

SITE INFORMATION

Report Type: Closure Report

General Site Information

Site:	Continental A State #12					
Company:	COG Operating LLC					
Section, Township and Range	Unit I	Sec. 30	T-17-S	R-29-E		
Lease Number:	API-30-015-35052					
County:	Eddy County					
GPS:	32.81204° N			104.11911° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	Intersection of Hwy 82 and CR-212 (West of Loco Hills), travel west on Hwy 82 2.4 mi, turn right 0.2 mi, turn left 500' to location - Injection well location west of wellhead					

Release Data:

Date Released:	4/28/2012	RECEIVED NOV 01 2012 CONCHO ARTESIA
Type Release:	Produced Water	
Source of Contamination:	2" nipple failed on wellhead	
Fluid Released:	60 bbls	
Fluids Recovered:	52 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.Tavaréz@tetratech.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

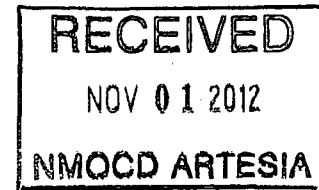
Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

October 9, 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., Continental A State #12 Injection Well Located in Unit I, Section 30, Township 17 South, Range 29 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 Continental A State #12 Injection Well located in Unit I, Section 30, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.81204°, W 104.11911°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on April 28, 2012, and released approximately sixty (60) barrels of produced water due to a 2" nipple failure at the wellhead. COG personnel replaced the defective nipple. Approximately fifty-two (52) barrels of produced water were recovered from the spill area.

The spill initiated from the wellhead and migrated approximately 120' east across the well pad in a narrow stream measuring approximately 1.0' to 6" wide. In addition, the fluids migrated off the well pad along a two-track road impacting an area approximately 5' x 40'. The footprint of the spill is shown on Figure 3. The initial Form C-141 is enclosed in Appendix A.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com



Groundwater

No wells were located in Section 30. According to the NMOCD groundwater map, depth to groundwater in this area is approximately 175' below surface. The groundwater data is shown in Appendix B.

Regulatory

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

Soil Assessment

On May 30, 2012, Tetra Tech personnel inspected and sampled the spill area. A total of four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the auger hole samples were below the RRAL for TPH and BTEX. Elevated chlorides were detected at the site. The area of AH-1 was vertically defined, with chloride concentrations declining to 349 mg/kg at 3-3.5' below surface. The areas of AH-2 and AH-4 were not vertically defined and showed chloride concentrations ranging from 3,730 mg/kg (AH-4, 0-1') to 10,400 mg/kg (AH-2, 2-2.5'). Due to a dense caliche formation, deeper samples could not be collected with a hand auger. Auger hole (AH-3) did not show a chloride impact to the soils.

Remediation and Conclusion

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The excavated area and final excavation depths are highlighted in Table 1. The excavation area measured approximately



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105' long, with a width of approximately 2.0' to 7.0'. The excavation depths ranged from 2.0 to 5.0' below surface. Approximately 70 cubic yards of soil were excavated and transported to R360 facility for proper disposal.

Once excavated, bottom hole confirmation samples from AH-2 and AH-4 for chloride analysis. Referring to Table 1, CS-1 (AH-4) and CS-2 (AH-2) showed chloride concentrations of <20 mg/kg (2.0') and 88.7 mg/kg (5.0'), respectively. Based on the results, the excavations were then backfilled to grade with clean material.

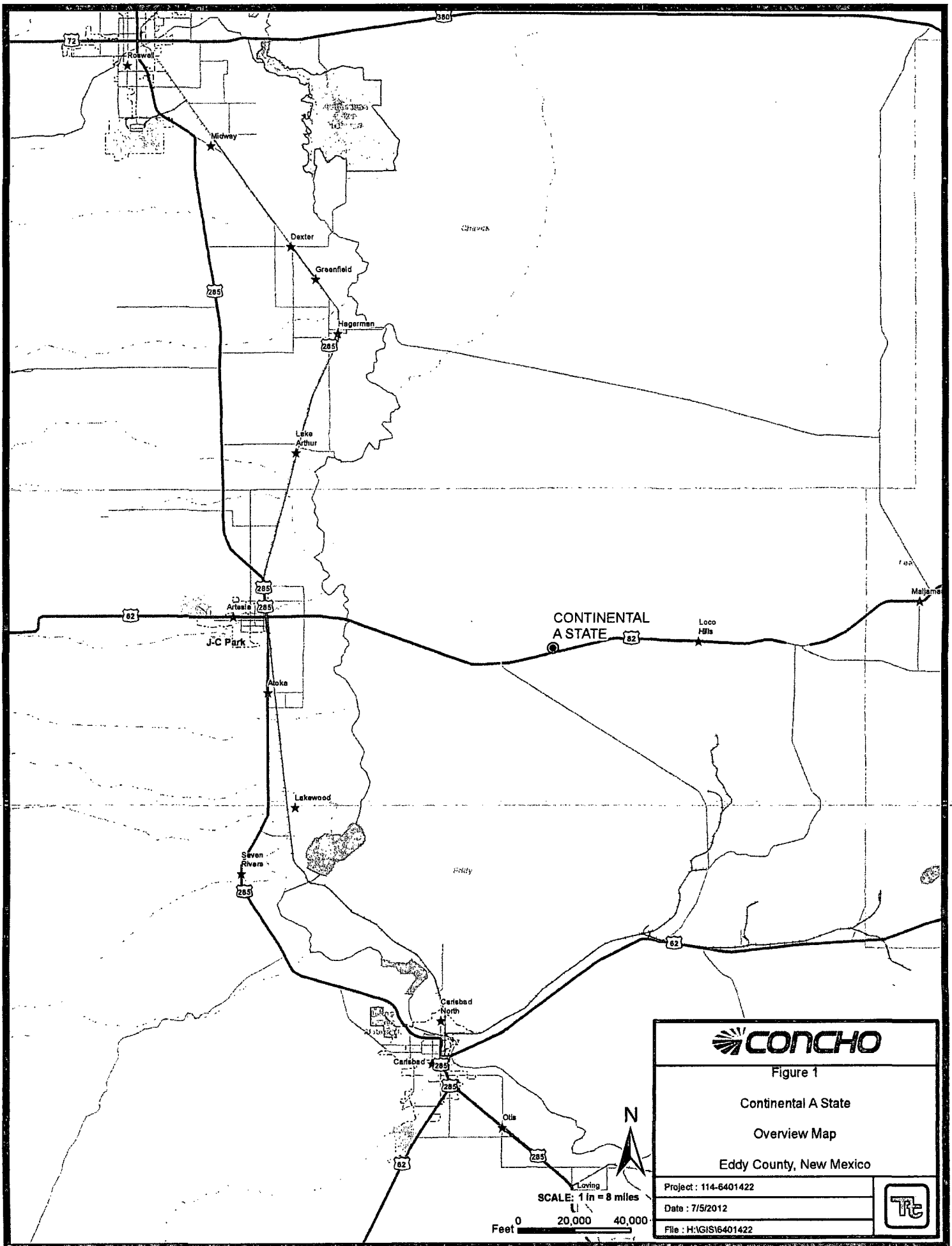
Based on the remedial activities performed, COG request closure of the site. A copy of the C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaroz
Senior Project Manager

cc: Pat Ellis – COG

Figures



CONCHO

Figure 1

Continental A State

Overview Map

Eddy County, New Mexico

Project : 114-6401422

Date : 7/5/2012

File : H:\GIS\16401422



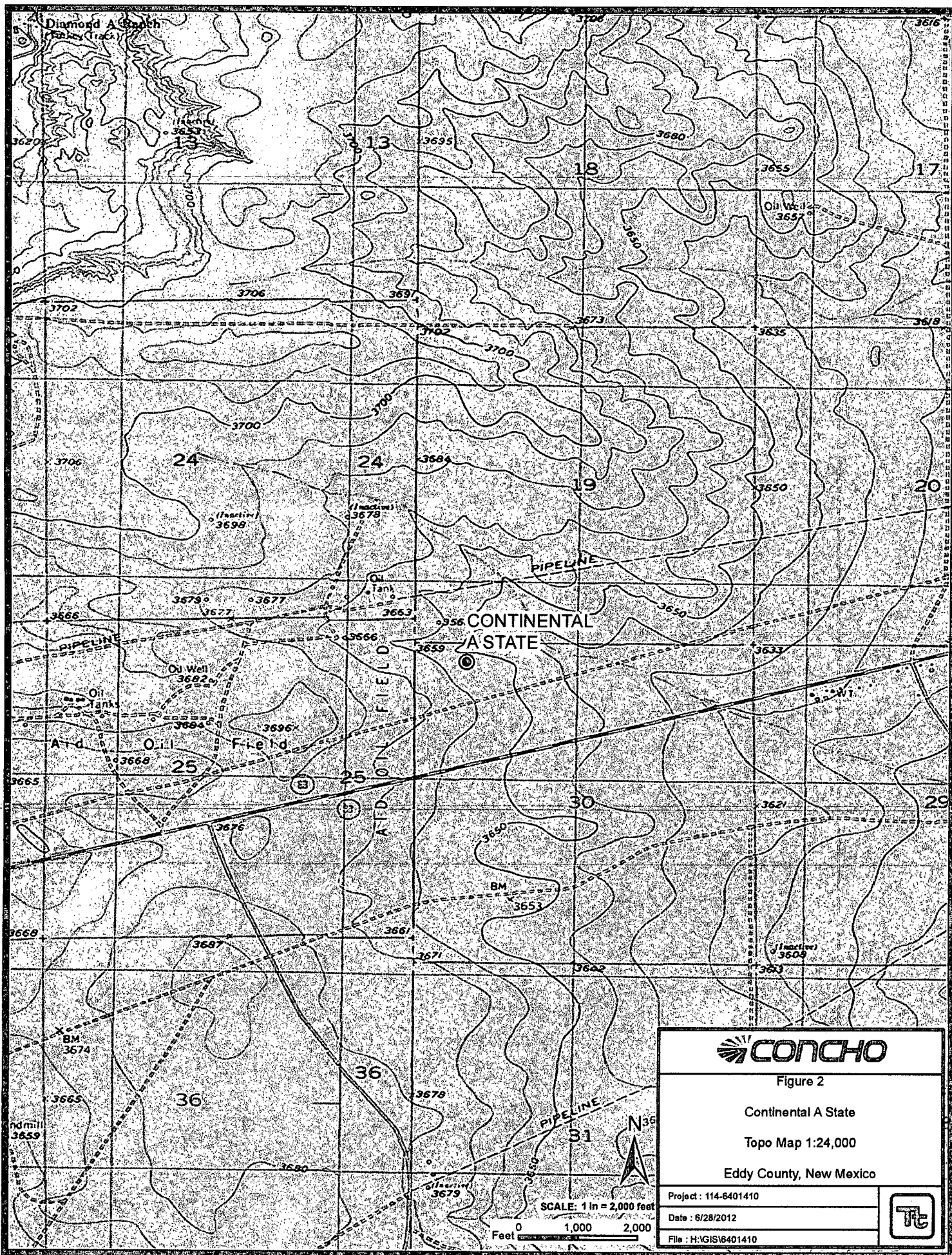


Figure 2

Continental A State

Topo Map 1:24,000

Eddy County, New Mexico

Project : 114-6401410

Date : 6/28/2012

File : H:\GIS\16401410



SCALE: 1 in = 2,000 feet

0 1,000 2,000
Feet



PASTURE

PAD

PASTURE

5'-7' WIDE

40'

120'

AH-2

AH-1

AH-3

AH-4

INJ
WELL

0.6" - 1.0' WIDE

PASTURE

PASTURE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA

SCALE: 1 IN = 49 FEET

0 20 40
Feet



Figure 3

Continental A State

Spill Assessment Map

Eddy County, New Mexico

Project : 114-6401422

Date : 7/5/2012

File : HAGIS6401422



PASTURE

PASTURE

PAD

5'-7' WIDE

120'

40'

AH-1

AH-2

AH-3

AH-4

INJ.
WELL

PJ

0.6" - 1.0' WIDE

PASTURE

PASTURE

EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
▨ SPILL AREA



SCALE: 1 IN = 49 FEET

Feet 0 20 40



Figure 3

Continental A State

Spill Assessment Map

Eddy County, New Mexico

Project : 114-6401422

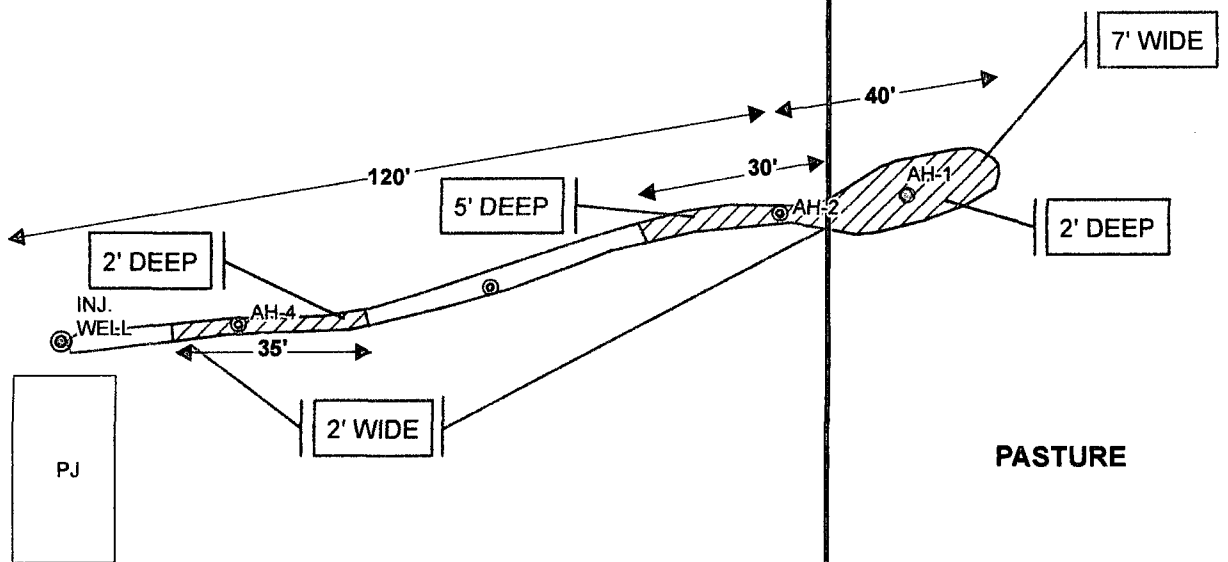
Date : 7/5/2012

File : H:\GIS\6401422



PASTURE

PAD



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ▨ EXCAVATED AREAS

PASTURE



SCALE: 1 IN = 37 FEET

Feet 0 20 40



Figure 4

Continental A State

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 114-6401422

Date : 7/5/2012

File : H:\GIS\6401422



Tables

Table 1
COG Operating LLC.
Continental A State Well #12
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-1	5/30/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	0.0538	<0.0200	0.0200	0.0738	8,380
	"	1-1.5		X	-	-	-	-	-	-	-	-	8,820
	"	2-2.5	X		-	-	-	-	-	-	-	-	988
	"	3-3.5	X		-	-	-	-	-	-	-	-	349
AH-2	5/30/2012	0-1		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,030
	"	1-1.5		X	-	-	-	-	-	-	-	-	7,910
	"	2-2.5		X	-	-	-	-	-	-	-	-	10,400
	"	2.5-3		X	-	-	-	-	-	-	-	-	3,920
CS-2	8/21/2012	5' Bottom	X		-	-	-	-	-	-	-	-	88.7
AH-3	5/30/2012	0-0.5	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	126
AH-4	5/30/2012	0-1		X	<2.00	636	636	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,730
CS-1	8/21/2012	2' Bottom	X		-	-	-	-	-	-	-	-	<20.0

(--)

Not Analyzed



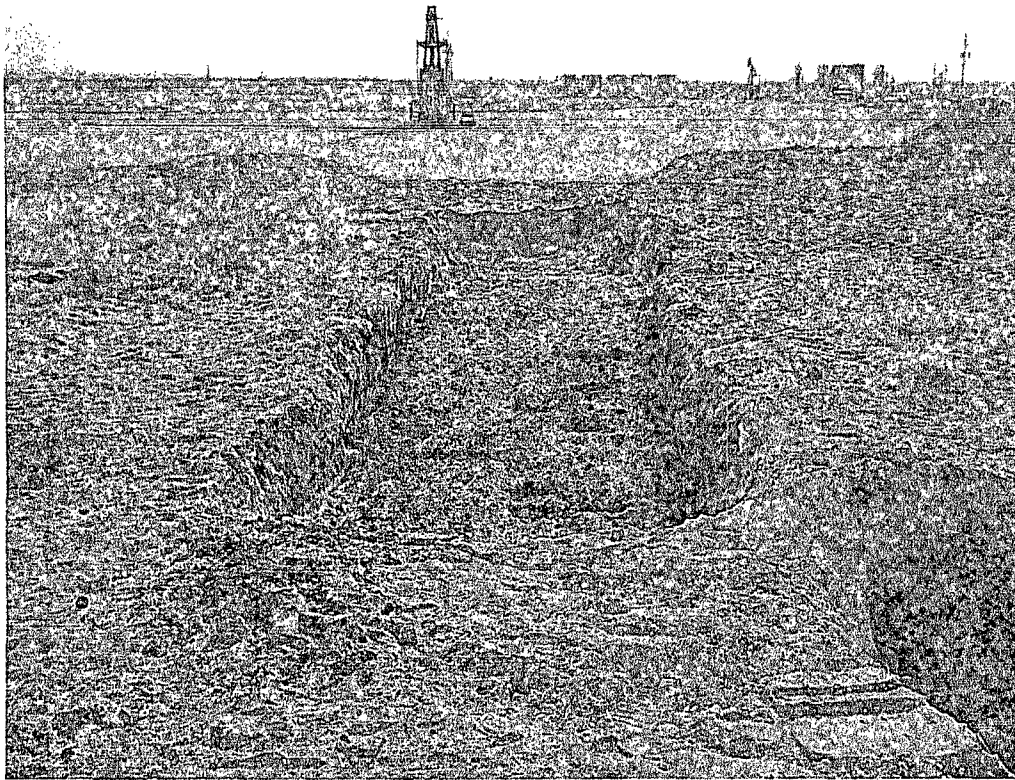
Excavated Depths

Photos

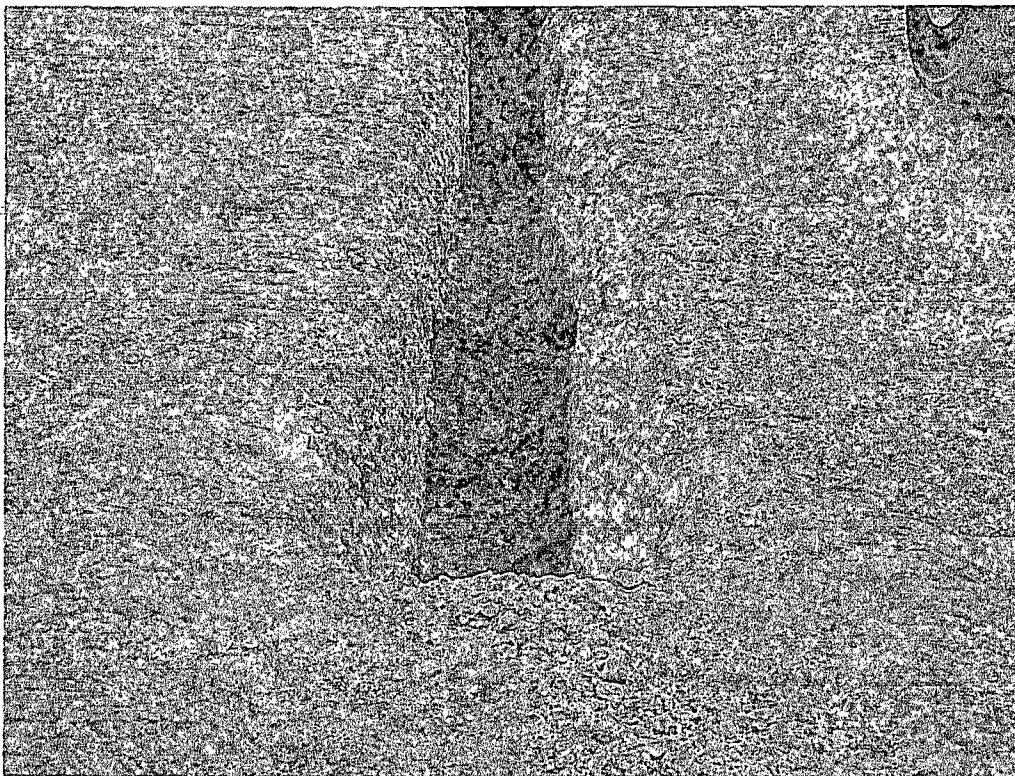
COG Operating LLC
Continental A State #12
Eddy County, New Mexico



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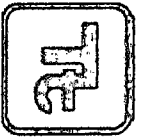


View West – Area of AH-1

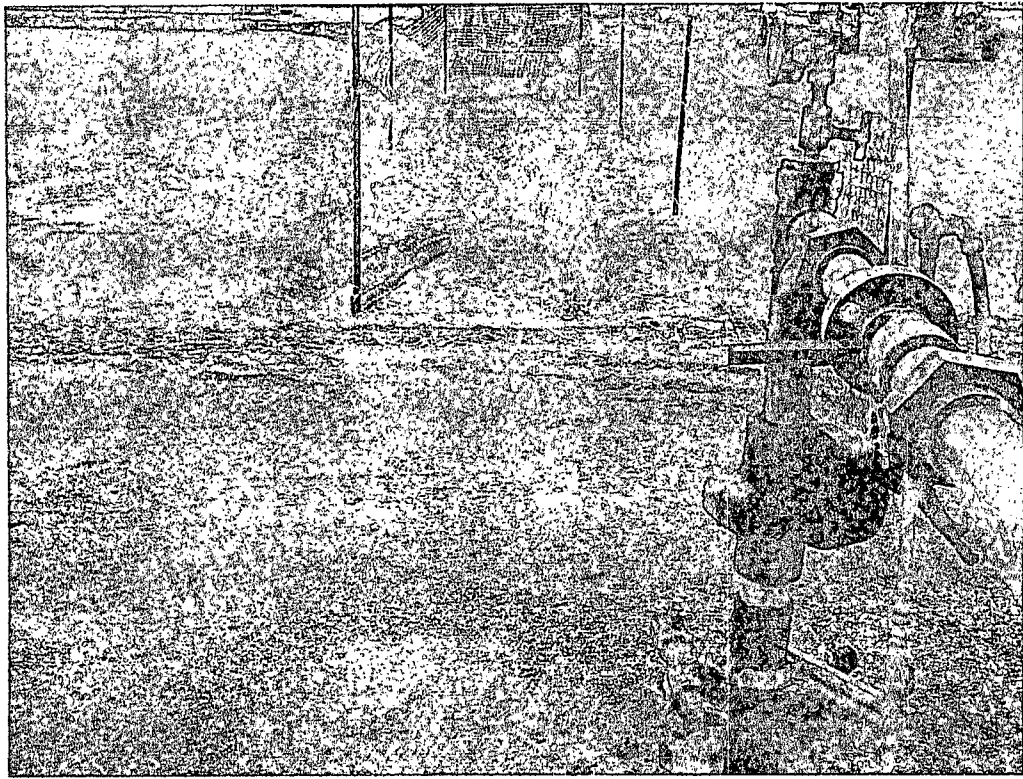


View East – Area of AH-2

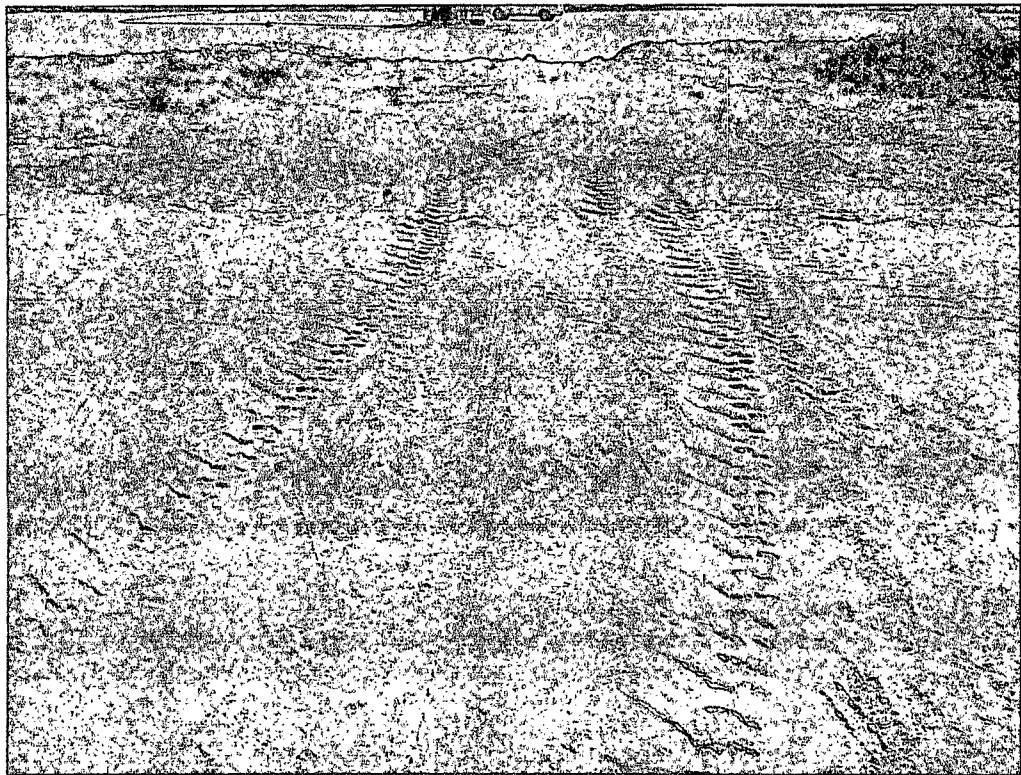
COG Operating LLC
Continental A State #12
Eddy County, New Mexico



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View East – Area of AH-4

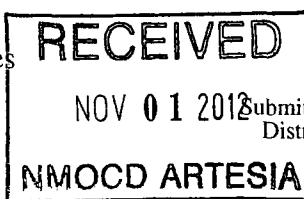


Backfill

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	Continental A State #12	Facility Type	Well Location
Surface Owner: State		Mineral Owner	Lease No. (API#) 30-015-35052

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	30	17S	29E					Eddy

Latitude N 32.81204° Longitude W 104.11911°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 60 bbls	Volume Recovered 52 bbls
Source of Release: 2" nipple at wellhead	Date and Hour of Occurrence 04/28/2012	Date and Hour of Discovery 04/28/2012 8:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher - OCD	
By Whom? Michelle Mullins	Date and Hour 04/28/2012 6:59 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

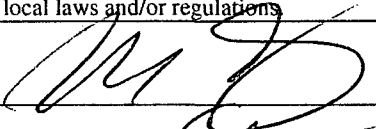
Describe Cause of Problem and Remedial Action Taken.*

A 2" nipple failed between the check valve and wellhead at the Continental A State #12 well location. The wellhead connections have been replaced.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. 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: 		OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez		Approved by District Supervisor:	
Title: Project Manager		Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com		Conditions of Approval:	
Date: 10-9-12 Phone: (432) 682-4559		Attached ☐	

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
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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	Continental A State #12	Facility Type	Well location

Surface Owner	State	Mineral Owner	Lease No. (API#) 30-015-35052
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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
1	30	17S	29E					Eddy

Latitude 32 48.696 Longitude 104 07.157

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	60bbbls	Volume Recovered	52bbbls
Source of Release	2" nipple at wellhead	Date and Hour of Occurrence	04/28/2012	Date and Hour of Discovery	04/28/2012 8:00 a.m.
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher-OCD		
By Whom?	Michelle Mullins	Date and Hour	04/28/12 6:59 p.m.		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

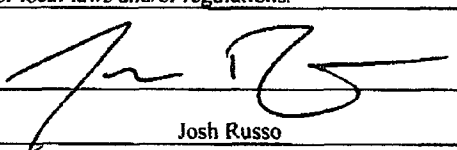
A 2" nipple failed between the check valve and wellhead at the Continental A State #12 well location. The wellhead connections have been replaced.

Describe Area Affected and Cleanup Action Taken.*

Initially 60bbbls of produced water was released from the wellhead and we were able to recover 52bbbls with a vacuum truck. The fluid streamed from the wellhead into the pasture where it collected in a 10' x 20' area. All free fluid has been picked up from the pasture and the pad location has been scraped. Tetra Tech will sample the spill site area in the pasture to delineate any possible contamination from the release and we will present the NMOCD with a work plan for approval prior to any significant remediation work.

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

OIL CONSERVATION DIVISION

Signature: 	Approved by District Supervisor:		
Printed Name: Josh Russo			
Title: HSE Coordinator	Approval Date:	Expiration Date:	
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:		Attached ☐
Date: 05/04/2012 Phone: 432-212-2399			

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Continental A State #12
Eddy County, New Mexico

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

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

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

17 South			28 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	79	26	25
31	32	33	53	35	36

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

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

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

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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Site Location - Continental A State #12

Appendix C

Summary Report

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

Report Date: July 25, 2012

Work Order: 12070601



Project Location: Eddy Co., NM
Project Name: COG/Continental A State #12 Tank Battery
Project Number: 114-6401422

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
302782	AH-1 0-1'	soil	2012-07-03	00:00	2012-07-05
302783	AH-1 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302784	AH-2 0-1'	soil	2012-07-03	00:00	2012-07-05
302785	AH-3 0-1'	soil	2012-07-03	00:00	2012-07-05
302786	AH-3 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302787	AH-3 2-2.5'	soil	2012-07-03	00:00	2012-07-05
302788	AH-4 0-1'	soil	2012-07-03	00:00	2012-07-05
302789	AH-5 0-1'	soil	2012-07-03	00:00	2012-07-05
302790	AH-5 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302791	AH-6 0-1'	soil	2012-07-03	00:00	2012-07-05
302792	AH-6 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302793	AH-6 2-2.5'	soil	2012-07-03	00:00	2012-07-05
302794	AH-6 3-3.5'	soil	2012-07-03	00:00	2012-07-05
302795	AH-6 4-4.5'	soil	2012-07-03	00:00	2012-07-05
302796	AH-6 5-5.5'	soil	2012-07-03	00:00	2012-07-05
302797	AH-7 0-1'	soil	2012-07-03	00:00	2012-07-05
302798	AH-7 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302799	AH-8 0-1'	soil	2012-07-03	00:00	2012-07-05
302800	AH-8 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302801	AH-9 0-1'	soil	2012-07-03	00:00	2012-07-05
302802	AH-9 1-1.5'	soil	2012-07-03	00:00	2012-07-05

Sample - Field Code	BTX				MTBE	TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	MTBE (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
302782 - AH-1 0-1'	<0.0200	<0.0200	0.0411	0.603		1210 Qs	22.2 Qs
302784 - AH-2 0-1'	0.665	7.88	12.0	8.15		4240 Qs	806 Js, Qs
302785 - AH-3 0-1'	4.04	64.1 Js	37.2	82.8 Js		2280 Qs	746 Js, Qs

continued ...

... continued

Sample - Field Code	BTEX				MTBE MTBE (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)			
302786 - AH-3 1-1.5'	<0.200 ¹ _H	16.0	33.6	67.6			
302787 - AH-3 2-2.5'	<0.100 ² _H	<0.100	1.04	3.43			
302788 - AH-4 0-1'	2.68	0.162	1.31	2.89		1200 Q _s	194 Q _s
302789 - AH-5 0-1'	<0.100 ³	<0.100	0.213	0.494		1070 Q _s	141 Q _s
302791 - AH-6 0-1'	<0.100 ⁴	0.260	4.13	4.75		377 Q _s	164 Q _s
302797 - AH-7 0-1'	24.3	219 J _s	130 J _s	191 J _s		4940 Q _s	5360 J _s , Q _s
302798 - AH-7 1-1.5'	30.5	258 J _s	134	193 J _s		8500 Q _s	3100 J _s
302799 - AH-8 0-1'	79.2	532 J _s	266 J _s	379 J _s		8060 Q _s	11800 J _s , Q _s
302800 - AH-8 1-1.5'	75.1	405 J _s	184 J _s	273 J _s		8570 Q _s	4190 J _s
302801 - AH-9 0-1'	18.4	88.7 J _s	54.4 J _s	39.4		6580 Q _s	5880 Q _s
302802 - AH-9 1-1.5'	39.2	259 J _s	126	182 J _s		5020 Q _s	3960 J _s

Sample: 302782 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2240	mg/Kg	4

Sample: 302783 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1900	mg/Kg	4

Sample: 302784 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 302785 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		16700	mg/Kg	4

Sample: 302786 - AH-3 1-1.5'

continued ...

¹Sample dilution due to hydrocarbons.²Sample dilution due to hydrocarbons.³Dilution due to excessive hydrocarbons.⁴Dilution due to excessive hydrocarbons.

sample 302786 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4

Sample: 302787 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5760	mg/Kg	4

Sample: 302788 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		12100	mg/Kg	4

Sample: 302789 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		6920	mg/Kg	4

Sample: 302790 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		2070	mg/Kg	4

Sample: 302791 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		2650	mg/Kg	4

Sample: 302792 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		556	mg/Kg	4

Sample: 302793 - AH-6 2-2.5'

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Param	Flag	Result	Units	RL
Chloride		1420	mg/Kg	4

Sample: 302794 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1730	mg/Kg	4

Sample: 302795 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1270	mg/Kg	4

Sample: 302796 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		886	mg/Kg	4

Sample: 302797 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		1490	mg/Kg	4

Sample: 302798 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1490	mg/Kg	4

Sample: 302799 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		103	mg/Kg	4

Sample: 302800 - AH-8 1-1.5'

Param	Flag	Result	Units	RL
Chloride		44.3	mg/Kg	4

Sample: 302801 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		39.4	mg/Kg	4

Sample: 302802 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		78.4	mg/Kg	4



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report (Corrected Report)

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

Report Date: July 25, 2012

Work Order: 12070601



Project Location: Eddy Co., NM
Project Name: COG/Continental A State #12 Tank Battery
Project Number: 114-6401422

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
302782	AH-1 0-1'	soil	2012-07-03	00:00	2012-07-05
302783	AH-1 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302784	AH-2 0-1'	soil	2012-07-03	00:00	2012-07-05
302785	AH-3 0-1'	soil	2012-07-03	00:00	2012-07-05
302786	AH-3 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302787	AH-3 2-2.5'	soil	2012-07-03	00:00	2012-07-05
302788	AH-4 0-1'	soil	2012-07-03	00:00	2012-07-05
302789	AH-5 0-1'	soil	2012-07-03	00:00	2012-07-05
302790	AH-5 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302791	AH-6 0-1'	soil	2012-07-03	00:00	2012-07-05
302792	AH-6 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302793	AH-6 2-2.5'	soil	2012-07-03	00:00	2012-07-05
302794	AH-6 3-3.5'	soil	2012-07-03	00:00	2012-07-05
302795	AH-6 4-4.5'	soil	2012-07-03	00:00	2012-07-05
302796	AH-6 5-5.5'	soil	2012-07-03	00:00	2012-07-05
302797	AH-7 0-1'	soil	2012-07-03	00:00	2012-07-05

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
302798	AH-7 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302799	AH-8 0-1'	soil	2012-07-03	00:00	2012-07-05
302800	AH-8 1-1.5'	soil	2012-07-03	00:00	2012-07-05
302801	AH-9 0-1'	soil	2012-07-03	00:00	2012-07-05
302802	AH-9 1-1.5'	soil	2012-07-03	00:00	2012-07-05

Report Corrections (Work Order 12070601)

- 7/18/12: Removed 48-hour flag from BTEX.
- 7/20/12: Added BTEX to samples 302786 and 302787.

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



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

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Case Narrative

Samples for project COG/Continental A State #12 Tank Battery were received by TraceAnalysis, Inc. on 2012-07-05 and assigned to work order 12070601. Samples for work order 12070601 were received intact at a temperature of 4.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	78768	2012-07-10 at 14:25	92885	2012-07-10 at 14:25
BTEX	S 8021B	78843	2012-07-11 at 15:36	92978	2012-07-11 at 15:36
BTEX	S 8021B	79105	2012-07-23 at 11:38	93301	2012-07-23 at 11:38
Chloride (Titration)	SM 4500-Cl B	78747	2012-07-06 at 09:26	92878	2012-07-09 at 13:41
Chloride (Titration)	SM 4500-Cl B	78747	2012-07-06 at 09:26	92879	2012-07-09 at 13:42
Chloride (Titration)	SM 4500-Cl B	78747	2012-07-06 at 09:26	92880	2012-07-09 at 13:43
TPH DRO - NEW	S 8015 D	78748	2012-07-09 at 09:00	92862	2012-07-09 at 11:00
TPH DRO - NEW	S 8015 D	78943	2012-07-16 at 15:00	93102	2012-07-16 at 15:22
TPH GRO	S 8015 D	78768	2012-07-10 at 14:25	92886	2012-07-10 at 14:25
TPH GRO	S 8015 D	78843	2012-07-11 at 15:36	92979	2012-07-11 at 15:36
TPH GRO	S 8015 D	78890	2012-07-13 at 16:19	93030	2012-07-13 at 16:19

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 12070601 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: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

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Eddy Co., NM

Analytical Report

Sample: 302782 - AH-1 0-1'

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 92978
Prep Batch: 78843

Analytical Method: S 8021B
Date Analyzed: 2012-07-11
Sample Preparation: 2012-07-11

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

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		1	0.0411	mg/Kg	1	0.0200
Xylene		1	0.603	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	1	2.00	106	70 - 130

Sample: 302782 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 92878
Prep Batch: 78747

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-07-09
Sample Preparation: 2012-07-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2240	mg/Kg	5	4.00

Sample: 302782 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 92862
Prep Batch: 78748

Analytical Method: S 8015 D
Date Analyzed: 2012-07-09
Sample Preparation: 2012-07-09

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	qs	2	1210	mg/Kg	5	50.0

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	248	mg/Kg	5	100	248	49.3 - 157.5

Sample: 302782 - AH-1 0-1'

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 92979
Prep Batch: 78843

Analytical Method: S 8015 D
Date Analyzed: 2012-07-11
Sample Preparation: 2012-07-11

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qsr	1	22.2	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.40	mg/Kg	1	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	2.76	mg/Kg	1	2.00	138	70 - 130

Sample: 302783 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 92878
Prep Batch: 78747

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-07-09
Sample Preparation: 2012-07-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1900	mg/Kg	10	4.00

Sample: 302784 - AH-2 0-1'

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 92978
Prep Batch: 78843

Analytical Method: S 8021B
Date Analyzed: 2012-07-11
Sample Preparation: 2012-07-11

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

continued ...

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Work Order: 12070601
COG/Continental A State #12 Tank Battery

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sample 302784 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.665	mg/Kg	5	0.0200
Toluene		1	7.88	mg/Kg	5	0.0200
Ethylbenzene		1	12.0	mg/Kg	5	0.0200
Xylene		1	8.15	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.56	mg/Kg	5	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	4.32	mg/Kg	5	2.00	216	70 - 130

Sample: 302784 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92878 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 302784 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 92862 Date Analyzed: 2012-07-09 Analyzed By: CW
Prep Batch: 78748 Sample Preparation: 2012-07-09 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	4240	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	492	mg/Kg	10	100	492	49.3 - 157.5

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Sample: 302784 - AH-2 0-1'

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 92979
Prep Batch: 78843

Analytical Method: S 8015 D
Date Analyzed: 2012-07-11
Sample Preparation: 2012-07-11

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	806	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.16	mg/Kg	5	2.00	58	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	21.2	mg/Kg	5	2.00	1060	70 - 130

Sample: 302785 - AH-3 0-1'

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 92978
Prep Batch: 78843

Analytical Method: S 8021B
Date Analyzed: 2012-07-11
Sample Preparation: 2012-07-11

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	4.04	mg/Kg	5	0.0200
Toluene	Je	1	64.1	mg/Kg	5	0.0200
Ethylbenzene		1	37.2	mg/Kg	5	0.0200
Xylene	Je	1	82.8	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.57	mg/Kg	5	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	8.95	mg/Kg	5	2.00	448	70 - 130

Sample: 302785 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 92878
Prep Batch: 78747

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-07-09
Sample Preparation: 2012-07-06

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

continued ...

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

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sample 302785 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			16700	mg/Kg	10	4.00

Sample: 302785 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 92862

Prep Batch: 78748

Analytical Method: S 8015 D

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	2280	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	261	mg/Kg	5	100	261	49.3 - 157.5

Sample: 302785 - AH-3 0-1'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 92979

Prep Batch: 78843

Analytical Method: S 8015 D

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	746	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.941	mg/Kg	5	2.00	47	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	17.5	mg/Kg	5	2.00	875	70 - 130

Report Date: July 25, 2012
114-6401422

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Sample: 302786 - AH-3 1-1.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 93301

Prep Batch: 79105

Analytical Method: S 8021B

Date Analyzed: 2012-07-23

Sample Preparation: 2012-07-23

Prep Method: S 5035

Analyzed By: MT

Prepared By: MT

Parameter	Flag	Cert	RL	Units	Dilution	RL	
			Result				
Benzene	1	H,U	1	<0.200	mg/Kg	10	0.0200
Toluene			1	16.0	mg/Kg	10	0.0200
Ethylbenzene			1	33.6	mg/Kg	10	0.0200
Xylene			1	67.6	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	10	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	11.4	mg/Kg	10	2.00	570	70 - 130

Sample: 302786 - AH-3 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92878

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			13900	mg/Kg	10	4.00

Sample: 302787 - AH-3 2-2.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 93301

Prep Batch: 79105

Analytical Method: S 8021B

Date Analyzed: 2012-07-23

Sample Preparation: 2012-07-23

Prep Method: S 5035

Analyzed By: MT

Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL	
Benzene	2	H,U	1	<0.100	mg/Kg	5	0.0200
Toluene		U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene			1	1.04	mg/Kg	5	0.0200
Xylene			1	3.43	mg/Kg	5	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.67	mg/Kg	5	2.00	84	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	4.27	mg/Kg	5	2.00	214	70 - 130

Sample: 302787 - AH-3 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92878

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5760	mg/Kg	10	4.00

Sample: 302788 - AH-4 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92978

Prep Batch: 78843

Analytical Method: S 8021B

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	2.68	mg/Kg	5	0.0200
Toluene		1	0.162	mg/Kg	5	0.0200
Ethylbenzene		1	1.31	mg/Kg	5	0.0200
Xylene		1	2.89	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	5	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	3.74	mg/Kg	5	2.00	187	70 - 130

Sample: 302788 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92878

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			12100	mg/Kg	10	4.00

Sample: 302788 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 92862

Prep Batch: 78748

Analytical Method: S 8015 D

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qc	2	1200	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			202	mg/Kg	1	100	202	49.3 - 157.5

Sample: 302788 - AH-4 0-1'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 92979

Prep Batch: 78843

Analytical Method: S 8015 D

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qc	1	194	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.31	mg/Kg	5	2.00	66	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	6.64	mg/Kg	5	2.00	332	70 - 130

Sample: 302789 - AH-5 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92978

Prep Batch: 78843

Analytical Method: S 8021B

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene		1	0.213	mg/Kg	5	0.0200
Xylene	B	1	0.494	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	5	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)	Qer	Qer	3.50	mg/Kg	5	2.00	175	70 - 130

Sample: 302789 - AH-5 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92878 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6920	mg/Kg	10	4.00

Sample: 302789 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 92862 Date Analyzed: 2012-07-09 Analyzed By: CW
Prep Batch: 78748 Sample Preparation: 2012-07-09 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	1070	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qer	Qer	187	mg/Kg	1	100	187	49.3 - 157.5

Sample: 302789 - AH-5 0-1'

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 92979 Date Analyzed: 2012-07-11 Analyzed By: ZLM
Prep Batch: 78843 Sample Preparation: 2012-07-11 Prepared By: ZLM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	141	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.64	mg/Kg	5	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	3.91	mg/Kg	5	2.00	196	70 - 130

Sample: 302790 - AH-5 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92878

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2070	mg/Kg	10	4.00

Sample: 302791 - AH-6 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92978

Prep Batch: 78843

Analytical Method: S 8021B

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL	
Benzene	4	u	1	<0.100	mg/Kg	5	0.0200
Toluene			1	0.260	mg/Kg	5	0.0200
Ethylbenzene			1	4.13	mg/Kg	5	0.0200
Xylene			1	4.75	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.81	mg/Kg	5	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	4.18	mg/Kg	5	2.00	209	70 - 130

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Sample: 302791 - AH-6 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92878 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2650	mg/Kg	10	4.00

Sample: 302791 - AH-6 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 92862 Date Analyzed: 2012-07-09 Analyzed By: CW
Prep Batch: 78748 Sample Preparation: 2012-07-09 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	377	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			122	mg/Kg	1	100	122	49.3 - 157.5

Sample: 302791 - AH-6 0-1'

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 92979 Date Analyzed: 2012-07-11 Analyzed By: ZLM
Prep Batch: 78843 Sample Preparation: 2012-07-11 Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	164	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.46	mg/Kg	5	2.00	73	70 - 130
4-Bromofluorobenzene (4-BFB)	Qnr	Qnr	6.44	mg/Kg	5	2.00	322	70 - 130

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Sample: 302792 - AH-6 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			556	mg/Kg	5	4.00

Sample: 302793 - AH-6 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1420	mg/Kg	10	4.00

Sample: 302794 - AH-6 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1730	mg/Kg	10	4.00

Sample: 302795 - AH-6 4-4.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1270	mg/Kg	10	4.00

Sample: 302796 - AH-6 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92879 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			886	mg/Kg	5	4.00

Sample: 302797 - AH-7 0-1'

Laboratory: Lubbock
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 92978 Date Analyzed: 2012-07-11 Analyzed By: ZLM
Prep Batch: 78843 Sample Preparation: 2012-07-11 Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene			24.3	mg/Kg	10	0.0200
Toluene	Je	1	219	mg/Kg	10	0.0200
Ethylbenzene	Je	1	130	mg/Kg	10	0.0200
Xylene	Je	1	191	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.49	mg/Kg	10	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	13.5	mg/Kg	10	2.00	675	70 - 130

Sample: 302797 - AH-7 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92879 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1490	mg/Kg	10	4.00

Sample: 302797 - AH-7 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 92862
Prep Batch: 78748

Analytical Method: S 8015 D
Date Analyzed: 2012-07-09
Sample Preparation: 2012-07-09

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	4940	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	412	mg/Kg	5	100	412	49.3 - 157.5

Sample: 302797 - AH-7 0-1'

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 93030
Prep Batch: 78890

Analytical Method: S 8015 D
Date Analyzed: 2012-07-13
Sample Preparation: 2012-07-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Ja, Qs	1	5360	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	105	mg/Kg	50	2.00	5250	70 - 130

Sample: 302798 - AH-7 1-1.5'

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 92885
Prep Batch: 78768

Analytical Method: S 8021B
Date Analyzed: 2012-07-10
Sample Preparation: 2012-07-10

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	30.5	mg/Kg	20	0.0200
Toluene	Je	1	258	mg/Kg	20	0.0200
Ethylbenzene		1	134	mg/Kg	20	0.0200
Xylene	Je	1	193	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.61	mg/Kg	20	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	28.1	mg/Kg	20	2.00	1405	70 - 130

Sample: 302798 - AH-7 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1490	mg/Kg	10	4.00

Sample: 302798 - AH-7 1-1.5'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 93102

Prep Batch: 78943

Analytical Method: S 8015 D

Date Analyzed: 2012-07-16

Sample Preparation: 2012-07-16

Prep Method: N/A

Analyzed By: DS

Prepared By: DS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	8500	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	580	mg/Kg	10	100	580	75.4 - 130

Sample: 302798 - AH-7 1-1.5'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 92886

Prep Batch: 78768

Analytical Method: S 8015 D

Date Analyzed: 2012-07-10

Sample Preparation: 2012-07-10

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je	1	3100	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	20	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	57.6	mg/Kg	20	2.00	2880	70 - 130

Sample: 302799 - AH-8 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92978

Prep Batch: 78843

Analytical Method: S 8021B

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	79.2	mg/Kg	10	0.0200
Toluene	Je	1	532	mg/Kg	10	0.0200
Ethylbenzene	Je	1	266	mg/Kg	10	0.0200
Xylene	Je	1	379	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.96	mg/Kg	10	2.00	198	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	27.6	mg/Kg	10	2.00	1380	70 - 130

Sample: 302799 - AH-8 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			103	mg/Kg	5	4.00

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Sample: 302799 - AH-8 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 92862

Prep Batch: 78748

Analytical Method: S 8015 D

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	8060	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	989	mg/Kg	10	100	989	49.3 - 157.5

Sample: 302799 - AH-8 0-1'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 93030

Prep Batch: 78890

Analytical Method: S 8015 D

Date Analyzed: 2012-07-13

Sample Preparation: 2012-07-13

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	11800	mg/Kg	100	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	212	mg/Kg	100	2.00	10600	70 - 130

Sample: 302800 - AH-8 1-1.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92885

Prep Batch: 78768

Analytical Method: S 8021B

Date Analyzed: 2012-07-10

Sample Preparation: 2012-07-10

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	75.1	mg/Kg	20	0.0200
Toluene	Je	1	405	mg/Kg	20	0.0200
Ethylbenzene	Je	1	184	mg/Kg	20	0.0200
Xylene	Je	1	273	mg/Kg	20	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.56	mg/Kg	20	2.00	178	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	34.2	mg/Kg	20	2.00	1710	70 - 130

Sample: 302800 - AH-8 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			44.3	mg/Kg	5	4.00

Sample: 302800 - AH-8 1-1.5'

Laboratory: Lubbock

Analysis: TPH DRO - NEW

QC Batch: 93102

Prep Batch: 78943

Analytical Method: S 8015 D

Date Analyzed: 2012-07-16

Sample Preparation: 2012-07-16

Prep Method: N/A

Analyzed By: DS

Prepared By: DS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	8570	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	571	mg/Kg	10	100	571	75.4 - 130

Sample: 302800 - AH-8 1-1.5'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 92886

Prep Batch: 78768

Analytical Method: S 8015 D

Date Analyzed: 2012-07-10

Sample Preparation: 2012-07-10

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je	1	4190	mg/Kg	20	2.00

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.00	mg/Kg	20	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	69.1	mg/Kg	20	2.00	3455	70 - 130

Sample: 302801 - AH-9 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 92978

Prep Batch: 78843

Analytical Method: S 8021B

Date Analyzed: 2012-07-11

Sample Preparation: 2012-07-11

Prep Method: S 5035

Analyzed By: ZLM

Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	18.4	mg/Kg	5	0.0200
Toluene	Je	1	88.7	mg/Kg	5	0.0200
Ethylbenzene	Je	1	54.4	mg/Kg	5	0.0200
Xylene		1	39.4	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.57	mg/Kg	5	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	6.54	mg/Kg	5	2.00	327	70 - 130

Sample: 302801 - AH-9 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 92879

Prep Batch: 78747

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			39.4	mg/Kg	5	4.00

Sample: 302801 - AH-9 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 92862

Prep Batch: 78748

Analytical Method: S 8015 D

Date Analyzed: 2012-07-09

Sample Preparation: 2012-07-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	2	6580	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	554	mg/Kg	10	100	554	49.3 - 157.5

Sample: 302801 - AH-9 0-1'

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 93030
Prep Batch: 78890

Analytical Method: S 8015 D
Date Analyzed: 2012-07-13
Sample Preparation: 2012-07-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	5880	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	51.0	mg/Kg	50	2.00	2550	70 - 130

Sample: 302802 - AH-9 1-1.5'

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 92885
Prep Batch: 78768

Analytical Method: S 8021B
Date Analyzed: 2012-07-10
Sample Preparation: 2012-07-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	39.2	mg/Kg	20	0.0200
Toluene	Je	1	259	mg/Kg	20	0.0200
Ethylbenzene		1	126	mg/Kg	20	0.0200
Xylene	Je	1	182	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	20	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	13.3	mg/Kg	20	2.00	665	70 - 130

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Sample: 302802 - AH-9 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 92880 Date Analyzed: 2012-07-09 Analyzed By: AR
Prep Batch: 78747 Sample Preparation: 2012-07-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			78.4	mg/Kg	5	4.00

Sample: 302802 - AH-9 1-1.5'

Laboratory: Lubbock
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 93102 Date Analyzed: 2012-07-16 Analyzed By: DS
Prep Batch: 78943 Sample Preparation: 2012-07-16 Prepared By: DS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	5020	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	362	mg/Kg	10	100	362	75.4 - 130

Sample: 302802 - AH-9 1-1.5'

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 92886 Date Analyzed: 2012-07-10 Analyzed By: ZLM
Prep Batch: 78768 Sample Preparation: 2012-07-10 Prepared By: ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Js	1	3960	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	20	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	112	mg/Kg	20	2.00	5600	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 92862

QC Batch: 92862
Prep Batch: 78748

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-09

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			130	mg/Kg	1	100	130	52 - 160.8

Method Blank (1) QC Batch: 92878

QC Batch: 92878
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 92879

QC Batch: 92879
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

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

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Method Blank (1) QC Batch: 92880

QC Batch: 92880
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 92885

QC Batch: 92885
Prep Batch: 78768

Date Analyzed: 2012-07-10
QC Preparation: 2012-07-10

Analyzed By: ZLM
Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	0.0133	mg/Kg	0.02

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)			1.88	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 92886

QC Batch: 92886
Prep Batch: 78768

Date Analyzed: 2012-07-10
QC Preparation: 2012-07-10

Analyzed By: ZLM
Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	0.650	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.67	mg/Kg	1	2.00	84	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

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Method Blank (1) QC Batch: 92978

QC Batch: 92978
Prep Batch: 78843

Date Analyzed: 2012-07-11
QC Preparation: 2012-07-11

Analyzed By: ZLM
Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	0.0126	mg/Kg	0.02

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)			1.98	mg/Kg	1	2.00	99	70 - 130

Method Blank (1) QC Batch: 92979

QC Batch: 92979
Prep Batch: 78843

Date Analyzed: 2012-07-11
QC Preparation: 2012-07-11

Analyzed By: ZLM
Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	0.540	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	70 - 130

Method Blank (1) QC Batch: 93030

QC Batch: 93030
Prep Batch: 78890

Date Analyzed: 2012-07-13
QC Preparation: 2012-07-13

Analyzed By: ZLM
Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	2.32	mg/Kg	2

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130

Method Blank (1) QC Batch: 93102

QC Batch: 93102
Prep Batch: 78943

Date Analyzed: 2012-07-16
QC Preparation: 2012-07-16

Analyzed By: DS
Prepared By: DS

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<6.50	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			128	mg/Kg	1	100	128	75.4 - 130

Method Blank (1) QC Batch: 93301

QC Batch: 93301
Prep Batch: 79105

Date Analyzed: 2012-07-23
QC Preparation: 2012-07-23

Analyzed By: MT
Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	0.0135	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.77	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 92862
Prep Batch: 78748

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-09

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	263	mg/Kg	1	250	<14.5	105	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		2	263	mg/Kg	1	250	<14.5	105	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	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	129	129	mg/Kg	1	100	129	129	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 92878
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2510	mg/Kg	1	2500	<3.85	100	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			2650	mg/Kg	1	2500	<3.85	106	85 - 115	5	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 92879
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	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	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2780	mg/Kg	1	2500	<3.85	111	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: 92880
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2610	mg/Kg	1	2500	<3.85	104	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			2740	mg/Kg	1	2500	<3.85	110	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 92885
Prep Batch: 78768

Date Analyzed: 2012-07-10
QC Preparation: 2012-07-10

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.94	mg/Kg	1	2.00	<0.00365	97	75.4 - 120
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	74.9 - 120
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00560	96	78.1 - 120

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	5.73	mg/Kg	1	6.00	0.0133	96	77.3 - 120

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.96	mg/Kg	1	2.00	<0.00365	98	75.4 - 120	1	20
Toluene		1	1.96	mg/Kg	1	2.00	<0.00816	98	74.9 - 120	4	20
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00560	100	78.1 - 120	5	20
Xylene		1	5.98	mg/Kg	1	6.00	0.0133	100	77.3 - 120	4	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)	1.84	1.98	mg/Kg	1	2.00	92	99	70 - 130
4-Bromofluorobenzene (4-BFB)	1.87	1.98	mg/Kg	1	2.00	94	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 92886
Prep Batch: 78768

Date Analyzed: 2012-07-10
QC Preparation: 2012-07-10

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.8	mg/Kg	1	20.0	0.65	89	68.9 - 120

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	17.9	mg/Kg	1	20.0	0.65	90	68.9 - 120	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)	1.84	1.81	mg/Kg	1	2.00	92	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.92	mg/Kg	1	2.00	99	96	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 92978
Prep Batch: 78843

Date Analyzed: 2012-07-11
QC Preparation: 2012-07-11

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.06	mg/Kg	1	2.00	<0.00365	103	75.4 - 120
Toluene		1	2.04	mg/Kg	1	2.00	<0.00816	102	74.9 - 120
Ethylbenzene		1	2.06	mg/Kg	1	2.00	<0.00560	103	78.1 - 120
Xylene		1	6.19	mg/Kg	1	6.00	0.0126	103	77.3 - 120

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	2.07	mg/Kg	1	2.00	<0.00365	104	75.4 - 120	0	20
Toluene		1	2.07	mg/Kg	1	2.00	<0.00816	104	74.9 - 120	1	20
Ethylbenzene		1	2.09	mg/Kg	1	2.00	<0.00560	104	78.1 - 120	1	20
Xylene		1	6.27	mg/Kg	1	6.00	0.0126	104	77.3 - 120	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
Trifluorotoluene (TFT)	2.01	2.04	mg/Kg	1	2.00	100	102	70 - 130
4-Bromofluorobenzene (4-BFB)	2.06	2.09	mg/Kg	1	2.00	103	104	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 92979
Prep Batch: 78843

Date Analyzed: 2012-07-11
QC Preparation: 2012-07-11

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.7	mg/Kg	1	20.0	0.54	84	68.9 - 120

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	17.9	mg/Kg	1	20.0	0.54	90	68.9 - 120	7	20

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

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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)	1.68	1.80	mg/Kg	1	2.00	84	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.95	2.02	mg/Kg	1	2.00	98	101	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93030
Prep Batch: 78890

Date Analyzed: 2012-07-13
QC Preparation: 2012-07-13

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	20.9	mg/Kg	1	20.0	2.32	104	68.9 - 120

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	21.1	mg/Kg	1	20.0	2.32	106	68.9 - 120	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
Trifluorotoluene (TFT)	1.90	1.75	mg/Kg	1	2.00	95	88	70 - 130
4-Bromofluorobenzene (4-BFB)	2.15	2.18	mg/Kg	1	2.00	108	109	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93102
Prep Batch: 78943

Date Analyzed: 2012-07-16
QC Preparation: 2012-07-16

Analyzed By: DS
Prepared By: DS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	245	mg/Kg	1	250	7.49	95	73.2 - 118

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

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Param	F	C	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	246	mg/Kg	1	250	7.49	95	73.2 - 118	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	125	124	mg/Kg	1	100	125	124	75.4 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93301
Prep Batch: 79105

Date Analyzed: 2012-07-23
QC Preparation: 2012-07-23

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.02	mg/Kg	1	2.00	<0.00365	101	75.4 - 120
Toluene		1	1.90	mg/Kg	1	2.00	<0.00816	95	74.9 - 120
Ethylbenzene		1	1.94	mg/Kg	1	2.00	<0.00560	97	78.1 - 120
Xylene		1	6.04	mg/Kg	1	6.00	0.0135	100	77.3 - 120

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.99	mg/Kg	1	2.00	<0.00365	99	75.4 - 120	2	20
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	74.9 - 120	1	20
Ethylbenzene		1	1.93	mg/Kg	1	2.00	<0.00560	96	78.1 - 120	1	20
Xylene		1	5.97	mg/Kg	1	6.00	0.0135	99	77.3 - 120	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)	1.76	1.79	mg/Kg	1	2.00	88	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2.11	2.09	mg/Kg	1	2.00	106	104	70 - 130

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Matrix Spike (MS-1) Spiked Sample: 302733

QC Batch: 92862
Prep Batch: 78748

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-09

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q*	Q*	2	372	mg/Kg	1	250	221	60 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*	Q*	2	375	mg/Kg	1	250	221	62 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	137	135	mg/Kg	1	100	137	135	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 302791

QC Batch: 92878
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			5170	mg/Kg	10	2500	2650	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			5480	mg/Kg	10	2500	2650	113	79.4 - 120.6	6	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: 302801

QC Batch: 92879
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	5	2500	39.4	102	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2720	mg/Kg	5	2500	39.4	107	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: 302813

QC Batch: 92880
Prep Batch: 78747

Date Analyzed: 2012-07-09
QC Preparation: 2012-07-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3400	mg/Kg	5	2500	1340	82	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			3520	mg/Kg	5	2500	1340	87	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: 303095

QC Batch: 92885
Prep Batch: 78768

Date Analyzed: 2012-07-10
QC Preparation: 2012-07-10

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.89	mg/Kg	1	2.00	<0.00365	94	37.6 - 142
Toluene		1	1.97	mg/Kg	1	2.00	<0.00816	98	38.6 - 153
Ethylbenzene		1	2.10	mg/Kg	1	2.00	<0.00560	105	36.7 - 172
Xylene		1	6.33	mg/Kg	1	6.00	0.0106	105	36.7 - 173

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.86	mg/Kg	1	2.00	<0.00365	93	37.6 - 142	2	20
Toluene		1	1.93	mg/Kg	1	2.00	<0.00816	96	38.6 - 153	2	20
Ethylbenzene		1	2.06	mg/Kg	1	2.00	<0.00560	103	36.7 - 172	2	20
Xylene		1	6.18	mg/Kg	1	6.00	0.0106	103	36.7 - 173	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)	2.18	2.08	mg/Kg	1	2	109	104	70 - 130
4-Bromofluorobenzene (4-BFB)	2.03	1.96	mg/Kg	1	2	102	98	70 - 130

Matrix Spike (MS-1) Spiked Sample: 303095

QC Batch: 92886

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Prep Batch: 78768

QC Preparation: 2012-07-10

Prepared By: ZLM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	12.6	mg/Kg	1	20.0	<0.359	63	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	15.1	mg/Kg	1	20.0	<0.359	76	70 - 130	18	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)	1.35	1.61	mg/Kg	1	2	68	80	70 - 130
4-Bromofluorobenzene (4-BFB)	1.73	2.05	mg/Kg	1	2	86	102	70 - 130

Matrix Spike (MS-1) Spiked Sample: 302733

QC Batch: 92978

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Prep Batch: 78843

QC Preparation: 2012-07-11

Prepared By: ZLM

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.96	mg/Kg	1	2.00	0.223	87	37.6 - 142
Toluene		1	2.11	mg/Kg	1	2.00	0.259	92	38.6 - 153
Ethylbenzene		1	2.64	mg/Kg	1	2.00	0.41	112	36.7 - 172
Xylene		1	7.81	mg/Kg	1	6.00	0.944	114	36.7 - 173

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.04	mg/Kg	1	2.00	0.223	91	37.6 - 142	4	20
Toluene		1	2.18	mg/Kg	1	2.00	0.259	96	38.6 - 153	3	20
Ethylbenzene		1	2.42	mg/Kg	1	2.00	0.41	100	36.7 - 172	9	20
Xylene		1	7.26	mg/Kg	1	6.00	0.944	105	36.7 - 173	7	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)			2.15	2.29	mg/Kg	1	2	108	114	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	3.14	2.52	mg/Kg	1	2	157	126	70 - 130

Matrix Spike (MS-1) Spiked Sample: 302733

QC Batch: 92979
Prep Batch: 78843

Date Analyzed: 2012-07-11
QC Preparation: 2012-07-11

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q _s	Q _s	117	mg/Kg	1	20.0	66.2	254	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	Q _s	Q _s	107	mg/Kg	1	20.0	66.2	204	70 - 130	9	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)			1.61	1.23	mg/Kg	1	2	80	62	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	3.35	2.06	mg/Kg	1	2	168	103	70 - 130

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Matrix Spike (MS-1) Spiked Sample: 302775

QC Batch: 93030
Prep Batch: 78890

Date Analyzed: 2012-07-13
QC Preparation: 2012-07-13

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q _s	Q _s	1	2700	mg/Kg	50	20.0	2750	-250 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	RPD Limit
GRO	Q _s	Q _s	1	2890	mg/Kg	50	20.0	2750	700 70 - 130	7	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}	1.26	1.35	mg/Kg	50	2	63 68 70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	56.4	61.5	mg/Kg	50	2	2820 3075 70 - 130

Matrix Spike (MS-1) Spiked Sample: 302802

QC Batch: 93102
Prep Batch: 78943

Date Analyzed: 2012-07-16
QC Preparation: 2012-07-16

Analyzed By: DS
Prepared By: DS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q _s	Q _s	1	5690	mg/Kg	10	250	5020	268 75.4 - 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	RPD Limit
DRO	Q _s	Q _s	1	5490	mg/Kg	10	250	5020	188 75.4 - 130	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
n-Tricosane	Q _{sr}	Q _{sr}	446	398	mg/Kg	10	100	446 398 38.4 - 143

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Matrix Spike (MS-1) Spiked Sample: 303602

QC Batch: 93301
Prep Batch: 79105

Date Analyzed: 2012-07-23
QC Preparation: 2012-07-23

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.01	mg/Kg	1	2.00	<0.00365	100	37.6 - 142
Toluene		1	2.03	mg/Kg	1	2.00	<0.00816	102	38.6 - 153
Ethylbenzene		1	2.26	mg/Kg	1	2.00	<0.00560	113	36.7 - 172
Xylene		1	7.12	mg/Kg	1	6.00	<0.00460	119	36.7 - 173

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.22	mg/Kg	1	2.00	<0.00365	111	37.6 - 142	10	20
Toluene		1	2.22	mg/Kg	1	2.00	<0.00816	111	38.6 - 153	9	20
Ethylbenzene		1	2.44	mg/Kg	1	2.00	<0.00560	122	36.7 - 172	8	20
Xylene		1	7.65	mg/Kg	1	6.00	<0.00460	127	36.7 - 173	7	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.06	2.37	mg/Kg	1	2	103	118	70 - 130
4-Bromofluorobenzene (4-BFB)	2.30	2.50	mg/Kg	1	2	115	125	70 - 130

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Calibration Standards

Standard (CCV-1)

QC Batch: 92862

Date Analyzed: 2012-07-09

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	251	100	80 - 120	2012-07-09

Standard (CCV-2)

QC Batch: 92862

Date Analyzed: 2012-07-09

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	257	103	80 - 120	2012-07-09

Standard (CCV-3)

QC Batch: 92862

Date Analyzed: 2012-07-09

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	243	97	80 - 120	2012-07-09

Standard (CCV-4)

QC Batch: 92862

Date Analyzed: 2012-07-09

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	248	99	80 - 120	2012-07-09

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Standard (CCV-1)

QC Batch: 92878

Date Analyzed: 2012-07-09

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	2012-07-09

Standard (CCV-2)

QC Batch: 92878

Date Analyzed: 2012-07-09

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	99.7	100	85 - 115	2012-07-09

Standard (CCV-1)

QC Batch: 92879

Date Analyzed: 2012-07-09

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	2012-07-09

Standard (CCV-2)

QC Batch: 92879

Date Analyzed: 2012-07-09

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	2012-07-09

Standard (CCV-1)

QC Batch: 92880

Date Analyzed: 2012-07-09

Analyzed By: AR

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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	2012-07-09

Standard (CCV-2)

QC Batch: 92880

Date Analyzed: 2012-07-09

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	2012-07-09

Standard (CCV-1)

QC Batch: 92885

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0984	98	80 - 120	2012-07-10
Toluene		1	mg/kg	0.100	0.0967	97	80 - 120	2012-07-10
Ethylbenzene		1	mg/kg	0.100	0.0969	97	80 - 120	2012-07-10
Xylene		1	mg/kg	0.300	0.292	97	80 - 120	2012-07-10

Standard (CCV-2)

QC Batch: 92885

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0945	94	80 - 120	2012-07-10
Toluene		1	mg/kg	0.100	0.0945	94	80 - 120	2012-07-10
Ethylbenzene		1	mg/kg	0.100	0.0951	95	80 - 120	2012-07-10
Xylene		1	mg/kg	0.300	0.284	95	80 - 120	2012-07-10

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 47 of 53
Eddy Co., NM

Standard (CCV-3)

QC Batch: 92885

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-07-10
Toluene		1	mg/kg	0.100	0.101	101	80 - 120	2012-07-10
Ethylbenzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-07-10
Xylene		1	mg/kg	0.300	0.310	103	80 - 120	2012-07-10

Standard (CCV-1)

QC Batch: 92886

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.888	89	80 - 120	2012-07-10

Standard (CCV-2)

QC Batch: 92886

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.824	82	80 - 120	2012-07-10

Standard (CCV-3)

QC Batch: 92886

Date Analyzed: 2012-07-10

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.02	102	80 - 120	2012-07-10

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 48 of 53
Eddy Co., NM

Standard (CCV-1)

QC Batch: 92978

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-07-11
Toluene		1	mg/kg	0.100	0.104	104	80 - 120	2012-07-11
Ethylbenzene		1	mg/kg	0.100	0.106	106	80 - 120	2012-07-11
Xylene		1	mg/kg	0.300	0.316	105	80 - 120	2012-07-11

Standard (CCV-2)

QC Batch: 92978

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0979	98	80 - 120	2012-07-11
Toluene		1	mg/kg	0.100	0.0957	96	80 - 120	2012-07-11
Ethylbenzene		1	mg/kg	0.100	0.0965	96	80 - 120	2012-07-11
Xylene		1	mg/kg	0.300	0.292	97	80 - 120	2012-07-11

Standard (CCV-3)

QC Batch: 92978

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0963	96	80 - 120	2012-07-11
Toluene		1	mg/kg	0.100	0.0974	97	80 - 120	2012-07-11
Ethylbenzene		1	mg/kg	0.100	0.0968	97	80 - 120	2012-07-11
Xylene		1	mg/kg	0.300	0.287	96	80 - 120	2012-07-11

Standard (CCV-1)

QC Batch: 92979

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 49 of 53
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	0.889	89	80 - 120	2012-07-11

Standard (CCV-2)

QC Batch: 92979

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.09	109	80 - 120	2012-07-11

Standard (CCV-3)

QC Batch: 92979

Date Analyzed: 2012-07-11

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO	5	1	mg/Kg	2.00	1.61	80	80 - 120	2012-07-11

Standard (CCV-1)

QC Batch: 93030

Date Analyzed: 2012-07-13

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2012-07-13

Standard (CCV-2)

QC Batch: 93030

Date Analyzed: 2012-07-13

Analyzed By: ZLM

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 50 of 53
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	1.12	112	80 - 120	2012-07-13

Standard (CCV-1)

QC Batch: 93102

Date Analyzed: 2012-07-16

Analyzed By: DS

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	2012-07-16

Standard (CCV-2)

QC Batch: 93102

Date Analyzed: 2012-07-16

Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	246	98	80 - 120	2012-07-16

Standard (CCV-1)

QC Batch: 93301

Date Analyzed: 2012-07-23

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.101	101	80 - 120	2012-07-23
Toluene		1	mg/kg	0.100	0.0950	95	80 - 120	2012-07-23
Ethylbenzene		1	mg/kg	0.100	0.0970	97	80 - 120	2012-07-23
Xylene		1	mg/kg	0.300	0.302	101	80 - 120	2012-07-23

Standard (CCV-2)

QC Batch: 93301

Date Analyzed: 2012-07-23

Analyzed By: MT

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 51 of 53
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	0.0958	96	80 - 120	2012-07-23
Toluene		1	mg/kg	0.100	0.0901	90	80 - 120	2012-07-23
Ethylbenzene		1	mg/kg	0.100	0.0928	93	80 - 120	2012-07-23
Xylene		1	mg/kg	0.300	0.288	96	80 - 120	2012-07-23

Standard (CCV-3)

QC Batch: 93301

Date Analyzed: 2012-07-23

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0990	99	80 - 120	2012-07-23
Toluene		1	mg/kg	0.100	0.0931	93	80 - 120	2012-07-23
Ethylbenzene		1	mg/kg	0.100	0.0958	96	80 - 120	2012-07-23
Xylene		1	mg/kg	0.300	0.296	99	80 - 120	2012-07-23

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	T104704219-12-8	Lubbock
2	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

Result Comments

- 1 Sample dilution due to hydrocarbons.
- 2 Sample dilution due to hydrocarbons.
- 3 Dilution due to excessive hydrocarbons.

Report Date: July 25, 2012
114-6401422

Work Order: 12070601
COG/Continental A State #12 Tank Battery

Page Number: 53 of 53
Eddy Co., NM

- 4 Dilution due to excessive hydrocarbons.
- 5 CCV was double-spiked.

Attachments

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

12080601

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 3

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-640146 ZZ

PROJECT NAME:

Continental A State Tank Battery Eddy Co. Mm

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTX 8021B
TPH 8015 MOD
PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

302782

7/3

S X

AH-1 (0'-1')

1 M

X

783

(

X AH-1 (1'-1.5')

(

784

X

AH-2 (0'-1')

785

X

AH-3 (0'-1')

786

X

AH-3 (1'-1.5')

787

X

AH-3 (2'-2.5')

788

X

AH-4 (0'-1')

789

X

AH-5 (0'-1')

790

X

AH-5 (1'-1.5')

791

7/3

X X

AH-6 (0'-1')

1 M

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Date:

Time:

RELINQUISHED BY: (Signature)

Summary Report

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

Report Date: August 28, 2012

Work Order: 12082306



Project Location: Eddy Co., NM
Project Name: COG/Continental A State Well #12
Project Number: 114-6401422

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
307422	CS-1 2' Bottom AH-4 2'	soil	2012-08-21	00:00	2012-08-21
307425	CS-2 5' Bottom AH-2 5'	soil	2012-08-21	00:00	2012-08-21

Sample: 307422 - CS-1 2' Bottom AH-4 2'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 307425 - CS-2 5' Bottom AH-2 5'

Param	Flag	Result	Units	RL
Chloride		88.7	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 (Corrected Report)

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

Report Date: August 28, 2012

Work Order: 12082306



Project Location: Eddy Co., NM
Project Name: COG/Continental A State Well #12
Project Number: 114-6401422

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
307422	CS-1 2' Bottom AH-4 2'	soil	2012-08-21	00:00	2012-08-21
307425	CS-2 5' Bottom AH-2 5'	soil	2012-08-21	00:00	2012-08-21

Report Corrections (Work Order 12082306)

- 8/28/12: Correct project name per CoC.

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

Michael Abel

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

Report Contents

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Sample 307425 (CS-2 5' Bottom AH-2 5')	5
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QC Batch 94278 - MS (1)	7
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Case Narrative

Samples for project COG/Continental A State Well #12 were received by TraceAnalysis, Inc. on 2012-08-21 and assigned to work order 12082306. Samples for work order 12082306 were received intact at a temperature of 3.5 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	79898	2012-08-27 at 12:37	94278	2012-08-27 at 15:39

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 12082306 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: August 28, 2012
114-6401422

Work Order: 12082306
COG/Continental A State Well #12

Page Number: 5 of 9
Eddy Co., NM

Analytical Report

Sample: 307422 - CS-1 2' Bottom AH-4 2'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-08-27	Analyzed By:	AR
QC Batch:	94278	Sample Preparation:	2012-08-27	Prepared By:	AR
Prep Batch:	79898				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 307425 - CS-2 5' Bottom AH-2 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2012-08-27	Analyzed By:	AR
QC Batch:	94278	Sample Preparation:	2012-08-27	Prepared By:	AR
Prep Batch:	79898				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			88.7	mg/Kg	5	4.00

Report Date: August 28, 2012
114-6401422

Work Order: 12082306
COG/Continental A State Well #12

Page Number: 6 of 9
Eddy Co., NM

Method Blanks

Method Blank (1) QC Batch: 94278

QC Batch: 94278
Prep Batch: 79898

Date Analyzed: 2012-08-27
QC Preparation: 2012-08-27

Analyzed By: AR
Prepared By: AR

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

Report Date: August 28, 2012

Work Order: 12082306

Page Number: 7 of 9

114-6401422

COG/Continental A State Well #12

Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 94278

Date Analyzed: 2012-08-27

Analyzed By: AR

Prep Batch: 79898

QC Preparation: 2012-08-27

Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	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			2680	mg/Kg	1	2500	<3.85	107	85 - 115	2	20

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

Matrix Spike (MS-1) Spiked Sample: 307425

QC Batch: 94278

Date Analyzed: 2012-08-27

Analyzed By: AR

Prep Batch: 79898

QC Preparation: 2012-08-27

Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2570	mg/Kg	5	2500	88.7	99	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			2710	mg/Kg	5	2500	88.7	105	78.9 - 121	5	20

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

Report Date: August 28, 2012
114-6401422

Work Order: 12082306
COG/Continental A State Well #12

Page Number: 8 of 9
Eddy Co., NM

Calibration Standards

Standard (CCV-1)

QC Batch: 94278

Date Analyzed: 2012-08-27

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	2012-08-27

Standard (CCV-2)

QC Batch: 94278

Date Analyzed: 2012-08-27

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	2012-08-27

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

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.

PAGE: 1 Cr.



12082306

SITE MANAGER:
Ike Tavaraz

PROJECT NAME: COG / Continental A Site Well #12

Eddy C, NM

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS	FILTERED (Y/N)
1	
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100	

PRESERVATIVE METHOD

HCL

100

CONCLUSION

401

301

BTEX A021B

8015 MOD. TX1005 (Ext. to C35)

PAH 8270

HCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC.MS Vol. 8240/8260/824

GC.MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamima Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

1000

100

Date: 0/2/12
Time:

AIRBILL #

OTHER: _____

Results by:

100

RUSH CHAIR

 3.5°C

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

Summary Report

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

Report Date: June 11, 2012

Work Order: 12060447



Project Location: Eddy Co., NM
Project Name: COG/Continental A State #12 Inj. Well
Project Number: 114-6401422

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
299882	AH-1 0-1'	soil	2012-05-30	00:00	2012-06-04
299883	AH-1 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299884	AH-1 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299885	AH-1 3-3.5'	soil	2012-05-30	00:00	2012-06-04
299886	AH-2 0-1'	soil	2012-05-30	00:00	2012-06-04
299887	AH-2 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299888	AH-2 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299889	AH-2 2.5-3'	soil	2012-05-30	00:00	2012-06-04
299890	AH-3 0-5'	soil	2012-05-30	00:00	2012-06-04
299891	AH-4 0-1'	soil	2012-05-30	00:00	2012-06-04

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)
299882 - AH-1 0-1'	<0.0200	0.0538	<0.0200	0.0200	<50.0	<2.00 Q _n
299886 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00 Q _n
299890 - AH-3 0-5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00 Q _n
299891 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	636	<2.00 Q _n

Sample: 299882 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		8380	mg/Kg	4

Sample: 299883 - AH-1 1-1.5'

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Param	Flag	Result	Units	RL
Chloride		8820	mg/Kg	4

Sample: 299884 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		988	mg/Kg	4

Sample: 299885 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		349	mg/Kg	4

Sample: 299886 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		9030	mg/Kg	4

Sample: 299887 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7910	mg/Kg	4

Sample: 299888 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		10400	mg/Kg	4

Sample: 299889 - AH-2 2.5-3'

Param	Flag	Result	Units	RL
Chloride		3920	mg/Kg	4

Sample: 299890 - AH-3 0-.5'

Param	Flag	Result	Units	RL
Chloride		126	mg/Kg	4

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Sample: 299891 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		3730	mg/Kg	4



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: June 11, 2012

Work Order: 12060447



Project Location: Eddy Co., NM
Project Name: COG/Continental A State #12 Inj. Well
Project Number: 114-6401422

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
299882	AH-1 0-1'	soil	2012-05-30	00:00	2012-06-04
299883	AH-1 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299884	AH-1 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299885	AH-1 3-3.5'	soil	2012-05-30	00:00	2012-06-04
299886	AH-2 0-1'	soil	2012-05-30	00:00	2012-06-04
299887	AH-2 1-1.5'	soil	2012-05-30	00:00	2012-06-04
299888	AH-2 2-2.5'	soil	2012-05-30	00:00	2012-06-04
299889	AH-2 2.5-3'	soil	2012-05-30	00:00	2012-06-04
299890	AH-3 0-.5'	soil	2012-05-30	00:00	2012-06-04
299891	AH-4 0-1'	soil	2012-05-30	00:00	2012-06-04

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

Blair Leftwich

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

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Case Narrative

Samples for project COG/Continental A State #12 Inj. Well were received by TraceAnalysis, Inc. on 2012-06-04 and assigned to work order 12060447. Samples for work order 12060447 were received intact at a temperature of 2.6 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	77967	2012-06-06 at 08:30	91895	2012-06-06 at 09:20
Chloride (Titration)	SM 4500-Cl B	78014	2012-06-06 at 10:51	91956	2012-06-06 at 14:53
Chloride (Titration)	SM 4500-Cl B	78014	2012-06-06 at 10:51	91957	2012-06-06 at 14:54
TPH DRO - NEW	S 8015 D	78010	2012-06-07 at 15:30	91950	2012-06-07 at 15:00
TPH GRO	S 8015 D	77967	2012-06-06 at 08:30	91896	2012-06-06 at 09:47

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 12060447 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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114-6401422

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COG/Continental A State #12 Inj. Well

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Eddy Co., NM

Analytical Report

Sample: 299882 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 91895

Prep Batch: 77967

Analytical Method: S 8021B

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.0200	mg/Kg	1	0.0200
Toluene		1	0.0538	mg/Kg	1	0.0200
Ethylbenzene	u	1	<0.0200	mg/Kg	1	0.0200
Xylene		1	0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.29	mg/Kg	1	2.00	114	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	53.6 - 158.9

Sample: 299882 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 91956

Prep Batch: 78014

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			8380	mg/Kg	10	4.00

Sample: 299882 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 91950

Prep Batch: 78010

Analytical Method: S 8015 D

Date Analyzed: 2012-06-07

Sample Preparation: 2012-06-07

Prep Method: N/A

Analyzed By: AG

Prepared By: AG

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			95.2	mg/Kg	1	100	95	55.1 - 135.7

Sample: 299882 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 91896
Prep Batch: 77967

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs,U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.27	mg/Kg	1	2.00	114	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	45.1 - 162.2

Sample: 299883 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 91957
Prep Batch: 78014

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-06-06
Sample Preparation: 2012-06-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			8820	mg/Kg	10	4.00

Sample: 299884 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 91957
Prep Batch: 78014

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-06-06
Sample Preparation: 2012-06-06

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

continued ...

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COG/Continental A State #12 Inj. Well

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Eddy Co., NM

sample 299884 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			988	mg/Kg	5	4.00

Sample: 299885 - AH-1 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 91957 Date Analyzed: 2012-06-06 Analyzed By: AR
Prep Batch: 78014 Sample Preparation: 2012-06-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			349	mg/Kg	5	4.00

Sample: 299886 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 91895 Date Analyzed: 2012-06-06 Analyzed By: AG
Prep Batch: 77967 Sample Preparation: 2012-06-06 Prepared By: AG

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)			2.43	mg/Kg	1	2.00	122	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	53.6 - 158.9

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COG/Continental A State #12 Inj. Well

Eddy Co., NM

Sample: 299886 - AH-2 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 91957

Prep Batch: 78014

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9030	mg/Kg	10	4.00

Sample: 299886 - AH-2 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 91950

Prep Batch: 78010

Analytical Method: S 8015 D

Date Analyzed: 2012-06-07

Sample Preparation: 2012-06-07

Prep Method: N/A

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.8	mg/Kg	1	100	95	55.1 - 135.7

Sample: 299886 - AH-2 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 91896

Prep Batch: 77967

Analytical Method: S 8015 D

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs,U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.47	mg/Kg	1	2.00	124	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.35	mg/Kg	1	2.00	118	45.1 - 162.2

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Eddy Co., NM

Sample: 299887 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 91957 Date Analyzed: 2012-06-06 Analyzed By: AR
Prep Batch: 78014 Sample Preparation: 2012-06-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7910	mg/Kg	10	4.00

Sample: 299888 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 91957 Date Analyzed: 2012-06-06 Analyzed By: AR
Prep Batch: 78014 Sample Preparation: 2012-06-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			10400	mg/Kg	10	4.00

Sample: 299889 - AH-2 2.5-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 91957 Date Analyzed: 2012-06-06 Analyzed By: AR
Prep Batch: 78014 Sample Preparation: 2012-06-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3920	mg/Kg	10	4.00

Sample: 299890 - AH-3 0-.5'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 91895 Date Analyzed: 2012-06-06 Analyzed By: AG
Prep Batch: 77967 Sample Preparation: 2012-06-06 Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 135.4
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	53.6 - 158.9

Sample: 299890 - AH-3 0-.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 91957 Date Analyzed: 2012-06-06 Analyzed By: AR
Prep Batch: 78014 Sample Preparation: 2012-06-06 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			126	mg/Kg	5	4.00

Sample: 299890 - AH-3 0-.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 91950 Date Analyzed: 2012-06-07 Analyzed By: AG
Prep Batch: 78010 Sample Preparation: 2012-06-07 Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			91.4	mg/Kg	1	100	91	55.1 - 135.7

Sample: 299890 - AH-3 0-.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 91896 Date Analyzed: 2012-06-06 Analyzed By: AG
Prep Batch: 77967 Sample Preparation: 2012-06-06 Prepared By: AG

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q ₉ ,U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.76	mg/Kg	1	2.00	88	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.62	mg/Kg	1	2.00	81	45.1 - 162.2

Sample: 299891 - AH-4 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 91895

Prep Batch: 77967

Analytical Method: S 8021B

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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)			2.30	mg/Kg	1	2.00	115	70 - 135.4
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	53.6 - 158.9

Sample: 299891 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 91957

Prep Batch: 78014

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3730	mg/Kg	10	4.00

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Sample: 299891 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 91950

Prep Batch: 78010

Analytical Method: S 8015 D

Date Analyzed: 2012-06-07

Sample Preparation: 2012-06-07

Prep Method: N/A

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	636	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	148	mg/Kg	1	100	148	55.1 - 135.7

Sample: 299891 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 91896

Prep Batch: 77967

Analytical Method: S 8015 D

Date Analyzed: 2012-06-06

Sample Preparation: 2012-06-06

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qsr,U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.25	mg/Kg	1	2.00	112	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	45.1 - 162.2

Report Date: June 11, 2012
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Method Blanks

Method Blank (1) QC Batch: 91895

QC Batch: 91895
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

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)			1.94	mg/Kg	1	2.00	97	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.61	mg/Kg	1	2.00	80	51.3 - 122.4

Method Blank (1) QC Batch: 91896

QC Batch: 91896
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	78.6 - 131
4-Bromofluorobenzene (4-BFB)			1.62	mg/Kg	1	2.00	81	51 - 130

Method Blank (1) QC Batch: 91950

QC Batch: 91950
Prep Batch: 78010

Date Analyzed: 2012-06-07
QC Preparation: 2012-06-07

Analyzed By: AG
Prepared By: AG

Report Date: June.11, 2012
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Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<15.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	61.6 - 141.2

Method Blank (1) QC Batch: 91956

QC Batch: 91956
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 91957

QC Batch: 91957
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 91895
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.12	mg/Kg	1	2.00	<0.00470	106	86.5 - 124.9
Toluene		1	2.04	mg/Kg	1	2.00	<0.00980	102	84.7 - 122.5
Ethylbenzene		1	1.85	mg/Kg	1	2.00	<0.00500	92	79.4 - 118.9
Xylene		1	5.37	mg/Kg	1	6.00	<0.0170	90	77.5 - 119

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.18	mg/Kg	1	2.00	<0.00470	109	86.5 - 124.9	3	20
Toluene		1	2.09	mg/Kg	1	2.00	<0.00980	104	84.7 - 122.5	2	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00500	94	79.4 - 118.9	2	20
Xylene		1	5.50	mg/Kg	1	6.00	<0.0170	92	77.5 - 119	2	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)	1.93	1.86	mg/Kg	1	2.00	96	93	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.24	2.02	mg/Kg	1	2.00	112	101	65.4 - 149.9

Laboratory Control Spike (LCS-1)

QC Batch: 91896
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.9	mg/Kg	1	20.0	<1.22	74	65.3 - 105.7

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

continued ...

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control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.3	mg/Kg	1	20.0	<1.22	82	65.3 - 105.7	9	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)	1.88	1.93	mg/Kg	1	2.00	94	96	79 - 131.2
4-Bromofluorobenzene (4-BFB)	1.89	1.94	mg/Kg	1	2.00	94	97	56.4 - 136.6

Laboratory Control Spike (LCS-1)

QC Batch: 91950
Prep Batch: 78010

Date Analyzed: 2012-06-07
QC Preparation: 2012-06-07

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	246	mg/Kg	1	250	<15.7	98	66.9 - 119.9

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	249	mg/Kg	1	250	<15.7	100	66.9 - 119.9	1	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	94.0	94.4	mg/Kg	1	100	94	94	76.8 - 140.2

Laboratory Control Spike (LCS-1)

QC Batch: 91956
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2430	mg/Kg	1	2500	<3.85	97	85 - 115

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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. Limit	RPD Limit
Chloride			2600	mg/Kg	1	2500	<3.85	104 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: 91957
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit
Chloride			2400	mg/Kg	1	2500	<3.85	96 85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD Limit
Chloride			2520	mg/Kg	1	2500	<3.85	101 85 - 115	5 20

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

Matrix Spike (MS-1) Spiked Sample: 299882

QC Batch: 91895
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit
Benzene		1	1.95	mg/Kg	1	2.00	0.0175	97 69.3 - 159.2
Toluene		1	1.94	mg/Kg	1	2.00	0.0538	94 68.7 - 157
Ethylbenzene		1	1.90	mg/Kg	1	2.00	<0.00500	95 71.6 - 158.2
Xylene		1	5.36	mg/Kg	1	6.00	0.02	89 70.8 - 159.8

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. Limit	RPD Limit
Benzene		1	2.08	mg/Kg	1	2.00	0.0175	103 69.3 - 159.2	6 20
Toluene		1	2.07	mg/Kg	1	2.00	0.0538	101 68.7 - 157	6 20
Ethylbenzene		1	2.01	mg/Kg	1	2.00	<0.00500	100 71.6 - 158.2	6 20
Xylene		1	5.66	mg/Kg	1	6.00	0.02	94 70.8 - 159.8	5 20

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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)	2.29	2.18	mg/Kg	1	2	114	109	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.39	2.18	mg/Kg	1	2	120	109	72.6 - 144.1

Matrix Spike (MS-1) Spiked Sample: 299886

QC Batch: 91896
Prep Batch: 77967

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

Analyzed By: AG
Prepared By: AG

Param			F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q _s	Q _s		1	32.6	mg/Kg	1	20.0	<1.22	163	28.2 - 157.2

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

Param				MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
	F	C	Result	Units								
GRO	Q _s	Q _s	1	39.2	mg/Kg	1	20.0	<1.22	196	28.2 - 157.2	18	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}	2.63	2.39	mg/Kg	1	2	132	120	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	4.25	3.89	mg/Kg	1	2	212	194	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 299890

QC Batch: 91950
Prep Batch: 78010

Date Analyzed: 2012-06-07
QC Preparation: 2012-06-07

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	246	mg/Kg	1	250	<15.7	98	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	219	mg/Kg	1	250	<15.7	88	36.1 - 147.2	12	20

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

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	91.3	88.0	mg/Kg	1	100	91	88	78.3 - 131.6

Matrix Spike (MS-1) Spiked Sample: 299882

QC Batch: 91956
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10500	mg/Kg	10	2500	8380	85	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10900	mg/Kg	10	2500	8380	101	79.4 - 120.6	4	20

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

Matrix Spike (MS-1) Spiked Sample: 299892

QC Batch: 91957
Prep Batch: 78014

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			4570	mg/Kg	10	2500	2220	94	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			4940	mg/Kg	10	2500	2220	109	79.4 - 120.6	8	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: 91895

Date Analyzed: 2012-06-06

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.110	110	80 - 120	2012-06-06
Toluene		1	mg/kg	0.100	0.105	105	80 - 120	2012-06-06
Ethylbenzene		1	mg/kg	0.100	0.0971	97	80 - 120	2012-06-06
Xylene		1	mg/kg	0.300	0.286	95	80 - 120	2012-06-06

Standard (CCV-2)

QC Batch: 91895

Date Analyzed: 2012-06-06

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0987	99	80 - 120	2012-06-06
Toluene		1	mg/kg	0.100	0.0937	94	80 - 120	2012-06-06
Ethylbenzene		1	mg/kg	0.100	0.0851	85	80 - 120	2012-06-06
Xylene		1	mg/kg	0.300	0.243	81	80 - 120	2012-06-06

Standard (CCV-3)

QC Batch: 91895

Date Analyzed: 2012-06-06

Analyzed By: AG

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	2012-06-06
Toluene		1	mg/kg	0.100	0.103	103	80 - 120	2012-06-06
Ethylbenzene		1	mg/kg	0.100	0.104	104	80 - 120	2012-06-06
Xylene		1	mg/kg	0.300	0.322	107	80 - 120	2012-06-06

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Standard (CCV-1)

QC Batch: 91896

Date Analyzed: 2012-06-06

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	0.967	97	80 - 120	2012-06-06

Standard (CCV-2)

QC Batch: 91896

Date Analyzed: 2012-06-06

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	0.901	90	80 - 120	2012-06-06

Standard (CCV-3)

QC Batch: 91896

Date Analyzed: 2012-06-06

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	1.10	110	80 - 120	2012-06-06

Standard (CCV-1)

QC Batch: 91950

Date Analyzed: 2012-06-07

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	249	100	80 - 120	2012-06-07

Standard (CCV-2)

QC Batch: 91950

Date Analyzed: 2012-06-07

Analyzed By: AG

Report Date: June 11, 2012
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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	2012-06-07

Standard (CCV-1)

QC Batch: 91956

Date Analyzed: 2012-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.9	100	85 - 115	2012-06-06

Standard (CCV-2)

QC Batch: 91956

Date Analyzed: 2012-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-06-06

Standard (CCV-1)

QC Batch: 91957

Date Analyzed: 2012-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.9	100	85 - 115	2012-06-06

Standard (CCV-2)

QC Batch: 91957

Date Analyzed: 2012-06-06

Analyzed By: AR

Report Date: June 11, 2012
114-6401422

Work Order: 12060447
COG/Continental A State #12 Inj. Well

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-06-06

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

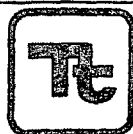
Attachments

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

12060441

Analysis Request of Chain of Custody Record

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**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6401422

PROJECT NAME:

Continental A State #12 Inj well

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION
209882	5/30		S	X		Edley Co., NM

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE METHOD

HCL

HNO3

ICE

NONE

BTEX 8021B
TPH 8015 MOD
PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd V Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

209882

5/30

S

X

AH-1 0-1'

1

X

XX

X

883

1-1.5'

1

X

X

884

2-2.5'

1

X

X

885

3-3.5'

1

X

X

886

AH-2 0-1'

1

X

XX

X

887

1-1.5'

1

X

X

888

2-2.5'

1

X

X

889

2.5-3.0'

1

X

X

890

AH-3 0-.5'

1

X

XX

X

891

AH-4 0-1'

1

X

XX

X

RELINQUISHED BY: (Signature)

Date: 6/4/12

Time: 3:35 PM

RECEIVED BY: (Signature)

Date: 6/4/12

Time: 5:50

SAMPLED BY: (Print & Initial)

Kim

Date: 6/4/12

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #:

HAND DELIVERED

UPS

OTHER:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Results by:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

Run deeper samples if TPH > 5,000 mg/kg or Total BTEX > 50 mg/kg

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