

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Skelly 737 Well Pad					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec 22	T17S	R31E		
Lease Number:	API-30-015-40095					
County:	Eddy County					
GPS:	32.82517° N			103.86330° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of US HWY 82 and CR 223 (Sweet Gum) travel northwest on CR 223 for 0.8 miles, turn right and travel 0.5 miles, turn right and travel 0.1 miles, veer left and travel 0.1 miles to location.					

Release Data:

Date Released:	10/9/2012
Type Release:	Produced Water
Source of Contamination:	Buried Produced Water Line
Fluid Released:	100 bbls
Fluids Recovered:	90 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) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetrattech.com

Ranking Criteria

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

RECEIVED

NOV 02 2012

NMOCD ARTESIA



TETRA TECH

October 29, 2012

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Closure Report for the COG Operating LLC., Skelly 737 Well Pad, Unit D, Section 22, Township 17 South, Range 33 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 Skelly 737 Well Pad, Unit D, Section 22, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82517°, W 103.86330°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak occurred when a dozer hit a Linn Energy injection line during downsizing the COG Skelly 737 well pad on October 9, 2012. The spill released approximately one hundred (100) barrels of produced water from a produced water line (buried line) with ninety (90) barrels of standing fluids recovered. The spill is located in the pasture east of the well pad and measured approximately 30' x 60' and 30' x 30'. COG immediately repaired the line and excavated the spill area. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 22. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 325' below surface. The average depth to groundwater map is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



TETRA TECH

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.

Remediation and Conclusion

After the release, COG immediately excavated the spill area. The excavation measured approximately 30' x 60' and 30' x 30' at a depth of 3.0' to 5.0' below surface. Approximately 561 cubic yards of soil were excavated and transported to the R360 facility for proper disposal.

On October 12, 2012, Tetra Tech personnel collected confirmation samples from the excavation bottom and side walls. The excavated area and confirmation samples are shown on Figure 4. The sampling results are summarized in Table 1. Referring to Table 1, all of the samples were below the RRAL for TPH and BTEX. The sidewall and bottom hole samples did not show a significant chloride impact to the soils and ranged from 58.3 mg/kg to 627 mg/kg. Based on the field results, the BLM approved the backfilling of the excavation with clean material to grade.

Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaréz, PG
Senior Project Manager

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

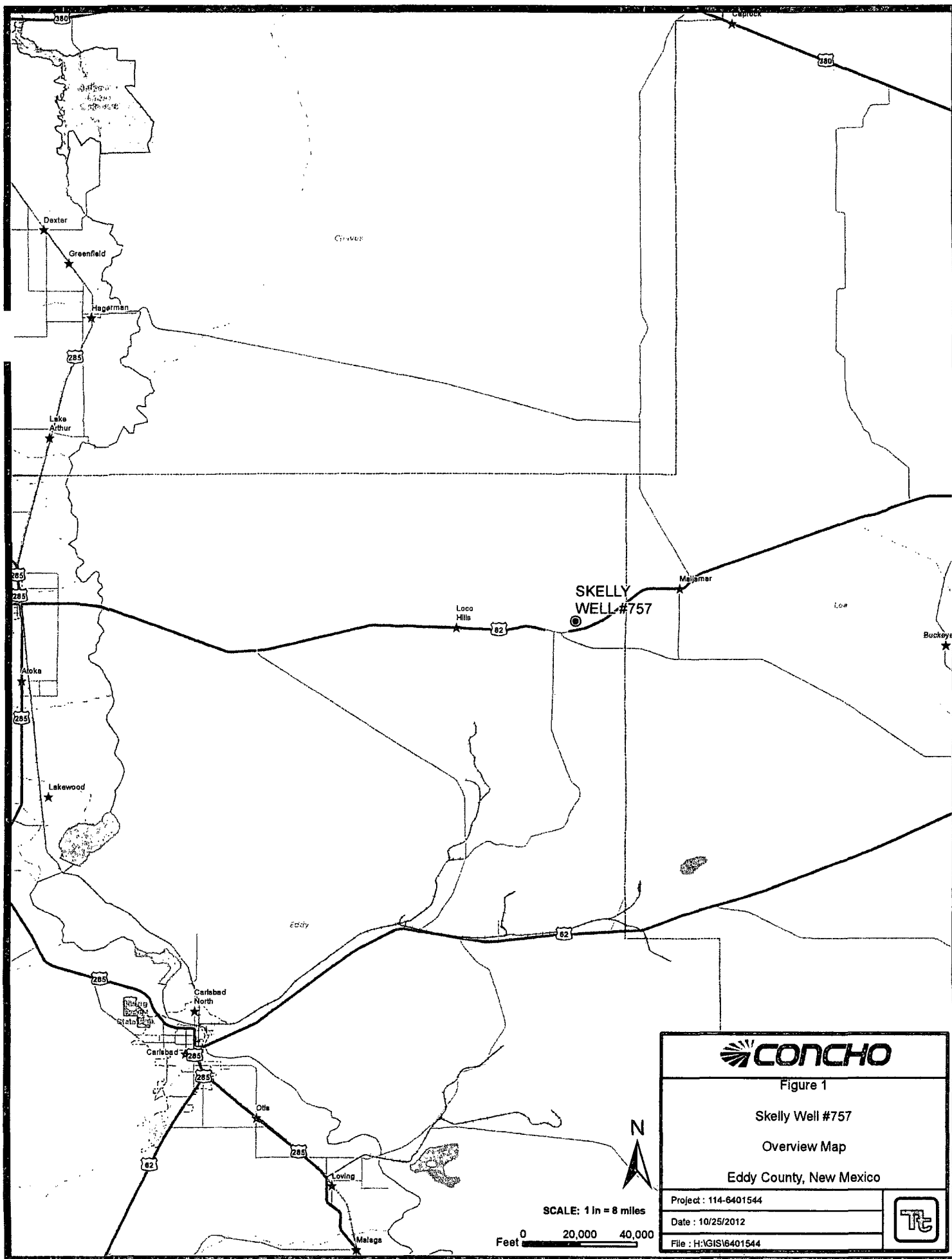


Figure 1

Skelly Well #757

Overview Map

Eddy County, New Mexico

Project : 114-6401544

Date : 10/25/2012

File : H:\GIS\6401544



SCALE: 1 in = 8 miles

Feet 0 20,000 40,000



CONCHO

Figure 2

Skelly Well #757

Topo Map 1:24,000

Eddy County, New Mexico

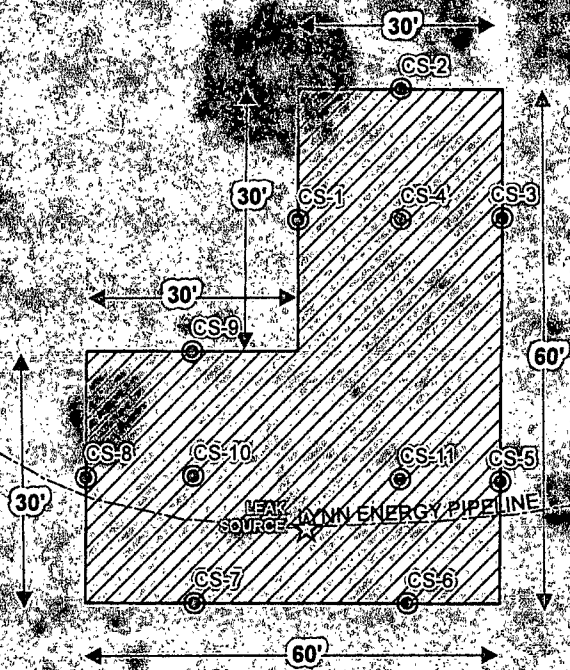
Project : 114-6401544

Date : 10/25/2012

File : H:\GIS\6401544



PASTURE



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ CONFIRMATION SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA

SCALE: 1" IN = 20 FEET

Feet 0 10 20



Figure 3

Skelly Well #757

Spill Assessment Map

Eddy County, New Mexico

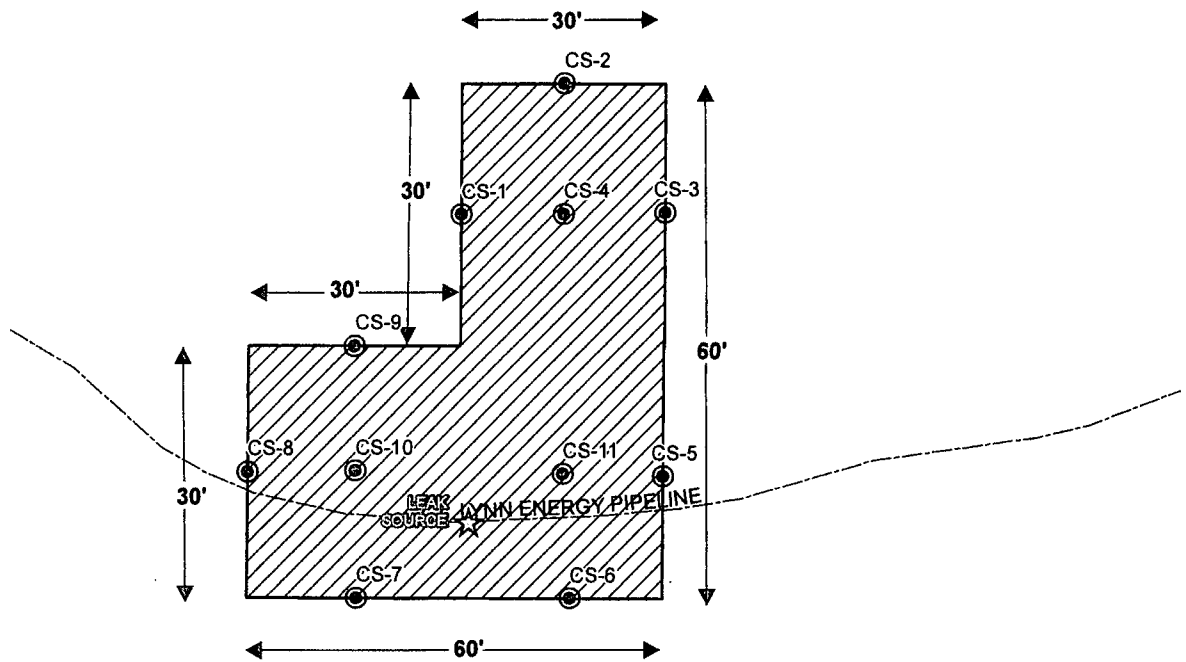
Project : 114-6401544

Date : 10/25/2012

File : H:\GIS\6401544



PASTURE



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ CONFIRMATION SAMPLE LOCATIONS
- ☆ LEAK SOURCE
- ▨ SPILL AREA

SCALE: 1 IN = 26 FEET

Feet 0 10 20



Figure 3

Skelly Well #757

Spill Assessment Map

Eddy County, New Mexico

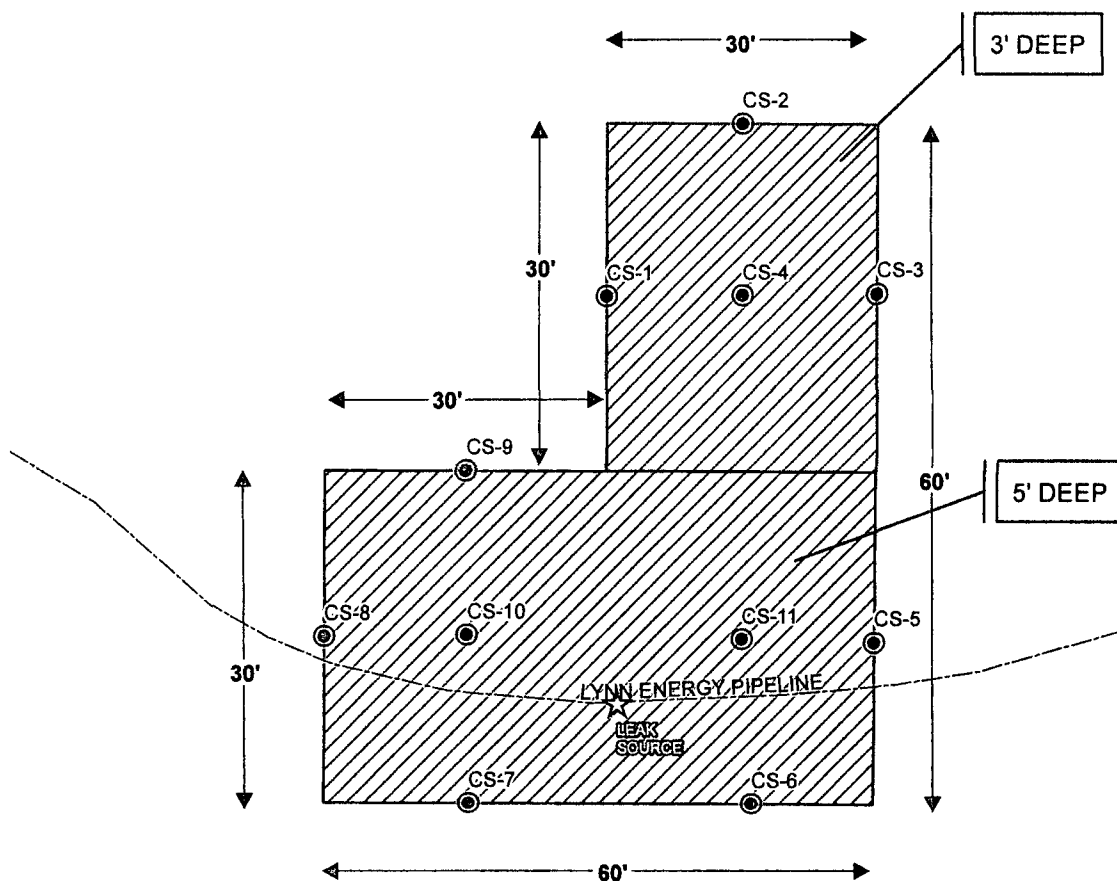
Project : 114-6401544

Date : 10/25/2012

File : H:\GIS\6401544



PASTURE



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ CONFIRMATION SAMPLE LOCATIONS
- ☆ LEAK SOURCE
- ▨ EXCAVATED AREAS

SCALE: 1 IN = 20 FEET

Feet 0 10 20



Figure 4

Skelly Well #757

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 114-6401544

Date : 10/25/2012

File : H:\GIS\6401544



Tables

Table 1
COG Operating LLC.
Skelly 737
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
CS-1 West Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	207
CS-2 North Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	260
CS-3 East Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	246
CS-4 Bottom	10/12/2012	3	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	323
CS-4	"	-	2	X		-	-	-	-	-	-	-	-	366
CS-5 East Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	289
CS-6 South Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	202
CS-7 South Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	226
CS-8 West Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	308
CS-9 North Sidewall	10/12/2012	-	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	164
CS-10 Bottom	10/12/2012	5	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	627
CS-10	"	-	2	X		-	-	-	-	-	-	-	-	87.4
CS-11 Bottom	10/12/2012	5	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	223
CS-11	"	-	2	X		-	-	-	-	-	-	-	-	58.3

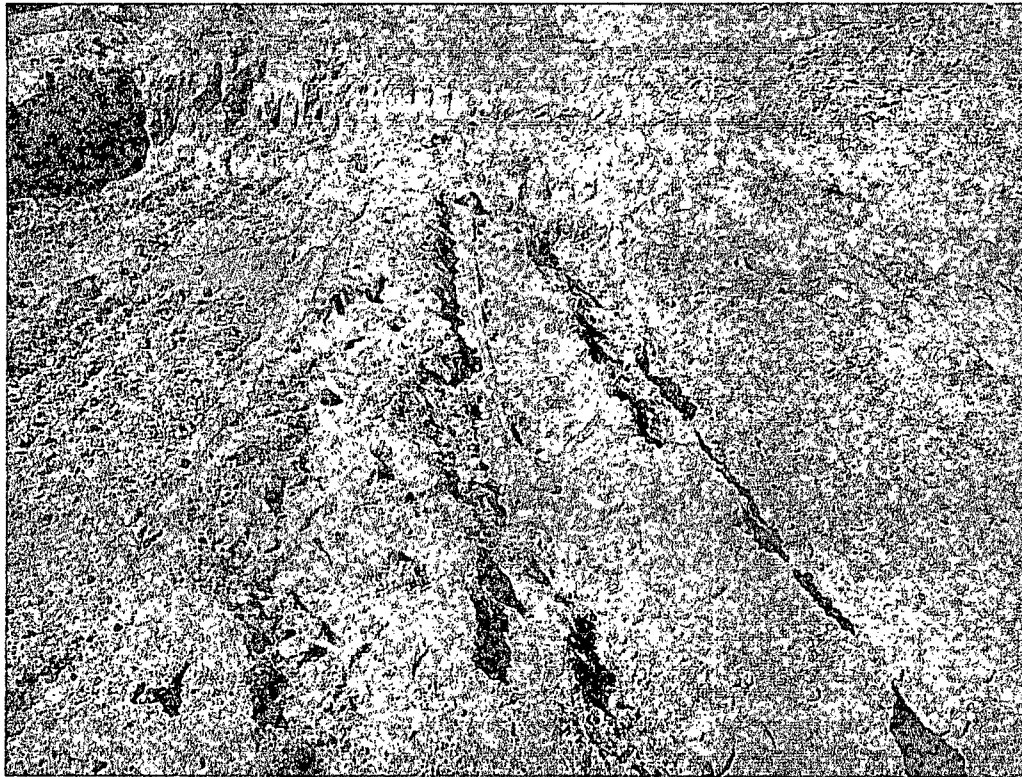
(-)

Not Analyzed

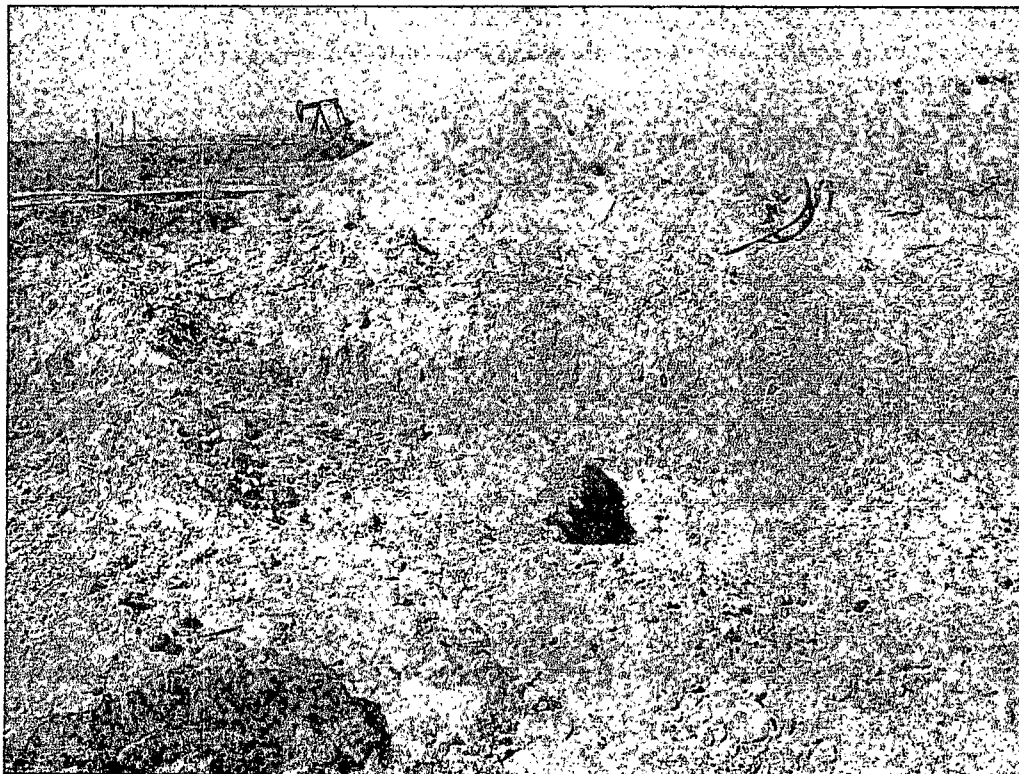
(BEB)

Below Excavation Bottom

Photos



View West – Area of CS-11 and CS-10



View West – Area of CS-4

Appendix A

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

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Skelly 737	Facility Type	Well pad

Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-015-40095
---------------	---------	---------------	--	------------------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	22	17S	31E					Eddy

Latitude 32.82517 Longitude 103.86330

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	100bbls	Volume Recovered	90bbls
Source of Release	buried produced water line	Date and Hour of Occurrence	10/09/2012	Date and Hour of Discovery	10/09/2012 5:00 p.m.
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher-OCD Terry Gregston-BLM Jim Amos-BLM		
By Whom?	Josh Russo	Date and Hour	10/12/2012 8:53 a.m.	RECEIVED NOV 02 2012 NMOCD ARTESIA	
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			
If a Watercourse was Impacted, Describe Fully.*					

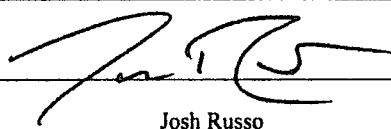
Describe Cause of Problem and Remedial Action Taken.*

A produced water injection line was hit by a dozer while downsizing the Skelly 737 well pad. This flowline is owned by Linn Energy. The line has been repaired.

Describe Area Affected and Cleanup Action Taken.*

Initially 100bbls of produced water were released from the line and we were able to recover 90bbls with a vacuum truck. This spill was immediately contained utilizing the equipment onsite. Tetra Tech has sampled the spill area and we have removed the impacted soil.

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:	Senior Environmental Coordinator			Approval Date:	Expiration Date:
E-mail Address:	jrusso@conchoresources.com			Conditions of Approval:	Attached ☐
Date:	10/22/2012		Phone:	432-212-2399	

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Skelly 737
Eddy County, New Mexico

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

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

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

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

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

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

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

18 South			32 East		
6	5	4	65	3	2
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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

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

Report Date: October 19, 2012

Work Order: 12101516



Project Location: Eddy Co., NM
Project Name: COG/Skelly 737
Project Number: 114-6401544

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
311773	CS-1 West Sidewall	soil	2012-10-12	00:00	2012-10-15
311774	CS-2 North Sidewall	soil	2012-10-12	00:00	2012-10-15
311775	CS-3 East Sidewall	soil	2012-10-12	00:00	2012-10-15
311776	CS-4 Bottom 3'	soil	2012-10-12	00:00	2012-10-15
311777	CS-4 2' BEB	soil	2012-10-12	00:00	2012-10-15
311778	CS-5 East Sidewall	soil	2012-10-12	00:00	2012-10-15
311779	CS-6 South Sidewall	soil	2012-10-12	00:00	2012-10-15
311780	CS-7 South Sidewall	soil	2012-10-12	00:00	2012-10-15
311781	CS-8 West Sidewall	soil	2012-10-12	00:00	2012-10-15
311782	CS-9 North Sidewall	soil	2012-10-12	00:00	2012-10-15
311783	CS-10 Bottom 5'	soil	2012-10-12	00:00	2012-10-15
311784	CS-10 2' BEB	soil	2012-10-12	00:00	2012-10-15
311785	CS-11 Bottom 5'	soil	2012-10-12	00:00	2012-10-15
311786	CS-11 2' BEB	soil	2012-10-12	00:00	2012-10-15

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)
311773 - CS-1 West Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311774 - CS-2 North Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311775 - CS-3 East Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311776 - CS-4 Bottom 3'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311778 - CS-5 East Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311779 - CS-6 South Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311780 - CS-7 South Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311781 - CS-8 West Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311782 - CS-9 North Sidewall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311783 - CS-10 Bottom 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
311785 - CS-11 Bottom 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

Sample: 311773 - CS-1 West Sidewall

Param	Flag	Result	Units	RL
Chloride		207	mg/Kg	4

Sample: 311774 - CS-2 North Sidewall

Param	Flag	Result	Units	RL
Chloride		260	mg/Kg	4

Sample: 311775 - CS-3 East Sidewall

Param	Flag	Result	Units	RL
Chloride		246	mg/Kg	4

Sample: 311776 - CS-4 Bottom 3'

Param	Flag	Result	Units	RL
Chloride		323	mg/Kg	4

Sample: 311777 - CS-4 2' BEB

Param	Flag	Result	Units	RL
Chloride		366	mg/Kg	4

Sample: 311778 - CS-5 East Sidewall

Param	Flag	Result	Units	RL
Chloride		289	mg/Kg	4

Sample: 311779 - CS-6 South Sidewall

Param	Flag	Result	Units	RL
Chloride		202	mg/Kg	4

Sample: 311780 - CS-7 South Sidewall

Param	Flag	Result	Units	RL
Chloride		226	mg/Kg	4

Sample: 311781 - CS-8 West Sidewall

Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4

Sample: 311782 - CS-9 North Sidewall

Param	Flag	Result	Units	RL
Chloride		164	mg/Kg	4

Sample: 311783 - CS-10 Bottom 5'

Param	Flag	Result	Units	RL
Chloride		627	mg/Kg	4

Sample: 311784 - CS-10 2' BEB

Param	Flag	Result	Units	RL
Chloride		87.4	mg/Kg	4

Sample: 311785 - CS-11 Bottom 5'

Param	Flag	Result	Units	RL
Chloride		223	mg/Kg	4

Sample: 311786 - CS-11 2' BEB

Param	Flag	Result	Units	RL
Chloride		58.3	mg/Kg	4



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: October 19, 2012

Work Order: 12101516



Project Location: Eddy Co., NM
Project Name: COG/Skelly 737
Project Number: 114-6401544

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
311773	CS-1 West Sidewall	soil	2012-10-12	00:00	2012-10-15
311774	CS-2 North Sidewall	soil	2012-10-12	00:00	2012-10-15
311775	CS-3 East Sidewall	soil	2012-10-12	00:00	2012-10-15
311776	CS-4 Bottom 3'	soil	2012-10-12	00:00	2012-10-15
311777	CS-4 2' BEB	soil	2012-10-12	00:00	2012-10-15
311778	CS-5 East Sidewall	soil	2012-10-12	00:00	2012-10-15
311779	CS-6 South Sidewall	soil	2012-10-12	00:00	2012-10-15
311780	CS-7 South Sidewall	soil	2012-10-12	00:00	2012-10-15
311781	CS-8 West Sidewall	soil	2012-10-12	00:00	2012-10-15
311782	CS-9 North Sidewall	soil	2012-10-12	00:00	2012-10-15
311783	CS-10 Bottom 5'	soil	2012-10-12	00:00	2012-10-15
311784	CS-10 2' BEB	soil	2012-10-12	00:00	2012-10-15
311785	CS-11 Bottom 5'	soil	2012-10-12	00:00	2012-10-15
311786	CS-11 2' BEB	soil	2012-10-12	00:00	2012-10-15

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

This report consists of a total of 34 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive style with a large, stylized 'M' and 'A'.

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

Report Contents

Case Narrative	5
Analytical Report	6
Sample 311773 (CS-1 West Sidewall)	6
Sample 311774 (CS-2 North Sidewall)	7
Sample 311775 (CS-3 East Sidewall)	8
Sample 311776 (CS-4 Bottom 3')	10
Sample 311777 (CS-4 2' BEB)	11
Sample 311778 (CS-5 East Sidewall)	12
Sample 311779 (CS-6 South Sidewall)	13
Sample 311780 (CS-7 South Sidewall)	15
Sample 311781 (CS-8 West Sidewall)	16
Sample 311782 (CS-9 North Sidewall)	17
Sample 311783 (CS-10 Bottom 5')	19
Sample 311784 (CS-10 2' BEB)	20
Sample 311785 (CS-11 Bottom 5')	21
Sample 311786 (CS-11 2' BEB)	22
Method Blanks	23
QC Batch 95817 - Method Blank (1)	23
QC Batch 95818 - Method Blank (1)	23
QC Batch 95836 - Method Blank (1)	23
QC Batch 95844 - Method Blank (1)	24
QC Batch 95875 - Method Blank (1)	24
Laboratory Control Spikes	25
QC Batch 95817 - LCS (1)	25
QC Batch 95818 - LCS (1)	25
QC Batch 95836 - LCS (1)	26
QC Batch 95844 - LCS (1)	26
QC Batch 95875 - LCS (1)	27
QC Batch 95817 - MS (1)	27
QC Batch 95818 - MS (1)	28
QC Batch 95836 - MS (1)	28
QC Batch 95844 - MS (1)	29
QC Batch 95875 - MS (1)	29
Calibration Standards	30
QC Batch 95817 - CCV (1)	30
QC Batch 95817 - CCV (2)	30
QC Batch 95817 - CCV (3)	30
QC Batch 95818 - CCV (1)	30
QC Batch 95818 - CCV (2)	31
QC Batch 95818 - CCV (3)	31
QC Batch 95836 - CCV (1)	31
QC Batch 95836 - CCV (2)	31

QC Batch 95844 - CCV (1)	32
QC Batch 95844 - CCV (2)	32
QC Batch 95844 - CCV (3)	32
QC Batch 95875 - CCV (1)	32
QC Batch 95875 - CCV (2)	33
Appendix	34
Report Definitions	34
Laboratory Certifications	34
Standard Flags	34
Attachments	34

Case Narrative

Samples for project COG/Skelly 737 were received by TraceAnalysis, Inc. on 2012-10-15 and assigned to work order 12101516. Samples for work order 12101516 were received intact at a temperature of 4.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	81184	2012-10-17 at 08:34	95817	2012-10-17 at 08:34
Chloride (Titration)	SM 4500-Cl B	81204	2012-10-18 at 10:08	95836	2012-10-18 at 14:09
Chloride (Titration)	SM 4500-Cl B	81204	2012-10-18 at 10:08	95875	2012-10-18 at 16:23
TPH DRO - NEW	S 8015 D	81211	2012-10-17 at 09:00	95844	2012-10-18 at 15:14
TPH GRO	S 8015 D	81184	2012-10-17 at 08:34	95818	2012-10-17 at 08:34

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 12101516 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: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 6 of 34
Eddy Co., NM

Analytical Report

Sample: 311773 - CS-1 West Sidewall

Laboratory: Midland

Analysis: BTEX

QC Batch: 95817

Prep Batch: 81184

Analytical Method: S 8021B

Date Analyzed: 2012-10-17

Sample Preparation: 2012-10-17

Prep Method: S 5035

Analyzed By: YG

Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.25	mg/Kg	1	2.00	112	70 - 130

Sample: 311773 - CS-1 West Sidewall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 95836

Prep Batch: 81204

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-18

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			207	mg/Kg	5	4.00

Sample: 311773 - CS-1 West Sidewall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 95844

Prep Batch: 81211

Analytical Method: S 8015 D

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-17

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

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

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 7 of 34
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			95.8	mg/Kg	1	100	96	55.1 - 135.7

Sample: 311773 - CS-1 West Sidewall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 95818
Prep Batch: 81184

Analytical Method: S 8015 D
Date Analyzed: 2012-10-17
Sample Preparation: 2012-10-17

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 311774 - CS-2 North Sidewall

Laboratory: Midland
Analysis: BTEX
QC Batch: 95817
Prep Batch: 81184

Analytical Method: S 8021B
Date Analyzed: 2012-10-17
Sample Preparation: 2012-10-17

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			2.23	mg/Kg	1	2.00	112	70 - 130

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 8 of 34
Eddy Co., NM

Sample: 311774 - CS-2 North Sidewall

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	95836	Date Analyzed:	2012-10-18
Prep Batch:	81204	Sample Preparation:	2012-10-18
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			260	mg/Kg	5	4.00

Sample: 311774 - CS-2 North Sidewall

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	95844	Date Analyzed:	2012-10-18
Prep Batch:	81211	Sample Preparation:	2012-10-17
		Prep Method:	N/A
		Analyzed By:	CW
		Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.4	mg/Kg	1	100	98	55.1 - 135.7

Sample: 311774 - CS-2 North Sidewall

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	95818	Date Analyzed:	2012-10-17
Prep Batch:	81184	Sample Preparation:	2012-10-17
		Prep Method:	S 5035
		Analyzed By:	YG
		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	v	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 10 of 34
Eddy Co., NM

Sample: 311775 - CS-3 East Sidewall

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	95818	Date Analyzed:	2012-10-17
Prep Batch:	81184	Sample Preparation:	2012-10-17
		Prep Method:	S 5035
		Analyzed By:	YG
		Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 311776 - CS-4 Bottom 3'

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	95817	Date Analyzed:	2012-10-17
Prep Batch:	81184	Sample Preparation:	2012-10-17
		Prep Method:	S 5035
		Analyzed By:	YG
		Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.07	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	70 - 130

Sample: 311776 - CS-4 Bottom 3'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	95836	Date Analyzed:	2012-10-18
Prep Batch:	81204	Sample Preparation:	2012-10-18
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

continued ...

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 11 of 34
Eddy Co., NM

sample 311776 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			323	mg/Kg	5	4.00

Sample: 311776 - CS-4 Bottom 3'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 95844
Prep Batch: 81211

Analytical Method: S 8015 D
Date Analyzed: 2012-10-18
Sample Preparation: 2012-10-17

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			88.8	mg/Kg	1	100	89	55.1 - 135.7

Sample: 311776 - CS-4 Bottom 3'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 95818
Prep Batch: 81184

Analytical Method: S 8015 D
Date Analyzed: 2012-10-17
Sample Preparation: 2012-10-17

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 12 of 34
Eddy Co., NM

Sample: 311777 - CS-4 2' BEB

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95836 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			366	mg/Kg	5	4.00

Sample: 311778 - CS-5 East Sidewall

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 95817 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.22	mg/Kg	1	2.00	111	70 - 130

Sample: 311778 - CS-5 East Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95836 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			289	mg/Kg	5	4.00

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 13 of 34
Eddy Co., NM

Sample: 311778 - CS-5 East Sidewall

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 95844 Date Analyzed: 2012-10-18 Analyzed By: CW
Prep Batch: 81211 Sample Preparation: 2012-10-17 Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			99.0	mg/Kg	1	100	99	55.1 - 135.7

Sample: 311778 - CS-5 East Sidewall

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 95818 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 311779 - CS-6 South Sidewall

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 95817 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

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

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 14 of 34
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130

Sample: 311779 - CS-6 South Sidewall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 95836

Prep Batch: 81204

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-18

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			202	mg/Kg	5	4.00

Sample: 311779 - CS-6 South Sidewall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 95844

Prep Batch: 81211

Analytical Method: S 8015 D

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-17

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.4	mg/Kg	1	100	93	55.1 - 135.7

Sample: 311779 - CS-6 South Sidewall

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 95818

Prep Batch: 81184

Analytical Method: S 8015 D

Date Analyzed: 2012-10-17

Sample Preparation: 2012-10-17

Prep Method: S 5035

Analyzed By: YG

Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 15 of 34
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130

Sample: 311780 - CS-7 South Sidewall

Laboratory: Midland

Analysis: BTEX

QC Batch: 95817

Prep Batch: 81184

Analytical Method: S 8021B

Date Analyzed: 2012-10-17

Sample Preparation: 2012-10-17

Prep Method: S 5035

Analyzed By: YG

Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130

Sample: 311780 - CS-7 South Sidewall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 95836

Prep Batch: 81204

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-18

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			226	mg/Kg	5	4.00

Sample: 311780 - CS-7 South Sidewall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 95844

Prep Batch: 81211

Analytical Method: S 8015 D

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-17

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 16 of 34
Eddy Co., NM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			97.3	mg/Kg	1	100	97	55.1 - 135.7

Sample: 311780 - CS-7 South Sidewall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 95818
Prep Batch: 81184

Analytical Method: S 8015 D
Date Analyzed: 2012-10-17
Sample Preparation: 2012-10-17

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	70 - 130

Sample: 311781 - CS-8 West Sidewall

Laboratory: Midland
Analysis: BTEX
QC Batch: 95817
Prep Batch: 81184

Analytical Method: S 8021B
Date Analyzed: 2012-10-17
Sample Preparation: 2012-10-17

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			2.19	mg/Kg	1	2.00	110	70 - 130

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 17 of 34
Eddy Co., NM

Sample: 311781 - CS-8 West Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95836 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			308	mg/Kg	5	4.00

Sample: 311781 - CS-8 West Sidewall

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 95844 Date Analyzed: 2012-10-18 Analyzed By: CW
Prep Batch: 81211 Sample Preparation: 2012-10-17 Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	55.1 - 135.7

Sample: 311781 - CS-8 West Sidewall

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 95818 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	70 - 130

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 18 of 34
Eddy Co., NM

Sample: 311782 - CS-9 North Sidewall

Laboratory: Midland

Analysis: BTEX

QC Batch: 95817

Prep Batch: 81184

Analytical Method: S 8021B

Date Analyzed: 2012-10-17

Sample Preparation: 2012-10-17

Prep Method: S 5035

Analyzed By: YG

Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	70 - 130

Sample: 311782 - CS-9 North Sidewall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 95836

Prep Batch: 81204

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-18

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			164	mg/Kg	5	4.00

Sample: 311782 - CS-9 North Sidewall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 95844

Prep Batch: 81211

Analytical Method: S 8015 D

Date Analyzed: 2012-10-18

Sample Preparation: 2012-10-17

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	55.1 - 135.7

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 19 of 34
Eddy Co., NM

Sample: 311782 - CS-9 North Sidewall

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 95818 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130

Sample: 311783 - CS-10 Bottom 5'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 95817 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	70 - 130

Sample: 311783 - CS-10 Bottom 5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95875 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

continued ...

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 21 of 34
Eddy Co., NM

Sample: 311784 - CS-10 2' BEB

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95875 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			87.4	mg/Kg	5	4.00

Sample: 311785 - CS-11 Bottom 5'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 95817 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	70 - 130

Sample: 311785 - CS-11 Bottom 5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95875 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			223	mg/Kg	5	4.00

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 22 of 34
Eddy Co., NM

Sample: 311785 - CS-11 Bottom 5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 95844 Date Analyzed: 2012-10-18 Analyzed By: CW
Prep Batch: 81211 Sample Preparation: 2012-10-17 Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			112	mg/Kg	1	100	112	55.1 - 135.7

Sample: 311785 - CS-11 Bottom 5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 95818 Date Analyzed: 2012-10-17 Analyzed By: YG
Prep Batch: 81184 Sample Preparation: 2012-10-17 Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

Sample: 311786 - CS-11 2' BEB

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 95875 Date Analyzed: 2012-10-18 Analyzed By: AR
Prep Batch: 81204 Sample Preparation: 2012-10-18 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			58.3	mg/Kg	5	4.00

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 23 of 34
Eddy Co., NM

Method Blanks

Method Blank (1) QC Batch: 95817

QC Batch: 95817
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02
Ethylbenzene		1	<0.00500	mg/Kg	0.02
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.73	mg/Kg	1	2.00	86	70 - 130

Method Blank (1) QC Batch: 95818

QC Batch: 95818
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0945	mg/Kg	1	0.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0786	mg/Kg	1	0.00	78	70 - 130

Method Blank (1) QC Batch: 95836

QC Batch: 95836
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 24 of 34
Eddy Co., NM

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

Method Blank (1) QC Batch: 95844

QC Batch: 95844
Prep Batch: 81211

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-17

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	27.4	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	112	mg/Kg	1	100	112	61.6 - 141.2

Method Blank (1) QC Batch: 95875

QC Batch: 95875
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

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

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 25 of 34
Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 95817
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.95	mg/Kg	1	2.00	<0.00470	98	70 - 130
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	70 - 130
Ethylbenzene		1	2.17	mg/Kg	1	2.00	<0.00500	108	70 - 130
Xylene		1	6.54	mg/Kg	1	6.00	<0.0170	109	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.82	mg/Kg	1	2.00	<0.00470	91	70 - 130	7	20
Toluene		1	1.91	mg/Kg	1	2.00	<0.00980	96	70 - 130	7	20
Ethylbenzene		1	2.04	mg/Kg	1	2.00	<0.00500	102	70 - 130	6	20
Xylene		1	6.13	mg/Kg	1	6.00	<0.0170	102	70 - 130	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
Trifluorotoluene (TFT)	2.06	2.07	mg/Kg	1	2.00	103	104	70 - 130
4-Bromofluorobenzene (4-BFB)	2.32	2.33	mg/Kg	1	2.00	116	116	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95818
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	21.9	mg/Kg	1	20.0	3.6	110	70 - 130

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

continued . . .

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 26 of 34
Eddy Co., NM

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	22.0	mg/Kg	1	20.0	3.6	110	70 - 130	0	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	2.00	mg/Kg	1	2.00	102	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.10	2.10	mg/Kg	1	2.00	105	105	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95836
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2630	mg/Kg	1	2500	<3.85	105	85 - 115

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 95844
Prep Batch: 81211

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-17

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	282	mg/Kg	1	250	27.4	102	66.9 - 119.9

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

continued ...

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 27 of 34
Eddy Co., NM

control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	242	mg/Kg	1	250	27.4	86	66.9 - 119.9	15	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	126	92.7	mg/Kg	1	100	126	93	76.8 - 140.2

Laboratory Control Spike (LCS-1)

QC Batch: 95875
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2650	mg/Kg	1	2500	<3.85	106	85 - 115

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2560	mg/Kg	1	2500	<3.85	102	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: 311773

QC Batch: 95817
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.06	mg/Kg	1	2.00	<0.00470	103	70 - 130
Toluene		1	2.31	mg/Kg	1	2.00	<0.00980	116	70 - 130
Ethylbenzene		1	2.55	mg/Kg	1	2.00	<0.00500	128	70 - 130
Xylene		1	7.69	mg/Kg	1	6.00	<0.0170	128	70 - 130

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

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 28 of 34
Eddy Co., NM

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.03	mg/Kg	1	2.00	<0.00470	102	70 - 130	2	20
Toluene		1	2.26	mg/Kg	1	2.00	<0.00980	113	70 - 130	2	20
Ethylbenzene		1	2.50	mg/Kg	1	2.00	<0.00500	125	70 - 130	2	20
Xylene		1	7.55	mg/Kg	1	6.00	<0.0170	126	70 - 130	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.08	2.08	mg/Kg	1	2	104	104	70 - 130
4-Bromofluorobenzene (4-BFB)	2.36	2.34	mg/Kg	1	2	118	117	70 - 130

Matrix Spike (MS-1) Spiked Sample: 311773

QC Batch: 95818
Prep Batch: 81184

Date Analyzed: 2012-10-17
QC Preparation: 2012-10-17

Analyzed By: YG
Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	23.4	mg/Kg	1	20.0	<1.22	117	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	23.6	mg/Kg	1	20.0	<1.22	118	70 - 130	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	2.00	mg/Kg	1	2	102	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.13	2.13	mg/Kg	1	2	106	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 311782

QC Batch: 95836
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	mg/Kg	5	2500	164	98	78.9 - 121

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 29 of 34
Eddy Co., NM

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2620	mg/Kg	5	2500	164	98	78.9 - 121	0	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: 311454

QC Batch: 95844
Prep Batch: 81211

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-17

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	218	mg/Kg	1	250	37.2	72	36.1 - 147.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	214	mg/Kg	1	250	37.2	71	36.1 - 147.2	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	92.9	86.8	mg/Kg	1	100	93	87	78.3 - 131.6

Matrix Spike (MS-1) Spiked Sample: 311792

QC Batch: 95875
Prep Batch: 81204

Date Analyzed: 2012-10-18
QC Preparation: 2012-10-18

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2740	mg/Kg	5	2500	233	100	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2860	mg/Kg	5	2500	233	105	78.9 - 121	4	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 95817

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-10-17
Toluene		1	mg/kg	0.100	0.102	102	80 - 120	2012-10-17
Ethylbenzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-10-17
Xylene		1	mg/kg	0.300	0.308	103	80 - 120	2012-10-17

Standard (CCV-2)

QC Batch: 95817

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0961	96	80 - 120	2012-10-17
Toluene		1	mg/kg	0.100	0.100	100	80 - 120	2012-10-17
Ethylbenzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-10-17
Xylene		1	mg/kg	0.300	0.307	102	80 - 120	2012-10-17

Standard (CCV-3)

QC Batch: 95817

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.104	104	80 - 120	2012-10-17
Toluene		1	mg/kg	0.100	0.103	103	80 - 120	2012-10-17
Ethylbenzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-10-17
Xylene		1	mg/kg	0.300	0.307	102	80 - 120	2012-10-17

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 31 of 34
Eddy Co., NM

Standard (CCV-1)

QC Batch: 95818

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.948	95	80 - 120	2012-10-17

Standard (CCV-2)

QC Batch: 95818

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.968	97	80 - 120	2012-10-17

Standard (CCV-3)

QC Batch: 95818

Date Analyzed: 2012-10-17

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.990	99	80 - 120	2012-10-17

Standard (CCV-1)

QC Batch: 95836

Date Analyzed: 2012-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2012-10-18

Standard (CCV-2)

QC Batch: 95836

Date Analyzed: 2012-10-18

Analyzed By: AR

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 32 of 34
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-10-18

Standard (CCV-1)

QC Batch: 95844

Date Analyzed: 2012-10-18

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	257	103	80 - 120	2012-10-18

Standard (CCV-2)

QC Batch: 95844

Date Analyzed: 2012-10-18

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	217	87	80 - 120	2012-10-18

Standard (CCV-3)

QC Batch: 95844

Date Analyzed: 2012-10-18

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	214	86	80 - 120	2012-10-18

Standard (CCV-1)

QC Batch: 95875

Date Analyzed: 2012-10-18

Analyzed By: AR

Report Date: October 19, 2012
114-6401544

Work Order: 12101516
COG/Skelly 737

Page Number: 33 of 34
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2012-10-18

Standard (CCV-2)

QC Batch: 95875

Date Analyzed: 2012-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-10-18

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-12-4	Midland

Standard Flags

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

Attachments

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

12/10/1516

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

**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:

IRE Tavaruz

PROJECT NO.:

114-6401544

PROJECT NAME:

COG / Skelly 737
Eddy Co, NMLAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

BTEX 80215

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCBs 8080/608

Pest. 808/608

Chlorides

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

311773

10/12

S

X

CS-1

West Sidewall

774

CS-2

North Sidewall

775

CS-3

East Sidewall

776

CS-4

Bottom 3'

777

CS-4

2' BEB

778

CS-5

East Sidewall

779

CS-6

South Sidewall

780

CS-7

South Sidewall

781

CS-8

West Sidewall

782

CS-9

North Sidewall

RELINQUISHED BY: (Signature)

Date:

10/15/12

Time:

1330

RECEIVED BY: (Signature)

Date:

10/15/12

Time:

1530

SAMPLED BY: (Print & Initial)

RG

Date:

10/12/12

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:

Results by:

RECEIVING LABORATORY:

ADDRESS:

CITY:

CONTACT:

True

Midland

STATE:

TX

ZIP:

PHONE:

RECEIVED BY: (Signature)

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

7-80

REMARKS:

Midland all

AH

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

