	mg/Kg	1	2.00	108	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	22.4 - 149

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Sample: 286892 - AH-5 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 88050 Date Analyzed: 2012-01-25 Analyzed By: AR
Prep Batch: 74739 Sample Preparation: 2012-01-24 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5410	mg/Kg	100	4.00

Sample: 286892 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 87960 Date Analyzed: 2012-01-21 Analyzed By: tc
Prep Batch: 74693 Sample Preparation: 2012-01-20 Prepared By: tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.8	mg/Kg	1	100	94	53.5 - 147.1

Sample: 286892 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 87964 Date Analyzed: 2012-01-23 Analyzed By: DA
Prep Batch: 74695 Sample Preparation: 2012-01-20 Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	8.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1	2.00	107	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	22.4 - 149

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Sample: 286893 - AH-5 1-1.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88050	Date Analyzed:	2012-01-25
Prep Batch:	74739	Sample Preparation:	2012-01-24
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1720	mg/Kg	100	4.00

Sample: 286894 - AH-6 0-1'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	88050	Date Analyzed:	2012-01-25
Prep Batch:	74739	Sample Preparation:	2012-01-24
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2010	mg/Kg	100	4.00

Sample: 286894 - AH-6 0-1'

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	87960	Date Analyzed:	2012-01-21
Prep Batch:	74693	Sample Preparation:	2012-01-20
		Prep Method:	N/A
		Analyzed By:	tc
		Prepared By:	tc

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			91.4	mg/Kg	1	100	91	53.5 - 147.1

Sample: 286894 - AH-6 0-1'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	87964	Date Analyzed:	2012-01-23
Prep Batch:	74695	Sample Preparation:	2012-01-20
		Prep Method:	S 5035
		Analyzed By:	DA
		Prepared By:	DA

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO			2.81	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	22.4 - 149

Sample: 286895 - AH-6 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88050

Prep Batch: 74739

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-01-25

Sample Preparation: 2012-01-24

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6400	mg/Kg	100	4.00

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Method Blanks

Method Blank (1) QC Batch: 87960

QC Batch: 87960 Date Analyzed: 2012-01-21 Analyzed By: tc
Prep Batch: 74693 QC Preparation: 2012-01-20 Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			81.4	mg/Kg	1	100	81	52.7 - 133.8

Method Blank (1) QC Batch: 87963

QC Batch: 87963 Date Analyzed: 2012-01-23 Analyzed By: DA
Prep Batch: 74695 QC Preparation: 2012-01-20 Prepared By: DA

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.37	mg/Kg	1	2.00	68	48.4 - 123.1

Method Blank (1) QC Batch: 87964

QC Batch: 87964 Date Analyzed: 2012-01-23 Analyzed By: DA
Prep Batch: 74695 QC Preparation: 2012-01-20 Prepared By: DA

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Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	0.983	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.38	mg/Kg	1	2.00	69	52.4 - 130

Method Blank (1) QC Batch: 88050

QC Batch: 88050 Date Analyzed: 2012-01-25 Analyzed By: AR
Prep Batch: 74739 QC Preparation: 2012-01-24 Prepared By: AR

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

Method Blank (1) QC Batch: 88054

QC Batch: 88054 Date Analyzed: 2012-01-24 Analyzed By: tc
Prep Batch: 74757 QC Preparation: 2012-01-24 Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	0.957	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.48	mg/Kg	1	2.00	74	52.4 - 130

Method Blank (1) QC Batch: 88125

QC Batch: 88125 Date Analyzed: 2012-01-27 Analyzed By: DA
Prep Batch: 74819 QC Preparation: 2012-01-26 Prepared By: DA

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Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			121	mg/Kg	1	100	121	52.7 - 133.8

Method Blank (1) QC Batch: 88141

QC Batch: 88141
Prep Batch: 74836

Date Analyzed: 2012-01-27
QC Preparation: 2012-01-27

Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	48.4 - 123.1

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 87960
Prep Batch: 74693

Date Analyzed: 2012-01-21
QC Preparation: 2012-01-20

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	236	mg/Kg	1	250	<14.5	94	64.5 - 146.9

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	238	mg/Kg	1	250	<14.5	95	64.5 - 146.9	1	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
n-Tricosane	102	98.1	mg/Kg	1	100	102	98	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 87963
Prep Batch: 74695

Date Analyzed: 2012-01-23
QC Preparation: 2012-01-20

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.91	mg/Kg	1	2.00	<0.0118	96	77.4 - 121.7
Toluene		1	1.84	mg/Kg	1	2.00	<0.00600	92	88.6 - 121.6
Ethylbenzene		1	1.71	mg/Kg	1	2.00	<0.00850	86	74.3 - 117.9
Xylene		1	5.14	mg/Kg	1	6.00	<0.00613	86	73.4 - 118.8

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.95	mg/Kg	1	2.00	<0.0118	98	77.4 - 121.7	2	20
Toluene		1	1.87	mg/Kg	1	2.00	<0.00600	94	88.6 - 121.6	2	20
Ethylbenzene		1	1.75	mg/Kg	1	2.00	<0.00850	88	74.3 - 117.9	2	20
Xylene		1	5.24	mg/Kg	1	6.00	<0.00613	87	73.4 - 118.8	2	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.66	1.72	mg/Kg	1	2.00	83	86	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.56	1.57	mg/Kg	1	2.00	78	78	56.2 - 132.1

Laboratory Control Spike (LCS-1)

QC Batch: 87964
Prep Batch: 74695

Date Analyzed: 2012-01-23
QC Preparation: 2012-01-20

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.6	mg/Kg	1	20.0	<0.753	78	60.9 - 105.4

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
GRO		1	15.1	mg/Kg	1	20.0	<0.753	76	60.9 - 105.4	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.83	1.84	mg/Kg	1	2.00	92	92	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.40	1.45	mg/Kg	1	2.00	70	72	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 88050
Prep Batch: 74739

Date Analyzed: 2012-01-25
QC Preparation: 2012-01-24

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.0	mg/Kg	1	100	<3.85	95	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			104	mg/Kg	1	100	<3.85	104	85 - 115	9	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 88054
Prep Batch: 74757

Date Analyzed: 2012-01-24
QC Preparation: 2012-01-24

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	13.3	mg/Kg	1	20.0	<0.753	66	60.9 - 105.4

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
GRO		1	14.9	mg/Kg	1	20.0	<0.753	74	60.9 - 105.4	11	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.01	1.83	mg/Kg	1	2.00	100	92	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.72	1.55	mg/Kg	1	2.00	86	78	56.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 88125
Prep Batch: 74819

Date Analyzed: 2012-01-27
QC Preparation: 2012-01-26

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	219	mg/Kg	1	250	<14.5	88	64.5 - 146.9

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
DRO		1	224	mg/Kg	1	250	<14.5	90	64.5 - 146.9	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
n-Tricosane	95.6	97.2	mg/Kg	1	100	96	97	65.3 - 135.8

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Laboratory Control Spike (LCS-1)

QC Batch: 88141
Prep Batch: 74836

Date Analyzed: 2012-01-27
QC Preparation: 2012-01-27

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.87	mg/Kg	1	2.00	<0.0118	94	77.4 - 121.7
Toluene		1	1.87	mg/Kg	1	2.00	<0.00600	94	88.6 - 121.6
Ethylbenzene		1	1.80	mg/Kg	1	2.00	<0.00850	90	74.3 - 117.9
Xylene		1	5.60	mg/Kg	1	6.00	<0.00613	93	73.4 - 118.8

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
Benzene		1	1.94	mg/Kg	1	2.00	<0.0118	97	77.4 - 121.7	4	20
Toluene		1	1.94	mg/Kg	1	2.00	<0.00600	97	88.6 - 121.6	4	20
Ethylbenzene		1	1.90	mg/Kg	1	2.00	<0.00850	95	74.3 - 117.9	5	20
Xylene		1	5.90	mg/Kg	1	6.00	<0.00613	98	73.4 - 118.8	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)	2.04	1.97	mg/Kg	1	2.00	102	98	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	2.45	2.37	mg/Kg	1	2.00	122	118	56.2 - 132.1

Matrix Spike (MS-1) Spiked Sample: 286894

QC Batch: 87960
Prep Batch: 74693

Date Analyzed: 2012-01-21
QC Preparation: 2012-01-20

Analyzed By: tc
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	186	mg/Kg	1	250	<14.5	74	38.8 - 153.3

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
DRO		1	197	mg/Kg	1	250	<14.5	79	38.8 - 153.3	6	20

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

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	86.5	86.9	mg/Kg	1	100	86	87	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 286864

QC Batch: 87963
Prep Batch: 74695

Date Analyzed: 2012-01-23
QC Preparation: 2012-01-20

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.05	mg/Kg	1	2.00	<0.0118	102	69.4 - 123.6
Toluene		1	2.00	mg/Kg	1	2.00	<0.00600	100	75.4 - 134.3
Ethylbenzene		1	2.06	mg/Kg	1	2.00	<0.00850	103	58.8 - 133.7
Xylene		1	6.16	mg/Kg	1	6.00	<0.00613	103	57 - 134.2

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
Benzene		1	2.04	mg/Kg	1	2.00	<0.0118	102	69.4 - 123.6	0	20
Toluene		1	1.99	mg/Kg	1	2.00	<0.00600	100	75.4 - 134.3	0	20
Ethylbenzene		1	2.05	mg/Kg	1	2.00	<0.00850	102	58.8 - 133.7	0	20
Xylene		1	6.12	mg/Kg	1	6.00	<0.00613	102	57 - 134.2	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.06	2.02	mg/Kg	1	2	103	101	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	1.96	1.93	mg/Kg	1	2	98	96	71 - 167

Matrix Spike (MS-1) Spiked Sample: 286946

QC Batch: 87964
Prep Batch: 74695

Date Analyzed: 2012-01-23
QC Preparation: 2012-01-20

Analyzed By: DA
Prepared By: DA

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matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.1	mg/Kg	1	20.0	2.84	76	61.8 - 114

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
GRO		1	19.2	mg/Kg	1	20.0	2.84	82	61.8 - 114	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.11	2.18	mg/Kg	1	2	106	109	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.96	1.94	mg/Kg	1	2	98	97	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 286896

QC Batch: 88050
Prep Batch: 74739

Date Analyzed: 2012-01-25
QC Preparation: 2012-01-24

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			16300	mg/Kg	100	10000	7630	87	79.4 - 120.6

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			16800	mg/Kg	100	10000	7630	92	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 286888

QC Batch: 88054
Prep Batch: 74757

Date Analyzed: 2012-01-24
QC Preparation: 2012-01-24

Analyzed By: tc
Prepared By: tc

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matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1	11.6	mg/Kg	1	20.0	<0.753	58 61.8 - 114

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
GRO	Qs	Qs	1	11.7	mg/Kg	1	20.0	<0.753	58 61.8 - 114	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.86	1.38	mg/Kg	1	2	93	69	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.69	1.28	mg/Kg	1	2	84	64	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 286888

QC Batch: 88125
Prep Batch: 74819

Date Analyzed: 2012-01-27
QC Preparation: 2012-01-26

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	202	mg/Kg	5	250	<72.5	81	38.8 - 153.3

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
DRO		1	196	mg/Kg	5	250	<72.5	78	38.8 - 153.3	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	92.0	95.2	mg/Kg	5	100	92	95	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 287209

QC Batch: 88141
Prep Batch: 74836

Date Analyzed: 2012-01-27
QC Preparation: 2012-01-27

Analyzed By: tc
Prepared By: tc

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.0118	87	69.4 - 123.6
Toluene		1	1.73	mg/Kg	1	2.00	<0.00600	86	75.4 - 134.3
Ethylbenzene		1	1.74	mg/Kg	1	2.00	0.0236	86	58.8 - 133.7
Xylene		1	5.48	mg/Kg	1	6.00	0.0558	90	57 - 134.2

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
Benzene		1	1.96	mg/Kg	1	2.00	<0.0118	98	69.4 - 123.6	12	20
Toluene		1	1.94	mg/Kg	1	2.00	<0.00600	97	75.4 - 134.3	11	20
Ethylbenzene		1	1.95	mg/Kg	1	2.00	0.0236	96	58.8 - 133.7	11	20
Xylene		1	6.15	mg/Kg	1	6.00	0.0558	102	57 - 134.2	12	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)	1.89	1.64	mg/Kg	1	2	94	82	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.43	2.29	mg/Kg	1	2	122	114	71 - 167

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Calibration Standards

Standard (CCV-2)

QC Batch: 87960

Date Analyzed: 2012-01-21

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	217	87	80 - 120	2012-01-21

Standard (CCV-3)

QC Batch: 87960

Date Analyzed: 2012-01-21

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	200	80	80 - 120	2012-01-21

Standard (CCV-1)

QC Batch: 87963

Date Analyzed: 2012-01-23

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.105	105	80 - 120	2012-01-23
Toluene		1	mg/Kg	0.100	0.100	100	80 - 120	2012-01-23
Ethylbenzene		1	mg/Kg	0.100	0.0944	94	80 - 120	2012-01-23
Xylene		1	mg/Kg	0.300	0.280	93	80 - 120	2012-01-23

Standard (CCV-2)

QC Batch: 87963

Date Analyzed: 2012-01-23

Analyzed By: DA

Report Date: January 31, 2012
114-6401198

Work Order: 12011930
COG/SRO SWD 102 TB

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Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.102	102	80 - 120	2012-01-23
Toluene		1	mg/Kg	0.100	0.0977	98	80 - 120	2012-01-23
Ethylbenzene		1	mg/Kg	0.100	0.0893	89	80 - 120	2012-01-23
Xylene		1	mg/Kg	0.300	0.266	89	80 - 120	2012-01-23

Standard (CCV-1)

QC Batch: 87964

Date Analyzed: 2012-01-23

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.914	91	80 - 120	2012-01-23

Standard (CCV-2)

QC Batch: 87964

Date Analyzed: 2012-01-23

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.924	92	80 - 120	2012-01-23

Standard (ICV-1)

QC Batch: 88050

Date Analyzed: 2012-01-25

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	99.4	99	85 - 115	2012-01-25

Standard (CCV-1)

QC Batch: 88050

Date Analyzed: 2012-01-25

Analyzed By: AR

Report Date: January 31, 2012
114-6401198

Work Order: 12011930
COG/SRO SWD 102 TB

Page Number: 29 of 31
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-01-25

Standard (CCV-2)

QC Batch: 88054

Date Analyzed: 2012-01-24

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.929	93	80 - 120	2012-01-24

Standard (CCV-3)

QC Batch: 88054

Date Analyzed: 2012-01-24

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.09	109	80 - 120	2012-01-24

Standard (CCV-1)

QC Batch: 88125

Date Analyzed: 2012-01-27

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	258	103	80 - 120	2012-01-27

Standard (CCV-2)

QC Batch: 88125

Date Analyzed: 2012-01-27

Analyzed By: DA

Report Date: January 31, 2012
114-6401198

Work Order: 12011930
COG/SRO SWD 102 TB

Page Number: 30 of 31
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	245	98	80 - 120	2012-01-27

Standard (CCV-1)

QC Batch: 88141

Date Analyzed: 2012-01-27

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0878	88	80 - 120	2012-01-27
Toluene		1	mg/Kg	0.100	0.0850	85	80 - 120	2012-01-27
Ethylbenzene		1	mg/Kg	0.100	0.0837	84	80 - 120	2012-01-27
Xylene		1	mg/Kg	0.300	0.260	87	80 - 120	2012-01-27

Standard (CCV-2)

QC Batch: 88141

Date Analyzed: 2012-01-27

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0998	100	80 - 120	2012-01-27
Toluene		1	mg/Kg	0.100	0.0983	98	80 - 120	2012-01-27
Ethylbenzene		1	mg/Kg	0.100	0.0942	94	80 - 120	2012-01-27
Xylene		1	mg/Kg	0.300	0.293	98	80 - 120	2012-01-27

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

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 than 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.

Analysis Request of Chain of Custody Record



TETRA TECH

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

PAGE: 1

OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Turner

PROJECT NO.:

114-640 1198

PROJECT NAME:

COG / SRO SLD 102 TB

Eddy Co, NM

SAMPLE IDENTIFICATION

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTEX 8021B
TPH 8015 MOD. TX1005 (Ext. to C35)
PAH 8270

PCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd Vr Pd Hg Se

TCLP Volatiles
TCLP Semi Volatiles

RCI
GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825
PCB's 8080/608

Pest. 808/608
Chloride

Gamma Spec.
Alpha Beta (Air)

PLM (Asbestos)
Major Anions/Cations, pH, TDS

286887

1/7

S

X

AH-1

0-1'

1

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

888

AH-1

1-1.5'

889

AH-2

0-1'

890

AH-3

0-1'

891

AH-4

0-1'

892

AH-5

0-1'

893

AH-5

1-1.5'

894

AH-6

0-1'

Summary Report

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

Report Date: April 12, 2012

Work Order: 12032819

Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
292533	BH-1 @ AH-1 0-1'	soil	2012-03-22	00:00	2012-03-27
292534	BH-1 @ AH-1 2-3'	soil	2012-03-22	00:00	2012-03-27
292535	BH-1 @ AH-1 4-5'	soil	2012-03-22	00:00	2012-03-27
292536	BH-1 @ AH-1 6-7'	soil	2012-03-22	00:00	2012-03-27
292537	BH-1 @ AH-1 9-10'	soil	2012-03-22	00:00	2012-03-27
292538	BH-1 @ AH-1 14-15'	soil	2012-03-22	00:00	2012-03-27
292539	BH-1 @ AH-1 19-20'	soil	2012-03-22	00:00	2012-03-27
292542	BH-2 @ AH-2 0-1'	soil	2012-03-22	00:00	2012-03-27
292543	BH-2 @ AH-2 2-3'	soil	2012-03-22	00:00	2012-03-27
292544	BH-2 @ AH-2 4-5'	soil	2012-03-22	00:00	2012-03-27
292545	BH-2 @ AH-2 6-7'	soil	2012-03-22	00:00	2012-03-27
292546	BH-2 @ AH-2 9-10'	soil	2012-03-22	00:00	2012-03-27
292547	BH-2 @ AH-2 14-15'	soil	2012-03-22	00:00	2012-03-27
292548	BH-2 @ AH-2 19-20'	soil	2012-03-22	00:00	2012-03-27
292551	BH-3 @ AH-3 0-1'	soil	2012-03-22	00:00	2012-03-27
292552	BH-3 @ AH-3 2-3'	soil	2012-03-22	00:00	2012-03-27
292553	BH-3 @ AH-3 4-5'	soil	2012-03-22	00:00	2012-03-27
292554	BH-3 @ AH-3 6-7'	soil	2012-03-22	00:00	2012-03-27
292555	BH-3 @ AH-3 9-10'	soil	2012-03-22	00:00	2012-03-27
292556	BH-3 @ AH-3 14-15'	soil	2012-03-22	00:00	2012-03-27
292557	BH-3 @ AH-3 19-20'	soil	2012-03-22	00:00	2012-03-27
292560	BH-4 @ AH-4 0-1'	soil	2012-03-23	00:00	2012-03-27
292561	BH-4 @ AH-4 2-3'	soil	2012-03-23	00:00	2012-03-27
292562	BH-4 @ AH-4 4-5'	soil	2012-03-23	00:00	2012-03-27
292563	BH-4 @ AH-4 6-7'	soil	2012-03-23	00:00	2012-03-27
292564	BH-4 @ AH-4 9-10'	soil	2012-03-23	00:00	2012-03-27
292565	BH-4 @ AH-4 14-15'	soil	2012-03-23	00:00	2012-03-27
292566	BH-4 @ AH-4 19-20'	soil	2012-03-23	00:00	2012-03-27
292567	BH-4 @ AH-4 24-25'	soil	2012-03-23	00:00	2012-03-27
292568	BH-5 @ AH-5 0-1'	soil	2012-03-23	00:00	2012-03-27

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
292569	BH-5 @ AH-5 2-3'	soil	2012-03-23	00:00	2012-03-27
292570	BH-5 @ AH-5 4-5'	soil	2012-03-23	00:00	2012-03-27
292571	BH-5 @ AH-5 6-7'	soil	2012-03-23	00:00	2012-03-27
292572	BH-5 @ AH-5 9-10'	soil	2012-03-23	00:00	2012-03-27
292573	BH-5 @ AH-5 14-15'	soil	2012-03-23	00:00	2012-03-27
292577	BG-1 0-1'	soil	2012-03-22	00:00	2012-03-27
292578	BG-1 2-3'	soil	2012-03-22	00:00	2012-03-27
292579	BG-1 4-5'	soil	2012-03-22	00:00	2012-03-27
292580	BG-1 6-7'	soil	2012-03-22	00:00	2012-03-27
292581	BG-1 9-10'	soil	2012-03-22	00:00	2012-03-27
292582	BG-1 14-15'	soil	2012-03-22	00:00	2012-03-27
292583	BG-1 19-20'	soil	2012-03-22	00:00	2012-03-27
292584	BG-1 24-25'	soil	2012-03-22	00:00	2012-03-27

Sample: 292533 - BH-1 @ AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		9890	mg/Kg	4

Sample: 292534 - BH-1 @ AH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		8540	mg/Kg	4

Sample: 292535 - BH-1 @ AH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		9320	mg/Kg	4

Sample: 292536 - BH-1 @ AH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		5080	mg/Kg	4

Sample: 292537 - BH-1 @ AH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		2560	mg/Kg	4

Sample: 292538 - BH-1 @ AH-1 14-15'

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

Sample: 292539 - BH-1 @ AH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		244	mg/Kg	4

Sample: 292542 - BH-2 @ AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		3240	mg/Kg	4

Sample: 292543 - BH-2 @ AH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		2420	mg/Kg	4

Sample: 292544 - BH-2 @ AH-2 4-5'

Param	Flag	Result	Units	RL
Chloride		3910	mg/Kg	4

Sample: 292545 - BH-2 @ AH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		1660	mg/Kg	4

Sample: 292546 - BH-2 @ AH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		1070	mg/Kg	4

Sample: 292547 - BH-2 @ AH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		1060	mg/Kg	4

Sample: 292548 - BH-2 @ AH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		528	mg/Kg	4

Sample: 292551 - BH-3 @ AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		6330	mg/Kg	4

Sample: 292552 - BH-3 @ AH-3 2-3'

Param	Flag	Result	Units	RL
Chloride		6640	mg/Kg	4

Sample: 292553 - BH-3 @ AH-3 4-5'

Param	Flag	Result	Units	RL
Chloride		3630	mg/Kg	4

Sample: 292554 - BH-3 @ AH-3 6-7'

Param	Flag	Result	Units	RL
Chloride		4730	mg/Kg	4

Sample: 292555 - BH-3 @ AH-3 9-10'

Param	Flag	Result	Units	RL
Chloride		2440	mg/Kg	4

Sample: 292556 - BH-3 @ AH-3 14-15'

Param	Flag	Result	Units	RL
Chloride		886	mg/Kg	4

Sample: 292557 - BH-3 @ AH-3 19-20'

Param	Flag	Result	Units	RL
Chloride		911	mg/Kg	4

Sample: 292560 - BH-4 @ AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		7290	mg/Kg	4

Sample: 292561 - BH-4 @ AH-4 2-3'

Param	Flag	Result	Units	RL
Chloride		5540	mg/Kg	4

Sample: 292562 - BH-4 @ AH-4 4-5'

Param	Flag	Result	Units	RL
Chloride		5970	mg/Kg	4

Sample: 292563 - BH-4 @ AH-4 6-7'

Param	Flag	Result	Units	RL
Chloride		2550	mg/Kg	4

Sample: 292564 - BH-4 @ AH-4 9-10'

Param	Flag	Result	Units	RL
Chloride		2430	mg/Kg	4

Sample: 292565 - BH-4 @ AH-4 14-15'

Param	Flag	Result	Units	RL
Chloride		589	mg/Kg	4

Sample: 292566 - BH-4 @ AH-4 19-20'

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

Sample: 292567 - BH-4 @ AH-4 24-25'

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

Sample: 292568 - BH-5 @ AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		5270	mg/Kg	4

Sample: 292569 - BH-5 @ AH-5 2-3'

Param	Flag	Result	Units	RL
Chloride		4360	mg/Kg	4

Sample: 292570 - BH-5 @ AH-5 4-5'

Param	Flag	Result	Units	RL
Chloride		1380	mg/Kg	4

Sample: 292571 - BH-5 @ AH-5 6-7'

Param	Flag	Result	Units	RL
Chloride		447	mg/Kg	4

Sample: 292572 - BH-5 @ AH-5 9-10'

Param	Flag	Result	Units	RL
Chloride		323	mg/Kg	4

Sample: 292573 - BH-5 @ AH-5 14-15'

Param	Flag	Result	Units	RL
Chloride		571	mg/Kg	4

Sample: 292577 - BG-1 0-1'

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

Sample: 292578 - BG-1 2-3'

Param	Flag	Result	Units	RL
Chloride		243	mg/Kg	4

Sample: 292579 - BG-1 4-5'

Param	Flag	Result	Units	RL
Chloride		421	mg/Kg	4

Sample: 292580 - BG-1 6-7'

Param	Flag	Result	Units	RL
Chloride		455	mg/Kg	4

Sample: 292581 - BG-1 9-10'

Param	Flag	Result	Units	RL
Chloride		495	mg/Kg	4

Sample: 292582 - BG-1 14-15'

Param	Flag	Result	Units	RL
Chloride		1030	mg/Kg	4

Sample: 292583 - BG-1 19-20'

Param	Flag	Result	Units	RL
Chloride		846	mg/Kg	4

Sample: 292584 - BG-1 24-25'

Param	Flag	Result	Units	RL
Chloride		851	mg/Kg	4



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E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report (Corrected Report)

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

Report Date: April 12, 2012

Work Order: 12032819

Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

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
292533	BH-1 @ AH-1 0-1'	soil	2012-03-22	00:00	2012-03-27
292534	BH-1 @ AH-1 2-3'	soil	2012-03-22	00:00	2012-03-27
292535	BH-1 @ AH-1 4-5'	soil	2012-03-22	00:00	2012-03-27
292536	BH-1 @ AH-1 6-7'	soil	2012-03-22	00:00	2012-03-27
292537	BH-1 @ AH-1 9-10'	soil	2012-03-22	00:00	2012-03-27
292538	BH-1 @ AH-1 14-15'	soil	2012-03-22	00:00	2012-03-27
292539	BH-1 @ AH-1 19-20'	soil	2012-03-22	00:00	2012-03-27
292542	BH-2 @ AH-2 0-1'	soil	2012-03-22	00:00	2012-03-27
292543	BH-2 @ AH-2 2-3'	soil	2012-03-22	00:00	2012-03-27
292544	BH-2 @ AH-2 4-5'	soil	2012-03-22	00:00	2012-03-27
292545	BH-2 @ AH-2 6-7'	soil	2012-03-22	00:00	2012-03-27
292546	BH-2 @ AH-2 9-10'	soil	2012-03-22	00:00	2012-03-27
292547	BH-2 @ AH-2 14-15'	soil	2012-03-22	00:00	2012-03-27
292548	BH-2 @ AH-2 19-20'	soil	2012-03-22	00:00	2012-03-27
292551	BH-3 @ AH-3 0-1'	soil	2012-03-22	00:00	2012-03-27
292552	BH-3 @ AH-3 2-3'	soil	2012-03-22	00:00	2012-03-27

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
292553	BH-3 @ AH-3 4-5'	soil	2012-03-22	00:00	2012-03-27
292554	BH-3 @ AH-3 6-7'	soil	2012-03-22	00:00	2012-03-27
292555	BH-3 @ AH-3 9-10'	soil	2012-03-22	00:00	2012-03-27
292556	BH-3 @ AH-3 14-15'	soil	2012-03-22	00:00	2012-03-27
292557	BH-3 @ AH-3 19-20'	soil	2012-03-22	00:00	2012-03-27
292560	BH-4 @ AH-4 0-1'	soil	2012-03-23	00:00	2012-03-27
292561	BH-4 @ AH-4 2-3'	soil	2012-03-23	00:00	2012-03-27
292562	BH-4 @ AH-4 4-5'	soil	2012-03-23	00:00	2012-03-27
292563	BH-4 @ AH-4 6-7'	soil	2012-03-23	00:00	2012-03-27
292564	BH-4 @ AH-4 9-10'	soil	2012-03-23	00:00	2012-03-27
292565	BH-4 @ AH-4 14-15'	soil	2012-03-23	00:00	2012-03-27
292566	BH-4 @ AH-4 19-20'	soil	2012-03-23	00:00	2012-03-27
292567	BH-4 @ AH-4 24-25'	soil	2012-03-23	00:00	2012-03-27
292568	BH-5 @ AH-5 0-1'	soil	2012-03-23	00:00	2012-03-27
292569	BH-5 @ AH-5 2-3'	soil	2012-03-23	00:00	2012-03-27
292570	BH-5 @ AH-5 4-5'	soil	2012-03-23	00:00	2012-03-27
292571	BH-5 @ AH-5 6-7'	soil	2012-03-23	00:00	2012-03-27
292572	BH-5 @ AH-5 9-10'	soil	2012-03-23	00:00	2012-03-27
292573	BH-5 @ AH-5 14-15'	soil	2012-03-23	00:00	2012-03-27
292577	BG-1 0-1'	soil	2012-03-22	00:00	2012-03-27
292578	BG-1 2-3'	soil	2012-03-22	00:00	2012-03-27
292579	BG-1 4-5'	soil	2012-03-22	00:00	2012-03-27
292580	BG-1 6-7'	soil	2012-03-22	00:00	2012-03-27
292581	BG-1 9-10'	soil	2012-03-22	00:00	2012-03-27
292582	BG-1 14-15'	soil	2012-03-22	00:00	2012-03-27
292583	BG-1 19-20'	soil	2012-03-22	00:00	2012-03-27
292584	BG-1 24-25'	soil	2012-03-22	00:00	2012-03-27

Report Corrections (Work Order 12032819)

- 4/5/12: Added chloride test for samples 292565-7.

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



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

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Case Narrative

Samples for project COG/SRO SWD 102 TB were received by TraceAnalysis, Inc. on 2012-03-27 and assigned to work order 12032819. Samples for work order 12032819 were received intact at a temperature of 4.2 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	76274	2012-04-02 at 09:58	89957	2012-04-03 at 10:58
Chloride (Titration)	SM 4500-Cl B	76274	2012-04-02 at 09:58	89958	2012-04-03 at 10:59
Chloride (Titration)	SM 4500-Cl B	76274	2012-04-02 at 09:58	89959	2012-04-03 at 11:00
Chloride (Titration)	SM 4500-Cl B	76274	2012-04-02 at 09:58	89960	2012-04-03 at 11:02
Chloride (Titration)	SM 4500-Cl B	76274	2012-04-02 at 09:58	89961	2012-04-03 at 11:03
Chloride (Titration)	SM 4500-Cl B	76516	2012-04-11 at 09:17	90175	2012-04-12 at 09:18

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 12032819 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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Sample: 292533 - BH-1 @ AH-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89957	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9890	mg/Kg	100	4.00

Sample: 292534 - BH-1 @ AH-1 2-3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89957	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			8540	mg/Kg	100	4.00

Sample: 292535 - BH-1 @ AH-1 4-5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89957	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9320	mg/Kg	100	4.00

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Sample: 292536 - BH-1 @ AH-1 6-7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89957	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5080	mg/Kg	100	4.00

Sample: 292537 - BH-1 @ AH-1 9-10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2560	mg/Kg	100	4.00

Sample: 292538 - BH-1 @ AH-1 14-15'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 292539 - BH-1 @ AH-1 19-20'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			244	mg/Kg	50	4.00

Sample: 292542 - BH-2 @ AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89958 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3240	mg/Kg	100	4.00

Sample: 292543 - BH-2 @ AH-2 2-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89958 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2420	mg/Kg	100	4.00

Sample: 292544 - BH-2 @ AH-2 4-5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89958 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3910	mg/Kg	100	4.00

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Sample: 292545 - BH-2 @ AH-2 6-7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1660	mg/Kg	100	4.00

Sample: 292546 - BH-2 @ AH-2 9-10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1070	mg/Kg	100	4.00

Sample: 292547 - BH-2 @ AH-2 14-15'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1060	mg/Kg	100	4.00

Sample: 292548 - BH-2 @ AH-2 19-20'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89958	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			528	mg/Kg	50	4.00

Sample: 292551 - BH-3 @ AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6330	mg/Kg	100	4.00

Sample: 292552 - BH-3 @ AH-3 2-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6640	mg/Kg	100	4.00

Sample: 292553 - BH-3 @ AH-3 4-5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3630	mg/Kg	100	4.00

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Sample: 292554 - BH-3 @ AH-3 6-7'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4730	mg/Kg	100	4.00

Sample: 292555 - BH-3 @ AH-3 9-10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2440	mg/Kg	100	4.00

Sample: 292556 - BH-3 @ AH-3 14-15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			886	mg/Kg	50	4.00

Sample: 292557 - BH-3 @ AH-3 19-20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			911	mg/Kg	50	4.00

Sample: 292560 - BH-4 @ AH-4 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89959	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7290	mg/Kg	100	4.00

Sample: 292561 - BH-4 @ AH-4 2-3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89959	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5540	mg/Kg	100	4.00

Sample: 292562 - BH-4 @ AH-4 4-5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89959	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5970	mg/Kg	100	4.00

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Sample: 292563 - BH-4 @ AH-4 6-7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2550	mg/Kg	100	4.00

Sample: 292564 - BH-4 @ AH-4 9-10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 292565 - BH-4 @ AH-4 14-15'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	90175	Date Analyzed:	2012-04-12
Prep Batch:	76516	Sample Preparation:	2012-04-11
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			589	mg/Kg	50	4.00

Sample: 292566 - BH-4 @ AH-4 19-20'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	90175	Date Analyzed:	2012-04-12
Prep Batch:	76516	Sample Preparation:	2012-04-11
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 292567 - BH-4 @ AH-4 24-25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90175 Date Analyzed: 2012-04-12 Analyzed By: AR
Prep Batch: 76516 Sample Preparation: 2012-04-11 Prepared By: AR

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

Sample: 292568 - BH-5 @ AH-5 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89960 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5270	mg/Kg	100	4.00

Sample: 292569 - BH-5 @ AH-5 2-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89960 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4360	mg/Kg	100	4.00

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Sample: 292570 - BH-5 @ AH-5 4-5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1380	mg/Kg	100	4.00

Sample: 292571 - BH-5 @ AH-5 6-7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			447	mg/Kg	50	4.00

Sample: 292572 - BH-5 @ AH-5 9-10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			323	mg/Kg	50	4.00

Sample: 292573 - BH-5 @ AH-5 14-15'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	89960	Date Analyzed:	2012-04-03
Prep Batch:	76274	Sample Preparation:	2012-04-02
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			571	mg/Kg	50	4.00

Sample: 292577 - BG-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89960 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

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

Sample: 292578 - BG-1 2-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89960 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			243	mg/Kg	50	4.00

Sample: 292579 - BG-1 4-5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 89961 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 Sample Preparation: 2012-04-02 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			421	mg/Kg	50	4.00

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Sample: 292580 - BG-1 6-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89961	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			455	mg/Kg	50	4.00

Sample: 292581 - BG-1 9-10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89961	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

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

Sample: 292582 - BG-1 14-15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89961	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1030	mg/Kg	50	4.00

Sample: 292583 - BG-1 19-20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-03	Analyzed By:	AR
QC Batch:	89961	Sample Preparation:	2012-04-02	Prepared By:	AR
Prep Batch:	76274				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			846	mg/Kg	50	4.00

Sample: 292584 - BG-1 24-25'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 89961

Prep Batch: 76274

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-04-03

Sample Preparation: 2012-04-02

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			851	mg/Kg	50	4.00

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Method Blanks

Method Blank (1) QC Batch: 89957

QC Batch: 89957 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 QC Preparation: 2012-04-02 Prepared By: AR

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

Method Blank (1) QC Batch: 89958

QC Batch: 89958 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 QC Preparation: 2012-04-02 Prepared By: AR

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

Method Blank (1) QC Batch: 89959

QC Batch: 89959 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 QC Preparation: 2012-04-02 Prepared By: AR

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

Method Blank (1) QC Batch: 89960

QC Batch: 89960 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 QC Preparation: 2012-04-02 Prepared By: AR

Report Date: April 12, 2012
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Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 89961

QC Batch: 89961 Date Analyzed: 2012-04-03 Analyzed By: AR
Prep Batch: 76274 QC Preparation: 2012-04-02 Prepared By: AR

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

Method Blank (1) QC Batch: 90175

QC Batch: 90175 Date Analyzed: 2012-04-12 Analyzed By: AR
Prep Batch: 76516 QC Preparation: 2012-04-11 Prepared By: AR

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 89957
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			106	mg/Kg	1	100	<3.85	106	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			99.8	mg/Kg	1	100	<3.85	100	85 - 115	6	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: 89958
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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			96.9	mg/Kg	1	100	<3.85	97	85 - 115	6	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: 89959
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Report Date: April 12, 2012
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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			103	mg/Kg	1	100	<3.85	103	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			97.8	mg/Kg	1	100	<3.85	98	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 89960
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.4	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			101	mg/Kg	1	100	<3.85	101	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 89961
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.1	mg/Kg	1	100	<3.85	94	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			101	mg/Kg	1	100	<3.85	101	85 - 115	7	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 90175
Prep Batch: 76516

Date Analyzed: 2012-04-12
QC Preparation: 2012-04-11

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.5	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			100	mg/Kg	1	100	<3.85	100	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: 292536

QC Batch: 89957
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14300	mg/Kg	100	10000	5080	92	79.4 - 120.6

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	5080	99	79.4 - 120.6	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: 292548

QC Batch: 89958
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10700	mg/Kg	100	10000	528	102	79.4 - 120.6

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11100	mg/Kg	100	10000	528	106	79.4 - 120.6	4	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: 292562

QC Batch: 89959
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			15400	mg/Kg	100	10000	5970	94	79.4 - 120.6

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			16100	mg/Kg	100	10000	5970	101	79.4 - 120.6	4	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: 292578

QC Batch: 89960
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10500	mg/Kg	100	10000	<385	102	79.4 - 120.6

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			10900	mg/Kg	100	10000	<385	106	79.4 - 120.6	4	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: 292584

QC Batch: 89961
Prep Batch: 76274

Date Analyzed: 2012-04-03
QC Preparation: 2012-04-02

Analyzed By: AR
Prepared By: AR

Report Date: April 12, 2012
114-6401198

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	851	95	79.4 - 120.6

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			10900	mg/Kg	100	10000	851	99	79.4 - 120.6	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: 292567

QC Batch: 90175
Prep Batch: 76516

Date Analyzed: 2012-04-12
QC Preparation: 2012-04-11

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10200	mg/Kg	100	10000	<385	102	79.4 - 120.6

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			10600	mg/Kg	100	10000	<385	106	79.4 - 120.6	4	20

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

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114-6401198

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COG/SRO SWD 102 TB

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Eddy Co., NM

Calibration Standards

Standard (ICV-1)

QC Batch: 89957

Date Analyzed: 2012-04-03

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	2012-04-03

Standard (CCV-1)

QC Batch: 89957

Date Analyzed: 2012-04-03

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	98.9	99	85 - 115	2012-04-03

Standard (ICV-1)

QC Batch: 89958

Date Analyzed: 2012-04-03

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	99.2	99	85 - 115	2012-04-03

Standard (CCV-1)

QC Batch: 89958

Date Analyzed: 2012-04-03

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	101	101	85 - 115	2012-04-03

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Eddy Co., NM

Standard (ICV-1)

QC Batch: 89959

Date Analyzed: 2012-04-03

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	2012-04-03

Standard (CCV-1)

QC Batch: 89959

Date Analyzed: 2012-04-03

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	98.6	99	85 - 115	2012-04-03

Standard (ICV-1)

QC Batch: 89960

Date Analyzed: 2012-04-03

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	97.8	98	85 - 115	2012-04-03

Standard (CCV-1)

QC Batch: 89960

Date Analyzed: 2012-04-03

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	102	102	85 - 115	2012-04-03

Standard (ICV-1)

QC Batch: 89961

Date Analyzed: 2012-04-03

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2012-04-03

Standard (CCV-1)

QC Batch: 89961

Date Analyzed: 2012-04-03

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	98.2	98	85 - 115	2012-04-03

Standard (ICV-1)

QC Batch: 90175

Date Analyzed: 2012-04-12

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	98.1	98	85 - 115	2012-04-12

Standard (CCV-1)

QC Batch: 90175

Date Analyzed: 2012-04-12

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	102	102	85 - 115	2012-04-12

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

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 than 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.

Analysis Request of Chain of Custody Record



TETRA TECH

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

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ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tawarz

PROJECT NO.: 114-6401198

PROJECT NAME: SRO SWD State

LAB I.D. NUMBER: 2533 DATE: 3/22 TIME: MATRIX: S COMP: X GRAB: Edley Co., NM
SAMPLE IDENTIFICATION

NUMBER	3/22		MAT	COM	GRA		NUM	FILT	HCL	HNO	ICE	NON		BTE	TPH	PAH	RCF	TCL	TCL	TCL	RCI	GC	GC	PCB	Pes	Chl	Gar	Alp	PLN	Maj	
2533	3/22		S	X		BH-1 @ AH-1 0-1'	1				X														X						
534						2-3'	1				X														X						
535						4-5'	1				X														X						
536						6-7'	1				X														X						
537						9-10'	1				X														X						
538						14-15'	1				X														X						
539						19-20'	1				X															X					
540						24-25'	1				X																				
541						29-30'	1				X																				
542						BH-2 @ AH-2 0-1'	1				X														X						

RELINQUISHED BY: (Signature) [Signature]

Date: 3/22/12

RECEIVED BY: (Signature) [Signature]

Date: 3/22/12

SAMPLED BY: (Print & Initial) Kim

Date: 3/22/12

RELINQUISHED BY: (Signature) [Signature]

Date: 1/22/12

RECEIVED BY: (Signature) [Signature]

Date: 1/22/12

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

RELINQUISHED BY: (Signature) [Signature]

Date:

RECEIVED BY: (Signature)

Date:

FEDEX BUS

OTHER:

RECEIVING LABORATORY: TRACE

RECEIVED BY: (Signature)

ADDRESS: MIDLAND

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE: DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tawarz

Results by:

RUSH Charges

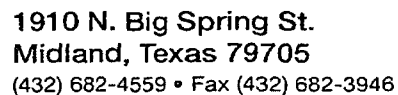
Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED: 42' intact

REMARKS: all tests Midland

Te



SITE MANAGER:
Ilee Tavaraz

PROJECT NAME: SRO SWD State

MATRIX	COMP.	GRAB
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Edley G., NM
SAMPLE IDENTIFICATION

TESTERS	PRESERVATIVE METHOD
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70	70
71	71
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76	76
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79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

NUMBER OF CONTAINERS	
FILTERED (Y/N)	
HCL	
HNO3	
ICE	
NONE	

[illegible]

Date: 3/22/12
Time:

AIRBILL #: _____

OTHER: _____

TETRA TECH CONTACT PERSON:

DATE: _____ TIME: _____

REMARKS:

Ike Tavares

Results by:

RUSH Charges
Authorized:
Yes

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

Analysis Request of Chain of Custody Record



TETRA TECH

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

PAGE: 3

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavaraz

PROJECT NO.: 114-6401198

PROJECT NAME: SRO SWD State

LAB I.D. NUMBER DATE TIME MATRIX COMP. GRAB Eddy Co., NM
SAMPLE IDENTIFICATION

NUMBER	2012		MAT	CON	GRA		NUM	FILT	HCL	HNO	ICE	NON	BTE	TPH	PAH	RCR	TCL	TCL	TCL	RCI	GC.L	GC.L	PCB	Pest	Chlor	Gamma	Alph	PLM	Maj			
553	3/22		S	X		BH-3 @ AH-3 4-5'	1				X													X								
554	(					6-7'	1				X													X								
555						9-10'	1				X													X								
556						14-15'	1				X													X								
557						19-20'	1				X													X								
558						24-25'	1				X														X							
559						29-30'	1				X																					
560	3/23					BH-4 @ AH-4 0-1'	1				X													X								
561	(					2-3'	1				X													X								
562						4-5'	1				X													X								

RELINQUISHED BY: (Signature) [Signature] Date: 3/23/12 Time: 1605

RECEIVED BY: (Signature) [Signature] Date: 3/23/12 Time: 1605

SAMPLED BY: (Print & Initial) Kim Date: 3/23/12 Time: 1605

RELINQUISHED BY: (Signature) [Signature] Date: Time:

RECEIVED BY: (Signature) Date: Time:

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

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: Ike Tavaraz Results by:

RECEIVING LABORATORY: TEALF
ADDRESS:
CITY: MIDLAND STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:

RECEIVED BY: (Signature) DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 2° intact

REMARKS:

Analysis Request of Chain of Custody Record

PAGE: 4 6



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 Tawarez

PROJECT NO.:

114-6101198

PROJECT NAME:

SRO SWD State

LAB I.D.
NUMBER

DATE
2012

TIME

MATRIX

COMP

GRAB

Eddy G., NM
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 Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi-Vol-8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

563

3/23

S

X

BH-4 @ AH-4 6-7'

1

X

564

9-10'

1

X

565

14-15'

1

X

566

19-20'

1

X

567

24-25'

1

X

568

BH-5 @ AH-5 0-1'

1

X

569

2-3'

1

X

570

4-5'

1

X

571

6-7'

1

X

Analysis Request of Chain of Custody Record

PAGE: 5 6



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:

COH

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6401198

PROJECT NAME:

SRO SWD State

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

Eddy Co., NM
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 Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

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

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Kim

Date:

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

HAND DELIVERED

UPS

OTHER:

TETRA TECH CONTACT PERSON:

Ike Tavaraz

Results by:

RUSH Charges
Authorized:

Yes No

RECEIVING LABORATORY:

TRACE

RECEIVED BY: (Signature)

ADDRESS:

CITY: MIDLAND

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

42° water

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

Analysis Request of Chain of Custody Record



TETRA TECH

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

PAGE: 6

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavares

PROJECT NO.:

114-6401198

PROJECT NAME:

SRO SWD State

LAB I.D.
NUMBER

DATE
2012

TIME

MATRIX

COMP

GRAB

Eddy Co., NM
SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

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 Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 3270/325

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Kim

Date:

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Ike Tavares

Results by:

RUSH Charges
Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

4.2° water

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

Summary Report

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

Report Date: June 18, 2012

Work Order: 12061110

Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
300657	Trench-1 2' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300658	Trench-1 4' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300659	Trench-1 6' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300660	Trench-1 8' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300661	Trench-1 10' (AH-6)	soil	2012-05-24	00:00	2012-06-11

Sample: 300657 - Trench-1 2' (AH-6)

Param	Flag	Result	Units	RL
Chloride		7890	mg/Kg	4

Sample: 300658 - Trench-1 4' (AH-6)

Param	Flag	Result	Units	RL
Chloride		9510	mg/Kg	4

Sample: 300659 - Trench-1 6' (AH-6)

Param	Flag	Result	Units	RL
Chloride		3750	mg/Kg	4

Sample: 300660 - Trench-1 8' (AH-6)

Report Date: June 18, 2012

Work Order: 12061110

Page Number: 2 of 2

Param	Flag	Result	Units	RL
Chloride		379	mg/Kg	4

Sample: 300661 - Trench-1 10' (AH-6)

Param	Flag	Result	Units	RL
Chloride		229	mg/Kg	4



6701 Aberdeen Avenue, Suite 9
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5002 Basin Street, Suite A1
(BioAquatic) 2501 Mayes Rd., Suite 100

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Midland, Texas 79703
Carrollton, Texas 75006

800-378-1298

806-794-1298

FAX 806-794-1298

915-585-3443

FAX 915-585-4944

432-689-6301

FAX 432-689-6313

972-242-7750

E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: June 18, 2012

Work Order: 12061110

Project Location: Eddy Co., NM
Project Name: COG/SRO SWD 102 TB
Project Number: 114-6401198

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
300657	Trench-1 2' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300658	Trench-1 4' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300659	Trench-1 6' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300660	Trench-1 8' (AH-6)	soil	2012-05-24	00:00	2012-06-11
300661	Trench-1 10' (AH-6)	soil	2012-05-24	00:00	2012-06-11

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

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

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Sample 300658 (Trench-1 4' (AH-6))	4
Sample 300659 (Trench-1 6' (AH-6))	4
Sample 300660 (Trench-1 8' (AH-6))	4
Sample 300661 (Trench-1 10' (AH-6))	5
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Case Narrative

Samples for project COG/SRO SWD 102 TB were received by TraceAnalysis, Inc. on 2012-06-11 and assigned to work order 12061110. Samples for work order 12061110 were received intact at a temperature of 6.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	78193	2012-06-14 at 10:56	92239	2012-06-18 at 13:35
Chloride (Titration)	SM 4500-Cl B	78193	2012-06-14 at 10:56	92240	2012-06-18 at 13:36

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 12061110 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 4 of 10
Eddy Co., NM

Analytical Report

Sample: 300657 - Trench-1 2' (AH-6)

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-06-18	Analyzed By:	AR
QC Batch:	92239	Sample Preparation:	2012-06-14	Prepared By:	AR
Prep Batch:	78193				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7890	mg/Kg	10	4.00

Sample: 300658 - Trench-1 4' (AH-6)

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-06-18	Analyzed By:	AR
QC Batch:	92239	Sample Preparation:	2012-06-14	Prepared By:	AR
Prep Batch:	78193				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9510	mg/Kg	10	4.00

Sample: 300659 - Trench-1 6' (AH-6)

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-06-18	Analyzed By:	AR
QC Batch:	92239	Sample Preparation:	2012-06-14	Prepared By:	AR
Prep Batch:	78193				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3750	mg/Kg	10	4.00

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 5 of 10
Eddy Co., NM

Sample: 300660 - Trench-1 8' (AH-6)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	92239	Date Analyzed:	2012-06-18
Prep Batch:	78193	Sample Preparation:	2012-06-14
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			379	mg/Kg	5	4.00

Sample: 300661 - Trench-1 10' (AH-6)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	92240	Date Analyzed:	2012-06-18
Prep Batch:	78193	Sample Preparation:	2012-06-14
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			229	mg/Kg	5	4.00

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 6 of 10
Eddy Co., NM

Method Blanks

Method Blank (1) QC Batch: 92239

QC Batch: 92239 Date Analyzed: 2012-06-18 Analyzed By: AR
Prep Batch: 78193 QC Preparation: 2012-06-14 Prepared By: AR

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

Method Blank (1) QC Batch: 92240

QC Batch: 92240 Date Analyzed: 2012-06-18 Analyzed By: AR
Prep Batch: 78193 QC Preparation: 2012-06-14 Prepared By: AR

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

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 7 of 10
Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 92239
Prep Batch: 78193

Date Analyzed: 2012-06-18
QC Preparation: 2012-06-14

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2460	mg/Kg	1	2500	<3.85	98	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			2640	mg/Kg	1	2500	<3.85	106	85 - 115	7	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 92240
Prep Batch: 78193

Date Analyzed: 2012-06-18
QC Preparation: 2012-06-14

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2380	mg/Kg	1	2500	<3.85	95	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			2550	mg/Kg	1	2500	<3.85	102	85 - 115	7	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: 300660

QC Batch: 92239
Prep Batch: 78193

Date Analyzed: 2012-06-18
QC Preparation: 2012-06-14

Analyzed By: AR
Prepared By: AR

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 8 of 10
Eddy Co., NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2920	mg/Kg	5	2500	379	102	79.4 - 120.6

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			3160	mg/Kg	5	2500	379	111	79.4 - 120.6	8	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: 300669

QC Batch: 92240
Prep Batch: 78193

Date Analyzed: 2012-06-18
QC Preparation: 2012-06-14

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2480	mg/Kg	5	2500	38.2	98	79.4 - 120.6

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			2660	mg/Kg	5	2500	38.2	105	79.4 - 120.6	7	20

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

Report Date: June 18, 2012
114-6401198

Work Order: 12061110
COG/SRO SWD 102 TB

Page Number: 9 of 10
Eddy Co., NM

Calibration Standards

Standard (CCV-1)

QC Batch: 92239

Date Analyzed: 2012-06-18

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	99.6	100	85 - 115	2012-06-18

Standard (CCV-2)

QC Batch: 92239

Date Analyzed: 2012-06-18

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	100	100	85 - 115	2012-06-18

Standard (CCV-1)

QC Batch: 92240

Date Analyzed: 2012-06-18

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	100	100	85 - 115	2012-06-18

Standard (CCV-2)

QC Batch: 92240

Date Analyzed: 2012-06-18

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	99.9	100	85 - 115	2012-06-18

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

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 than 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.

Analysis Request of Chain of Custody Record



TETRA TECH

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

PAGE: 1 Of: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

SITE MANAGER:

PROJECT NO.:

PROJECT NAME:

114-6401198

LOG / SRG Unit Cam 107 SWD
Estech Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION							NUMBER	FILTERED	HCL	HNO3	ICE	NONE	BTEX 8022	TPH 80	PAH 8270	RCRA Me	TCLP Me	TCLP Vol	TCLP Sem	RCI	GC.MS V	GC.MS S	PCB's 808	Pest. 808	Chloride	Gamma S	Alpha Be	PLM (Asb	Major Ani	
300657	5/24		X		X	Trench-1 2'	(AH-6)						1				X															X				
658						Trench-1 4'	(AH-6)																								X					
659						Trench-1 6'	(AH-6)																								X					
660						Trench-1 8'	(AH-6)																								X					
661						Trench-1 10'	(AH-6)																								X					
																		</																		

RELINQUISHED BY: (Signature) *[Signature]* Date: 5/25/12 Time: 1605

RECEIVED BY: (Signature) *[Signature]* Date: Time:

SAMPLED BY: (Print & Initial) *Robert Grobbs Jr* Date: 5/24/12 Time: 1510

RELINQUISHED BY: (Signature) *[Signature]* Date: Time:

RECEIVED BY: (Signature) *Karne Fitch* Date: 6-11-12 Time: 1000

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

RELINQUISHED BY: (Signature) *Karne Fitch* Date: 6-11-12 Time: 1100

RECEIVED BY: (Signature) *[Signature]* Date: 6/11/12 Time: 1100

TETRA TECH CONTACT PERSON: Results by:

RECEIVING LABORATORY: *Tech* ADDRESS: CITY: *Midland* STATE: *TX* ZIP: CONTACT: *Merida* PHONE: DATE: TIME:

RECEIVED BY: (Signature) *[Signature]* DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: *100% intact*

REMARKS:

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