

SITE INFORMATION

2PA-476

Report Type: Closure Report

General Site Information:

Site:	Red Lake Sand Unit #45 Flow line					
Company:	COG Operating LLC					
Section, Township and Range	Unit O	Sec 20	T17S	R28E		
Lease Number:	API-30-015-33198					
County:	Eddy County					
GPS:	32.81127			104.19473		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 82 and CR217, travel west on Hwy 82 for 13.1 miles, turn right (north) onto lease road and travel 0.3 miles, turn right and travel 1 mile to location.					

Release Data:

Date Released:	8/29/2010
Type Release:	Produced Fluid
Source of Contamination:	Flowline failure
Fluid Released:	10 bbls
Fluids Recovered:	0 bbls

Official Communication:

Name:	Pat Ellis	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 425-3878
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	
>100 ft.	0	0
Wellhead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:	0	

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



TETRA TECH

RECEIVED

FEB 28 2012

NMOCD ARTESIA

January 25, 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., Red Lake Sand Unit #45 Flow Line, Unit O, Section 20, Township 17 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 Red Lake Sand Unit #45 flow line located in Unit O, Section 20, Township 17 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.81127°, W 104.19473°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on August 29, 2010, and released approximately ten (10) barrels of produced fluid from a steel flow line and none of the fluids were recovered. To alleviate the problem, COG personnel repaired the flow line. The spill initiated north of a lease road migrating 185'.0' north into the pasture, with a width ranging to 2.0' to 20.0'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 20. According to the NMOCD groundwater map, a well is located in Section 19 with a depth to water of 191' below surface. The USGS shows a well in Section 22 with a depth to water of 79' below surface. Based on the site location and NMOCD groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The well reports are shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetra-tech.com



Regulatory

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

Soil Assessment and Analytical Results

On September 1, 2010, Tetra Tech personnel inspected and sampled the spill area. Five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the samples were below the RRAL for TPH and BTEX. Chloride impacted soils were detected in all of the auger holes. Auger holes (AH-4 and AH-5) were vertically defined at 4.0' (220 mg/kg) and 6.0' (<200 mg/kg), respectively. The remaining auger holes (AH-1, AH-2 and AH-3) were not vertically defined.

In order to delineate the chloride concentrations, soil borings were installed utilizing an air rotary drilling rig. On February 22, 2011, Tetra Tech personnel supervised the installation of soil borings (SB-1 through SB-3). The soil borings were installed to total depths of 40.0' to 50.0' below surface. Referring to Table 1, the chloride impact was vertically defined and declined with depth. The area of SB-1 (AH-1) had the deepest chloride impact, with chloride concentrations significantly declining at 30.0' to 1,250 mg/kg. Soil borings SB-2 (AH-2) and SB-3 (AH-3) did show a shallow impact to the soils to a depth of approximately 3.0' and 7.0', respectively. The soil boring locations are shown on Figure 3.



Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the impacted soil at the site. The final excavation depths were met as proposed in the approved work plan. Once excavated to the appropriate depths, the excavation was backfilled with clean soil to grade. In the area of SB-1, a 40 mil liner was installed at 4.0' below surface and backfilled to grade. A total of 1,500 cubic yards of soil were excavated and hauled to CRI Inc. for proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4.

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

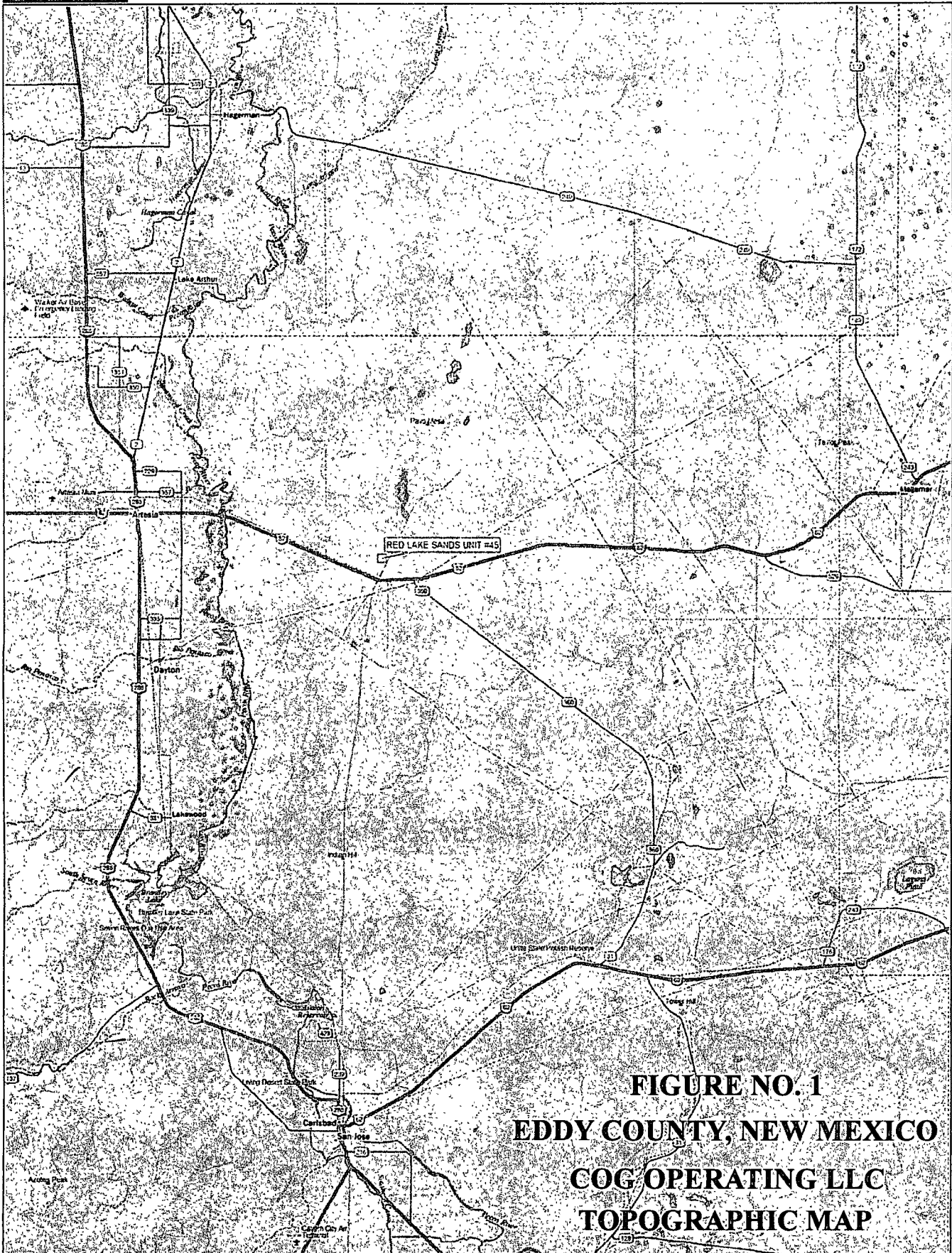
Respectfully submitted,
TETRA TECH

A handwritten signature in black ink, appearing to read 'Ike Tavaréz', written over the printed name.

Ike Tavaréz
Project Manager, PG

cc: Pat Ellis – COG
cc:

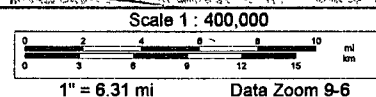
FIGURES

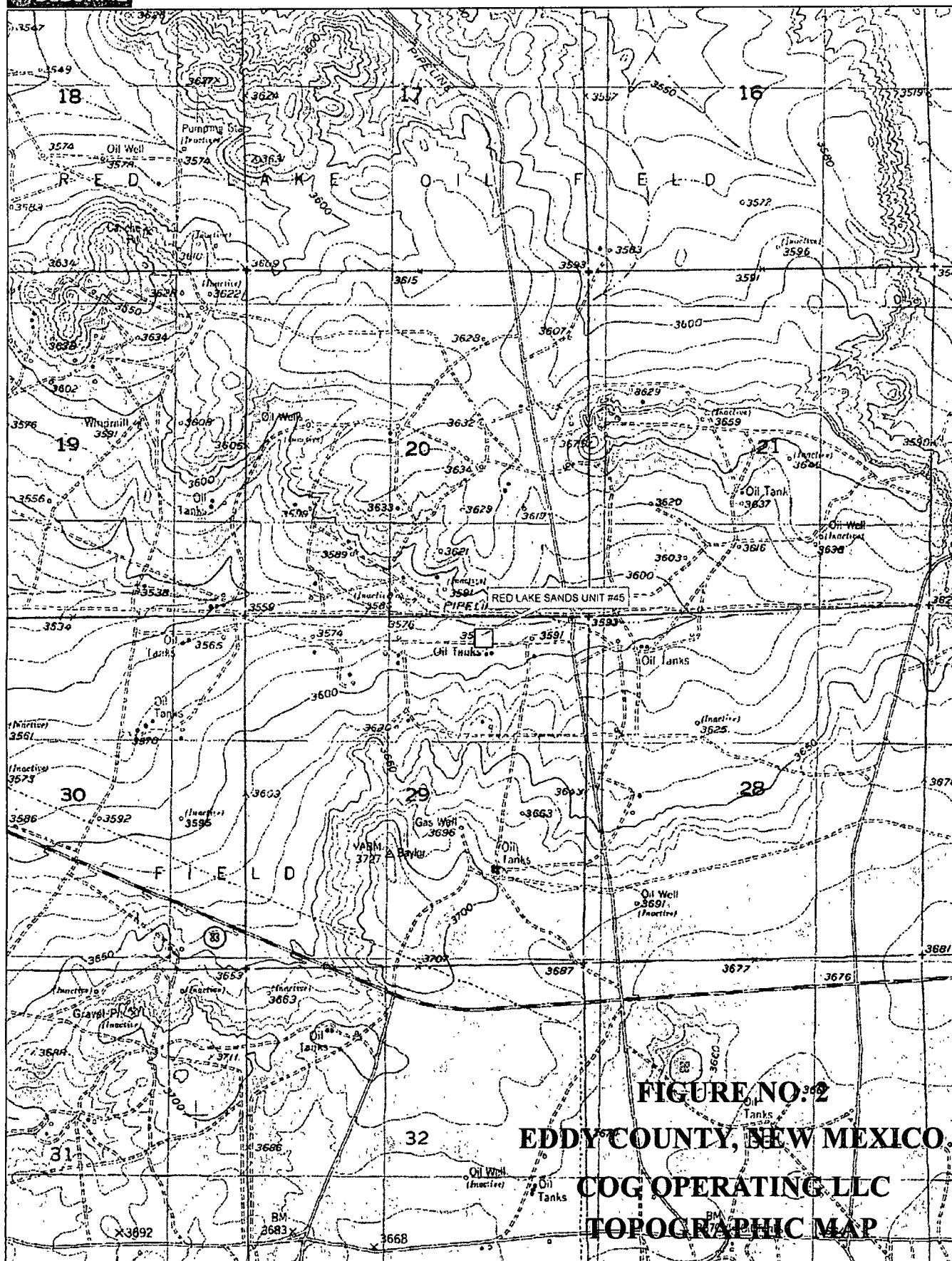


Data use subject to license.

© DeLorme. Topo USA® 8.

www.delorme.com

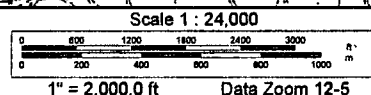




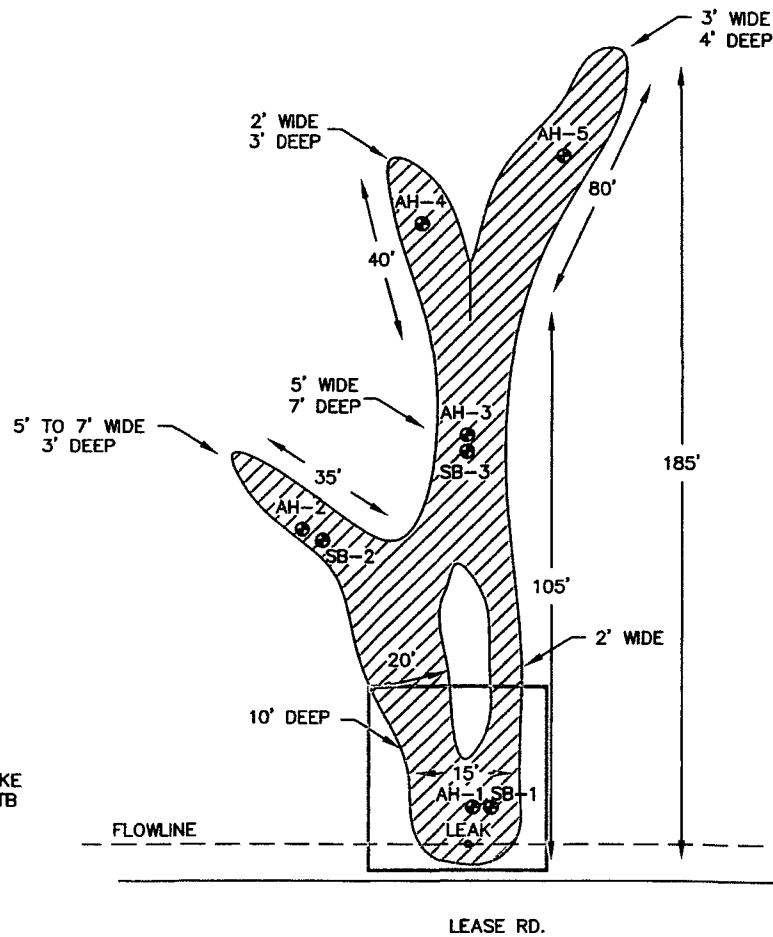
Data use subject to license.

© DeLorme Topo USA® 8

www.delorme.com



RLSU #43



- ☐ INSTALLED LINER
- ☒ EXCAVATED DEPTHS
- AUGER HOLE LOCATIONS
- SOIL BORE LOCATIONS

● MACK ENERGY
P&A WELL
(RED LAKE SAND #12)

NOT TO SCALE

DATE:
9/1/10
DWN. BY:
IM
FILE:
H:\COG\8400678
RED LAKE #45

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

RED LAKE SANDS UNIT #45
EXCAVATION AREA & DEPTHS

TETRA TECH, INC.
MIDLAND, TEXAS

TABLES

Table 1
COG Operating LLC.
Red Lake Sand Unit #45
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-2	9/9/2010	0-1'			X	464	4,140	4,604	<0.100	0.341	2.87	5.81	6,020
		1-1.5'			X	<10.0	52.2	52.2					7,360
		2-2.5'			X								4,230
		3-3.5'			X								220
		4-4.5'		X		-	-	-	-	-	-	-	378
		5-5.5'		X		-	-	-	-	-	-	-	444
		6-6.5'		X		-	-	-	-	-	-	-	516
		7-7.5'		X		-	-	-	-	-	-	-	552
		8-8.5'		X		-	-	-	-	-	-	-	832
		9-9.5'		X		-	-	-	-	-	-	-	1,180
SB-2	2/22/2011	0-1'			X	-	-	-	-	-	-	-	1,200
		3'			X	-	-	-	-	-	-	-	3,760
		5'		X		-	-	-	-	-	-	-	458
		7'		X		-	-	-	-	-	-	-	832
		10'		X		-	-	-	-	-	-	-	611
		15'		X		-	-	-	-	-	-	-	1,030
		20'		X		-	-	-	-	-	-	-	516
		25'		X		-	-	-	-	-	-	-	511
		30'		X		-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	205

Table 1
COG Operating LLC.
Red Lake Sand Unit #45
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-3	9/9/2010	0-1'			X	231	5,960	6,191	<0.100	<0.100	0.317	1.53	1,640
		1-1.5'			X	<2.00	<50.0	<50.0					5,440
		2-2.5'			X	<2.00	<50.0	<50.0					5,060
		3-3.5'			X	-							8,770
		4-4.5'			X	-							12,300
		5-5.5'			X	-							10,500
		6-6.5'			X	-							7,170
		7-7.5'			X	-							808
		8-8.5'		X		-	-	-	-	-	-	-	1,060
		9-9.5'		X		-	-	-	-	-	-	-	874
SB-3	2/22/2011	0-1'			X	-	-	-	-	-	-	-	4,200
		3'			X	-	-	-	-	-	-	-	4,180
		5'			X	-	-	-	-	-	-	-	9,640
		7'			X	-	-	-	-	-	-	-	9,500
		10'		X		-	-	-	-	-	-	-	1,290
		15'		X		-	-	-	-	-	-	-	1,160
		20'		X		-	-	-	-	-	-	-	780
		25'		X		-	-	-	-	-	-	-	251
		30'		X		-	-	-	-	-	-	-	298
		40'		X		-	-	-	-	-	-	-	416

Table 1
COG Operating LLC.
Red Lake Sand Unit #45
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-4	9/9/2010	0-1'			X	47.6	<50.0	47.6	<0.0200	0.111	0.191	0.522	9,460
		1-1.5'			X								9,860
		2-2.5'			X								10,200
		3-3.5'			X								4,960
		4-4.5'		X		-	-	-	-	-	-	-	220
		5-5.5'		X		-	-	-	-	-	-	-	<200
AH-5	9/9/2010	0-1'			X	6.04	55.6	61.64					7,560
		1-1.5'			X								13,200
		2-2.5'			X								12,800
		3-3.5'			X								13,500
		4-4.5'			X								10,900
		5-5.5'		X		-	-	-	-	-	-	-	772
		6-6.5'		X		-	-	-	-	-	-	-	<200
		7-7.5'		X		-	-	-	-	-	-	-	<200

BEB Below Excavation Bottom

(-) Not Analyzed

 Excavated Depths

 Liner Installation

APPENDIX A

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

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	COG Operating LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	Red Lake Sand Unit #45	Facility Type	Steel Flowline

Surface Owner: State	Mineral Owner	Lease No. (API#) 30-015-33198
----------------------	---------------	-------------------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	20	17S	28E					Eddy

Latitude 32 48.688 Longitude 104 11.678

NATURE OF RELEASE

Type of Release: Produced Fluid	Volume of Release 10 bbls	Volume Recovered 0 bbls
Source of Release: Steel Flowline	Date and Hour of Occurrence 08/29/2010	Date and Hour of Discovery 08/29/2010 11:30 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom? Josh Russo	Date and Hour 3/15/10 4:59 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

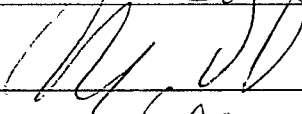
Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the Red Lake Sand Unit #45 steel flowline due to corrosion. The steel flowline has been repaired and we are in the process of replacing all steel flowlines to poly flowlines.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personal inspected the site and collected samples to define the spills extent. Soil that exceeded the RRAL was removed to the depths stated in the approved work plan and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech has prepared a closure report and submitted it to the NMOCD for review.

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

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Ike Tavarez (Agent for COG)	Approved by District Supervisor:		
Title: Project Manager	Approval Date:	Expiration Date:	
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:		Attached ☐
Date: 1-25-12	Phone: (432) 682-4559		

Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
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, TX 79701	Telephone No.	432-230-0077
Facility Name	Red Lake Sand Unit #45	Facility Type	Steel flowline
Surface Owner	State	Mineral Owner	Lease No. (API#) 30-015-33198

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	20	17S	28E					Eddy

Latitude 32 48.688 Longitude 104 11.678

NATURE OF RELEASE

Type of Release	Produced fluid	Volume of Release	10bbls	Volume Recovered	0bbls
Source of Release	Steel flowline	Date and Hour of Occurrence	08/29/2010	Date and Hour of Discovery	08/29/2010 11:30 a.m.
Was Immediate Notice Given?	☐ Yes ☒ No ☒ Not Required	If YES, To Whom?			
By Whom?	Date and Hour				
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

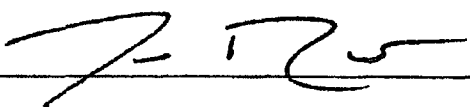
Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the Red Lake Sand Unit #45 steel flowline due to corrosion. The steel flowline has been repaired and we are in the process of replacing all steel flowlines to poly flowlines.

Describe Area Affected and Cleanup Action Taken.*

Initially 10bbls of produced fluid was released from the flowline and we were unable to recover any fluid with a vacuum truck. The dimensions of the spill area are 20' x 120' in the pasture directly adjacent to the ruptured flowline. (The closest well location to the release is the Red Lake Sand Unit #43. 330' FSI, 1650' FNL, Unit O, Sec. 20-T17S-R28E, Eddy Co., NM, B-8435, API# 30-015-33196). Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD prior to any significant remediation work.

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

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: Josh Russo		Approved by District Supervisor:	
Title: HSE Coordinator		Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com		Conditions of Approval:	
Date: 08/31/2010 Phone: 432-212-2399		Attached ☐	

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - Red Lake Sand Unit #45
Eddy County, New Mexico

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

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

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

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

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

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

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

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

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

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



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Sub basin	Use	County	Q Q Q 64 16 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 07643	DOM		LE	4 4 2	34	17S	28E	578979	3628574*	120	53	67
											Average Depth to Water:	53 feet
											Minimum Depth:	53 feet
											Maximum Depth:	53 feet

Record Count: 1

PLSS Search:

Township: 17S

Range: 28E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

5/24/11 9:39 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:
Groundwater

Geographic Area
New Mexico

GO

News updated April, 2011

Groundwater levels for New Mexico

Search Results -- 1 sites found

Search Criteria

Agency code = usgs
site_no list =
• 324855104093101

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 324855104093101 17S.28E.22.34242

Available data for this site

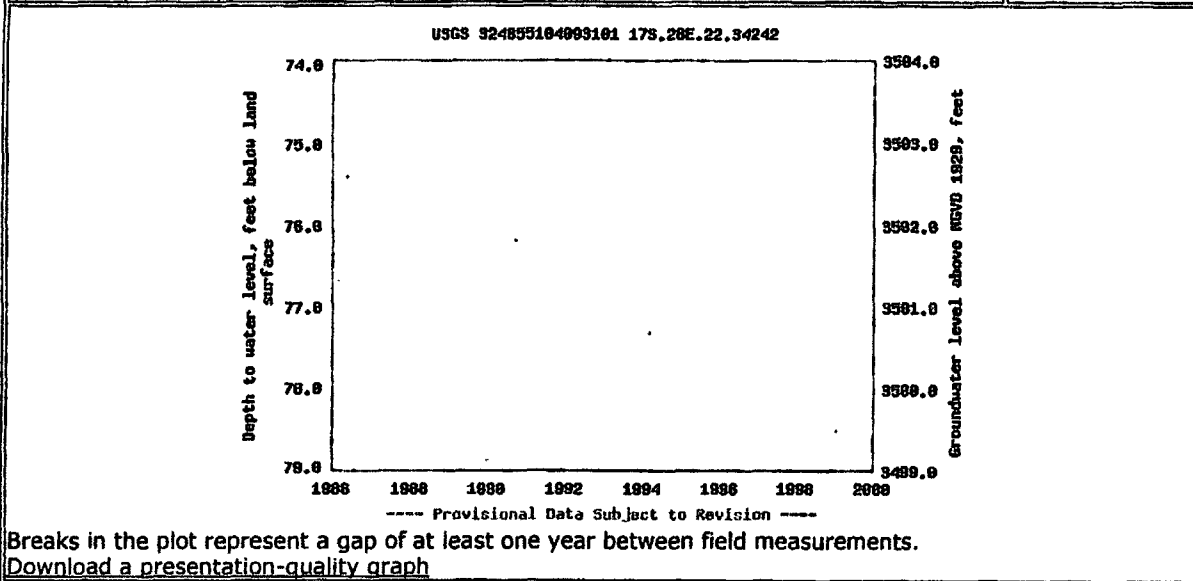
Groundwater: Field measurements

GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°48'55", Longitude 104°09'31" NAD27
Land-surface elevation 3,578 feet above NGVD29
The depth of the well is 95.00 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

[Table of data](#)
[Tab-separated data](#)
[Graph of data](#)
[Reselect period](#)



[Questions about sites/data?](#)

[Feedback on this web site](#)

[Automated retrievals](#)

[Help](#)

[Data Tips](#)

[Explanation of terms](#)

[Subscribe for system changes](#)

[News](#)

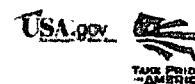
Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for New Mexico: Water Levels

URL: <http://waterdata.usgs.gov/nm/nwis/gwlevels/>

Page Contact Information: [New Mexico Water Data Maintainer](#)



APPENDIX C

Summary Report

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

Report Date: March 1, 2011

Work Order: 11022415



Project Location: Eddy County, NM
Project Name: COG/Red Lake Sand Unit #45
Project Number: 114-6400676

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
258579	SB-1 0-1'	soil	2011-02-22	00:00	2011-02-23
258580	SB-1 3'	soil	2011-02-22	00:00	2011-02-23
258581	SB-1 5'	soil	2011-02-22	00:00	2011-02-23
258582	SB-1 7'	soil	2011-02-22	00:00	2011-02-23
258583	SB-1 10'	soil	2011-02-22	00:00	2011-02-23
258584	SB-1 15'	soil	2011-02-22	00:00	2011-02-23
258585	SB-1 20'	soil	2011-02-22	00:00	2011-02-23
258586	SB-1 25'	soil	2011-02-22	00:00	2011-02-23
258587	SB-1 30'	soil	2011-02-22	00:00	2011-02-23
258588	SB-1 40'	soil	2011-02-22	00:00	2011-02-23
258589	SB-1 50'	soil	2011-02-22	00:00	2011-02-23
258590	SB-2 0-1'	soil	2011-02-22	00:00	2011-02-23
258591	SB-2 3'	soil	2011-02-22	00:00	2011-02-23
258592	SB-2 5'	soil	2011-02-22	00:00	2011-02-23
258593	SB-2 7'	soil	2011-02-22	00:00	2011-02-23
258594	SB-2 10'	soil	2011-02-22	00:00	2011-02-23
258595	SB-2 15'	soil	2011-02-22	00:00	2011-02-23
258596	SB-2 20'	soil	2011-02-22	00:00	2011-02-23
258597	SB-2 25'	soil	2011-02-22	00:00	2011-02-23
258598	SB-2 30'	soil	2011-02-22	00:00	2011-02-23
258599	SB-2 40'	soil	2011-02-22	00:00	2011-02-23
258600	SB-3 0-1'	soil	2011-02-22	00:00	2011-02-23
258601	SB-3 3'	soil	2011-02-22	00:00	2011-02-23
258602	SB-3 5'	soil	2011-02-22	00:00	2011-02-23
258603	SB-3 7'	soil	2011-02-22	00:00	2011-02-23
258604	SB-3 10'	soil	2011-02-22	00:00	2011-02-23
258605	SB-3 15'	soil	2011-02-22	00:00	2011-02-23
258606	SB-3 20'	soil	2011-02-22	00:00	2011-02-23
258607	SB-3 25'	soil	2011-02-22	00:00	2011-02-23
258608	SB-3 30'	soil	2011-02-22	00:00	2011-02-23

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
258609	SB-3 40'	soil	2011-02-22	00:00	2011-02-23

Sample: 258579 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		15200	mg/Kg	4.00

Sample: 258580 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		8230	mg/Kg	4.00

Sample: 258581 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		4160	mg/Kg	4.00

Sample: 258582 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		3500	mg/Kg	4.00

Sample: 258583 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		7130	mg/Kg	4.00

Sample: 258584 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		7530	mg/Kg	4.00

Sample: 258585 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		4710	mg/Kg	4.00

Sample: 258586 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		6680	mg/Kg	4.00

Sample: 258587 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		1250	mg/Kg	4.00

Sample: 258588 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		247	mg/Kg	4.00

Sample: 258589 - SB-1 50'

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

Sample: 258590 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		1200	mg/Kg	4.00

Sample: 258591 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		3760	mg/Kg	4.00

Sample: 258592 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		458	mg/Kg	4.00

Sample: 258593 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		832	mg/Kg	4.00

Sample: 258594 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		611	mg/Kg	4.00

Sample: 258595 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		1030	mg/Kg	4.00

Sample: 258596 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		516	mg/Kg	4.00

Sample: 258597 - SB-2 25'

Param	Flag	Result	Units	RL
Chloride		511	mg/Kg	4.00

Sample: 258598 - SB-2 30'

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

Sample: 258599 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		205	mg/Kg	4.00

Sample: 258600 - SB-3 0-1'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4.00

Sample: 258601 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		4180	mg/Kg	4.00

Sample: 258602 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		9640	mg/Kg	4.00

Sample: 258603 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		9500	mg/Kg	4.00

Sample: 258604 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		1290	mg/Kg	4.00

Sample: 258605 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		1160	mg/Kg	4.00

Sample: 258606 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		780	mg/Kg	4.00

Sample: 258607 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		251	mg/Kg	4.00

Sample: 258608 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		298	mg/Kg	4.00

Sample: 258609 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		416	mg/Kg	4.00

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: March 1, 2011

Work Order: 11022415



Project Location: Eddy County, NM
Project Name: COG/Red Lake Sand Unit #45
Project Number: 114-6100676

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
258579	SB-1 0-1'	soil	2011-02-22	00:00	2011-02-23
258580	SB-1 3'	soil	2011-02-22	00:00	2011-02-23
258581	SB-1 5'	soil	2011-02-22	00:00	2011-02-23
258582	SB-1 7'	soil	2011-02-22	00:00	2011-02-23
258583	SB-1 10'	soil	2011-02-22	00:00	2011-02-23
258584	SB-1 15'	soil	2011-02-22	00:00	2011-02-23
258585	SB-1 20'	soil	2011-02-22	00:00	2011-02-23
258586	SB-1 25'	soil	2011-02-22	00:00	2011-02-23
258587	SB-1 30'	soil	2011-02-22	00:00	2011-02-23
258588	SB-1 40'	soil	2011-02-22	00:00	2011-02-23
258589	SB-1 50'	soil	2011-02-22	00:00	2011-02-23
258590	SB-2 0-1'	soil	2011-02-22	00:00	2011-02-23
258591	SB-2 3'	soil	2011-02-22	00:00	2011-02-23
258592	SB-2 5'	soil	2011-02-22	00:00	2011-02-23
258593	SB-2 7'	soil	2011-02-22	00:00	2011-02-23
258594	SB-2 10'	soil	2011-02-22	00:00	2011-02-23
258595	SB-2 15'	soil	2011-02-22	00:00	2011-02-23
258596	SB-2 20'	soil	2011-02-22	00:00	2011-02-23
258597	SB-2 25'	soil	2011-02-22	00:00	2011-02-23
258598	SB-2 30'	soil	2011-02-22	00:00	2011-02-23

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
258599	SB-2 40'	soil	2011-02-22	00:00	2011-02-23
258600	SB-3 0-1'	soil	2011-02-22	00:00	2011-02-23
258601	SB-3 3'	soil	2011-02-22	00:00	2011-02-23
258602	SB-3 5'	soil	2011-02-22	00:00	2011-02-23
258603	SB-3 7'	soil	2011-02-22	00:00	2011-02-23
258604	SB-3 10'	soil	2011-02-22	00:00	2011-02-23
258605	SB-3 15'	soil	2011-02-22	00:00	2011-02-23
258606	SB-3 20'	soil	2011-02-22	00:00	2011-02-23
258607	SB-3 25'	soil	2011-02-22	00:00	2011-02-23
258608	SB-3 30'	soil	2011-02-22	00:00	2011-02-23
258609	SB-3 40'	soil	2011-02-22	00:00	2011-02-23

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

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc


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

Standard Flags

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

Samples for project COG/Red Lake Sand Unit #45 were received by TraceAnalysis, Inc. on 2011-02-23 and assigned to work order 11022415. Samples for work order 11022415 were received intact at a temperature of 4.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	66849	2011-02-28 at 08:41	77937	2011-02-28 at 11:43
Chloride (Titration)	SM 4500-Cl B	66863	2011-02-28 at 09:49	77987	2011-03-01 at 10:48
Chloride (Titration)	SM 4500-Cl B	66863	2011-02-28 at 09:49	77988	2011-03-01 at 10:49
Chloride (Titration)	SM 4500-Cl B	66863	2011-02-28 at 09:49	77989	2011-03-01 at 10:50

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 11022415 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: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 4 of 17
Eddy County, NM

Analytical Report

Sample: 258579 - SB-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-02-28	Analyzed By:	AR
QC Batch:	77937	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66849				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		15200	mg/Kg	100	4.00

Sample: 258580 - SB-1 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-02-28	Analyzed By:	AR
QC Batch:	77937	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66849				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8230	mg/Kg	100	4.00

Sample: 258581 - SB-1 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-02-28	Analyzed By:	AR
QC Batch:	77937	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66849				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4160	mg/Kg	100	4.00

Sample: 258582 - SB-1 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77987	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

continued ...

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 5 of 17
Eddy County, NM

sample 258582 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3500	mg/Kg	100	4.00

Sample: 258583 - SB-1 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 77987 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 Sample Preparation: 2011-02-28 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7130	mg/Kg	100	4.00

Sample: 258584 - SB-1 15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 77987 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 Sample Preparation: 2011-02-28 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7530	mg/Kg	100	4.00

Sample: 258585 - SB-1 20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 77987 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 Sample Preparation: 2011-02-28 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4710	mg/Kg	100	4.00

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 6 of 17
Eddy County, NM

Sample: 258586 - SB-1 25'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77987	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6680	mg/Kg	100	4.00

Sample: 258587 - SB-1 30'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77987	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 258588 - SB-1 40'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77987	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		247	mg/Kg	50	4.00

Sample: 258589 - SB-1 50'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77987	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 7 of 17
Eddy County, NM

Sample: 258590 - SB-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77987	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1200	mg/Kg	100	4.00

Sample: 258591 - SB-2 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77987	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3760	mg/Kg	100	4.00

Sample: 258592 - SB-2 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		458	mg/Kg	50	4.00

Sample: 258593 - SB-2 7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		832	mg/Kg	50	4.00

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 8 of 17
Eddy County, NM

Sample: 258594 - SB-2 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		611	mg/Kg	50	4.00

Sample: 258595 - SB-2 15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

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

Sample: 258596 - SB-2 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		516	mg/Kg	50	4.00

Sample: 258597 - SB-2 25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		511	mg/Kg	50	4.00

Report Date: March 1, 2011
11-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 9 of 17
Eddy County, NM

Sample: 258598 - SB-2 30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

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

Sample: 258599 - SB-2 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		205	mg/Kg	50	4.00

Sample: 258600 - SB-3 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

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

Sample: 258601 - SB-3 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77988	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 10 of 17
Eddy County, NM

Sample: 258602 - SB-3 5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77989	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9640	mg/Kg	100	4.00

Sample: 258603 - SB-3 7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77989	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9500	mg/Kg	100	4.00

Sample: 258604 - SB-3 10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77989	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1290	mg/Kg	100	4.00

Sample: 258605 - SB-3 15'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	77989	Date Analyzed:	2011-03-01
Prep Batch:	66863	Sample Preparation:	2011-02-28
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1160	mg/Kg	50	4.00

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 11 of 17
Eddy County, NM

Sample: 258606 - SB-3 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77989	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		780	mg/Kg	50	4.00

Sample: 258607 - SB-3 25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77989	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		251	mg/Kg	50	4.00

Sample: 258608 - SB-3 30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77989	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		298	mg/Kg	50	4.00

Sample: 258609 - SB-3 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-01	Analyzed By:	AR
QC Batch:	77989	Sample Preparation:	2011-02-28	Prepared By:	AR
Prep Batch:	66863				

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 12 of 17
Eddy County, NM

Method Blank (1) QC Batch: 77937

QC Batch: 77937 Date Analyzed: 2011-02-28 Analyzed By: AR
Prep Batch: 66849 QC Preparation: 2011-02-28 Prepared By: AR

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

Method Blank (1) QC Batch: 77987

QC Batch: 77987 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 QC Preparation: 2011-02-28 Prepared By: AR

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

Method Blank (1) QC Batch: 77988

QC Batch: 77988 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 QC Preparation: 2011-02-28 Prepared By: AR

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

Method Blank (1) QC Batch: 77989

QC Batch: 77989 Date Analyzed: 2011-03-01 Analyzed By: AR
Prep Batch: 66863 QC Preparation: 2011-02-28 Prepared By: AR

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 13 of 17
Eddy County, NM

Laboratory Control Spike (LCS-1)

QC Batch: 77937
Prep Batch: 66849

Date Analyzed: 2011-02-28
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	103	mg/Kg	1	100	<2.18	103	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 77987
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.3	mg/Kg	1	100	<2.18	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	104	mg/Kg	1	100	<2.18	104	85 - 115	8	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: 77988
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	95.6	mg/Kg	1	100	<2.18	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	104	mg/Kg	1	100	<2.18	104	85 - 115	8	20

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 14 of 17
Eddy County, NM

Laboratory Control Spike (LCS-1)

QC Batch: 77989
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.8	mg/Kg	1	100	<2.18	97	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	5	20

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

Matrix Spike (MS-1) Spiked Sample: 258581

QC Batch: 77937
Prep Batch: 66849

Date Analyzed: 2011-02-28
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12800	mg/Kg	100	10000	4160	86	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13800	mg/Kg	100	10000	4160	96	85 - 115	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: 258591

QC Batch: 77987
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13100	mg/Kg	100	10000	3760	93	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13600	mg/Kg	100	10000	3760	98	85 - 115	4	20

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

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 15 of 17
Eddy County, NM

Matrix Spike (MS-1) Spiked Sample: 258601

QC Batch: 77988
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec	Rec. Limit
Chloride	14600	mg/Kg	100	10000	4180	104	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	15000	mg/Kg	100	10000	4180	108	85 - 115	3	20

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

Matrix Spike (MS-1) Spiked Sample: 258609

QC Batch: 77989
Prep Batch: 66863

Date Analyzed: 2011-03-01
QC Preparation: 2011-02-28

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10700	mg/Kg	100	10000	416	103	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	11100	mg/Kg	100	10000	416	107	85 - 115	4	20

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

Standard (ICV-1)

QC Batch: 77937

Date Analyzed: 2011-02-28

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	108	108	85 - 115	2011-02-28

Standard (CCV-1)

QC Batch: 77937

Date Analyzed: 2011-02-28

Analyzed By: AR

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 16 of 17
Eddy County, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	92.1	92	85 - 115	2011-02-28

Standard (ICV-1)

QC Batch: 77987

Date Analyzed: 2011-03-01

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.1	98	85 - 115	2011-03-01

Standard (CCV-1)

QC Batch: 77987

Date Analyzed: 2011-03-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2011-03-01

Standard (ICV-1)

QC Batch: 77988

Date Analyzed: 2011-03-01

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.9	98	85 - 115	2011-03-01

Standard (CCV-1)

QC Batch: 77988

Date Analyzed: 2011-03-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2011-03-01

Standard (ICV-1)

QC Batch: 77989

Date Analyzed: 2011-03-01

Analyzed By: AR

Report Date: March 1, 2011
114-6400676

Work Order: 11022415
COG/Red Lake Sand Unit #45

Page Number: 17 of 17
Eddy County, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.5	100	85 - 115	2011-03-01

Standard (CCV-1)

QC Batch: 77989

Date Analyzed: 2011-03-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2011-03-01

2600 #: 11022415

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 4



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 Tavares

PROJECT NO.:

1146-100676

PROJECT NAME:

Red Lake Sand Unit #45

LAB I.D.
NUMBER

DATE
2011

TIME

MATRIX
COMP
GRAB

Eddy Co., NM
SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS
FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL
HNO3
ICE
NONE

BTX 8021B
TPH 8015 MOD. TX1006 (Ext to C35)
PAH 8270
RCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd Vr Pd Hg Se
TCLP Volatiles
TCLP Semi Volatiles
RCI
GC/MS Vol. 8240/8280/824
GC/MS Semi Vol. 8270/826
PCB's 8080/808
Pest. 808/808
Chlordane
Gamma Spec.
Alpha Beta (Air)
PLM (Asbestos)
Major Anions/Cations, pH, TDS

258579	2/22		S	X	SB-1	0-1'
580					SB-1	3'
581					SB-1	5'
582					SB-1	7'
583					SB-1	10'
584					SB-1	15'
585					SB-1	20'
586					SB-1	25'
587					SB-1	30'
588					SB-1	40'

RELINQUISHED BY: (Signature)

Date: 2/22/11

Time: 16:43

RECEIVED BY: (Signature)

Date: 2/23/11

Time: 16:43

SAMPLED BY: (Print & Initial)

Kim

Date: 2/22/11

Time: 16:43

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX
HAND DELIVERED
UPS

AIRBILL #: _____

OTHER: _____

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

TETRA TECH CONTACT PERSON:

Ike Tavares

Results by:

RUSH Charges
Authorized:
Yes No

RECEIVING LABORATORY:

ADDRESS:

CITY:

CONTACT:

TRACE

MIDLAND

STATE: TX

PHONE: _____

RECEIVED BY: (Signature)

DATE: _____

TIME: _____

SAMPLE CONDITION WHEN RECEIVED:

4.0°C intact

REMARKS:

All tests - Midland

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

XWO #: 11022415

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 4

**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 Tavaraz

PROJECT NO.:

1146400676

PROJECT NAME:

Red Lake Sand Unit #45

LAB I.D.
NUMBER

DATE

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. 8240/8280/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/808

Pest. 808/808

Chlordane

Gamma Spec.

Alpha Beta (A/B)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 2-23-11

Time: 1:43

RECEIVED BY: (Signature)

Date: 2/23/11

Time: 10:43

SAMPLED BY: (Print & Initial)

Date: 2/22/11

Time: 2/22/11

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

☒ FEDEX

☐ BUS

☐ MAIL DELIVERED

☐ UPS

AIRBILL #: _____

OTHER: _____

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

TETRA TECH CONTACT PERSON:

Results by:

☐ RUSH Charges

☐ Authorized

☐ Yes

☐ No

RECEIVING LABORATORY:

ADDRESS:

CITY: MIDLAND

CONTACT:

TRACE

STATE: TX

ZIP: _____

PHONE: _____

RECEIVED BY: (Signature)

DATE: _____

TIME: _____

SAMPLE CONDITION WHEN RECEIVED

40°C 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.

*100 #: 11022415

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 4

**TETRA TECH**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tauritz

PROJECT NO.:

114-6400676

PROJECT NAME:

Red Lake Sand Unit #45

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

Eddy Co. NM
SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

BTX 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 Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB 8080/808

Pest. 808/608

Chloride

Germine Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 2-23-11

Time: 16:43

RECEIVED BY: (Signature)

Date: 2/23/11

Time: 16:43

SAMPLED BY: (Print & Initial)

Kim

Date: 2/22/11

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX BUS

GROUND DELIVERY UPS

AIRBILL #: _____

OTHER: _____

RECEIVING LABORATORY:

ADDRESS:

CITY: MIDLAND STATE: TX

CONTACT: _____

PHONE: _____

ZIP: _____

RECEIVED BY: (Signature)

DATE: _____

TIME: _____

TETRA TECH CONTACT PERSON:

Ike Tauritz

Results by:

RUSH Charges

Authorized:

Yes

No

SAMPLE CONDITION WHEN RECEIVED:

4.0°C 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.

XWO #: 11022415

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4

**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 Tovar

PROJECT NO.:

114-6400676

PROJECT NAME:

Red Lake Sand Unit #45

LAB I.D.
NUMBER

DATE

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

PCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/6250/624

GC/MS Semi. Vol. 8270/625

PCB's 8060/808

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 2/23/11

Time: 16:43

RECEIVED BY: (Signature)

Date: 2/23/11

Time: 16:43

SAMPLED BY: (Print & Initial)

Kim

Date: 2/22/11

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX

HAND DELIVERED

BUS

UPS

AIRBILL #: _____

OTHER: _____

RECEIVING LABORATORY:

TRACE

ADDRESS:

CITY:

MIDLAND

STATE:

TX

ZIP:

CONTACT:

PHONE:

RECEIVED BY: (Signature)

DATE:

TIME:

TETRA TECH CONTACT PERSON:

Ike Tovar

Results by:

RUSH Charges
Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

4.0°C 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.

ALWO #: 11022415

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: 4

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tamer

PROJECT NO.:

114-6400676

PROJECT NAME:

Red Lake Sand Unit #45

LAB I.D.
NUMBER

DATE
2011

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

PCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chlordane

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 2-23-11

Time: 16:43

RECEIVED BY: (Signature)

Date: 2/23/11

SAMPLED BY: (Print & Initial)

Kim

Date: 2/22/11

RELINQUISHED BY: (Signature)

Date:

RECEIVED BY: (Signature)

Date:

SAMPLE SHIPPED BY: (Circle)

AIRBILL #: _____

RELINQUISHED BY: (Signature)

Date:

RECEIVED BY: (Signature)

Date:

FEDEX

BUS

OTHER: _____

RECEIVING LABORATORY:

TRACE

RECEIVED BY: (Signature)

ADDRESS:

CITY: MIDLAND

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

4.0% intact

2 All tests - Midland

TETRA TECH CONTACT PERSON:

Ike Tamer

Results by

RUSH Charges
Authorized:

Yes No

MAR 14 2011

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:

OF:

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG						SITE MANAGER: Ike Tawane																								
PROJECT NO.: 114-6400676			PROJECT NAME: Red Lake Sand Unit #45																											
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION Eddy Co. NM	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	PRESERVATIVE METHOD	BTEX 8021B	TPH 8015 MOD. TX100	PAH 8270	RCRA Metals Ag As Ba C	TCLP Metals Ag As Ba C	TCLP Volatiles	TCLP Semi Volatiles	RCl	GC/MS Vol. 8240/8260/824	GC/MS Semi Vol. 8270/622	PCBs 8080/608	Pest. 808/608	Chlordane	Gamma Spec	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH,
25899	2/22		S	X		SB-2 40'	1				X															X				
600						SB-3 0-1	1																			X				
601						SB-3 3	1																			X				
602						SB-3 5	1																			X				
603						SB-3 7	1																			X				
604						SB-3 10	1																			X				
605						SB-3 15	1																			X				
606						SB-3 20	1																			X				
607						SB-3 25	1																			X				
608						SB-3 30	1																			X				
RELINQUISHED BY: (Signature) [Signature]						Date: 2-23-11	RECEIVED BY: (Signature) [Signature]						Date: 2/23/11	SAMPLED BY: (Print & Initial) Kim						Date: 2/22/11										
RELINQUISHED BY: (Signature)						Date:	RECEIVED BY: (Signature)						Date:	SAMPLE SHIPPED BY: (Circle) HAND DELIVERED BUS UPS						AIRBILL #:										
RELINQUISHED BY: (Signature)						Date:	RECEIVED BY: (Signature)						Date:	TETRA TECH CONTACT PERSON: Ike Tawane						OTHER										
RECEIVING LABORATORY: TRAC						RECEIVED BY: (Signature)												Results by:												
ADDRESS: MIDLAND STATE TX ZIP:																		RUSH Charges Authorized:												
CONTACT: PHONE: DATE: TIME																		Yes No												
SAMPLE CONDITION WHEN RECEIVED: 4.0°C 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.

XWO #: 11022415

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4

**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 Tavaroz

PROJECT NO.:

1141-6400676

PROJECT NAME:

Red Lake Sand Unit #415

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

 Eddy G. NM
 SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTX 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

RC1

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

RELINQUISHED BY: (Signature)

Date: 2-23-11

Time: 16:43

RECEIVED BY: (Signature)

Date: 2/23/11

Time: 16:43

SAMPLED BY: (Print & Initial)

Kim

Date: 2/22/11

Time: 16:43

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

 FEDEX
 HAND DELIVERED
 BUS
 UPS

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Ike Tavaroz

Results by:

RUSH Charges

Authorized:

Yes No

RECEIVING LABORATORY:

ADDRESS:

CITY: MIDLAND

STATE: TX

ZIP:

CONTACT:

PHONE:

RECEIVED BY: (Signature)

DATE:

RECEIVED BY: (Signature)

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

4.0°C 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.

Summary Report

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

Report Date: September 24, 2010

Work Order: 10091321



Project Location: Eddy County, NM
Project Name: COG/Red Lake Sand Unit #45
Project Number: 114-6400676

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244359	AH-1 0-1'	soil	2010-09-09	00:00	2010-09-10
244360	AH-1 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244361	AH-2 0-1'	soil	2010-09-09	00:00	2010-09-10
244362	AH-2 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244363	AH-2 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244364	AH-2 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244365	AH-2 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244366	AH-2 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244367	AH-2 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244368	AH-2 7-7.5'	soil	2010-09-09	00:00	2010-09-10
244369	AH-2 8-8.5'	soil	2010-09-09	00:00	2010-09-10
244370	AH-2 9-9.5'	soil	2010-09-09	00:00	2010-09-10
244371	AH-3 0-1'	soil	2010-09-09	00:00	2010-09-10
244372	AH-3 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244373	AH-3 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244374	AH-3 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244375	AH-3 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244376	AH-3 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244377	AH-3 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244378	AH-3 7-7.5'	soil	2010-09-09	00:00	2010-09-10
244379	AH-3 8-8.5'	soil	2010-09-09	00:00	2010-09-10
244380	AH-3 9-9.5'	soil	2010-09-09	00:00	2010-09-10
244381	AH-4 0-1'	soil	2010-09-09	00:00	2010-09-10
244382	AH-4 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244383	AH-4 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244384	AH-4 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244385	AH-4 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244386	AH-4 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244387	AH-5 0-1'	soil	2010-09-09	00:00	2010-09-10
244388	AH-5 1-1.5'	soil	2010-09-09	00:00	2010-09-10

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244389	AH-5 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244390	AH-5 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244391	AH-5 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244392	AH-5 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244393	AH-5 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244394	AH-5 7-7.5'	soil	2010-09-09	00:00	2010-09-10

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)
244359 - AH-1 0-1'					<50.0	<2.00
244361 - AH-2 0-1'	<0.100	0.341	2.87	5.81	4140	464
244362 - AH-2 1-1.5'					52.2	<10.0
244371 - AH-3 0-1'	<0.100	<0.100	0.317	1.53	5960	231
244372 - AH-3 1-1.5'					<50.0	<2.00
244373 - AH-3 2-2.5'					<50.0	<2.00
244381 - AH-4 0-1'	<0.0200	0.111	0.191	0.522	<50.0	47.6
244387 - AH-5 0-1'					55.6	6.04

Sample: 244359 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		15500	mg/Kg	4.00

Sample: 244360 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		14100	mg/Kg	4.00

Sample: 244361 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		6050	mg/Kg	4.00

Sample: 244362 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7380	mg/Kg	4.00

Sample: 244363 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4260	mg/Kg	4.00

Sample: 244364 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		249	mg/Kg	4.00

Sample: 244365 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		406	mg/Kg	4.00

Sample: 244366 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		472	mg/Kg	4.00

Sample: 244367 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		543	mg/Kg	4.00

Sample: 244368 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		579	mg/Kg	4.00

Sample: 244369 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		858	mg/Kg	4.00

Sample: 244370 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1210	mg/Kg	4.00

Sample: 244371 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		1700	mg/Kg	4.00

Sample: 244372 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5470	mg/Kg	4.00

Sample: 244373 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5090	mg/Kg	4.00

Sample: 244374 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		8780	mg/Kg	4.00

Sample: 244375 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		12300	mg/Kg	4.00

Sample: 244376 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		10500	mg/Kg	4.00

Sample: 244377 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		7180	mg/Kg	4.00

Sample: 244378 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		833	mg/Kg	4.00

Sample: 244379 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1090	mg/Kg	4.00

Sample: 244380 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		899	mg/Kg	4.00

Sample: 244381 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		9490	mg/Kg	4.00

Sample: 244382 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		9860	mg/Kg	4.00

Sample: 244383 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		10200	mg/Kg	4.00

Sample: 244384 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4990	mg/Kg	4.00

Sample: 244385 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		249	mg/Kg	4.00

Sample: 244386 - AH-4 5-5.5'

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

Sample: 244387 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		7570	mg/Kg	4.00

Sample: 244388 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		13200	mg/Kg	4.00

Sample: 244389 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		12800	mg/Kg	4.00

Sample: 244390 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		13500	mg/Kg	4.00

Sample: 244391 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4.00

Sample: 244392 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		798	mg/Kg	4.00

Sample: 244393 - AH-5 6-6.5'

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

Sample: 244394 - AH-5 7-7.5'

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



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•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: lah@traceanalysis.com

Certifications

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

NELAP Certifications

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

Analytical and Quality Control Report

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

Report Date: September 27, 2010

Work Order: 10091321



Project Location: Eddy County, NM
Project Name: COG/Red Lake Sand Unit #45
Project Number: 114-6400676

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
244359	AH-1 0-1'	soil	2010-09-09	00:00	2010-09-10
244360	AH-1 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244361	AH-2 0-1'	soil	2010-09-09	00:00	2010-09-10
244362	AH-2 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244363	AH-2 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244364	AH-2 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244365	AH-2 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244366	AH-2 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244367	AH-2 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244368	AH-2 7-7.5'	soil	2010-09-09	00:00	2010-09-10

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244369	AH-2 8-8.5'	soil	2010-09-09	00:00	2010-09-10
244370	AH-2 9-9.5'	soil	2010-09-09	00:00	2010-09-10
244371	AH-3 0-1'	soil	2010-09-09	00:00	2010-09-10
244372	AH-3 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244373	AH-3 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244374	AH-3 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244375	AH-3 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244376	AH-3 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244377	AH-3 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244378	AH-3 7-7.5'	soil	2010-09-09	00:00	2010-09-10
244379	AH-3 8-8.5'	soil	2010-09-09	00:00	2010-09-10
244380	AH-3 9-9.5'	soil	2010-09-09	00:00	2010-09-10
244381	AH-4 0-1'	soil	2010-09-09	00:00	2010-09-10
244382	AH-4 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244383	AH-4 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244384	AH-4 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244385	AH-4 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244386	AH-4 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244387	AH-5 0-1'	soil	2010-09-09	00:00	2010-09-10
244388	AH-5 1-1.5'	soil	2010-09-09	00:00	2010-09-10
244389	AH-5 2-2.5'	soil	2010-09-09	00:00	2010-09-10
244390	AH-5 3-3.5'	soil	2010-09-09	00:00	2010-09-10
244391	AH-5 4-4.5'	soil	2010-09-09	00:00	2010-09-10
244392	AH-5 5-5.5'	soil	2010-09-09	00:00	2010-09-10
244393	AH-5 6-6.5'	soil	2010-09-09	00:00	2010-09-10
244394	AH-5 7-7.5'	soil	2010-09-09	00:00	2010-09-10

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



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

Standard Flags

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

Case Narrative

Samples for project COG/Red Lake Sand Unit #45 were received by TraceAnalysis, Inc. on 2010-09-10 and assigned to work order 10091321. Samples for work order 10091321 were received intact at a temperature of 3.7 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	63055	2010-09-15 at 08:15	73591	2010-09-15 at 09:19
Chloride (Titration)	SM 4500-Cl B	63077	2010-09-15 at 08:11	73690	2010-09-21 at 14:59
Chloride (Titration)	SM 4500-Cl B	63078	2010-09-15 at 12:12	73691	2010-09-21 at 15:00
Chloride (Titration)	SM 4500-Cl B	63079	2010-09-15 at 12:13	73692	2010-09-21 at 15:01
Chloride (Titration)	SM 4500-Cl B	63187	2010-09-20 at 12:40	73693	2010-09-21 at 15:02
Chloride (Titration)	SM 4500-Cl B	63188	2010-09-20 at 12:41	73694	2010-09-21 at 15:03
TPH DRO - NEW	S 8015 D	63015	2010-09-13 at 14:45	73458	2010-09-13 at 14:45
TPH DRO - NEW	S 8015 D	63150	2010-09-17 at 11:25	73617	2010-09-17 at 11:25
TPH GRO	S 8015 D	63055	2010-09-15 at 08:15	73583	2010-09-15 at 09:46
TPH GRO	S 8015 D	63249	2010-09-21 at 16:00	73737	2010-09-21 at 23:20

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10091321 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: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 4 of 36
Eddy County, NM

Analytical Report

Sample: 244359 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73690	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63077				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		15600	mg/Kg	100	4.00

Sample: 244359 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-09-13	Analyzed By:	kg
QC Batch:	73458	Sample Preparation:	2010-09-13	Prepared By:	kg
Prep Batch:	63015				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		91.4	mg/Kg	1	100	91	70 - 130

Sample: 244359 - AH-1 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-09-15	Analyzed By:	AG
QC Batch:	73583	Sample Preparation:	2010-09-15	Prepared By:	AG
Prep Batch:	63055				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.76	mg/Kg	1	2.00	138	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.19	mg/Kg	1	2.00	110	42 - 159

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 5 of 36
Eddy County, NM

Sample: 244360 - AH-1 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73690	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63077				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		14200	mg/Kg	100	4.00

Sample: 244361 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-09-15	Analyzed By:	AG
QC Batch:	73591	Sample Preparation:	2010-09-15	Prepared By:	AG
Prep Batch:	63055				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.100	mg/Kg	5	0.0200
Toluene		0.341	mg/Kg	5	0.0200
Ethylbenzene		2.87	mg/Kg	5	0.0200
Xylene		5.81	mg/Kg	5	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.78	mg/Kg	5	5.00	116	52.8 - 137
4-Bromofluorobenzene (4-BFB)	¹	10.4	mg/Kg	5	5.00	208	38.4 - 157

Sample: 244361 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73690	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63077				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6020	mg/Kg	100	4.00

¹High surrogate recovery due to peak interference.

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 6 of 36
Eddy County, NM

Sample: 244361 - AH-2 0-1'

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	73458	Date Analyzed:	2010-09-13
Prep Batch:	63015	Sample Preparation:	2010-09-13
		Prep Method:	N/A
		Analyzed By:	kg
		Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		4140	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²	280	mg/Kg	10	100	280	70 - 130

Sample: 244361 - AH-2 0-1'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	73583	Date Analyzed:	2010-09-15
Prep Batch:	63055	Sample Preparation:	2010-09-15
		Prep Method:	S 5035
		Analyzed By:	AG
		Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		464	mg/Kg	5	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.73	mg/Kg	5	5.00	115	48.5 - 152
4-Bromofluorobenzene (4-BFB)	³	10.6	mg/Kg	5	5.00	212	42 - 159

Sample: 244362 - AH-2 1-1.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	73690	Date Analyzed:	2010-09-21
Prep Batch:	63077	Sample Preparation:	2010-09-15
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7360	mg/Kg	100	4.00

²High surrogate recovery due to peak interference.

³High surrogate recovery due to peak interference.

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 7 of 36
Eddy County, NM

Sample: 244362 - AH-2 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-09-17	Analyzed By:	kg
QC Batch:	73617	Sample Preparation:	2010-09-17	Prepared By:	kg
Prep Batch:	63150				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		52.2	mg/Kg	1	50.0

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

Sample: 244362 - AH-2 1-1.5'

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<10.0	mg/Kg	5	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.13	mg/Kg	5	5.00	103	48.5 - 152
4-Bromofluorobenzene (4-BFB)		6.68	mg/Kg	5	5.00	134	42 - 159

Sample: 244363 - AH-2 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73690	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63077				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4230	mg/Kg	100	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 8 of 36
Eddy County, NM

Sample: 244364 - AH-2 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		220	mg/Kg	50	4.00

Sample: 244365 - AH-2 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		378	mg/Kg	50	4.00

Sample: 244366 - AH-2 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		444	mg/Kg	50	4.00

Sample: 244367 - AH-2 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		516	mg/Kg	50	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 9 of 36
Eddy County, NM

Sample: 244368 - AH-2 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		552	mg/Kg	50	4.00

Sample: 244369 - AH-2 8-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		832	mg/Kg	50	4.00

Sample: 244370 - AH-2 9-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73691	Sample Preparation:	2010-09-15	Prepared By:	AR
Prep Batch:	63078				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1180	mg/Kg	50	4.00

Sample: 244371 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2010-09-15	Analyzed By:	AG
QC Batch:	73591	Sample Preparation:	2010-09-15	Prepared By:	AG
Prep Batch:	63055				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.100	mg/Kg	5	0.0200
Toluene		<0.100	mg/Kg	5	0.0200

continued ...

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 10 of 36
Eddy County, NM

sample 244371 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Ethylbenzene		0.317	mg/Kg	5	0.0200
Xylene		1.53	mg/Kg	5	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		6.35	mg/Kg	5	5.00	127	52.8 - 137
4-Bromofluorobenzene (4-BFB)		7.67	mg/Kg	5	5.00	153	38.4 - 157

Sample: 244371 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73691 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63078 Sample Preparation: 2010-09-15 Prepared By: AR

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

Sample: 244371 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 73458 Date Analyzed: 2010-09-13 Analyzed By: kg
Prep Batch: 63015 Sample Preparation: 2010-09-13 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		5960	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁴	427	mg/Kg	5	100	427	70 - 130

Sample: 244371 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 73583 Date Analyzed: 2010-09-15 Analyzed By: AG
Prep Batch: 63055 Sample Preparation: 2010-09-15 Prepared By: AG

⁴High surrogate recovery due to peak interference.

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 11 of 36
Eddy County, NM

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		231	mg/Kg	5	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		6.25	mg/Kg	5	5.00	125	48.5 - 152
4-Bromofluorobenzene (4-BFB)		7.33	mg/Kg	5	5.00	147	42 - 159

Sample: 244372 - AH-3 1-1.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2010-09-21	Analyzed By: AR
QC Batch: 73691	Sample Preparation: 2010-09-15	Prepared By: AR
Prep Batch: 63078		

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5440	mg/Kg	100	4.00

Sample: 244372 - AH-3 1-1.5'

Laboratory: Midland	Analytical Method: S 8015 D	Prep Method: N/A
Analysis: TPH DRO - NEW	Date Analyzed: 2010-09-17	Analyzed By: kg
QC Batch: 73617	Sample Preparation: 2010-09-17	Prepared By: kg
Prep Batch: 63150		

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		111	mg/Kg	1	100	111	70 - 130

Sample: 244372 - AH-3 1-1.5'

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

continued ...

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 12 of 36
Eddy County, NM

sample 244372 continued ...

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.99	mg/Kg	1	2.00	100	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.46	mg/Kg	1	2.00	73	42 - 159

Sample: 244373 - AH-3 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73691 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63078 Sample Preparation: 2010-09-15 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5060	mg/Kg	100	4.00

Sample: 244373 - AH-3 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 73617 Date Analyzed: 2010-09-17 Analyzed By: kg
Prep Batch: 63150 Sample Preparation: 2010-09-17 Prepared By: kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		110	mg/Kg	1	100	110	70 - 130

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 13 of 36
Eddy County, NM

Sample: 244373 - AH-3 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 73737
Prep Batch: 63249

Analytical Method: S 8015 D
Date Analyzed: 2010-09-21
Sample Preparation: 2010-09-21

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.43	mg/Kg	1	2.00	122	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.96	mg/Kg	1	2.00	98	42 - 159

Sample: 244374 - AH-3 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 73692
Prep Batch: 63079

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-09-21
Sample Preparation: 2010-09-20

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8770	mg/Kg	100	4.00

Sample: 244375 - AH-3 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 73692
Prep Batch: 63079

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-09-21
Sample Preparation: 2010-09-20

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		12300	mg/Kg	100	4.00

Sample: 244376 - AH-3 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 73692
Prep Batch: 63079

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-09-21
Sample Preparation: 2010-09-20

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 14 of 36
Eddy County, NM

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10500	mg/Kg	100	4.00

Sample: 244377 - AH-3 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7170	mg/Kg	100	4.00

Sample: 244378 - AH-3 7-7.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		808	mg/Kg	50	4.00

Sample: 244379 - AH-3 8-8.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1060	mg/Kg	50	4.00

Sample: 244380 - AH-3 9-9.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 15 of 36
Eddy County, NM

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		874	mg/Kg	50	4.00

Sample: 244381 - AH-4 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 73591

Prep Batch: 63055

Analytical Method: S 8021B

Date Analyzed: 2010-09-15

Sample Preparation: 2010-09-15

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		0.111	mg/Kg	1	0.0200
Ethylbenzene		0.191	mg/Kg	1	0.0200
Xylene		0.522	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.36	mg/Kg	1	2.00	118	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.31	mg/Kg	1	2.00	116	38.4 - 157

Sample: 244381 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 73692

Prep Batch: 63079

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-09-21

Sample Preparation: 2010-09-20

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9490	mg/Kg	100	4.00

Sample: 244381 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 73458

Prep Batch: 63015

Analytical Method: S 8015 D

Date Analyzed: 2010-09-13

Sample Preparation: 2010-09-13

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 16 of 36
Eddy County, NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		92.6	mg/Kg	1	100	93	70 - 130

Sample: 244381 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 73583 Date Analyzed: 2010-09-15 Analyzed By: AG
Prep Batch: 63055 Sample Preparation: 2010-09-15 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		47.6	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.41	mg/Kg	1	2.00	120	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.16	mg/Kg	1	2.00	108	42 - 159

Sample: 244382 - AH-4 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

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

Sample: 244383 - AH-4 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 Sample Preparation: 2010-09-20 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10200	mg/Kg	100	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 17 of 36
Eddy County, NM

Sample: 244384 - AH-4 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4960	mg/Kg	100	4.00

Sample: 244385 - AH-4 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		220	mg/Kg	50	4.00

Sample: 244386 - AH-4 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

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

Sample: 244387 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7560	mg/Kg	100	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 18 of 36
Eddy County, NM

Sample: 244387 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2010-09-13	Analyzed By:	kg
QC Batch:	73458	Sample Preparation:	2010-09-13	Prepared By:	kg
Prep Batch:	63015				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		55.6	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		93.0	mg/Kg	1	100	93	70 - 130

Sample: 244387 - AH-5 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2010-09-15	Analyzed By:	AG
QC Batch:	73583	Sample Preparation:	2010-09-15	Prepared By:	AG
Prep Batch:	63055				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		6.04	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.44	mg/Kg	1	2.00	122	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1.71	mg/Kg	1	2.00	86	42 - 159

Sample: 244388 - AH-5 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		13200	mg/Kg	100	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 19 of 36
Eddy County, NM

Sample: 244389 - AH-5 2-2.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		12800	mg/Kg	100	4.00

Sample: 244390 - AH-5 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		13500	mg/Kg	100	4.00

Sample: 244391 - AH-5 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

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

Sample: 244392 - AH-5 5-5.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		772	mg/Kg	50	4.00

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 20 of 36
Eddy County, NM

Sample: 244393 - AH-5 6-6.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73693	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63187				

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

Sample: 244394 - AH-5 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2010-09-21	Analyzed By:	AR
QC Batch:	73694	Sample Preparation:	2010-09-20	Prepared By:	AR
Prep Batch:	63188				

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

Method Blank (1) QC Batch: 73458

QC Batch:	73458	Date Analyzed:	2010-09-13	Analyzed By:	kg
Prep Batch:	63015	QC Preparation:	2010-09-13	Prepared By:	kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		99.6	mg/Kg	1	100	100	70 - 130

Method Blank (1) QC Batch: 73583

QC Batch:	73583	Date Analyzed:	2010-09-15	Analyzed By:	AG
Prep Batch:	63055	QC Preparation:	2010-09-15	Prepared By:	AG

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 21 of 36
Eddy County, NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.42	mg/Kg	1	2.00	121	67.6 - 150
4-Bromofluorobenzene (4-BFB)		2.19	mg/Kg	1	2.00	110	52.4 - 130

Method Blank (1) QC Batch: 73591

QC Batch: 73591
Prep Batch: 63055

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-15

Analyzed By: AG
Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.31	mg/Kg	1	2.00	116	66.6 - 122
4-Bromofluorobenzene (4-BFB)		2.63	mg/Kg	1	2.00	132	55.4 - 132

Method Blank (1) QC Batch: 73617

QC Batch: 73617
Prep Batch: 63150

Date Analyzed: 2010-09-17
QC Preparation: 2010-09-17

Analyzed By: kg
Prepared By: kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		106	mg/Kg	1	100	106	70 - 130

Method Blank (1) QC Batch: 73690

QC Batch: 73690
Prep Batch: 63077

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 22 of 36
Eddy County, NM

Method Blank (1) QC Batch: 73691

QC Batch: 73691 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63078 QC Preparation: 2010-09-15 Prepared By: AR

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

Method Blank (1) QC Batch: 73692

QC Batch: 73692 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63079 QC Preparation: 2010-09-15 Prepared By: AR

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

Method Blank (1) QC Batch: 73693

QC Batch: 73693 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63187 QC Preparation: 2010-09-20 Prepared By: AR

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

Method Blank (1) QC Batch: 73694

QC Batch: 73694 Date Analyzed: 2010-09-21 Analyzed By: AR
Prep Batch: 63188 QC Preparation: 2010-09-20 Prepared By: AR

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

Method Blank (1) QC Batch: 73737

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 23 of 36
Eddy County, NM

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	2.00	54	52.4 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 73458
Prep Batch: 63015

Date Analyzed: 2010-09-13
QC Preparation: 2010-09-13

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	232	mg/Kg	1	250	<14.5	93	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	247	mg/Kg	1	250	<14.5	99	57.4 - 133.4	6	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	92.9	92.8	mg/Kg	1	100	93	93	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 73583
Prep Batch: 63055

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-15

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.4	mg/Kg	1	20.0	<1.65	72	69.9 - 95.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.4	mg/Kg	1	20.0	<1.65	82	69.9 - 95.4	13	20

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 24 of 36
Eddy County, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.00	2.11	mg/Kg	1	2.00	100	106	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.42	1.34	mg/Kg	1	2.00	71	67	65.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 73591
Prep Batch: 63055

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-15

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.00	mg/Kg	1	2.00	<0.0150	100	81.9 - 108
Toluene	1.94	mg/Kg	1	2.00	<0.00950	97	81.9 - 107
Ethylbenzene	1.85	mg/Kg	1	2.00	<0.0106	92	78.4 - 107
Xylene	5.35	mg/Kg	1	6.00	<0.00930	89	79.1 - 107

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.12	mg/Kg	1	2.00	<0.0150	106	81.9 - 108	6	20
Toluene	2.05	mg/Kg	1	2.00	<0.00950	102	81.9 - 107	6	20
Ethylbenzene	1.98	mg/Kg	1	2.00	<0.0106	99	78.4 - 107	7	20
Xylene	5.74	mg/Kg	1	6.00	<0.00930	96	79.1 - 107	7	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	2.13	mg/Kg	1	2.00	102	106	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.50	1.61	mg/Kg	1	2.00	75	80	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 73617
Prep Batch: 63150

Date Analyzed: 2010-09-17
QC Preparation: 2010-09-17

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	258	mg/Kg	1	250	<14.5	103	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	265	mg/Kg	1	250	<14.5	106	57.4 - 133.4	3	20

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 25 of 36
Eddy County, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	113	114	mg/Kg	1	100	113	114	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 73690
Prep Batch: 63077

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 73691
Prep Batch: 63078

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.6	mg/Kg	1	100	<2.18	97	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73692
Prep Batch: 63079

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.8	mg/Kg	1	100	<2.18	97	85 - 115

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 26 of 36
Eddy County, NM

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	4	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: 73693
Prep Batch: 63187

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-20

Analyzed By: AR
Prepared By: AR

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73694
Prep Batch: 63188

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-20

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	94.5	mg/Kg	1	100	<2.18	94	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	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: 73737
Prep Batch: 63249

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-21

Analyzed By: AG
Prepared By: AG

continued ...

control spikes continued ...

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

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 244435

QC Batch: 73458
Prep Batch: 63015

Date Analyzed: 2010-09-13
QC Preparation: 2010-09-13

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	⁵ 726	mg/Kg	1	250	726	0	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	⁶ 1120	mg/Kg	1	250	726	122	35.2 - 167.1	43	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	⁷ 109	141	mg/Kg	1	100	109	141	70 - 130

Matrix Spike (MS-1) Spiked Sample: 244319

QC Batch: 73583
Prep Batch: 63055

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-15

Analyzed By: AG
Prepared By: AG

⁵Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

⁶MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁷High surrogate recovery due to peak interference.

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

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	⁸ 20.1	mg/Kg	1	20.0	<1.65	100	61.8 - 114	21	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)	1.96	2.31	mg/Kg	1	2	98	116	50 - 162
4-Bromofluorobenzene (4-BFB)	1.73	2.09	mg/Kg	1	2	86	104	50 - 162

Matrix Spike (MS-1) Spiked Sample: 244456

QC Batch: 73591
Prep Batch: 63055

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-15

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.16	mg/Kg	1	2.00	<0.0150	108	80.5 - 112
Toluene	2.21	mg/Kg	1	2.00	<0.00950	110	82.4 - 113
Ethylbenzene	⁹ 2.34	mg/Kg	1	2.00	<0.0106	117	83.9 - 114
Xylene	¹⁰ 6.92	mg/Kg	1	6.00	<0.00930	115	84 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	¹¹ 2.42	mg/Kg	1	2.00	<0.0150	121	80.5 - 112	11	20
Toluene	¹² 2.46	mg/Kg	1	2.00	<0.00950	123	82.4 - 113	11	20
Ethylbenzene	¹³ 2.61	mg/Kg	1	2.00	<0.0106	130	83.9 - 114	11	20
Xylene	¹⁴ 7.88	mg/Kg	1	6.00	<0.00930	131	84 - 114	13	20

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

continued ...

⁸MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁹Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁰Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

¹¹MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

¹²MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

¹³MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

¹⁴MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 29 of 36
Eddy County, NM

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
Trifluorotoluene (TFT)	¹⁵ 2.34	2.54	mg/Kg	1	2	117	127	41.3 - 117
4-Bromofluorobenzene (4-BFB)	^{16 17} 2.72	2.93	mg/Kg	1	2	136	146	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 244989

QC Batch: 73617
Prep Batch: 63150

Date Analyzed: 2010-09-17
QC Preparation: 2010-09-17

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	280	mg/Kg	1	250	38.3	97	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	271	mg/Kg	1	250	38.3	93	35.2 - 167.1	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	107	105	mg/Kg	1	100	107	105	70 - 130

Matrix Spike (MS-1) Spiked Sample: 244363

QC Batch: 73690
Prep Batch: 63077

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	14200	mg/Kg	100	10000	4230	100	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	14800	mg/Kg	100	10000	4230	106	85 - 115	4	20

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

¹⁵High surrogate recovery due to peak interference.

¹⁶High surrogate recovery due to peak interference.

¹⁷High surrogate recovery due to peak interference.

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 30 of 36
Eddy County, NM

Matrix Spike (MS-1) Spiked Sample: 244373

QC Batch: 73691
Prep Batch: 63078

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	15600	mg/Kg	100	10000	5060	105	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	15900	mg/Kg	100	10000	5060	108	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 244383

QC Batch: 73692
Prep Batch: 63079

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-15

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	20400	mg/Kg	100	10000	10200	102	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	20700	mg/Kg	100	10000	10200	105	85 - 115	1	20

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

Matrix Spike (MS-1) Spiked Sample: 244393

QC Batch: 73693
Prep Batch: 63187

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-20

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9870	mg/Kg	100	10000	<218	99	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10000	mg/Kg	100	10000	<218	100	85 - 115	1	20

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

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 31 of 36
Eddy County, NM

Matrix Spike (MS-1) Spiked Sample: 244421

QC Batch: 73694
Prep Batch: 63188

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-20

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	mg/Kg	100	10000	466	99	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10600	mg/Kg	100	10000	466	101	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 244875

QC Batch: 73737
Prep Batch: 63249

Date Analyzed: 2010-09-21
QC Preparation: 2010-09-21

Analyzed By: AG
Prepared By: AG

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

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

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

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

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

Standard (CCV-1)

QC Batch: 73458

Date Analyzed: 2010-09-13

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	256	102	80 - 120	2010-09-13

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 32 of 36
Eddy County, NM

Standard (CCV-2)

QC Batch: 73458

Date Analyzed: 2010-09-13

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	269	108	80 - 120	2010-09-13

Standard (CCV-3)

QC Batch: 73458

Date Analyzed: 2010-09-13

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	290	116	80 - 120	2010-09-13

Standard (CCV-1)

QC Batch: 73583

Date Analyzed: 2010-09-15

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.909	91	80 - 120	2010-09-15

Standard (CCV-2)

QC Batch: 73583

Date Analyzed: 2010-09-15

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.19	119	80 - 120	2010-09-15

Standard (CCV-1)

QC Batch: 73591

Date Analyzed: 2010-09-15

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0986	99	80 - 120	2010-09-15
Toluene		mg/Kg	0.100	0.0954	95	80 - 120	2010-09-15

continued ...

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 33 of 36
Eddy County, NM

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		mg/Kg	0.100	0.0889	89	80 - 120	2010-09-15
Xylene		mg/Kg	0.300	0.257	86	80 - 120	2010-09-15

Standard (CCV-2)

QC Batch: 73591

Date Analyzed: 2010-09-15

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.113	113	80 - 120	2010-09-15
Toluene		mg/Kg	0.100	0.112	112	80 - 120	2010-09-15
Ethylbenzene		mg/Kg	0.100	0.112	112	80 - 120	2010-09-15
Xylene		mg/Kg	0.300	0.339	113	80 - 120	2010-09-15

Standard (CCV-1)

QC Batch: 73617

Date Analyzed: 2010-09-17

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	261	104	80 - 120	2010-09-17

Standard (CCV-2)

QC Batch: 73617

Date Analyzed: 2010-09-17

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	287	115	80 - 120	2010-09-17

Standard (ICV-1)

QC Batch: 73690

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-09-21

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 34 of 36
Eddy County, NM

Standard (CCV-1)

QC Batch: 73690

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.3	99	85 - 115	2010-09-21

Standard (ICV-1)

QC Batch: 73691

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-09-21

Standard (CCV-1)

QC Batch: 73691

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.0	99	85 - 115	2010-09-21

Standard (ICV-1)

QC Batch: 73692

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.1	99	85 - 115	2010-09-21

Standard (CCV-1)

QC Batch: 73692

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-09-21

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 35 of 36
Eddy County, NM

Standard (ICV-1)

QC Batch: 73693

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-09-21

Standard (CCV-1)

QC Batch: 73693

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.0	99	85 - 115	2010-09-21

Standard (ICV-1)

QC Batch: 73694

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.2	99	85 - 115	2010-09-21

Standard (CCV-1)

QC Batch: 73694

Date Analyzed: 2010-09-21

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-09-21

Standard (CCV-1)

QC Batch: 73737

Date Analyzed: 2010-09-21

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.968	97	80 - 120	2010-09-21

Report Date: September 27, 2010
114-6400676

Work Order: 10091321
COG/Red Lake Sand Unit #45

Page Number: 36 of 36
Eddy County, NM

Standard (CCV-2)

QC Batch: 73737

Date Analyzed: 2010-09-21

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.887	89	80 - 120	2010-09-21

WO #: 10091321

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: / OF: 14

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: **COG**

SITE MANAGER: **Ike Tavaraz**

PROJECT NO.:
114-6400676

PROJECT NAME:
COG / Red Lake Sand Unit # 45
Eddy Co. NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	PRESERVATIVE METHOD
244359	9/9		S	X		AH-1 0-1'	1				X		
360						AH-1 1'-1.5'							
361						AH-2 0-1'							
362						AH-2 1'-1.5'							
363						AH-2 2'-2.5'							
364						AH-2 3'-3.5'							
365						AH-2 4'-4.5'							
366						AH-2 5'-5.5'							
367						AH-2 6'-6.5'							
368						AH-2 7'-7.5'							

RELINQUISHED BY: (Signature) **[Signature]** Date: **09/10/10** Time: **1530**

RECEIVED BY: (Signature) **[Signature]** Date: **09/10/10** Time: **1530**

SAMPLED BY: (Print & Initial) **ST/T** Date: **9/9/10** Time: **1530**

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

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

SAMPLE SHIPPED BY: (Circle) **FEDEX** **HAND DELIVERED** AIRBILL #: _____ OTHER: _____

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

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

TETRA TECH CONTACT PERSON: **Ike Tavaraz** Results by: _____

RECEIVING LABORATORY: **Tetra** ADDRESS: **Midland** STATE: **TX** ZIP: _____ CITY: _____ PHONE: _____ DATE: _____ TIME: _____

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

SAMPLE CONDITION WHEN RECEIVED:
37°C intact

REMARKS:
If total TPH exceeds 1000 mg/kg run deeper samples / Run BTEX on 3 highest TPH. If total BTEX exceeds 50 mg/kg or Benzene exceeds 10 mg/kg Run deeper samples

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

All tests Midland

WO #: 100913a1

Analysis Request of Chain of Custody Record										PAGE: 2 OF: 4		
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 Tavaraz			NUMBER OF CONTAINERS FILTERED (Y/N)		PRESERVATIVE METHOD HCL HNO3 ICE NONE			TX1005 (Ext. to C35) TX1005 MOD PAH 8270 RCRA Metals Ag As Ba Cd Cr Pb Hg Se TCLP Metals Ag As Ba Cd Vr Pd Hg Se TCLP Volatiles TCLP Semi Volatiles RCI GC/MS Vol. 8240/8260/824 GC/MS Semi. Vol. 8270/825 PCB's 8080/808 Peat. 808/808 Chloride Gamma Spec. Alpha Beta (Air) PLM (Asbestos) Major Anions/Cations, pH, TDS	
PROJECT NO.: 114-6400676		PROJECT NAME: COG / 12nd Lake Sand Unit #45										
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION						
	2010					Eddy Co, NM						
244369	9/9		S	X		AH-2 8'-8.5'		1		X		
370						AH-2 9'-9.5'						
371						AH-3 0-1'				X		
372						AH-3 1'-1.5'						
373						AH-3 2'-2.5'						
374						AH-3 3'-3.5'						
375						AH-3 4'-4.5'						
376						AH-3 5'-5.5'						
377						AH-3 6'-6.5'						
378						AH-3 7'-7.5'						
RELINQUISHED BY: (Signature) <i>[Signature]</i>			Date: 9/16/10			RECEIVED BY: (Signature) <i>[Signature]</i>			Date: 9/15/10			
RELINQUISHED BY: (Signature) <i>[Signature]</i>			Time: 1530			RECEIVED BY: (Signature) <i>[Signature]</i>			Time: 1530			
RELINQUISHED BY: (Signature)			Date:			RECEIVED BY: (Signature)			Date:			
RELINQUISHED BY: (Signature)			Time:			RECEIVED BY: (Signature)			Time:			
RECEIVING LABORATORY: TRC			RECEIVED BY: (Signature)			SAMPLED BY: (Print & Initial) JT/TF			Date: 9/1/10			
ADDRESS: Midland			CITY: Midland STATE: TX ZIP: _____			SAMPLE SHIPPED BY: (Circle) FEDX BUS HAND DELIVERED UPS			AIRBILL #: _____			
CONTACT: _____ PHONE: _____			DATE: _____ TIME: _____			TETRA TECH CONTACT PERSON: Ike Tavaraz			OTHER: _____			
SAMPLE CONDITION WHEN RECEIVED: 3.7 c in a			REMARKS: If total TPH exceeds 1,000 mg/kg run deeper samples / Run BTEX on 3 highest TPH. If total BTEX exceeds 50 mg/kg or Benzene exceeds 10 mg/kg run deeper samples			RUSH Charges Authorized: _____			Results by: _____			

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

Lab #: 10091321

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 4



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 Tavaraz

PROJECT NO.:
114-6400676

PROJECT NAME:
COG / Red Lk Sand UMY #45

Eddy B, NM
SAMPLE IDENTIFICATION

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION
244379	9/9		S	X		AH-3 8'-8.5'
380						AH-3 9'-9.5'
381						AH-4 0-1'
382						AH-4 1'-1.5'
383						AH-4 2'-2.5'
384						AH-4 3'-3.5'
385						AH-4 4'-4.5'
386						AH-4 5'-5.5'
387						AH-5 0-1'
388						AH-5 1'-1.5'

NUMBER OF CONTAINERS
FILTERED (Y/N)

PRESERVATIVE METHOD
HCL HNO3 ICE NONE

BTX 8021B
TPH 8015 MOD TX1005 (Ext. to C35)
PAH 8270
RCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd Vr Pd Hg Se
TCLP Volatiles
TCLP Semi Volatiles
RCI
GC/MS Vol. 8240/8280/824
GC/MS Semi. Vol. 8270/825
PCB's 8080/808
Pest. 809/808
Chloride
Gamma Spec.
Alpha Beta (A1)
PLM (Asbestos)
Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature) *[Signature]* Date: **09/10/10** Time: **1530**

RECEIVED BY: (Signature) *[Signature]* Date: **9/10/10** Time: **1530**

SAMPLED BY: (Print & Initial) **SI/TF** Date: **9/10/10** Time: **1530**

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

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

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

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

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

TETRA TECH CONTACT PERSON: **Ike Tavaraz** Results by: _____

RECEIVING LABORATORY: **Tetra**
ADDRESS: **Midland** STATE: **TX** ZIP: _____
CONTACT: _____ PHONE: _____ DATE: _____ TIME: _____

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

RUSH Charges Authorized: **Yes** **No**

SAMPLE CONDITION WHEN RECEIVED:
37c intact

REMARKS:
If total TPH exceeds 1,000 mg/kg run deeper samples / Ran BTX on 3 highest TPH. If total BTX exceeds 50 mg/kg or BTX exceeds 10 mg/kg run deeper samples

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

W20 #: 10091321

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: 4 OF: 4

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:
COG

SITE MANAGER:
Ike Tavaraz

PROJECT NO.:
114-6400676

PROJECT NAME:
COG / Red Lake Sand Unit #45

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION
	2010					Eddy Co, NM
244389	9/9		S	X		AH-5 2'-2.5'
390						AH-5 3'-3.5'
391						AH-5 4'-4.5'
392						AH-5 5'-5.5'
393						AH-5 6'-6.5'
394						AH-5 7'-7.5'

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

PRESERVATIVE METHOD

BTEX 8021B
TPH 8015 MOD (Ext. to C05)
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. 8270/825
PCB's 8080/808
Pest. 808/808
Chloride
Gamma Spec.
Alpha Beta (A/B)
PLM (Asbestos)
Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature) **[Signature]** Date: **9/10/10** Time: **1530**
RELINQUISHED BY: (Signature) Date: Time:
RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) **[Signature]** Date: **9/10/10** Time: **1530**
RECEIVED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) **ST/TF** Date: **9/9/10** Time:
SAMPLE SHIPPED BY: (Circle) **FEDEX** BUS AIRBILL #: **517F**
HAND DELIVERED UPS OTHER:
TETRA TECH CONTACT PERSON:

RECEIVING LABORATORY: **Tetra**
ADDRESS: **Midland** STATE: **TX** ZIP: **79705**
CONTACT: **PHONE: TIME:**

RECEIVED BY: (Signature) **Ike Tavaraz**
DATE: TIME:

Results by:
RUSH Charges Authorized: **Yes** **No**

SAMPLE CONDITION WHEN RECEIVED: **37°C intact** REMARKS: **If total TPH exceeds 1,000 mg/kg run deeper samples / Run BTEX on 3 highest TPH. If total BTEX exceeds 50 mg/kg or Benzene exceeds 10 mg/kg run deeper samples**