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Report	Type: Work Plan

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March 6, 2012

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Mr. Geoffrey Leking Environmental Engineer Specialist Oil Conservation Division, District 1 1625 North French Drive Hobbs, New Mexico 88240

Re: Work Plan for the COG Operating LLC., Prohibition 12 Federal #7 Tank Battery, Unit F, Section 12, Township 22 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Prohibition 12 Federal #7 Tank Battery, Unit F, Section 12, Township 22 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.40788°, W 103.63483°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on January 12, 2012, and released approximately 20 barrels of produced water, due to the fiberglass tank rupturing at the load line. To alleviate the problem, COG will be replacing the fiberglass tank with a new tank. Approximately 10 barrels of standing fluids were recovered from the site. The spill was contained within the facility firewalls and impacted an area approximately 12'x 70'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed in Section 12. The USGS did report one well in Section 14 with a depth to groundwater of 382' below surface. According to the NMOCD groundwater map, the groundwater depth in this area is approximately 350' below surface. The groundwater data is shown in Appendix B.



Regulatory

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

Soil Assessment and Analytical Results

On February 7, 2012, Tetra Tech personnel inspected and sampled the spill area. A total of three (3) auger holes (AH-1, AH-2 and AH-3) 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. Copies of laboratory reports and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for TPH and BTEX and a shallow chloride impact was detected in the soils. All of the auger holes showed elevated chlorides at 0-1', with concentrations of 7,180 mg/kg (AH-1), 6,870 mg/kg (AH-2) and 4,030 mg/kg (AH-3). The chloride concentrations significantly declined with depth at 1.0' to 2.0' below surface.

Work Plan

COG proposes to removal of impacted material as highlighted (green) in Table 1. Based on the groundwater depth (350'), the elevated chloride impact will be excavated at a depth of approximately 1.0' below surface. Once excavated, the soils will be transported to proper disposal and the excavation backfilled to grade.



Due to proximity of oil and gas equipment, structures or lines, the impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or require any additional information regarding this work plan proposal, please call me at (432) 682-4559.

Respectfully submitted, TETRA TEOR Ĵ,

Ike Tavarez Project Manager

cc: Pat Ellis - COG cc: Jim Amos - BLM

Figures

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Drawn By Isabel Marmolejo

PASTURE



Drawn By Isabel Marmoleio

Tables

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Table 1COG Operating LLC.Prohibition 12 Federal #7Lea County, New Mexico

Sample	Sample	Sample	BEB	Soil	Status	٦	FPH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
ID	Date	Depth (ft)	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
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	"	4-4.5	ų	Х		-	-	-	-	-	-	-	-	<200
	61	5-5.5	π	X		-	-	-	-	-	-	-	-	<200
			•	·····			· · · · · · · · · · · · · · · · · · ·				·	.1	• • • • • • • • • • • • • • • • • • • •	•
AH-2	2/7/2012	0-1		*. ; X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,870
	n	1-1.5	n	X		-	-	-	-	-	-	-	-	543
	N	2-2.5	11	X		-	-	-	-	-	-	-	-	291
	11	3-3.5	¢1	Х		-	-	-	-	-	-	-	-	<200
	11	4-4.5	11	Х		-	-	-	-	-	-	-	-	<200
	u	5-5.5	n	X		-	-	-	-	-	-	-	-	<200
				.				•	L	-		J	• · · · · · · · · · · · · · · · · · · ·	
AH-3	2/7/2012	0-1	Н	X		<2.00	<50.0	<50.0	, <0.0200	<0.0200	<0.0200	·<0.0200	<0.0200	4,030
	u	1-1.5	11	X		-	-	_	-	-	-	-	-	360

(-) Not Analyzed

BEB Below Excavation Bottom

Proposed Excavation Depth

Photos

COG Operating LLC Prohibition 12 Federal #7 Lea County, New Mexico



TETRA TECH



Prohibition 12 Federal #7 Tank Battery



View west - front of tanks near AH-1

COG Operating LLC Prohibition 12 Federal #7 Lea County, New Mexico







View west - front of tank battery near AH-1

Appendix A

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r

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

Form C-141 Revised October 10, 2003

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

	OPERATOR	\boxtimes	Initial Report	Final Report
Name of Company COG OPERATING LLC	Contact	Pat Ellis		
Address 550 W. Texas, Suite 100, Midland, TX 7970.	I Telephone No.	432-230-0077		
Facility Name Prohibition 12 Federal #7	Facility Type	Tank Battery		
Surface Owner Federal Mineral O	wner		case No. (API#)	30-025-37228

LOCATION OF RELEASE

Unit Letter F	Section 12	Township 22S	Range 32E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea

Latitude 32 24,479 Longitude 103 38.091

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 20bbls	Volume Recovered 10bbls					
Source of Release Water tank	Date and Hour of Occurrence	Date and Hour of Discovery					
	01/12/2012	01-12-2012 6:00 p.m.					
Was Immediate Notice Given?	If YES, To Whom?						
🗌 Yes 🖾 No 🖾 Not Required							
Ry Whom?	Date and Hour						
Was a Watercourse Reached?	If YFS Volume Impacting the Wa	tercourse					
	······································						
If a Watercourse was Impacted, Describe Fully.*							
• • •							
Describe Cause of Problem and Remedial Action Taken.*							
The fiberglass water tank ruptured at load line due to increased pressure in	nside tank. The impaired fiberglass ta	nk will be removed and a new fiberglass					
water tank will be replacing the ruptured one.		-					
· · · ·							
Describe Area Affected and Cleanup Action Taken.*							
·							
Initially 20bbls of produced water was released from the fiberglass water	tank. We were able to recover 10bbls	s with a vacuum truck. All water was					
completely contained inside the walls of the tank battery. Tetra Tech will	sample the spill site area to delineate	any possible contamination from the					
release and we will present the NMOCD/BLM with a work plan for appro	wel prior to any significant remediation	a work.					
• •							
I hereby certify that the information given above is true and complete to the	he best of my knowledge and understa	nd that pursuant to NMOCD rules and					
regulations all operators are required to report and/or file certain release n	otifications and perform corrective act	ions for releases which may endanger					
public health or the environment. The acceptance of a C-141 report by the	e NMOCD marked as "Final Report" o	loes not relieve the operator of liability					
should their operations have failed to adequately investigate and remediate	e contamination that pose a threat to g	round water, surface water, human health					
or the environment. In addition, NMOCD acceptance of a C-141 report de	oes not relieve the operator of respons	ibility for compliance with any other					
federal, state, or local laws and/or regulations.	·····						
	OU CONSERV	ATION DIVISION					
	OIL CONDLAY	ATION DIVISION					
Signature:							
	Amproved by District Commission						
Printed Name: Josh Russo	Approved by District Supervisor:						
Title: HSE Coordinator	Annoval Date:	Expiration Date:					
	Prever Bule.						
F-mail Address: inusso@conchoresources.com	Conditions of Approval						
	and the art the sale	Attached 🔲					
Data: 01/25/2012 Phone: 432-212-2200							
		1					

* Attach Additional Sheets If Necessary



Water Well Data Average Depth to Groundwater (ft) COG - Prohibition 12 Federal #7 Lea County, New Mexico

	21 Sc	outh	31	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 630	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	22 \$	South		31 East	t
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 448	15	14	13
19	20 47	21	22	23	24
30	29 413	28 444	27	26	25
31	32	33	34	35	36

	23 S	outh 31 East			
6	5	4	3	2	1
85	354	168			
7	8	9	10	11	12
140					
18	17	16	15	14	13
19	20	21	22	23	24
	SITE				
30	29	28	27	26	25
31	32	33	34	35	36
		1		1	1

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

	21 Sc	outh	33	East	
6	5	4	3	2 79 107	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 179	27	26	25
31	32	33	34	35	36

	22 Sc	buth	32	East	
6	5	4	3	2	1
7	8	9	10	11	12 SITE
18	17	16	15	14 382 350	13
19 280	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	23 Sc	outh	32	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 400	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	22 9	South		33 East	1
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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



New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM SITE Location

Summary Report

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

Project Location:	Lea Co., NM
Project Name:	COG/Prohibition 12 Fed #7
Project Number:	114-6401232

Date Time Date Sample Description Matrix Taken Taken Received 288873 AH-1 0-1' 2012-02-07 2012-02-10 soil 00:00 AH-1 1-1.5' 288874 soil 2012-02-07 00:00 2012-02-10 AH-1 2-2.5' 288875 soil 2012-02-07 00:00 2012-02-10 288876 AH-1 3-3.5' soil 2012-02-07 00:00 2012-02-10 AH-1 4-4.5' 288877 soil 2012-02-07 00:00 2012-02-10 2012-02-07 AH-1 5-5.5' 288878 soil 00:00 2012-02-10 AH-2 0-1' 288879 soil 2012-02-07 00:00 2012-02-10 AH-2 1-1.5' soil 288880 2012-02-07 00:002012-02-10 AH-2 2-2.5' 288881 soil 2012-02-07 00:00 2012-02-10 288882 AH-2 3-3.5' soil 2012-02-07 00:00 2012-02-10 288883 AH-2 4-4.5' soil 2012-02-07 2012-02-10 00:00 288884 AH-2 5-5.5' soil 2012-02-07 00:00 2012-02-10 AH-3 0-1' 288885 soil 2012-02-07 00:002012-02-10 288886 AH-3 1-1.5' soil 2012-02-07 00:00 2012-02-10

		BTEX			TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(ing/Kg)	(mg/Kg)	(mg/Kg)
288873 - AH-1 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	<2.00
288879 - AH-2 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	$<\!2.00$
288885 - AH-3 0-1'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	<2.00

Sample: 288873 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		7180	mg/Kg	4

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: February 15, 2012

Work Order: 12021026

Report Date: February 15, 2012	Work Order: 12021026	Page	Number: 2 of 3
Sample: 288874 - AH-1 1-1.5'			
Param Flag	Result	Units	RL
Chloride	1990	mg/Kg	4
Sample: 288875 - AH-1 2-2.57			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4
Sample: 288876 - AH-1 3-3.5'			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4
Sample: 288877 - AH-1 4-4.5'			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4
Sample: 288878 - AH-1 5-5.5'			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4
Sample: 288879 - AH-2 0-1'			
Param Flag	Result	Units	RL
Chloride	6870	mg/Kg	4
Sample: 288880 - AH-2 1-1.5'			
Param Flag	Result	Units	RL
Unioride	543	mg/Kg	4
Sample: 288881 - AH-2 2-2.5'			
Param Flag	Result	Units	RL
Chloride	291	mg/Kg	4

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

Sample: 288882 - AH-2 3-3.5'ParamFlagResultUnitsRiChloride <200 mg/Kg $<Sample: 288883 - AH-2 4-4.5'ParamFlagResultUnitsRiChloride<200mg/Kg<Sample: 288884 - AH-2 5-5.5'ParamFlagResultUnitsRiChloride<200mg/Kg<$	Report Date: Febru	lary 15, 2012	Work Order: 12021026	Page	Number: 3 of 3
Param Flag Result Units RI Chloride <200 mg/Kg Sample: 288883 - AH-2 4-4.5' Param Flag Result Units RI Chloride <200 mg/Kg Sample: 288884 - AH-2 5-5.5' Param Flag Result Units RI Chloride <200 mg/Kg Sample: 288885 - AH-3 0-1' Param Flag Result Units RI Chloride 4030 mg/Kg Sample: 288886 - AH-3 1-1.5' Param Flag Result Units RI Chloride 360 mg/Kg	Sample: 288882	- AH-2 3-3.5'			
Chloride <200 mg/Kg Sample: 288883 - AH-2 4-4.5' Param Flag Result Units Rl Chloride <200 mg/Kg Sample: 288884 - AH-2 5-5.5' Param Flag Result Units Rl Chloride <200 mg/Kg Sample: 288885 - AH-3 0-1' Param Flag Result Units Rl Chloride 4030 mg/Kg </th <th>Param</th> <th>Flag</th> <th>Result</th> <th>Units</th> <th>RL</th>	Param	Flag	Result	Units	RL
Sample: 288883 - AH-2 4-4.5'ParamFlagResultUnitsRJChloride < 200 mg/Kg < 300 mg/Kg < 300 Sample: 288884 - AH-2 5-5.5'ParamFlagResultUnitsRIChloride < 200 mg/Kg < 300 mg/Kg < 300 Sample: 288885 - AH-3 0-1'ParamFlagResultUnitsRIChloride4030mg/Kg < 300 < 300 < 300 Sample: 288886 - AH-3 1-1.5'ParamFlagResultUnitsRIChloride360 me/Kg < 300 < 300 < 300	Chloride		<200	mg/Kg	4
Param Flag Result Units Rl Chloride <200	Sample: 288883	- AH-2 4-4.5'			
Chloride <200	Param	Flag	Result	Units	RL
Sample: 288884 - AH-2 5-5.5' Param Flag Result Units Rl Chloride <200	Chloride		<200	mg/Kg	4
Param Flag Result Units Rl Chloride <200	Sample: 288884 -	- AH-2 5-5.5'			
Chloride <200	Param	Flag	Result	Units	RL
Sample: 288885 - AH-3 0-1' Param Flag Result Units RI Chloride 4030 mg/Kg 4030 mg/Kg 4030 Sample: 288886 - AH-3 1-1.5' Param Flag Result Units RI Chloride 360 mg/Kg 4030 mg/Kg 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 4030 </td <td>Chloride</td> <td></td> <td><200</td> <td>mg/Kg</td> <td>4</td>	Chloride		<200	mg/Kg	4
Param Flag Result Units RI Chloride 4030 mg/Kg 4030 Sample: 288886 - AH-3 1-1.5' Param Flag Result Units RI Chloride 360 mg/Kg 4030	Sample: 288885 -	- AH-3 0-1'			
Chloride 4030 mg/Kg Sample: 288886 - AH-3 1-1.5' Param Flag Result Units RI Chloride 360	Param	Flag	Result	Units	RL
Sample: 288886 - AH-3 1-1.5'ParamFlagResultUnitsRIChloride360mg/Kg4	Chloride		4030	mg/Kg	4
ParamFlagResultUnitsRIChloride360mg/Kg	Sample: 288886 -	· AH-3 1-1.5'			
Chloride 360 mg/Kg	Param	Flag	Result	Units	RL
	Chloride		360	mg/Kg	4

.



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: February 15, 2012

Work Order: 12021026

Project Location:Lea Co., NMProject Name:COG/Prohibition 12 Fed #7Project Number:114-6401232

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
288873	AH-1 0-1'	soil	2012-02-07	00:00	2012-02-10
288874	AH-1 1-1.5'	soil	2012-02-07	00:00	2012-02-10
288875	AH-1 2-2.5'	soil	2012-02-07	00:00	2012-02-10
288876	AH-1 3-3.5'	soil	2012-02-07	00:00	2012-02-10
288877	AH-1 4-4.5'	soil	2012-02-07	00:00	2012-02-10
288878	AH-1 5-5.5'	soil	2012-02-07	00:00	2012-02-10
288879	AH-2 0-1'	soil	2012-02-07	00:00	2012-02-10
288880	AH-2 1-1.5'	soil	2012-02-07	00:00	2012-02-10
288881	AH-2 2-2.5'	soil	2012-02-07	00:00	2012-02-10
288882	AH-2 3-3.5'	' soil	2012-02-07	00:00	2012-02-10
288883	AH-2 4-4.5'	soil	2012-02-07	00:00	2012-02-10
288884	AH-2 5-5.5'	soil	2012-02-07	00:00	2012-02-10
288885	AH-3 0-1'	soil	2012-02-07	00:00	2012-02-10
288886	AH-3 1-1.5'	soil	2012-02-07	00:00	2012-02-10

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

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abul

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

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Sample 288875 (AH-1 2-2.5')	7
Sample 288876 (AH-1 3-3.5')	8
Sample 288877 (AH-1 4-4.5')	8
Sample 288878 (AH-1 5-5.5')	8
Sample 288879 (AH-2 0-1')	9
Sample 288880 (AH-2 1-1.5')	10
Sample 288881 (AH-2 2-2.5')	10
Sample 288882 (AH-2 3-3.5')	11
Sample 288883 (AH-2 4-4.5')	11
Sample 288884 (AH-2 5-5.5')	11
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OC Batch 88547 - CCV (2)	21 91
OC Batch 88547 - CCV (3)	41 00
OC Batch 88568 - ICV (1)	44 99
OC Batch 88568 - CCV (1)	44 00
$\mathcal{L} = \mathcal{L} = $	44

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QC Batch 88569 - ICV (1)	. 23 . 23
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Case Narrative

Samples for project COG/Prohibition 12 Fed #7 were received by TraceAnalysis, Inc. on 2012-02-10 and assigned to work order 12021026. Samples for work order 12021026 were received intact at a temperature of 5.9 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	75170	2012-02-13 at 08:45	88547	2012-02-13 at 14:52
Chloride (Titration)	SM 4500-Cl B	75143	2012-02-10 at 13:39	88568	2012-02-14 at 14:02
Chloride (Titration)	SM 4500-Cl B	75143	2012-02-10 at 13:39	88569	2012-02-14 at 14:03
TPH DRO - NEW	S 8015 D	75146	2012-02-13 at 15:03	88517	2012-02-13 at 15:05
TPH GRO	S 8015 D	75170	2012-02-13 at 08:45	88543	2012-02-13 at 14:52

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 12021026 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: February 15, 2012 114-6401232 Work Order: 12021026 COG/Prohibition 12 Fed #7 Page Number: 6 of 24 Lea Co., NM

Analytical Report

Sample: 288873 - AH-1 0-1'

Laboratory:	Midland									
Analysis:	BTEX		Analytica	al Methoo	l: S 80	21B		Prep Met	hod:	S 5035
QC Batch:	88547		Date Ana	alyzed:	2012	-02-13		Analyzed	By:	\mathbf{tc}
Prep Batch:	75170		Sample F	reparatio	on: 2012	-02-13		Prepared	By:	tc
					BI					
Parameter		Flag	Cert		Regult	T	nite	Dilution		RI.
Benzene					<0.0200	 mg	/Kg	1		0.0200
Toluene		11	1		< 0.0200	ing	/Kø	1		0.0200
Ethylbenzene		u	,		< 0.0200	ing	/Kg	1		0.0200
Xylene	,	Ŭ	1		< 0.0200	ng	/Kg	1		0.0200
							<u> </u>			
Surrogata		БJ	ag Cort	Rogult	Unito	Dilution	Spike	Percent	Rec	overy
Trifluorotolu		I`1	ag Cert	2.26	ma/Ka		2.00	112	75	125 /
4-Bromofluor	(11^{11})			1 73	mg/Kg	· 1	2.00	86	63.6	- 158.9
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	Midland Chloride (Titration 88568 75143	ı) Flag	Ana Dat Sam Cert	lytical M e Analyze ple Prepe	ethod: ed: aration: RL Result 7180	SM 4500-Cl 2012-02-14 2012-02-10 U mg	B Inits /Kg	Prep M Analyz Prepare Dilution 100	lethod: ed By: ed By:	N/A AR AR RL 4.00
Sample: 288 Laboratory: Analysis: QC Batch: Prep Batch:	8873 - AH-1 0-1' Midland TPH DRO - NEW 88517 75146		An Da Sar	alytical M te Analyz nple Prep	Aethod: zed: paration:	S 8015 D 2012-02-13 2012-02-13		Prep M Analyz Prepare	lethod: ed By: ed By:	N/A DA DA
Parameter		Flag	Cert		KL Result	T	nits	Dilution		RL.
DRO		0			<50.0	mo	/Kg	1		50.0
							/0			

Report Date: February 15, 2012 114-6401232				Work Ord COG/Prohib	Page Number: 7 of 24 Lea Co., NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	493 - 157.5

Sample: 288873 - AH-1 0-1'

Laboratory:	Midland									
Analysis:	TPH GRO			Analytic	cal Methe	od: S 80	015 D		Prep Met	thod: S 5035
QC Batch:	88543			Date Ar	nalyzed:	201	2-02-13		Analyzed	By: tc
Prep Batch:	75170			Sample	Preparat	ion: 201	2-02-13		Prepared	By: tc
						RL				
Parameter		Flag		Cert		Result	τ	Jnits	Dilution	RL
GRO	· · · · · · · · · · · · · · · · · · ·	U		1		<2.00	mĘ	g/Kg	1	2.00
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				2.00	mg/Kg	1	2.00	100	58.5 - 155.1
4-Bromofluor	obenzene (4-BFB)				1.86	mg/Kg	1	2.00	93	45.1 - 162.2

Sample: 288874 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88568 75143	Analytic Date Ar Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
		_	RL				
Parameter	Flag	Cert	Result	Units	Dilution	RL	
Chloride			1990	mg/Kg	100	4.00	

Sample: 288875 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88568	Date Analyzed:	2012-02-14	Analyzed By:	AR.
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

continued ...

Report Date 114-6401232	e: February 15, 2012	COG	ork Order: 12 /Prohibition :	Page Number: 8 of 24 Lea Co., NM		
sample 2888	75 continued					
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00
Sample: 28	8876 - AH-1 3-3.5'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88568 75143	Analytic Date Ar Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00
Sample: 28	8877 - AH-1 4-4.5'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88569 75143	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			BL.			

.

			11.1			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	υ		<200	mg/Kg	50	4.00

Sample: 288878 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88569	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	AR

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Parameter	Flag	Cort	RL	Unite	Dilution	BI
rarameter	r iag	Cert	TUCSUIL6	Units	Diffution	nu
Chloride	υ		<200	mg/Kg	50	4.00

Sample: 288879 - AH-2 0-1'

Laboratory:	Midland									
Analysis:	BTEX		Analytics	al Method	l: S 8021	lΒ		Prep Met	thod:	S 5035
QC Batch:	88547		Date Ana	alyzed:	2012-()2-13		Analyzed	l By:	tc
Prep Batch:	75170		Sample I	reparatio	on: 2012-()2-13		Prepared	By:	tc
					\mathbf{RL}					
Parameter		Flag	Cert		Result	U	nits	Dilution		RL
Benzene		U	1		< 0.0200	ing/	′Kg	1		0.0200
Toluene		υ	1		< 0.0200	mg	′Kg	1		0.0200
Ethylbenzene		U	1		< 0.0200	mg	′Kg	1		0.0200
Xylene		υ	1		< 0.0200	mg	′Kg	1		0.0200
							Spike	Percent	Re	covery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	\mathbf{L}	imits
Trifluorotolue	ane (TFT)			2.67	mg/Kg	1	2.00	134	75 -	- 135.4
4-Bromofluor	obenzene (4-BFB)			2.17	mg/Kg	1	2.00	108	63.6	- 158.9

Sample: 288879 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88569 75143	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		0	RL	TT •.		DI
Parameter	Flag	Cert	Result	Units	Dilution	KL
Chloride			6870	mg/Kg	100	4.00

Sample: 288879 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	88517	Date Analyzed:	2012-02-13	Analyzed By:	DA
Prep Batch:	75146	Sample Preparation:	2012-02-13	Prepared By:	DA

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Parameter		Flag	Cert	I	RL Result	Units	Dilution	RL
DRO	·····		1	······································	<50.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	49.3 - 157.5

Sample: 288879 - AH-2 0-1'

Laboratory:MidlandAnalysis:TPH GROQC Batch:88543Prep Batch:75170				Analytical Method:S 801Date Analyzed:2012-0Sample Preparation:2012-0)15 D 2-02-13 2-02-13		Prep Met Analyzed Prepared	chod: S 5035 By: tc By: tc
						RL				
Parameter		Flag		Cert		Result	U	nits	Dilution	RL
GRO		υ		1		<2.00	mg,	/Kg	1	2.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluc	ene (TFT)		Ģ		2.50	mg/Kg	1	2.00	125	58.5 - 155.1
4-Bromofluor	obenzene (4-BFB)				2.31	mg/Kg	1	2.00	116	45.1 - 162.2

Sample: 288880 - AH-2 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	ry: Midland Chloride (Titration) h: 88569 ch: 75143		al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
D		(lt	RL B mili	The Mar		ът
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			543	mg/Kg	50	4.00

Sample: 288881 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88569	Date Analyzed:	2012-02-14	Analyzed By:	AR
Prep Batch:	75143	Sample Preparation:	2012-02-10	Prepared By:	\mathbf{AR}

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Flog	Cort	RL	Unite	Dilution	RI.
1' tag	0010	291	mg/Kg	50	4.00
	15, 2012 Flag	15, 2012 Wo COG/ Flag Cert	15, 2012 Work Order: 120210 COG/Prohibition 12 Fe Flag Cert Result 291	15, 2012 Work Order: 12021026 COG/Prohibition 12 Fed #7 RL Flag Cert Result Units 291 mg/Kg	15, 2012 Work Order: 12021026 Page Number COG/Prohibition 12 Fed #7 Lea RL Flag Cert Result Units Dilution 291 mg/Kg 50

Sample: 288882 - AH-2 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88569 75143	Analytic Date An Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	U		<200	mg/Kg	50	4.00

Sample: 288883 - AH-2 4-4.5'

Laboratory: Analysis: QC Batch: Prep Batch:	boratory: Midland nalysis: Chloride (Titration) C Batch: 88569 rep Batch: 75143		rtical Method: Analyzed: le Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	υ		<200	mg/Kg	50	4.00

Sample: 288884 - AH-2 5-5.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 88569 Prep Batch: 75143		cal Method: nalyzed: Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

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Sample: 288885 - Al	H-3 0-1'							
Laboratory: Midland								
Analysis: BTEX		Analytica	al Metho	d: S 8021	IB		Prep Met	shod: S 5035
QC Batch: 88547		Date Ana	Date Analyzed: 2012-02-13				Analyzed	By: tc
Prep Batch: 75170		Sample I	Preparati	on: 2012-0)2-13		Prepared	By: tc
				RL				
Parameter	Flag	Cert		Result	Uı	nits	Dilution	RL
Benzene	U	1		< 0.0200	mg/	'Kg	1	0.0200
Toluene	υ	1		< 0.0200	mg/	'Kg	1	0.0200
Ethylbenzene	υ	1		< 0.0200	mg/	'Kg	1	0.0200
Xylene	U	1		< 0.0200	mg/	'Kg	1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	ag Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		·	2.33	mg/Kg	1	2.00	116	75 - 135.4
4-Bromofluorobenzene	(4-BFB)		1.79	mg/Kg	1	2.00	90	63.6 - 158.9

Sample: 288885 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88569 75143		alytical Method: te Analyzed: nple Preparation:	SM 4500-Cl B 2012-02-14 2012-02-10	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			4030	mg/Kg	100	4.00

Sample: 288885 - AH-3 0-1'

n-Tricosane			106	mg/Kg	1	100	106	49.3 -	157.5
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lim	very its
DRO		U	1		<50.0	mg/Kg	1		50.0
Parameter		Flag	Cert	I	RL Result	Units	Dilution		RL
Laboratory: Analysis: QC Batch: Prep Batch:	TPH DRO - NEW 88517 h: 75146		Analytical Method:SDate Analyzed:24Sample Preparation:24			15 D -02-13 -02-13	Prep M Analyz Prepar	dethod: æd By: æd By:	N/A DA DA

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Sample: 288	3885 - AH-3 0-1'											
Laboratory:	Midland											
Analysis: TPH GRO				Analytic	cal Meth	od: S 801	15 D		Prep Method: S 5035			
QC Batch:	88543			Date Analyzed: 2012-02-13						Analyzed By: tc		
Prep Batch: 75170 Sample Preparation: 2012-02-13							Prepared By: tc					
						\mathbf{RL}						
Parameter		Flag		Cert		Result	U	nits	Dilution	RL		
GRO		U		1		<2.00	mg/	/Kg	1	2.00		
								Spike	Percent	Recovery		
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits		
Trifluorotolue	ne (TFT)				2.05	nıg/Kg	1	2.00	102	58.5 - 155.1		
4-Bromofluoro	obenzene (4-BFB)				1.92	mg/Kg	1	2.00	96	45.1 - 162.2		

Sample: 288886 - AH-3 1-1.5'

Chloride			360	mg/Kg	50	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Prep Batch:	ep Batch: 75143		Preparation:	2012-02-10	Prepared By:	AR
QC Batch:	88569	Date An	alyzed:	2012-02-14	Analyzed By:	AR.
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

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 Lea Co., NM

Method Blanks

Method Bla	ank (1)	QC B	atch: 885	17					
QC Batch: Prep Batch:	88517 75146			Date A QC Pr	Analyzed: reparation:	2012-02-13 2012-02-13		Analyz Prepar	ed By: DA ed By: DA
Parameter			Fl	аg	Cert		MDL Result	Units	RL
DRO					1		39.1	mg/Kg	50
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane				100	mg/Kg	1	100	100	52 - 140.8

C Batch: 88543

QC Batch: 88543		Date Analyzed:		2012-02-13			Analyzed By:		\mathbf{tc}	
Prep Batch: 75170			QC PI	reparation:	2012-02-3	13		Prepar	ed By:	tc
						MDL				
Parameter		Flag		Cert		Result		Units		\mathbf{RL}
GRO				1		<1.22		mg/Kg		2
							Spike	Percent	Recov	very
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lim	its
Trifluorotolue	ene (TFT)			2.08	mg/Kg	1	2.00	104	78.6 -	109
4-Bromofluor	obenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	58 -	100

Method Blank (1) QC Batch: 88547

QC Batch:	88547		Date Analyzed:	2012-02-13		Anal	yzed By:	tc
Prep Batch:	75170		QC Preparation:	2012-02-13		Prep	ared By:	\mathbf{tc}
					MDL			
Parameter		\mathbf{Flag}	Cert	F	Result	Units		RL
Benzene	<u>,</u>		1	<0.	00470	mg/Kg		0.02
Toluene			1	<0.	00980	mg/Kg	1	0.02
<u></u>				continued	!			

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method blank continued					MDL				
Parameter	Flag		Cert		Result		Units		\mathbf{RL}
Ethylbenzene			j		< 0.00500		mg/Kg		0.02
Xylene			1		< 0.0170		mg/Kg		0.02
(for a second se		Quid	Develt	T I : 4	Dibutian	Spike	Percent	Reco	very
Driftuorotoluono (TET)	Flag	Cert	2 25	Units pur/Kr		Amount 2 (10	118		IIUS
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00 2.00	88	55.9 -	112.4
Method Blank (1) QC Batch: 8 QC Batch: 88568 Prep Batch: 75143	8568	Date A QC Pr	.nalyzed: eparation:	2012-02-3 2012-02-3	14 10 MDL		Analy: Prepa	zed By: red By:	AR AR
Parameter	Flag		Cert		Result		Units		RL
					< 3.80		ing/Kg		4
Method Blank (1) QC Batch: 8	8569								
QC Batch: 88569 Prep Batch: 75143		Date A QC Pr	nalyzed: eparation:	2012-02-1 2012-02-1	14 10		Analyz Prepar	zed By: red By:	AR AR
Parameter	Flag		Cert		MDL Result		Units		\mathbf{RL}
Chloride					<3.85	<u> </u>	mg/Kg		4

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 88517 Prep Batch: 75146			${f Dat} {f QC}$	e Analyze Preparat	d: 20 ion: 20	12-02-13 12-02-13					Analy Prepa	zed By red By:	DA DA
Param		F	С	LCS Result	Units	Dil.	S Ar	pike nount	Ma Re	atrix esult	Rec.	I	Rec. Jimit
DRO			1	244	mg/Kg	g 1		250	<	14.5	98	62	- 128.3
Percent recovery is based on the	e spiko	e rest	ılt. RPI) is based	on the	spike and	d spike	duplie	cate re	sult.			
			LCSD			Spike	Ma	atrix		F	Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amoun	nt Re	sult	Rec.	\mathbf{L}_{2}^{2}	imit	RPD	Limit
DRO		1	236	mg/Kg	ş 1	250	<	14.5	94	62 -	128.3	3	20
Percent recovery is based on the	spike	resi	ılt. RPI) is based	on the	spike and	d spike	duplic	cate re	sult.			
	LC	\mathbf{S}	LCSI	D			Spik	e	LCS	I	LCSD	F	lec.
Surrogate	Res	$_{\mathrm{alt}}$	Resul	lt Ur	nits	Dil.	Amou	int	Rec.		Rec.	$\mathbf{L}_{\mathbf{i}}$	mit
n-Tricosane	10	4	104	mg	/Kg	1	100)	104		104	58.6	- 149.6
QC Batch: 88543 Prep Batch: 75170			Dat QC	te Analyz Preparat	ed: 20 tion: 20	012-02-13 012-02-13	3 3	11	Mad		Ana Preț	lyzed B bared B	y: tc y: tc
Param		F	C F	LUS Result	Units	Dil	ap Am	ount	Res	nlt.	Rec	n Li	mit
GRO		-		18.7	mg/Kg	1	20).0	<1.	22	94	68.3	- 105.7
Percent recovery is based on the	spike	resi	ılt. RPI) is based	on the	spike and	l spike	duplic	ate re	sult.			-A
			LCSD			Snike	Mat	rix		R	ec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Res	ult I	Rec.	Li	mit	RPD	Limit
GRO		1	18.6	mg/Kg	1	20.0	<1.	22	93	68.3 -	105.7	0	20
Percent recovery is based on the	spike	rest	ılt. RPE) is based	on the	spike and	l spike	duplic	cate re	sult.			
			\mathbf{LC}	S LCS	SD			Spike		CS	LCSD	B	ec
Surrogate			Rest	ult Res	ult U	nits l	Dil.	Amou	nt R	lec.	Rec.	Li	mit
Trifluorotoluene (TFT)			2.1	2 2.0	1 m	r/Ko	1	2.00	1	.06	100	80 -	
					ւ ող	5/**8	T		-		100	00 -	111.2

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Laboratory Control Spike (L	CS-	1)											
QC Batch: 88547 Prep Batch: 75170			$\mathbf{D}_{\mathbf{Q}}$	ate Anal C Prepa	yzed: ration:	2012-0 2012-0	2-13 2-13				Anal Prep	yzed B ared B	y: tc y: tc
				LCS			S	Spike	Ma	trix		F	lec.
Param		F	C I	Result	Units	: Dil	. <u>A</u> ı	mount	Res	sult	Rec.	Li	mit
Benzene			1	1.98	mg/K	g 1		2.00	< 0.0	0470	99	86.5	- 124.9
Toluene			1	1.99	mg/K	g 1		2.00	< 0.0	0980	100	84.7	- 122.5
Ethylbenzene			1	1.98	mg/K	g 1		2.00	< 0.0	0500	99	79.4	- 118.9
Xylene			1	5.80	mg/K	g 1		6.00	<0.0	0170	97	79.5	- 118.9
Percent recovery is based on the s	spike	e res	ult. RP	D is base	ed on tl	he spike	and sp	ike dupli	cate r	esult.	• • • •		
			LCSD			Spike		Aatrix		R	ec		RPD
Paran	F	С	Result	Units	Dil.	Amou	nt F	Result	Rec.	Li	nit	RPD	Limit
Benzene		1	2.17	mg/Ke	<u>r</u> 1	2.00	<(0.00470	108	86.5 -	124.9	9	20
Toluene		1	2.20	mg/K	1	2.00	<(0.00980	110	84.7 -	122.5	10	20
Ethylbenzene		1	2.15	mg/Ka	r 1	2.00	<(0.00500	108	79.4 -	118.9	8	20
Xylene		1	6.37	mg/K	g 1	6.00	<	0.0170	106	79.5 -	118.9	9	20
Percent recovery is based on the s	pike	e res	ult. RP	D is base	ed on tl	ne spike	and sp	oike dupli	cate r	esult.			
	I		_			1	1	-	_				_
Commenter and a			L	CS I	CSD	11nita		Spi	ke	LCS	LCSI)] T	Rec.
THE CONTRACT				$\frac{sun}{20}$	1 o 20	Units		1. Amo		116	110	70	0 107
1 Indorotoidelle (1F1)			2	.32	4.00 0.00	mg/K	5 I - 1	2.0	0	100	104	70	9 - 127
4-Bromonuorobenzene (4-BFB)			2	.05	2.08	mg/ Kį	5 1	2.t	10		104	70.	4 - 119
Laboratory Control Spike (Le	C S- :	L)											
QC Batch: 88568 Prep Batch: 75143			Da QC	te Analy Prepara	zed: ation:	2012-02 2012-02	-14 -10				Analy: Prepa	zed By: red By:	AR AR
Down		T	C	LCS	T ī -	.:	וית	Spike	1	Matrix	De		Rec.
Chlorido		г		nesult 02.2		$\frac{110}{100}$	חות. 1	Amoun 	ιι. 	~3 Pr	<u></u>	;. 0	5 115
	.,			<u> </u>		/ <u>118</u>				<u>_0.00</u>	93	0	0 - 110
Percent recovery is based on the s	pike	res	ult. RP	U is base	ed on th	ie spike	and sp	uke dupli	cate r	esult.			
			LCSI	C		S	pike	Matrix		R	lec.		RPD
Param	\mathbf{F}	С	Resu	lt Uni	its D	il. An	nount	Result	Rec	. Li	mit	RPD	Limit
Chloride			105	mg/	Kg	1 1	.00	<3.85	105	5 85	- 115	12	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: 88569			Date	e Analyzed	: 201	2-02-14			Ana	lyzed B	y: AR
Prep Batch: 75143			QC	Preparatio	on: 201	2-02-10			Prep	pared By	y: AR
Param		F	С	LCS Result	Units	Dil.	Spike Amount	M R	atrix esult R	lec.	Rec. Limit
Chloride		Marray		97.1	mg/Kg	1	100	<	3.85	97	85 - 115
Percent recovery is based on t	he spike	resu	lt. RPD	is based o	on the sp	oike and sp	ike duplica	ate res	ult.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	8	20
Percent recovery is based on t	he spike	resu	lt. RPD	is based o	on the sp	oike and sp	oike duplica	ate res	ult.		

Matrix	Spike	(MS-1) Spiked	Sample:	288885
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QC Batch:	88517	Date Analyzed:	2012-02-13	Analyzed By:	DA
Prep Batch:	75146	QC Preparation:	2012-02-13	Prepared By:	DA

Param		F	C I	MS Result	Units	Dil.	Spike Anıount	Ma ; Re	atrix sult Re	:С.	Rec. Limit
DRO			1	254	mg/Kg	1	250	<1	14.5 10	2 45	.5 - 127
Percent recovery is based on the	spike	rest	ılt. RPD	is based	on the s	spike and	spike dupli	icate res	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	232	mg/Kg	1	250	<14.5	93	45.5 - 127	9	20
Percent recovery is based on the	spike	rest	ılt. RPD	is based	on the s	spike and	spike dupli	icate res	sult.		-
	\mathbf{M}	S	MSD)			Spike	MS	MSD]	Rec.
Surrogate	Res	ult	Resul	t U:	nits	Dil.	Amount	Rec.	Rec.	I	imit
n-Tricosane	10	4	92.1	mg	;/Kg	1	100	104	92	45.4	- 145.8

Matrix Spike (MS-1)	Spiked Sample: 288885	
O C D I DOKIO		

QC Batch:	88543	Date Analyzed:	2012-02-13	Analyzed By:	tc
Prep Batch:	75170	QC Preparation:	2012-02-13	Prepared By:	tc

Report Date: February 15, 2012 114-6401232	Work Order: 12021026 COG/Prohibition 12 Fed #7								Page Number: 19 of 24 Lea Co., NM				
Param		F	C	MS Result	Units	Dil.	Sp Am	oike ount	Ma Re	atrix esult	Rec.	I L	Rec. imit
GRO	_		1	14.2	mg/Kŧ	ç 1	20).0	<	1.22	68	28.2	- 157.2
Percent recovery is based on the sp	pike F	e res	ult. RPI MSD Bogult	D is based	l on the	spike an Spike Amount	d spike Mat	duplio rix	cate i R <i>ec</i>	result. R	ec. wit	RPD	RPD Limit
GRO	<u> </u>	1	$\frac{16.3010}{16.1}$	me/Ke	1	20.0	<1.	22	77	28.2	- 157.2	12	20
Percent recovery is based on the sp	pike	e res	ult. RPI	D is based	l on the	spike an	d spike	duplic	cate 1	result.	MUD	т	
C					.SD	TT:40	Dil	Spik	xe	MS Daa	MSD	1 T	tес.
Surrogate			Re	suit Re	suit	Units	DII.	Amou	mt	Rec.	Rec.	L	imit
Triffuorotoluene (TFT)			2.	36 2	.60 1	ng/Kg	1	2		118	130	75.5	- 122.3
4-Bromofluorobenzene (4-BFB)			2.	28 2	.51 1	ng/Kg	1	2		114	126	77.9	- 122.4

Matrix Spike (MS-1) Spiked Sample: 288887

QC Batch:	88547	Date Analyzed:	2012-02-13	Analyzed By:	\mathbf{tc}
Prep Batch:	75170	QC Preparation:	2012-02-13	Prepared By:	tc

			MS			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.93	nıg/Kg	1	2.00	< 0.00470	96	69.3 - 159.2
Toluene		ı	2.04	mg/Kg	1	2.00	< 0.00980	102	68.7 - 157
Ethylbenzene		1	2.13	mg/Kg	1	2.00	< 0.00500	106	71.6 - 158.2
Xylene		1	6.25	mg/Kg	1	6.00	< 0.0170	104	70.8 - 159.8

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Benzene		1	1.87	mg/Kg	1	2.00	< 0.00470	94	69.3 - 159.2	3	20
Toluene		1	1.97	mg/Kg	1	2.00	< 0.00980	98	68.7 - 157	4	20
Ethylbenzene		1	2.10	mg/Kg	1	2.00	< 0.00500	105	71.6 - 158.2	1	20
Xylene		ı	6.12	mg/Kg	1	6.00	< 0.0170	102	70.8 - 159.8	2	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.51	2.56	mg/Kg	1	2	126	128	71.4 - 133.9
4-Bromofluorobenzene (4-BFB)	2.10	2.08	mg/Kg	1	2	105	104	72.6 - 144.1

Report Date: February 1. 114-6401232	5, 2012			Work Order: 12021026 COG/Prohibition 12 Fed #7								Page Number: 20 of 24 Lea Co., NM		
Matrix Spike (MS-1)	Spiked S	ampl	e: 28887	6										
QC Batch: 88568			Dat	te Analyz	ed: 20)12-02-14				Anal	yzed By	: AR		
Prep Batch: 75143			QC	Prepara	tion: 20)12-02-10				Prepa	ared By	AR		
				MS			Spike	Μ	atrix		F	lec.		
Param		F	C I	Result	Units	Dil.	Amount	R	esult	Rec.	L	imit		
Chloride				9890	mg/Kg	100	10000	<	<385	99	79.4	- 120.6		
Percent recovery is based	on the spil	ce res	ult. RPI	D is based	l on the	spike and	spike dup	licate	result.					
			MSD			Spike	Matrix		R	ec.		RPD		
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Li	mit	RPD	Limit		
Chloride			10600	mg/Kg	; 100	10000	<385	106	79.4 -	- 120.6	7	20		
Matrix Spike (MS-1)	Spiked S	ampl	e: 28888	6										
QC Batch: 88569			Dat	e Analyz	ed: 20)12-02-14				Analy	zed By	AR		
Prep Batch: 75143			QC	Preparat	tion: 20)12-02-10				Prepa	ared By:	AR.		
				MS			Spike	М	atrix		F	lec.		
Param		F	C J	Result	Units	Dil.	Amount	R	esult	Rec.	\mathbf{L} i	mit		
Chloride				10800	mg/Kg	100	10000	<	385	104	79.4	- 120.6		
Percent recovery is based	on the spil	te res	ult. RPI) is based	l on the	spike and	spike dup	licate	result.					
			MSD			Spike	Matrix		R	ec.		RPD		
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Li	mit	RPD	Limit		
Chloride			11700	mg/Kg	100	10000	<385	113	79.4 -	120.6	8	20		

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

Report Date: February 15, 2012 114-6401232

Calibration Standards

Standard (CCV-2)

QC Batch:	88517			Date	Analyzed:	2012-02-13		Analy	zed By: DA
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO			1	mg/Kg	250	242	97	80 - 120	2012-02-13

Standard (CCV-3)

QC Batch:	88517			Date	Analyzed:	2012-02-13		Analyzed By: DA		
					CCVs True	CCVs Found	CCVs Percent	Percent	Date	
					mue	round	i creent	recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO			1	mg/Kg	250	260	104	80 - 120	2012-02-13	

Standard (CCV-2)

QC Batch:	88543			Date	Analyzed:	2012-02-13		Analyzed By: tc			
					CCVs	CCVs	CCVs	Percent	_		
					True	Found	Percent	Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO			1	mg/Kg	1.00	1.07	107	80 - 120	2012-02-13		

Standard (CCV-3)

QC Batch:	88543			Date	Analyzed:	2012-02-13		Ana	lyzed By: tc
Decem			Gent	T Tuo 14 u	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO			1	mg/Kg	1.00	1.14	114	80 - 120	2012-02-13

Report Date: Februa 114-6401232		CO	Work Order G/Prohibiti	7	Page Number: 22 of 24 Lea Co., NM							
Standard (CCV-2)												
QC Batch: 88547			Date Ar	alyzed: 20	12-02-13		Anal	yzed By: tc				
				CCVs	CCVs	CCVs	Percent					
				True	Found	Percent	Recovery	Date				
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed				
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-02-13				
Toluene		ì	mg/kg	0.100	0.103	103	80 - 120	2012 - 02 - 13				
Ethylbenzene		1	mg/kg	0.100	0.0991	99	80 - 120	2012-02-13				
Xylene		1	mg/kg	0.300	0.289	96	80 - 120	2012-02-13				

Standard (CCV-3)

QC Batch: 8	8547			Anal	yzed By: tc				
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch: 88 Param Benzene Toluene Ethylbenzene Xulone		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.110	110	80 - 120	2012-02-13
Toluene			1	mg/kg	0.100	0.106	106	80 - 120	2012-02-13
Ethylbenzene			1	mg/kg	0.100	0.102	102	80 - 120	2012-02-13
Xylene			1	mg/kg	0.300	0.304	101	80 - 120	2012-02-13

Standard (ICV-1)

QC Batch:	88568			Date A	nalyzed:	2012-02-14		Analy	zed By: AR
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	100	100	85 - 115	2012-02-14

Standard (CCV-1)

QC Batch:	88568			Date A	analyzed: 2	012-02-14		Analy	zed By: AR
_					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	99.7	100	85 - 115	2012-02-14

Report Date: F 114-6401232	'ebruary 15, 2	012	C	Work Or OG/Proh	Page Number: 23 of 24 Lea Co., NM							
Standard (IC	V-1)											
QC Batch: 88	569		Date A	nalyzed:	2012-02-14		Analy	zed By: AR				
Param	Flag	Cert	Units	ICVs True Conc	ICVs Found Conc	ICVs Percent Becovery	Percent Recovery Limits	Date Analyzed				
Chloride	1 105		mg/Kg	100	99.0	99	85 - 115	2012-02-14				
Standard (CC	V-1)											
QC Batch: 885	569		Date A	.nalyzed:	2012-02-14		Analy	zed By: AR				
				CCVs	CCVs	CCVs	Percent					

Param	Flag	Cert	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Date Analyzed
Chloride	0		mg/Kg	100	101	101	85 - 115	2012-02-14

Work Order: 12021026 COG/Prohibition 12 Fed #7 Page Number: 24 of 24 Lea Co., NM

Appendix

Report Definitions

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	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 then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

Analysis Reque	st of Chain of Custod	v Record						PA	GE:		2	OF:	
		<u>,</u>	-			(Circ	ANAL	YSIS Spec	S REC	ST 5d Nc	[No.)		
Te	TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		5 (Ext. to C35)	d Cr Pb Hg Se	d Vr Pd Hg Se							TDS	
CLIENT NAME:	SITE MANAGER: IK: Tavarez	PRESERVATIVE	TX100	Ba C	s Ba C		60/624	270/625				ns, pH,	
PROJECT NO.: PROJECT N 114-640 i 232	AME: 7/ Prohibition TZ Frd #7 La Co, NM	T OF CONTAI	DIS MOD	'0 letais Ag A	fietals Ag Av blatifes	emi Volatiles	Vol. 8240/82	Semi. Vol. 8	080/608 8/608	6	Spec. eta (Air)	sbestos) nions/Catio	
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CONTACT: PHONE: PHONE: SAMPLE CONDITION WHEN RECEIVED:	DATE:			<u> </u>								Yes	

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