

SITE INFORMATION

2RP-1067

Report Type: CLOSURE REPORT

General Site Information:

Site:	Aoudad Water Transfer Line					
Company:	COG Operating LLC					
Section, Township and Range	Unit F	Sec 36	T17S	R31E		
Lease Number:	V-6248					
County:	Eddy County					
GPS:	32.79214° N			103.82638° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 82 and Hwy 529, travel southeast on Hwy 529 for 3.8 miles, turn right and travel for 0.8 miles, turn right and travel 0.5 miles, turn right and travel 0.2 miles to site.					

Release Data:

Date Released:	3/5/2012
Type Release:	Produced Water
Source of Contamination:	Union on water transfer line
Fluid Released:	15 bbls
Fluids Recovered:	13 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) 230-0077	(432) 682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavaréz@tetrattech.com

Ranking Criteria

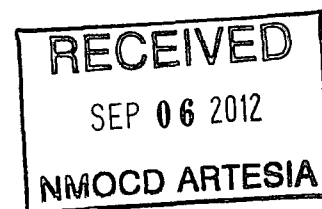
Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0
Wellhead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH



July 26, 2012

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

Re: Closure Report for the COG Operating LLC., Aoudad Water Transfer Line, Unit F, Section 36, Township 17 South, Range 31 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 Aoudad Water Transfer Line located in Unit F, Section 36, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79214°, W 103.82638°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on March 5, 2012, and released approximately fifteen (15) barrels of produced fluid from a flow line. To alleviate the problem, COG personnel repaired the flow line. Thirteen (13) barrels of standing fluids were recovered, leaving two (2) barrels unrecovered. The spill initiated north of the pad affecting an area that measured 15' X 85' and 6' X 65' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 36. According to the NMOC D groundwater map, the average depth to groundwater in this area is greater than 300' below surface. The groundwater data is shown in Figure B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.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 March 27, 2012, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) 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, AH-1 exceeded the TPH RRAL, but declined at a depth of 1.0' to 1.5'. All the auger holes were below the RRAL for total BTEX. Elevated chloride concentrations were detected in all of the auger holes. The chloride impact was not vertically defined.

Closure Activities

After further review, the spill had migrated top of a closed reserve pit located north of the well site. Bases on the findings, Tetra Tech contacted the NMOCD to discuss the spill in the reserve pit area. Mr. Bratcher approved a surface removal in the area of AH-1 to a depth of 1.5' to remove the hydrocarbon impacted soils and backfill the excavation with clean soil to grade.

On May 1, 2012, Tetra Tech personnel supervised the excavation of the site. The excavated area and depth are highlighted in Table 1 and shown on Figure 4. Approximately 40 cubic yards of soil were excavated and hauled to R360 for proper disposal. The excavated area measured



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approximately 15' x 60' at a depth of approximately 1.5' below surface. Once excavated, the area was backfilled with clean soil to grade.

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

Ike Tavaréz, PG
Project Manager

cc: Pat Ellis -- COG

Figures

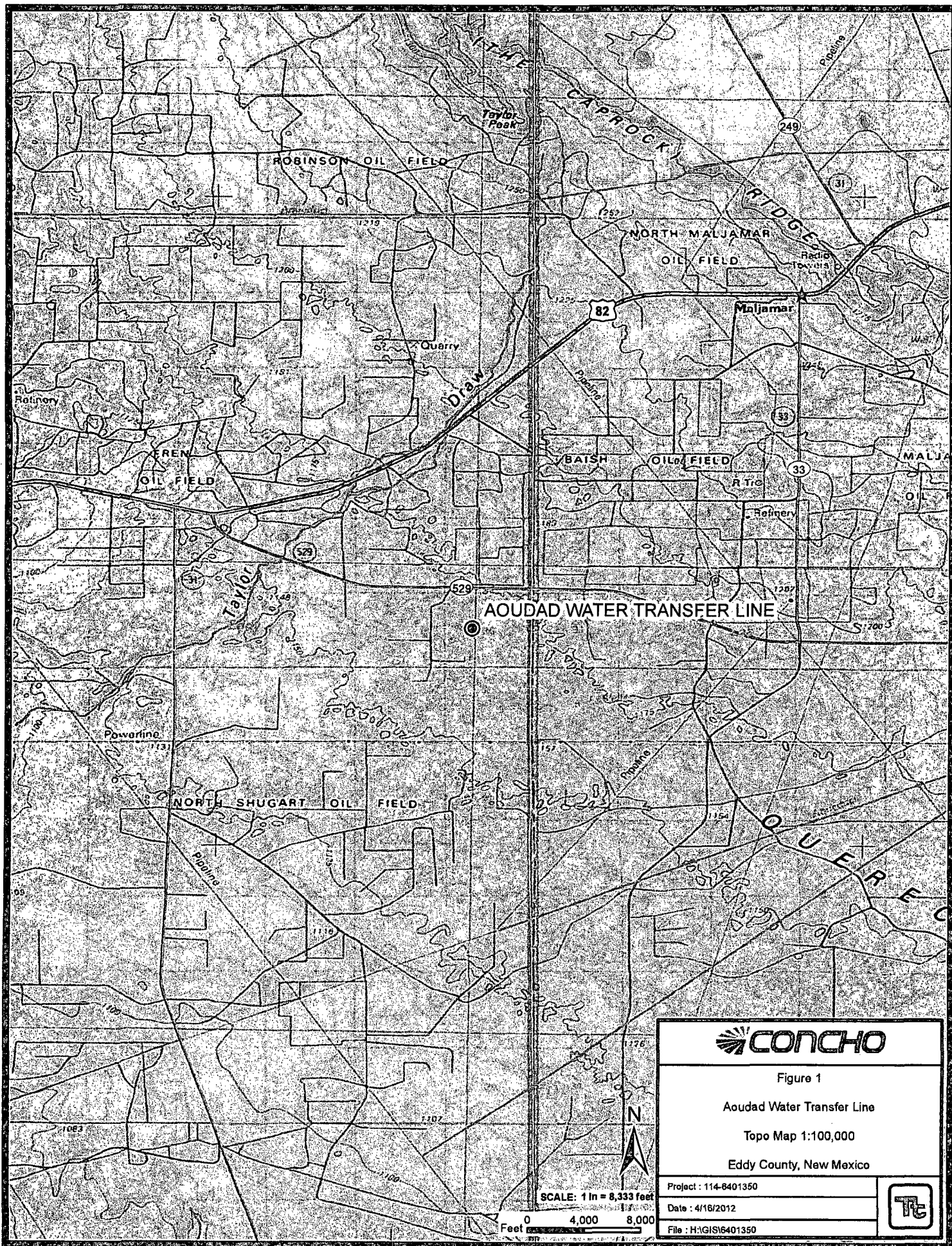


Figure 1

Aoudad Water Transfer Line

Topo Map 1:100,000

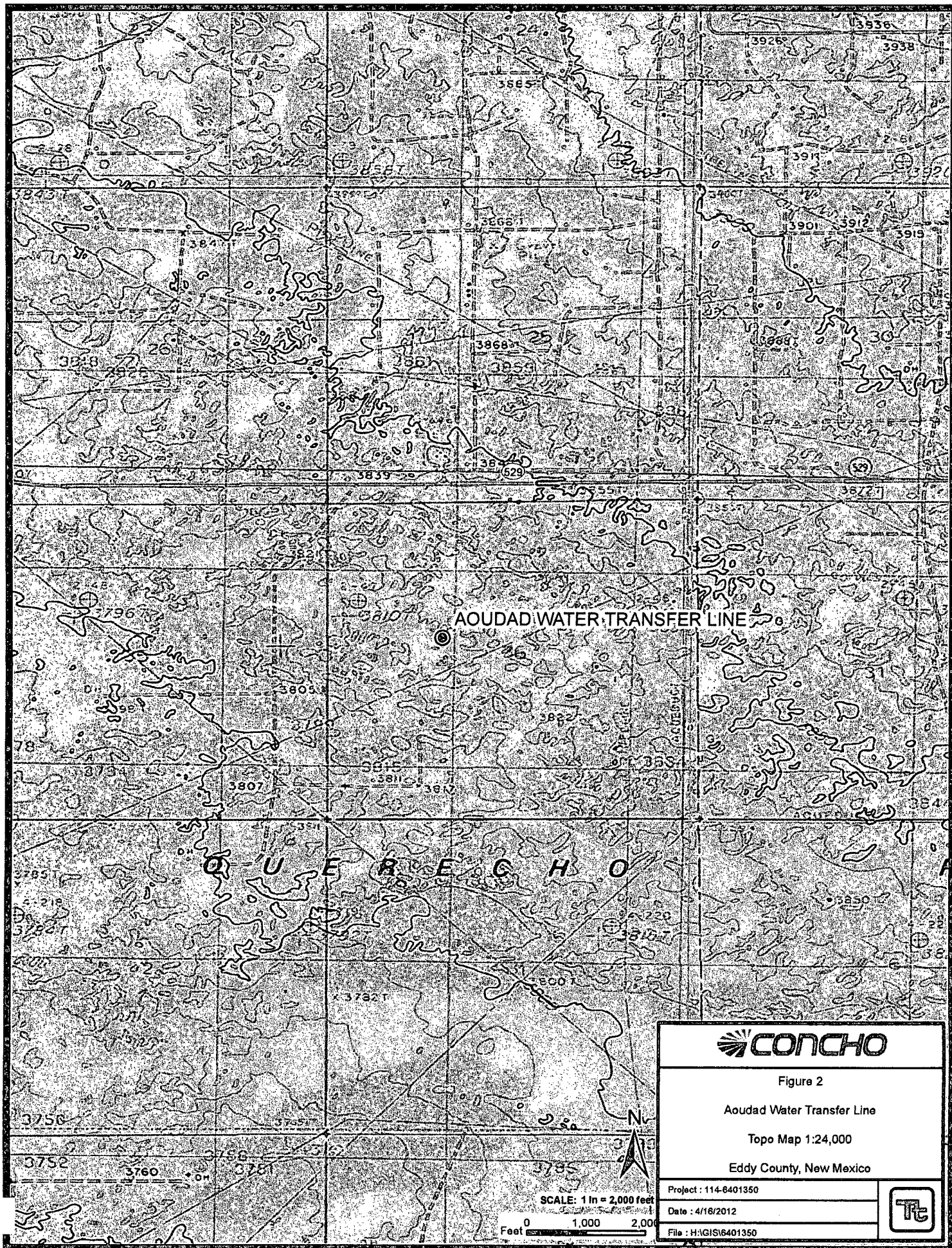
Eddy County, New Mexico

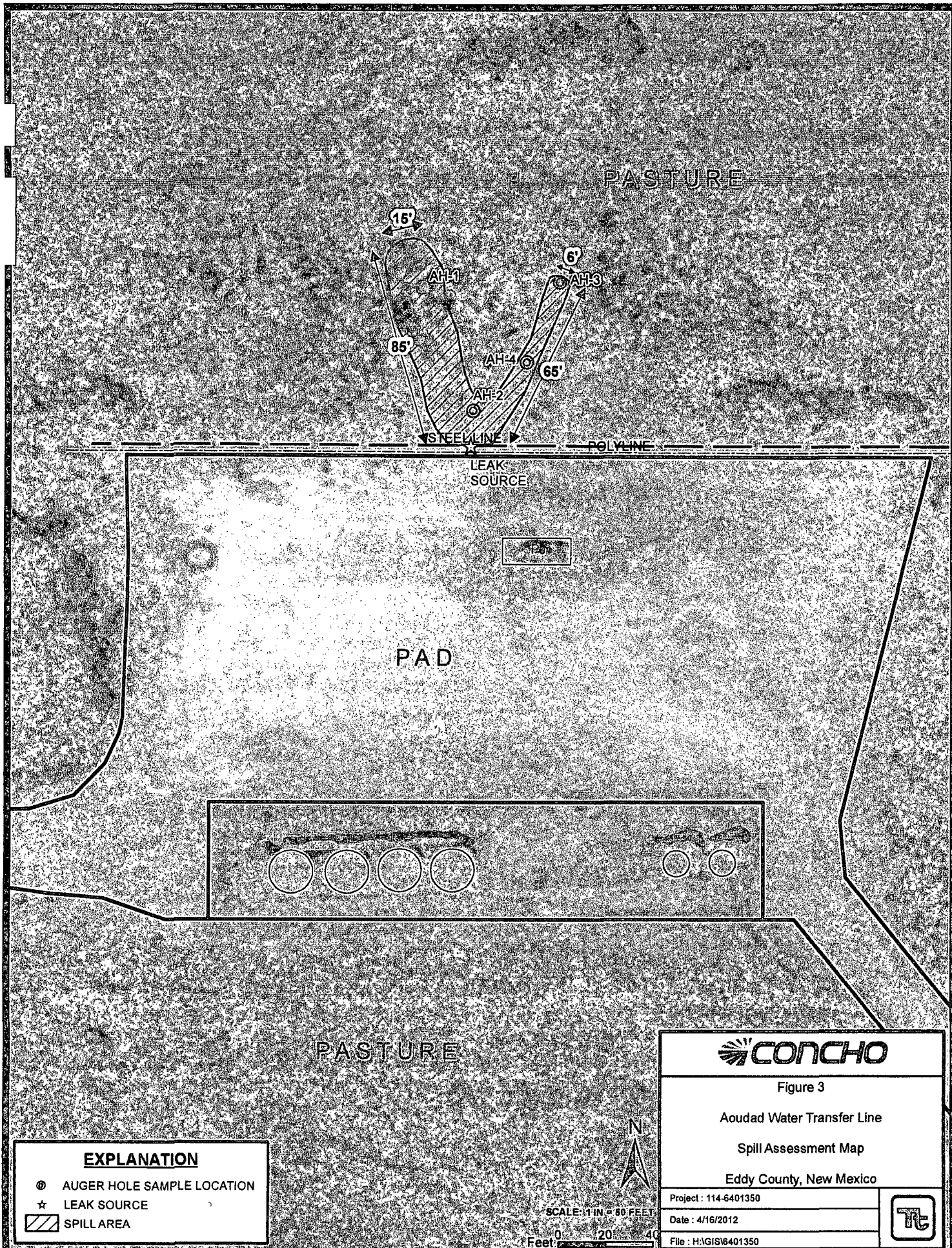
Project : 114-8401350

Date : 4/16/2012

File : H:\GIS\16401350







EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATION
- ☆ LEAK SOURCE
- ▨ SPILL AREA

SCALE: 1 IN = 50 FEET

Feet 0 20 40



Figure 3

Aoudad Water Transfer Line

Spill Assessment Map

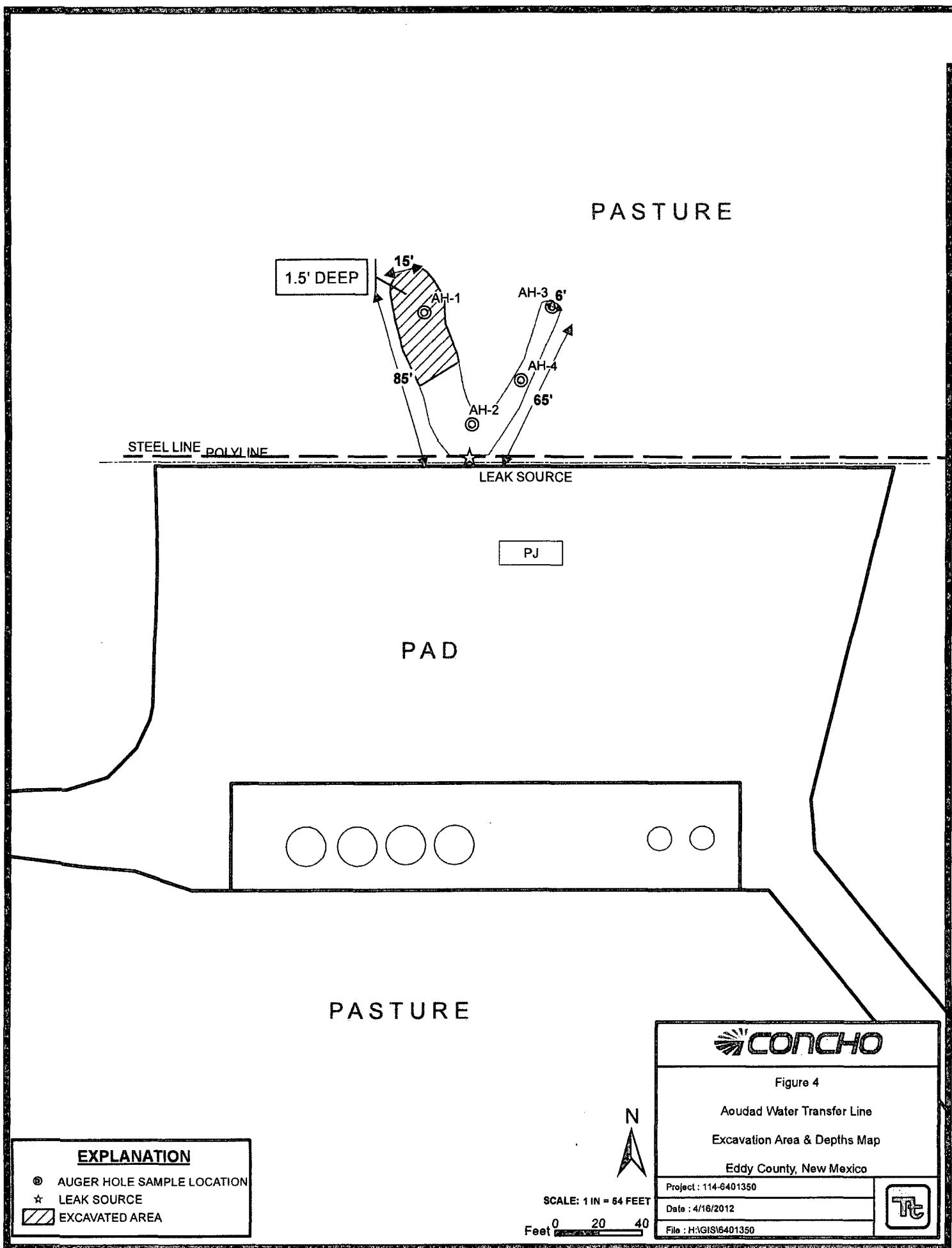
Eddy County, New Mexico

Project : 114-6401350

Date : 4/16/2012

File : H:\GIS\6401350





Tables

Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
Aoudad Water Transfer Line
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-4	3/27/2012	0-1	X		34.2	1,900	1,934	<0.100	<0.100	<0.100	<0.100	<0.100	2,310
	"	1-1.5	X		-	-	-	-	-	-	-	-	3,610
	"	2-2.5	X		-	-	-	-	-	-	-	-	5,220
	"	3-3.5	X		-	-	-	-	-	-	-	-	2,610
	"	4-4.5	X		-	-	-	-	-	-	-	-	1,890
	"	5-5.5	X		-	-	-	-	-	-	-	-	1,750
	"	6-6.5	X		-	-	-	-	-	-	-	-	7,570
	"	7-7.5	X		-	-	-	-	-	-	-	-	6,320
	"	8-8.5	X		-	-	-	-	-	-	-	-	2,580
	"	9-9.5	X		-	-	-	-	-	-	-	-	684



Excavated Depths

(--)

Not Analyzed

Photos

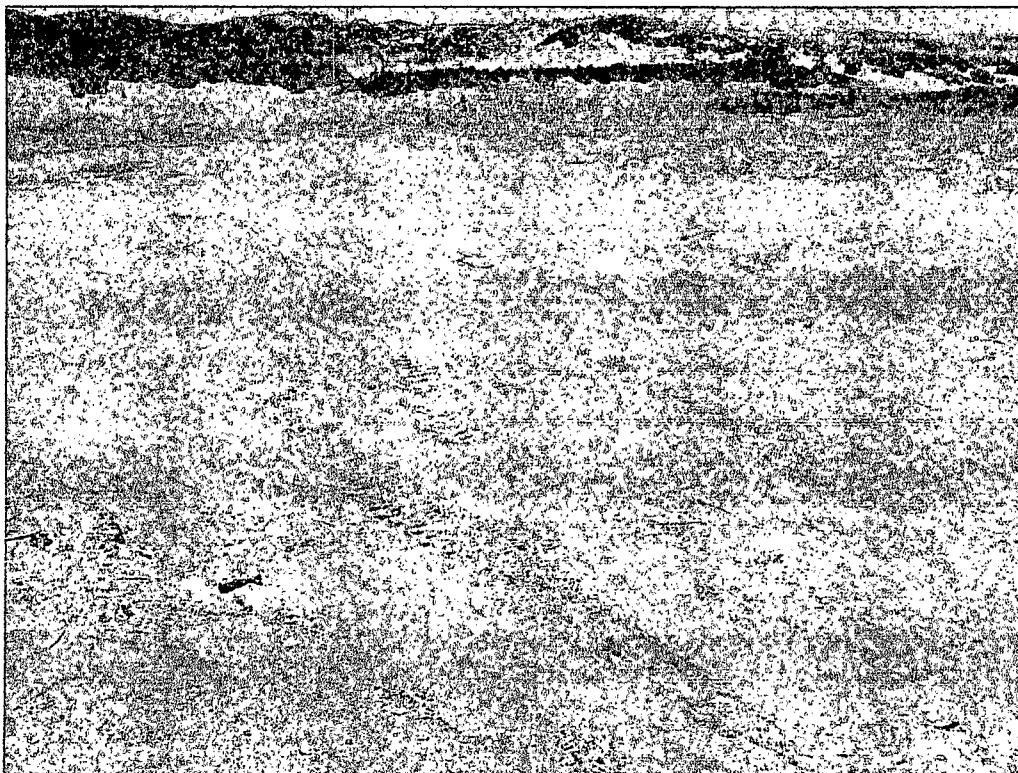
COG Operating LLC
Aoudad Water Transfer Line
Eddy County, New Mexico



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View Northwest – Area of AH-1, AH-2 and AH-3



View Northwest - Backfill

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

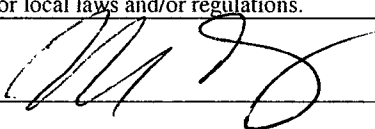
Name of Company COG Operating LLC	Contact Pat Ellis	
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 230-0077	
Facility Name Aoudad Water Transfer Line	Facility Type Water Transfer Line	
Surface Owner: State	Mineral Owner	Lease No. V-6248

LOCATION OF RELEASE

Unit Letter F	Section 36	Township 17S	Range 31E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude N 32.79214° Longitude W 103.82638°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 15 bbls	Volume Recovered 13 bbls
Source of Release: Equalizer	Date and Hour of Occurrence 03/05/2012	Date and Hour of Discovery 03/05/2012 9:45 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. N/A	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* The union came apart on the Aoudad water transfer line. The union and nipples have been replaced.		
Describe Area Affected and Cleanup Action Taken.* Tetra Tech inspected and collected samples to define the spills extent. The spill area had migrated over a closed reserve pit and the NMOCD verbally approval the removal of the hydrocarbon impacted soil in the area of AH-1. The area of AH-1 was excavated to a depth of 1.5' and backfill with clean soil. Tetra Tech prepared a closure report and submitted it to NMOCD for review.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 	<u>OIL CONSERVATION DIVISION</u>	
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: 7-26-12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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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	Aoudad water transfer line	Facility Type	Water transfer line

Surface Owner	State	Mineral Owner		Lease No.	V-6248
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	36	17S	31E					Eddy

Latitude 32 47.501 Longitude 103 49.553

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	15bbls	Volume Recovered	13bbls
Source of Release	Union on water transfer line	Date and Hour of Occurrence	03/05/2012	Date and Hour of Discovery	03/05/2012 9:45 A.M.
Was Immediate Notice Given?	☐ Yes ☒ No ☒ Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

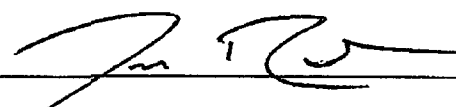
Describe Cause of Problem and Remedial Action Taken.*

The union came apart on the Aoudad water transfer line. The union and nipples have been replaced.

Describe Area Affected and Cleanup Action Taken.*

Initially 15bbls of produced water was released from the transfer line and we were able to recover 13bbls with a vacuum truck. The spill was concentrated into two main areas, a 20' x 65' area, and a 20' x 25' area. The closest location to the release is the Coyote State #1 (API#) 30-015-36029. All fluids have been recovered. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will submit a 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: 03/12/2012 Phone: 432-212-2399		Attached ☐	

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Aoudad Water Transfer Line
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	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			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	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

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

18 South			32 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

-  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
-  SITE

Appendix C

Summary Report

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

Report Date: April 11, 2012

Work Order: 12040202



Project Location: Eddy Co., NM
Project Name: COG/Aoudad Water Transfer Line
Project Number: 114-6401350

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
293115	AH-1 0-1'	soil	2012-03-27	00:00	2012-03-30
293116	AH-1 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293117	AH-1 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293118	AH-1 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293119	AH-1 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293120	AH-1 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293121	AH-1 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293122	AH-1 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293123	AH-1 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293124	AH-1 9-9.5'	soil	2012-03-27	00:00	2012-03-30
293125	AH-2 0-1'	soil	2012-03-27	00:00	2012-03-30
293126	AH-2 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293127	AH-2 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293128	AH-2 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293129	AH-2 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293130	AH-2 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293131	AH-2 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293132	AH-2 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293133	AH-2 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293134	AH-2 9-9.5'	soil	2012-03-27	00:00	2012-03-30
293135	AH-3 0-1'	soil	2012-03-27	00:00	2012-03-30
293136	AH-3 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293137	AH-3 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293138	AH-3 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293139	AH-3 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293140	AH-3 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293141	AH-3 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293142	AH-3 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293143	AH-3 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293144	AH-3 9-9.5'	soil	2012-03-27	00:00	2012-03-30

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
293145	AH-4 0-1'	soil	2012-03-27	00:00	2012-03-30
293146	AH-4 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293147	AH-4 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293148	AH-4 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293149	AH-4 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293150	AH-4 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293151	AH-4 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293152	AH-4 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293153	AH-4 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293154	AH-4 9-9.5'	soil	2012-03-27	00:00	2012-03-30

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)
293115 - AH-1 0-1'	0.418 Qr	0.512 Qr	0.585 Qr	1.65 Qr	4560	466
293116 - AH-1 1-1.5'					4760 Qs	871
293117 - AH-1 2-2.5'					<50.0	<10.0
293125 - AH-2 0-1'	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	141	2.95
293135 - AH-3 0-1'	<0.100 Qr	<0.100 Qr	<0.100 Qr	<0.100 Qr	865	17.9
293145 - AH-4 0-1'	<0.100 Qr	<0.100 Qr	<0.100 Qr	<0.100 Qr	1900	34.2

Sample: 293115 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2310	mg/Kg	4

Sample: 293116 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1370	mg/Kg	4

Sample: 293117 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1940	mg/Kg	4

Sample: 293118 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2260	mg/Kg	4

Sample: 293119 - AH-1 4-4.5'

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.

Param	Flag	Result	Units	RL
Chloride		2850	mg/Kg	4

Sample: 293120 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		3890	mg/Kg	4

Sample: 293121 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		3950	mg/Kg	4

Sample: 293122 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		5050	mg/Kg	4

Sample: 293123 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		5910	mg/Kg	4

Sample: 293124 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		5930	mg/Kg	4

Sample: 293125 - AH-2 0-1'

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

Sample: 293126 - AH-2 1-1.5'

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

Sample: 293127 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		594	mg/Kg	4

Sample: 293128 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1730	mg/Kg	4

Sample: 293129 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		3300	mg/Kg	4

Sample: 293130 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		9100	mg/Kg	4

Sample: 293131 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		5290	mg/Kg	4

Sample: 293132 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		5910	mg/Kg	4

Sample: 293133 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		3500	mg/Kg	4

Sample: 293134 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		3100	mg/Kg	4

Sample: 293135 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		3390	mg/Kg	4

Sample: 293136 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4710	mg/Kg	4

Sample: 293137 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4500	mg/Kg	4

Sample: 293138 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		3430	mg/Kg	4

Sample: 293139 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		4290	mg/Kg	4

Sample: 293140 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		4040	mg/Kg	4

Sample: 293141 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		3700	mg/Kg	4

Sample: 293142 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		3340	mg/Kg	4

Sample: 293143 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		3430	mg/Kg	4

Sample: 293144 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		3470	mg/Kg	4

Sample: 293145 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		2310	mg/Kg	4

Sample: 293146 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3610	mg/Kg	4

Sample: 293147 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5220	mg/Kg	4

Sample: 293148 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2610	mg/Kg	4

Sample: 293149 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1890	mg/Kg	4

Sample: 293150 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1750	mg/Kg	4

Sample: 293151 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		7570	mg/Kg	4

Sample: 293152 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		6320	mg/Kg	4

Sample: 293153 - AH-4 8-8.5'

Param	Flag	Result	Units	RL
Chloride		2580	mg/Kg	4

Sample: 293154 - AH-4 9-9.5'

Param	Flag	Result	Units	RL
Chloride		684	mg/Kg	4



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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: April 11, 2012

Work Order: 12040202



Project Location: Eddy Co., NM
Project Name: COG/Aoudad Water Transfer Line
Project Number: 114-6401350

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
293115	AH-1 0-1'	soil	2012-03-27	00:00	2012-03-30
293116	AH-1 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293117	AH-1 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293118	AH-1 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293119	AH-1 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293120	AH-1 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293121	AH-1 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293122	AH-1 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293123	AH-1 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293124	AH-1 9-9.5'	soil	2012-03-27	00:00	2012-03-30
293125	AH-2 0-1'	soil	2012-03-27	00:00	2012-03-30
293126	AH-2 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293127	AH-2 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293128	AH-2 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293129	AH-2 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293130	AH-2 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293131	AH-2 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293132	AH-2 7-7.5'	soil	2012-03-27	00:00	2012-03-30

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
293133	AH-2 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293134	AH-2 9-9.5'	soil	2012-03-27	00:00	2012-03-30
293135	AH-3 0-1'	soil	2012-03-27	00:00	2012-03-30
293136	AH-3 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293137	AH-3 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293138	AH-3 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293139	AH-3 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293140	AH-3 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293141	AH-3 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293142	AH-3 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293143	AH-3 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293144	AH-3 9-9.5'	soil	2012-03-27	00:00	2012-03-30
293145	AH-4 0-1'	soil	2012-03-27	00:00	2012-03-30
293146	AH-4 1-1.5'	soil	2012-03-27	00:00	2012-03-30
293147	AH-4 2-2.5'	soil	2012-03-27	00:00	2012-03-30
293148	AH-4 3-3.5'	soil	2012-03-27	00:00	2012-03-30
293149	AH-4 4-4.5'	soil	2012-03-27	00:00	2012-03-30
293150	AH-4 5-5.5'	soil	2012-03-27	00:00	2012-03-30
293151	AH-4 6-6.5'	soil	2012-03-27	00:00	2012-03-30
293152	AH-4 7-7.5'	soil	2012-03-27	00:00	2012-03-30
293153	AH-4 8-8.5'	soil	2012-03-27	00:00	2012-03-30
293154	AH-4 9-9.5'	soil	2012-03-27	00:00	2012-03-30

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 50 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

Report Contents

Case Narrative	6
Analytical Report	7
Sample 293115 (AH-1 0-1')	7
Sample 293116 (AH-1 1-1.5')	8
Sample 293117 (AH-1 2-2.5')	9
Sample 293118 (AH-1 3-3.5')	10
Sample 293119 (AH-1 4-4.5')	10
Sample 293120 (AH-1 5-5.5')	11
Sample 293121 (AH-1 6-6.5')	11
Sample 293122 (AH-1 7-7.5')	11
Sample 293123 (AH-1 8-8.5')	12
Sample 293124 (AH-1 9-9.5')	12
Sample 293125 (AH-2 0-1')	12
Sample 293126 (AH-2 1-1.5')	14
Sample 293127 (AH-2 2-2.5')	14
Sample 293128 (AH-2 3-3.5')	14
Sample 293129 (AH-2 4-4.5')	15
Sample 293130 (AH-2 5-5.5')	15
Sample 293131 (AH-2 6-6.5')	15
Sample 293132 (AH-2 7-7.5')	15
Sample 293133 (AH-2 8-8.5')	16
Sample 293134 (AH-2 9-9.5')	16
Sample 293135 (AH-3 0-1')	16
Sample 293136 (AH-3 1-1.5')	18
Sample 293137 (AH-3 2-2.5')	18
Sample 293138 (AH-3 3-3.5')	18
Sample 293139 (AH-3 4-4.5')	19
Sample 293140 (AH-3 5-5.5')	19
Sample 293141 (AH-3 6-6.5')	19
Sample 293142 (AH-3 7-7.5')	19
Sample 293143 (AH-3 8-8.5')	20
Sample 293144 (AH-3 9-9.5')	20
Sample 293145 (AH-4 0-1')	20
Sample 293146 (AH-4 1-1.5')	22
Sample 293147 (AH-4 2-2.5')	22
Sample 293148 (AH-4 3-3.5')	22
Sample 293149 (AH-4 4-4.5')	23
Sample 293150 (AH-4 5-5.5')	23
Sample 293151 (AH-4 6-6.5')	23
Sample 293152 (AH-4 7-7.5')	23
Sample 293153 (AH-4 8-8.5')	24
Sample 293154 (AH-4 9-9.5')	24
Method Blanks	25
QC Batch 89888 - Method Blank (1)	25

QC Batch 89889 - Method Blank (1)	25
QC Batch 89908 - Method Blank (1)	25
QC Batch 89915 - Method Blank (1)	26
QC Batch 89977 - Method Blank (1)	26
QC Batch 89994 - Method Blank (1)	26
QC Batch 90014 - Method Blank (1)	27
QC Batch 90054 - Method Blank (1)	27
QC Batch 90055 - Method Blank (1)	27
QC Batch 90056 - Method Blank (1)	28
QC Batch 90057 - Method Blank (1)	28
QC Batch 90058 - Method Blank (1)	28
QC Batch 90068 - Method Blank (1)	28
Laboratory Control Spikes	30
QC Batch 89888 - LCS (1)	30
QC Batch 89889 - LCS (1)	30
QC Batch 89908 - LCS (1)	30
QC Batch 89915 - LCS (1)	31
QC Batch 89977 - LCS (1)	32
QC Batch 89994 - LCS (1)	32
QC Batch 90014 - LCS (1)	33
QC Batch 90054 - LCS (1)	33
QC Batch 90055 - LCS (1)	33
QC Batch 90056 - LCS (1)	34
QC Batch 90057 - LCS (1)	34
QC Batch 90058 - LCS (1)	35
QC Batch 90068 - LCS (1)	35
QC Batch 89888 - MS (1)	35
QC Batch 89889 - MS (1)	36
QC Batch 89908 - MS (1)	36
QC Batch 89915 - MS (1)	37
QC Batch 89977 - MS (1)	37
QC Batch 89994 - MS (1)	38
QC Batch 90014 - MS (1)	38
QC Batch 90054 - MS (1)	39
QC Batch 90055 - MS (1)	39
QC Batch 90056 - MS (1)	40
QC Batch 90057 - MS (1)	40
QC Batch 90058 - MS (1)	40
QC Batch 90068 - MS (1)	41
Calibration Standards	42
QC Batch 89888 - CCV (2)	42
QC Batch 89888 - CCV (3)	42
QC Batch 89888 - CCV (4)	42
QC Batch 89889 - CCV (2)	42
QC Batch 89889 - CCV (3)	42
QC Batch 89908 - CCV (1)	43

QC Batch 89908 - CCV (2)	43
QC Batch 89908 - CCV (3)	43
QC Batch 89915 - CCV (1)	43
QC Batch 89915 - CCV (2)	44
QC Batch 89915 - CCV (3)	44
QC Batch 89977 - CCV (2)	44
QC Batch 89977 - CCV (3)	45
QC Batch 89994 - CCV (1)	45
QC Batch 89994 - CCV (2)	45
QC Batch 90014 - CCV (2)	45
QC Batch 90014 - CCV (3)	45
QC Batch 90054 - ICV (1)	46
QC Batch 90054 - CCV (1)	46
QC Batch 90055 - ICV (1)	46
QC Batch 90055 - CCV (1)	46
QC Batch 90056 - ICV (1)	47
QC Batch 90056 - CCV (1)	47
QC Batch 90057 - ICV (1)	47
QC Batch 90057 - CCV (1)	47
QC Batch 90058 - ICV (1)	48
QC Batch 90058 - CCV (1)	48
QC Batch 90068 - CCV (1)	48
QC Batch 90068 - CCV (2)	48

Appendix	50
Report Definitions	50
Laboratory Certifications	50
Standard Flags	50
Attachments	50

Case Narrative

Samples for project COG/Aoudad Water Transfer Line were received by TraceAnalysis, Inc. on 2012-03-30 and assigned to work order 12040202. Samples for work order 12040202 were received intact at a temperature of 0.9 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	76308	2012-04-02 at 10:48	89915	2012-04-02 at 11:09
Chloride (Titration)	SM 4500-Cl B	76362	2012-04-04 at 12:51	90054	2012-04-08 at 08:35
Chloride (Titration)	SM 4500-Cl B	76362	2012-04-04 at 12:51	90055	2012-04-08 at 08:37
Chloride (Titration)	SM 4500-Cl B	76362	2012-04-04 at 12:51	90056	2012-04-08 at 08:38
Chloride (Titration)	SM 4500-Cl B	76362	2012-04-04 at 12:51	90057	2012-04-08 at 08:38
Chloride (Titration)	SM 4500-Cl B	76362	2012-04-04 at 12:51	90058	2012-04-08 at 08:39
TPH DRO - NEW	S 8015 D	76291	2012-04-02 at 13:55	89888	2012-04-02 at 13:59
TPH DRO - NEW	S 8015 D	76291	2012-04-02 at 13:55	89889	2012-04-02 at 14:02
TPH DRO - NEW	S 8015 D	76359	2012-04-04 at 14:12	89977	2012-04-04 at 14:16
TPH DRO - NEW	S 8015 D	76385	2012-04-05 at 13:14	90014	2012-04-05 at 13:16
TPH GRO	S 8015 D	76308	2012-04-02 at 10:48	89908	2012-04-03 at 11:36
TPH GRO	S 8015 D	76371	2012-04-04 at 10:00	89994	2012-04-04 at 10:25
TPH GRO	S 8015 D	76426	2012-04-06 at 10:00	90068	2012-04-06 at 12:25

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 12040202 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: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 7 of 50
Eddy Co., NM

Analytical Report

Sample: 293115 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 89915

Prep Batch: 76308

Analytical Method: S 8021B

Date Analyzed: 2012-04-02

Sample Preparation: 2012-04-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr	1	0.418	mg/Kg	10	0.0200
Toluene	Qr	1	0.512	mg/Kg	10	0.0200
Ethylbenzene	Qr	1	0.585	mg/Kg	10	0.0200
Xylene	Qr	1	1.65	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			8.11	mg/Kg	10	10.0	81	75 - 135.4
4-Bromofluorobenzene (4-BFB)			8.65	mg/Kg	10	10.0	86	63.6 - 158.9

Sample: 293115 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 90054

Prep Batch: 76362

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-04-08

Sample Preparation: 2012-04-04

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2310	mg/Kg	100	4.00

Sample: 293115 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 89888

Prep Batch: 76291

Analytical Method: S 8015 D

Date Analyzed: 2012-04-02

Sample Preparation: 2012-04-02

Prep Method: N/A

Analyzed By: DA

Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	4560	mg/Kg	10	50.0

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 8 of 50
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	697	mg/Kg	10	100	697	49.3 - 157.5

Sample: 293115 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 89908

Prep Batch: 76308

Analytical Method: S 8015 D

Date Analyzed: 2012-04-03

Sample Preparation: 2012-04-02

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	466	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			7.99	mg/Kg	10	10.0	80	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			10.1	mg/Kg	10	10.0	101	45.1 - 162.2

Sample: 293116 - AH-1 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 90055

Prep Batch: 76362

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-04-08

Sample Preparation: 2012-04-04

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1370	mg/Kg	100	4.00

Sample: 293116 - AH-1 1-1.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 89977

Prep Batch: 76359

Analytical Method: S 8015 D

Date Analyzed: 2012-04-04

Sample Preparation: 2012-04-04

Prep Method: N/A

Analyzed By: DA

Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	4760	mg/Kg	10	50.0

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 9 of 50
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	645	mg/Kg	10	100	645	49.3 - 157.5

Sample: 293116 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 89994
Prep Batch: 76371

Analytical Method: S 8015 D
Date Analyzed: 2012-04-04
Sample Preparation: 2012-04-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	871	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	28.9	mg/Kg	50	50.0	58	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			35.9	mg/Kg	50	50.0	72	45.1 - 162.2

Sample: 293117 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 90055
Prep Batch: 76362

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-04-08
Sample Preparation: 2012-04-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1940	mg/Kg	100	4.00

Sample: 293117 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 90014
Prep Batch: 76385

Analytical Method: S 8015 D
Date Analyzed: 2012-04-05
Sample Preparation: 2012-04-05

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

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

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 10 of 50
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	49.3 - 157.5

Sample: 293117 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 90068
Prep Batch: 76426

Analytical Method: S 8015 D
Date Analyzed: 2012-04-06
Sample Preparation: 2012-04-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	<10.0	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.99	mg/Kg	5	5.00	100	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			4.55	mg/Kg	5	5.00	91	45.1 - 162.2

Sample: 293118 - AH-1 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 90055
Prep Batch: 76362

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-04-08
Sample Preparation: 2012-04-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2260	mg/Kg	100	4.00

Sample: 293119 - AH-1 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 90055
Prep Batch: 76362

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-04-08
Sample Preparation: 2012-04-04

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

continued ...

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 11 of 50
Eddy Co., NM

sample 293119 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2850	mg/Kg	100	4.00

Sample: 293120 - AH-1 5-5.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90055	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3890	mg/Kg	100	4.00

Sample: 293121 - AH-1 6-6.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90055	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3950	mg/Kg	100	4.00

Sample: 293122 - AH-1 7-7.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90055	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 12 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5050	mg/Kg	100	4.00

Sample: 293123 - AH-1 8-8.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90055 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5910	mg/Kg	100	4.00

Sample: 293124 - AH-1 9-9.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90055 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5930	mg/Kg	100	4.00

Sample: 293125 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 89915 Date Analyzed: 2012-04-02 Analyzed By: tc
Prep Batch: 76308 Sample Preparation: 2012-04-02 Prepared By: tc

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

continued ...

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 13 of 50
Eddy Co., NM

sample 293125 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	Qr,u	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	63.6 - 158.9

Sample: 293125 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90055 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

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

Sample: 293125 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 89888 Date Analyzed: 2012-04-02 Analyzed By: DA
Prep Batch: 76291 Sample Preparation: 2012-04-02 Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	141	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			136	mg/Kg	1	100	136	49.3 - 157.5

Sample: 293125 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 89908 Date Analyzed: 2012-04-03 Analyzed By: tc
Prep Batch: 76308 Sample Preparation: 2012-04-02 Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 14 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	2.95	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	45.1 - 162.2

Sample: 293126 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

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

Sample: 293127 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			594	mg/Kg	50	4.00

Sample: 293128 - AH-2 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 15 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1730	mg/Kg	100	4.00

Sample: 293129 - AH-2 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3300	mg/Kg	100	4.00

Sample: 293130 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9100	mg/Kg	100	4.00

Sample: 293131 - AH-2 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5290	mg/Kg	100	4.00

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 16 of 50
Eddy Co., NM

Sample: 293132 - AH-2 7-7.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	90056	Date Analyzed:	2012-04-08
Prep Batch:	76362	Sample Preparation:	2012-04-04
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5910	mg/Kg	100	4.00

Sample: 293133 - AH-2 8-8.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	90056	Date Analyzed:	2012-04-08
Prep Batch:	76362	Sample Preparation:	2012-04-04
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 293134 - AH-2 9-9.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	90056	Date Analyzed:	2012-04-08
Prep Batch:	76362	Sample Preparation:	2012-04-04
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3100	mg/Kg	100	4.00

Sample: 293135 - AH-3 0-1'

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	89915	Date Analyzed:	2012-04-02
Prep Batch:	76308	Sample Preparation:	2012-04-02
		Prep Method:	S 5035
		Analyzed By:	tc
		Prepared By:	tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 17 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Toluene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Xylene	Qr,U	1	<0.100	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.24	mg/Kg	5	5.00	105	75 - 135.4
4-Bromofluorobenzene (4-BFB)			5.08	mg/Kg	5	5.00	102	63.6 - 158.9

Sample: 293135 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3390	mg/Kg	100	4.00

Sample: 293135 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 89888 Date Analyzed: 2012-04-02 Analyzed By: DA
Prep Batch: 76291 Sample Preparation: 2012-04-02 Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	865	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	308	mg/Kg	5	100	308	49.3 - 157.5

Sample: 293135 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 89908 Date Analyzed: 2012-04-03 Analyzed By: tc
Prep Batch: 76308 Sample Preparation: 2012-04-02 Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 18 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	17.9	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.29	mg/Kg	5	5.00	106	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			4.77	mg/Kg	5	5.00	95	45.1 - 162.2

Sample: 293136 - AH-3 1-1.5'

Laboratory: Midland		
Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 90057	Date Analyzed: 2012-04-08	Analyzed By: AR
Prep Batch: 76362	Sample Preparation: 2012-04-04	Prepared By: AR

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

Sample: 293137 - AH-3 2-2.5'

Laboratory: Midland		
Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 90057	Date Analyzed: 2012-04-08	Analyzed By: AR
Prep Batch: 76362	Sample Preparation: 2012-04-04	Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4500	mg/Kg	100	4.00

Sample: 293138 - AH-3 3-3.5'

Laboratory: Midland		
Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 90057	Date Analyzed: 2012-04-08	Analyzed By: AR
Prep Batch: 76362	Sample Preparation: 2012-04-04	Prepared By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 19 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3430	mg/Kg	100	4.00

Sample: 293139 - AH-3 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90057 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4290	mg/Kg	100	4.00

Sample: 293140 - AH-3 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90057 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4040	mg/Kg	100	4.00

Sample: 293141 - AH-3 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90057 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3700	mg/Kg	100	4.00

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 20 of 50
Eddy Co., NM

Sample: 293142 - AH-3 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90057	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3340	mg/Kg	100	4.00

Sample: 293143 - AH-3 8-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90057	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3430	mg/Kg	100	4.00

Sample: 293144 - AH-3 9-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90057	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3470	mg/Kg	100	4.00

Sample: 293145 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2012-04-02	Analyzed By:	tc
QC Batch:	89915	Sample Preparation:	2012-04-02	Prepared By:	tc
Prep Batch:	76308				

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 21 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Toluene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	Qr,U	1	<0.100	mg/Kg	5	0.0200
Xylene	Qr,U	1	<0.100	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.04	mg/Kg	5	5.00	101	75 - 135.4
4-Bromofluorobenzene (4-BFB)			4.90	mg/Kg	5	5.00	98	63.6 - 158.9

Sample: 293145 - AH-4 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90057 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2310	mg/Kg	100	4.00

Sample: 293145 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 89889 Date Analyzed: 2012-04-02 Analyzed By: DA
Prep Batch: 76291 Sample Preparation: 2012-04-02 Prepared By: DA

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	1900	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	440	mg/Kg	10	100	440	49.3 - 157.5

Sample: 293145 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 89908 Date Analyzed: 2012-04-03 Analyzed By: tc
Prep Batch: 76308 Sample Preparation: 2012-04-02 Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 22 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	34.2	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.12	mg/Kg	5	5.00	102	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			4.66	mg/Kg	5	5.00	93	45.1 - 162.2

Sample: 293146 - AH-4 1-1.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90058	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3610	mg/Kg	100	4.00

Sample: 293147 - AH-4 2-2.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90058	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5220	mg/Kg	100	4.00

Sample: 293148 - AH-4 3-3.5'

Laboratory: Midland	Analytical Method: SM 4500-Cl B	Prep Method: N/A
Analysis: Chloride (Titration)	Date Analyzed: 2012-04-08	Analyzed By: AR
QC Batch: 90058	Sample Preparation: 2012-04-04	Prepared By: AR
Prep Batch: 76362		

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 23 of 50
Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2610	mg/Kg	100	4.00

Sample: 293149 - AH-4 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90058 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1890	mg/Kg	100	4.00

Sample: 293150 - AH-4 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90058 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1750	mg/Kg	100	4.00

Sample: 293151 - AH-4 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 90058 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 Sample Preparation: 2012-04-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7570	mg/Kg	100	4.00

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 24 of 50
Eddy Co., NM

Sample: 293152 - AH-4 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90058	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6320	mg/Kg	100	4.00

Sample: 293153 - AH-4 8-8.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90058	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2580	mg/Kg	100	4.00

Sample: 293154 - AH-4 9-9.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-04-08	Analyzed By:	AR
QC Batch:	90058	Sample Preparation:	2012-04-04	Prepared By:	AR
Prep Batch:	76362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			684	mg/Kg	50	4.00

Method Blanks

Method Blank (1) QC Batch: 89888

QC Batch: 89888
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			126	mg/Kg	1	100	126	52 - 140.8

Method Blank (1) QC Batch: 89889

QC Batch: 89889
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			99.5	mg/Kg	1	100	100	52 - 140.8

Method Blank (1) QC Batch: 89908

QC Batch: 89908
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.22	mg/Kg	2

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 26 of 50
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.53	mg/Kg	1	2.00	76	55 - 100

Method Blank (1) QC Batch: 89915

QC Batch: 89915
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

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)			1.62	mg/Kg	1	2.00	81	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.64	mg/Kg	1	2.00	82	55.9 - 112.4

Method Blank (1) QC Batch: 89977

QC Batch: 89977
Prep Batch: 76359

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

Analyzed By: DA
Prepared By: DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			93.6	mg/Kg	1	100	94	52 - 140.8

Method Blank (1) QC Batch: 89994

QC Batch: 89994
Prep Batch: 76371

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

Analyzed By: tc
Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 27 of 50
Eddy Co., NM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.74	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.15	mg/Kg	1	2.00	108	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	55 - 100

Method Blank (1) QC Batch: 90014

QC Batch: 90014
Prep Batch: 76385

Date Analyzed: 2012-04-05
QC Preparation: 2012-04-05

Analyzed By: DA
Prepared By: DA

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	52 - 140.8

Method Blank (1) QC Batch: 90054

QC Batch: 90054
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 90055

QC Batch: 90055
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 28 of 50
Eddy Co., NM

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

Method Blank (1) QC Batch: 90056

QC Batch: 90056 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 QC Preparation: 2012-04-04 Prepared By: AR

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

Method Blank (1) QC Batch: 90057

QC Batch: 90057 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 QC Preparation: 2012-04-04 Prepared By: AR

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

Method Blank (1) QC Batch: 90058

QC Batch: 90058 Date Analyzed: 2012-04-08 Analyzed By: AR
Prep Batch: 76362 QC Preparation: 2012-04-04 Prepared By: AR

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

Method Blank (1) QC Batch: 90068

QC Batch: 90068 Date Analyzed: 2012-04-06 Analyzed By: AG
Prep Batch: 76426 QC Preparation: 2012-04-06 Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 29 of 50
Eddy Co., NM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.52	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	78.6 - 111
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	55 - 100

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 30 of 50
Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 89888
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	246	mg/Kg	1	250	<14.5	98	62 - 128.3

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	245	mg/Kg	1	250	<14.5	98	62 - 128.3	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
n-Tricosane	116	109	mg/Kg	1	100	116	109	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89889
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	234	mg/Kg	1	250	<14.5	94	62 - 128.3

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	219	mg/Kg	1	250	<14.5	88	62 - 128.3	7	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	106	96.8	mg/Kg	1	100	106	97	58.6 - 149.6

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 31 of 50
Eddy Co., NM

Laboratory Control Spike (LCS-1)

QC Batch: 89908
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.9	mg/Kg	1	20.0	<1.22	94	68.3 - 105.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	19.2	mg/Kg	1	20.0	<1.22	96	68.3 - 105.7	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.91	2.00	mg/Kg	1	2.00	96	100	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.80	1.90	mg/Kg	1	2.00	90	95	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 89915
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.23	mg/Kg	1	2.00	<0.00470	112	86.5 - 124.9
Toluene		1	2.22	mg/Kg	1	2.00	<0.00980	111	84.7 - 122.5
Ethylbenzene		1	2.23	mg/Kg	1	2.00	<0.00500	112	79.4 - 118.9
Xylene		1	6.68	mg/Kg	1	6.00	<0.0170	111	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.19	mg/Kg	1	2.00	<0.00470	110	86.5 - 124.9	2	20
Toluene		1	2.20	mg/Kg	1	2.00	<0.00980	110	84.7 - 122.5	1	20
Ethylbenzene		1	2.21	mg/Kg	1	2.00	<0.00500	110	79.4 - 118.9	1	20
Xylene		1	6.70	mg/Kg	1	6.00	<0.0170	112	79.5 - 118.9	0	20

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

continued ...

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 32 of 50
Eddy Co., NM

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.89	1.95	mg/Kg	1	2.00	94	98	73.9 - 127
4-Bromofluorobenzene (4-BFB)	1.90	1.93	mg/Kg	1	2.00	95	96	70.4 - 119.9

Laboratory Control Spike (LCS-1)

QC Batch: 89977
Prep Batch: 76359

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

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	232	mg/Kg	1	250	<14.5	93	62 - 128.3

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	206	mg/Kg	1	250	<14.5	82	62 - 128.3	12	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	104	98.0	mg/Kg	1	100	104	98	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 89994
Prep Batch: 76371

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

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.2	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.3	mg/Kg	1	20.0	<1.22	86	68.3 - 105.7	1	20

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 33 of 50
Eddy Co., NM

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)	1.64	1.66	mg/Kg	1	2.00	82	83	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.54	1.56	mg/Kg	1	2.00	77	78	66.4 - 106.6

Laboratory Control Spike (LCS-1)

QC Batch: 90014
Prep Batch: 76385

Date Analyzed: 2012-04-05
QC Preparation: 2012-04-05

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	234	mg/Kg	1	250	<14.5	94	62 - 128.3

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	236	mg/Kg	1	250	<14.5	94	62 - 128.3	1	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	119	120	mg/Kg	1	100	119	120	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 90054
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			99.4	mg/Kg	1	100	<3.85	99	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			107	mg/Kg	1	100	<3.85	107	85 - 115	7	20

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

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 34 of 50
Eddy Co., NM

Laboratory Control Spike (LCS-1)

QC Batch: 90055
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.5	mg/Kg	1	100	<3.85	98	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	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: 90056
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.7	mg/Kg	1	100	<3.85	98	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			95.9	mg/Kg	1	100	<3.85	96	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: 90057
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.9	mg/Kg	1	100	<3.85	95	85 - 115

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

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 35 of 50
Eddy Co., NM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			101	mg/Kg	1	100	<3.85	101	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: 90058
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.8	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	7	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 90068
Prep Batch: 76426

Date Analyzed: 2012-04-06
QC Preparation: 2012-04-06

Analyzed By: AG
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.4	mg/Kg	1	20.0	<1.22	87	68.3 - 105.7

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
GRO		1	17.5	mg/Kg	1	20.0	<1.22	88	68.3 - 105.7	1	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.05	1.90	mg/Kg	1	2.00	102	95	80 - 111.2
4-Bromofluorobenzene (4-BFB)	1.92	1.80	mg/Kg	1	2.00	96	90	66.4 - 106.6

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 36 of 50
Eddy Co., NM

Matrix Spike (MS-1) Spiked Sample: 293135

QC Batch: 89888
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	1040	mg/Kg	5	250	865	70	45.5 - 127

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	1040	mg/Kg	5	250	865	70	45.5 - 127	0	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	Q _{sr}	Q _{sr}	290	297	mg/Kg	5	100	290	297	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293155

QC Batch: 89889
Prep Batch: 76291

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

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	258	mg/Kg	1	250	<14.5	103	45.5 - 127

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	256	mg/Kg	1	250	<14.5	102	45.5 - 127	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
n-Tricosane			124	125	mg/Kg	1	100	124	125	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293145

QC Batch: 89908
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 37 of 50
Eddy Co., NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	89.9	mg/Kg	5	50.0	34.1827	111	28.2 - 157.2

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
GRO		1	97.4	mg/Kg	5	50.0	34.1827	126	28.2 - 157.2	8	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.33	5.45	mg/Kg	5	5	107	109	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	5.00	5.12	mg/Kg	5	5	100	102	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 293125

QC Batch: 89915
Prep Batch: 76308

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

Analyzed By: tc
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.90	mg/Kg	1	2.00	<0.00470	95	69.3 - 159.2
Toluene		1	1.93	mg/Kg	1	2.00	<0.00980	96	68.7 - 157
Ethylbenzene		1	2.01	mg/Kg	1	2.00	<0.00500	100	71.6 - 158.2
Xylene		1	6.02	mg/Kg	1	6.00	<0.0170	100	70.8 - 159.8

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

Param				MSD		Dil.	Spike	Matrix	Rec.		RPD	
	F	C		Result	Units		Amount	Result	Rec.	Limit	RPD	Limit
Benzene	qr	qr	1	2.42	mg/Kg	1	2.00	<0.00470	121	69.3 - 159.2	24	20
Toluene	qr	qr	1	2.48	mg/Kg	1	2.00	<0.00980	124	68.7 - 157	25	20
Ethylbenzene	qr	qr	1	2.59	mg/Kg	1	2.00	<0.00500	130	71.6 - 158.2	25	20
Xylene	qr	qr	1	7.83	mg/Kg	1	6.00	<0.0170	130	70.8 - 159.8	26	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)	1.84	2.20	mg/Kg	1	2	92	110	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	1.76	2.17	mg/Kg	1	2	88	108	72.6 - 144.1

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 38 of 50
Eddy Co., NM

Matrix Spike (MS-1) Spiked Sample: 293093

QC Batch: 89977
Prep Batch: 76359

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

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q _s	Q _s	1	627	mg/Kg	1	250	194	173 45.5 - 127

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	Q _s	Q _s	1	709	mg/Kg	1	250	194	206 45.5 - 127	12	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q _{sr}	Q _{sr}	220	241	mg/Kg	1	100	220 241 45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293116

QC Batch: 89994
Prep Batch: 76371

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

Analyzed By: tc
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	1470	mg/Kg	50	500	870.943	120	28.2 - 157.2

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
GRO		1	1360	mg/Kg	50	500	870.943	98	28.2 - 157.2	8	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)	Q _{sr}	Q _{sr}	35.6	44.2	mg/Kg	50	50	71 88 75.5 - 122.3
4-Bromofluorobenzene (4-BFB)			39.2	45.1	mg/Kg	50	50	78 90 77.9 - 122.4

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 39 of 50
Eddy Co., NM

Matrix Spike (MS-1) Spiked Sample: 291984

QC Batch: 90014
Prep Batch: 76385

Date Analyzed: 2012-04-05
QC Preparation: 2012-04-05

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	603	mg/Kg	1	250	371	93	45.5 - 127

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	639	mg/Kg	1	250	371	107	45.5 - 127	6	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q _{sr}	Q _{sr}	148	172	mg/Kg	1	100	148	172	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 293115

QC Batch: 90054
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12600	mg/Kg	100	10000	2310	103	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			13300	mg/Kg	100	10000	2310	110	79.4 - 120.6	5	20

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

Matrix Spike (MS-1) Spiked Sample: 293125

QC Batch: 90055
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 40 of 50
Eddy Co., NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11100	mg/Kg	100	10000	<385	111	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11400	mg/Kg	100	10000	<385	114	79.4 - 120.6	3	20

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

Matrix Spike (MS-1) Spiked Sample: 293135

QC Batch: 90056
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			13500	mg/Kg	100	10000	3390	101	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			14000	mg/Kg	100	10000	3390	106	79.4 - 120.6	4	20

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

Matrix Spike (MS-1) Spiked Sample: 293145

QC Batch: 90057
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12600	mg/Kg	100	10000	2310	103	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			13000	mg/Kg	100	10000	2310	107	79.4 - 120.6	3	20

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

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 41 of 50
Eddy Co., NM

Matrix Spike (MS-1) Spiked Sample: 293155

QC Batch: 90058
Prep Batch: 76362

Date Analyzed: 2012-04-08
QC Preparation: 2012-04-04

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			14800	mg/Kg	100	10000	5000	98	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			15400	mg/Kg	100	10000	5000	104	79.4 - 120.6	4	20

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

Matrix Spike (MS-1) Spiked Sample: 293117

QC Batch: 90068
Prep Batch: 76426

Date Analyzed: 2012-04-06
QC Preparation: 2012-04-06

Analyzed By: AG
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	46.0	mg/Kg	5	50.0	6.82	78	28.2 - 157.2

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
GRO		1	48.0	mg/Kg	5	50.0	6.82	96	28.2 - 157.2	4	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)	4.94	4.92	mg/Kg	5	5	99	98	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	4.75	4.77	mg/Kg	5	5	95	95	77.9 - 122.4

Calibration Standards

Standard (CCV-2)

QC Batch: 89888

Date Analyzed: 2012-04-02

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	258	103	80 - 120	2012-04-02

Standard (CCV-3)

QC Batch: 89888

Date Analyzed: 2012-04-02

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	242	97	80 - 120	2012-04-02

Standard (CCV-4)

QC Batch: 89888

Date Analyzed: 2012-04-02

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	244	98	80 - 120	2012-04-02

Standard (CCV-2)

QC Batch: 89889

Date Analyzed: 2012-04-02

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	298	119	80 - 120	2012-04-02

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 43 of 50
Eddy Co., NM

Standard (CCV-3)

QC Batch: 89889

Date Analyzed: 2012-04-02

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	292	117	80 - 120	2012-04-02

Standard (CCV-1)

QC Batch: 89908

Date Analyzed: 2012-04-03

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.17	117	80 - 120	2012-04-03

Standard (CCV-2)

QC Batch: 89908

Date Analyzed: 2012-04-03

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.15	115	80 - 120	2012-04-03

Standard (CCV-3)

QC Batch: 89908

Date Analyzed: 2012-04-03

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.20	120	80 - 120	2012-04-03

Standard (CCV-1)

QC Batch: 89915

Date Analyzed: 2012-04-02

Analyzed By: tc

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 44 of 50
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.105	105	80 - 120	2012-04-02
Toluene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Xylene		1	mg/kg	0.300	0.318	106	80 - 120	2012-04-02

Standard (CCV-2)

QC Batch: 89915

Date Analyzed: 2012-04-02

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.109	109	80 - 120	2012-04-02
Toluene		1	mg/kg	0.100	0.108	108	80 - 120	2012-04-02
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Xylene		1	mg/kg	0.300	0.315	105	80 - 120	2012-04-02

Standard (CCV-3)

QC Batch: 89915

Date Analyzed: 2012-04-02

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.109	109	80 - 120	2012-04-02
Toluene		1	mg/kg	0.100	0.109	109	80 - 120	2012-04-02
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-04-02
Xylene		1	mg/kg	0.300	0.316	105	80 - 120	2012-04-02

Standard (CCV-2)

QC Batch: 89977

Date Analyzed: 2012-04-04

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	236	94	80 - 120	2012-04-04

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 45 of 50
Eddy Co., NM

Standard (CCV-3)

QC Batch: 89977

Date Analyzed: 2012-04-04

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	220	88	80 - 120	2012-04-04

Standard (CCV-1)

QC Batch: 89994

Date Analyzed: 2012-04-04

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2012-04-04

Standard (CCV-2)

QC Batch: 89994

Date Analyzed: 2012-04-04

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.17	117	80 - 120	2012-04-04

Standard (CCV-2)

QC Batch: 90014

Date Analyzed: 2012-04-05

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	248	99	80 - 120	2012-04-05

Standard (CCV-3)

QC Batch: 90014

Date Analyzed: 2012-04-05

Analyzed By: DA

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 46 of 50
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	228	91	80 - 120	2012-04-05

Standard (ICV-1)

QC Batch: 90054

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90054

Date Analyzed: 2012-04-08

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	99.3	99	85 - 115	2012-04-08

Standard (ICV-1)

QC Batch: 90055

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	94.4	94	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90055

Date Analyzed: 2012-04-08

Analyzed By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 47 of 50
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	106	106	85 - 115	2012-04-08

Standard (ICV-1)

QC Batch: 90056

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90056

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-04-08

Standard (ICV-1)

QC Batch: 90057

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	104	104	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90057

Date Analyzed: 2012-04-08

Analyzed By: AR

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 48 of 50
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	96.4	96	85 - 115	2012-04-08

Standard (ICV-1)

QC Batch: 90058

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.4	98	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90058

Date Analyzed: 2012-04-08

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2012-04-08

Standard (CCV-1)

QC Batch: 90068

Date Analyzed: 2012-04-06

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.14	114	80 - 120	2012-04-06

Standard (CCV-2)

QC Batch: 90068

Date Analyzed: 2012-04-06

Analyzed By: AG

Report Date: April 11, 2012
114-6401350

Work Order: 12040202
COG/Aoudad Water Transfer Line

Page Number: 49 of 50
Eddy Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.06	106	80 - 120	2012-04-06
