

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 Prohibition 12 Federal #7	Facility Type Tank Battery

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-37228
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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
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Latitude N 32.40790° Longitude W 103.63483 °

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 20bbls	Volume Recovered 10bbls
Source of Release	Date and Hour of Occurrence 01/12/2012	Date and Hour of Discovery 01/12/2012 6:00 p.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully *

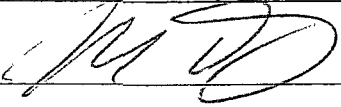
Describe Cause of Problem and Remedial Action Taken.*

The fiberglass water tank ruptured at load line due to increased pressure inside tank. The impaired fiberglass tank will be removed and a new fiberglass water tank will be replacing the ruptured one.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected and assessed the spill area to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted 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 Environmental Specialist	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Senior Project Manager	Approval Date: 10/25/12	Expiration Date: -
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval: -	Attached <input type="checkbox"/>
Date: 9-24-12 Phone: (432) 682-4559	IRP-10-12-2857	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Prohibition 12 Federal #7 Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit F	Sec. 12	T-22-S	R-32-E		
Lease Number:	API-30-025-37228					
County:	Lea County					
GPS:	32.40788° N			103.63483° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Hwy 62/180 and Hwy 176 , travel east on Hwy 176 6.5 miles, turn right on lease road 0.7 miles, stay right 1.6 miles, left 0.8 miles, left 6.2 miles, right 0.8 miles to location.					

Release Data:

Date Released:	1/12/2012
Type Release:	Produced Water
Source of Contamination:	Fiberglass water tank load line ruptured
Fluid Released:	20 bbls
Fluids Recovered:	10 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@tetrattech.com

Ranking Criteria

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

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

HOBBS OCD

OCT 22 2012

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TETRA TECH

September 24, 2012

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

HOBBS OCD

OCT 22 2012

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**Re: Closure Report 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.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On 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.

Closure Activities


Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The final excavation depth of the soil remediation was met as stated in the approved work plan. The excavation was backfilled with clean soil to grade. Approximately 20 cubic yards of soil were excavated and transported to CRI for proper disposal. The excavated area and depth are highlighted in Table 1 and shown on Figure 4.



TETRA TECH

Based on the remedial activities performed, COG requests 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.

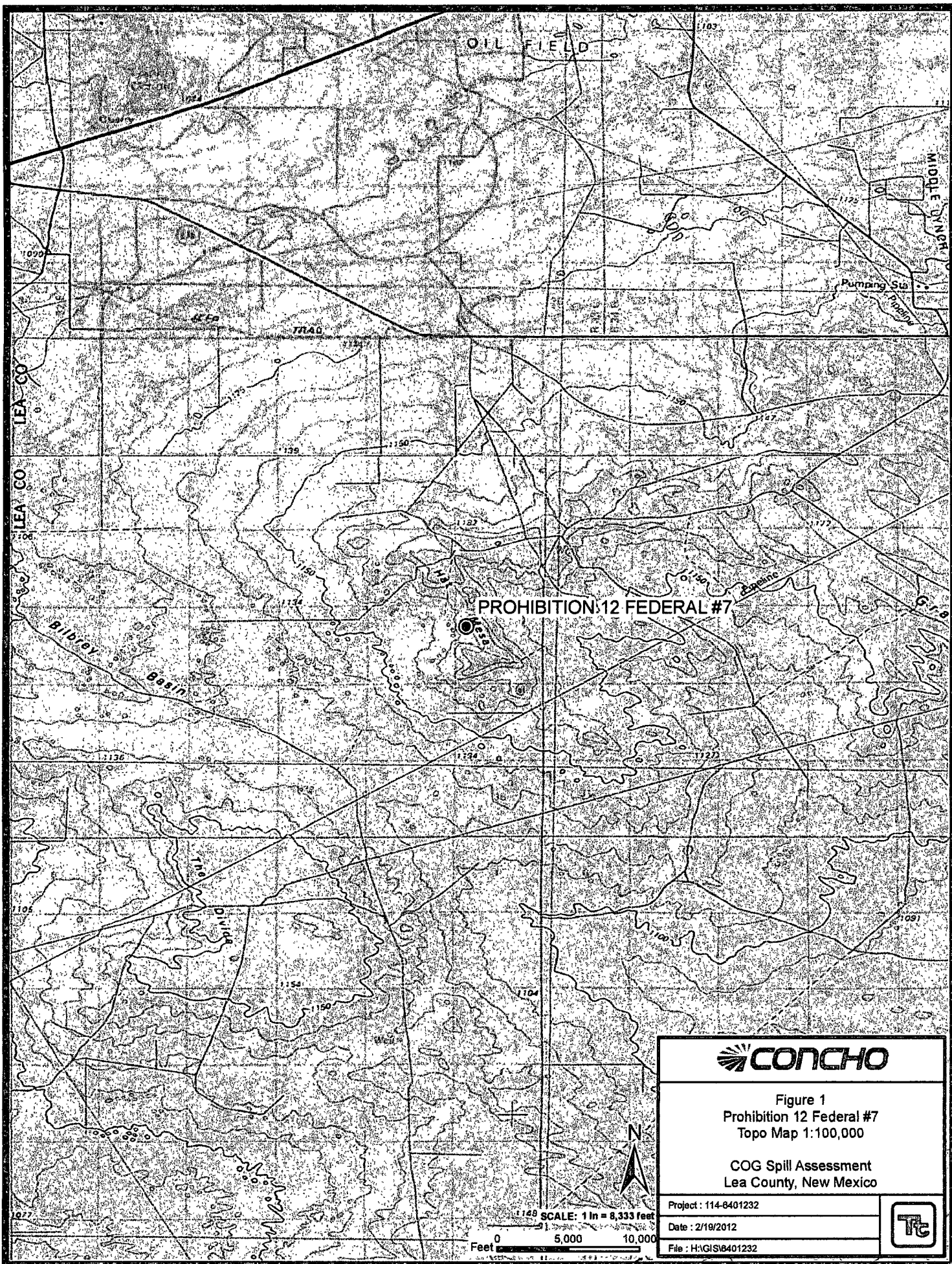
Respectfully submitted,
TETRA TECH

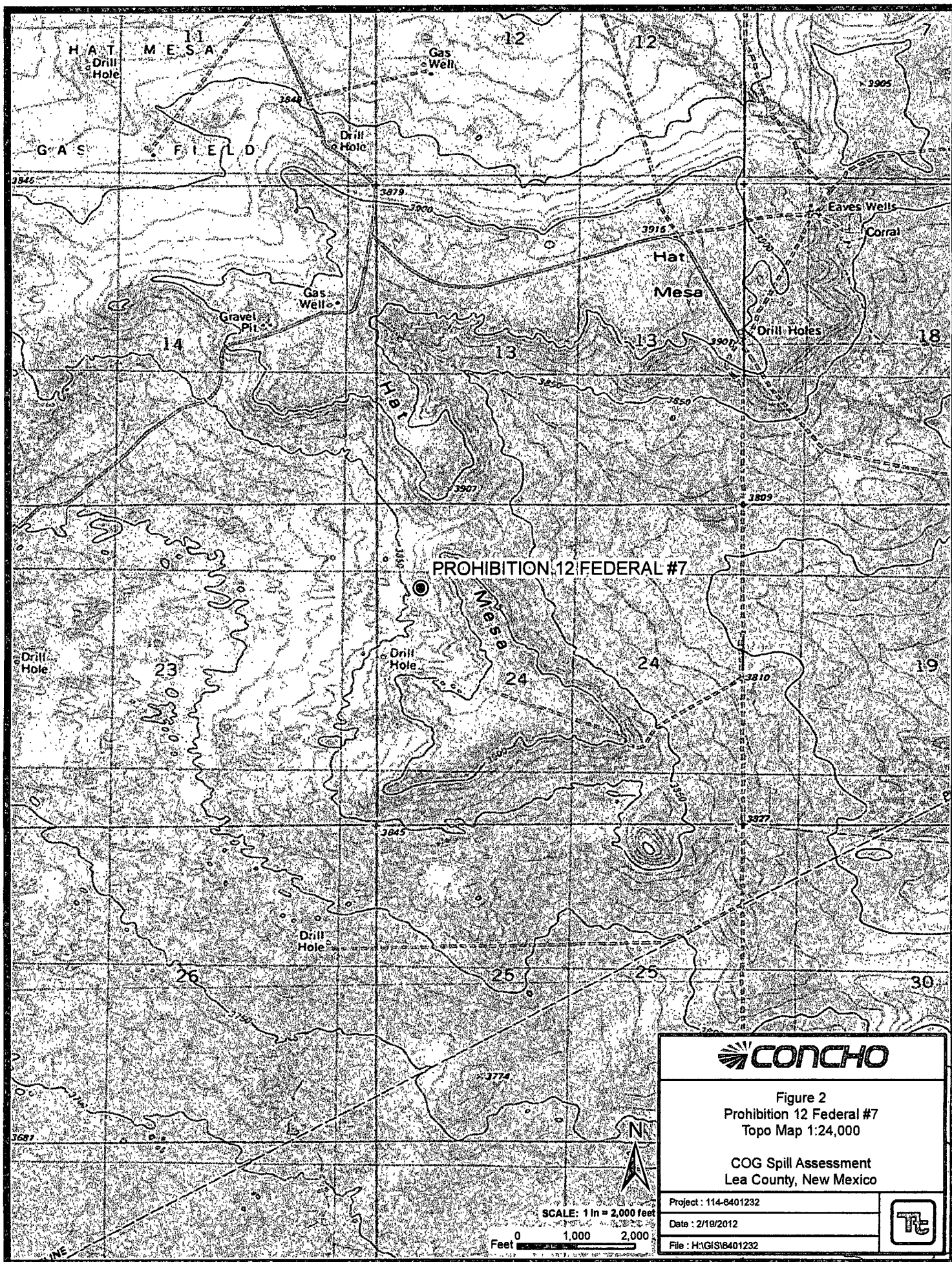


Ike Tavarez, PG
Senior Project Manager

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

Figures





CONCHO

Figure 2
Prohibition 12 Federal #7
Topo Map 1:24,000

COG Spill Assessment
Lea County, New Mexico

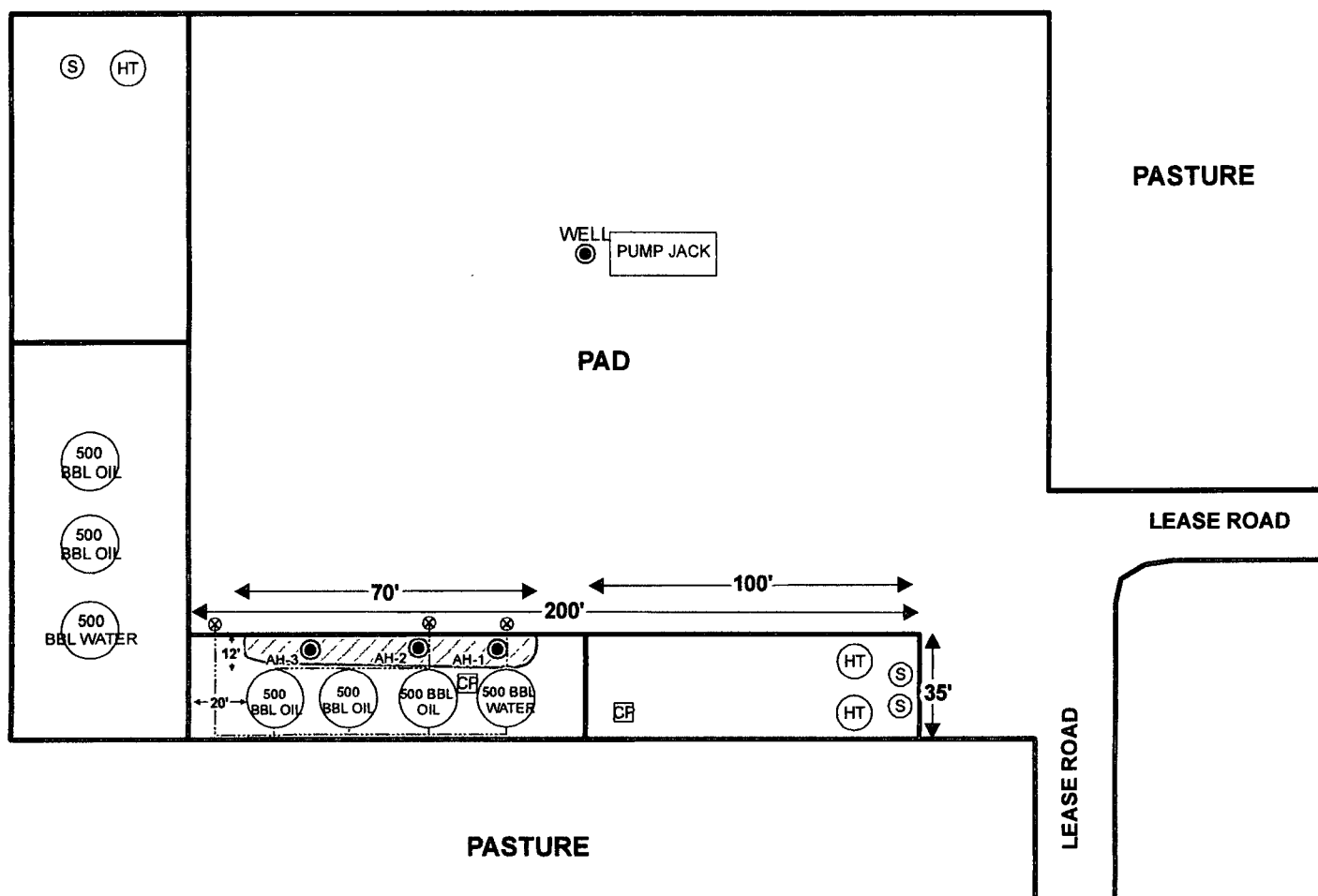
Project: 114-6401232

Date: 2/19/2012

File: H:\GIS\6401232



PASTURE



PASTURE

LEASE ROAD

PASTURE

LEASE ROAD

EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- WELL
- LINE
- ▨ SPILL AREA



Figure 3

Prohibition 12 Federal #7
Spill Assessment Map

COG Spill Assessment
Lea County, New Mexico

Project : 114-6401232

Date : 3/12/2012

File : H:\GIS\6401232



SCALE: 1 IN = 59 FEET

Feet 0 25 50

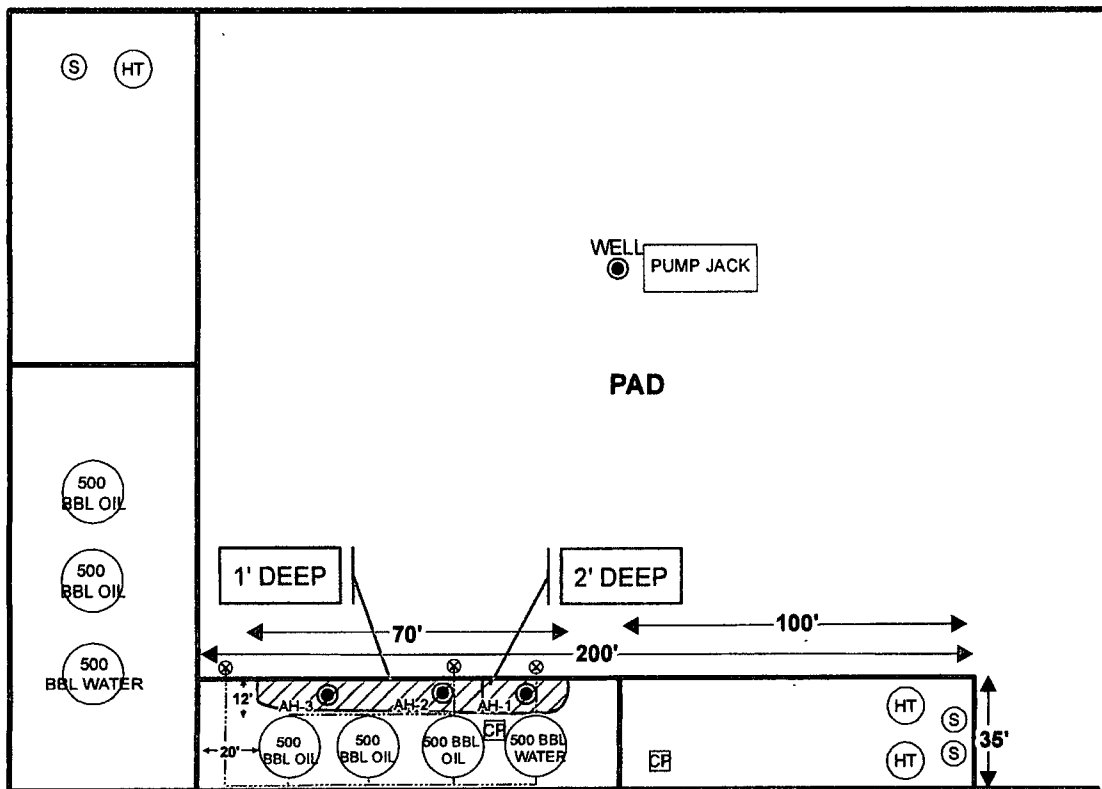
PASTURE

PASTURE

LEASE ROAD

WELL
PUMP JACK

PAD



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- WELL
- LINE
- ▨ EXCAVATED AREA



SCALE: 1 IN = 69 FEET

Feet 0 25 50



Figure 4

Prohibition 12 Federal #7
Excavation Areas & Depths Map
Lea County, New Mexico

Project : 114-6401232

Date : 9/24/2012

File : H:\GIS\6401232



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

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	2/7/2012	0-1			X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,180
	"	1-1.5			X									1,990
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<200
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<200
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<200
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<200
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
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	543
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	291
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<200
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<200
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<200
AH-3	2/7/2012	0-1			X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,030
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	360

(-) Not Analyzed

BEB Below Excavation Bottom



Excavated Depths

Appendix A

District I
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District II
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Oil Conservation Division
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☐ Initial Report ☒ Final Report

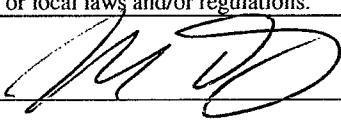

Name of Company	COG Operating LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	Prohibition 12 Federal #7	Facility Type	Tank Battery
Surface Owner: Federal	Mineral Owner	Lease No. (API#)	30-025-37228

LOCATION OF RELEASE

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

Latitude N 32.40790° Longitude W 103.63483 °

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release	20bbls	Volume Recovered	10bbls
Source of Release	Date and Hour of Occurrence	01/12/2012	Date and Hour of Discovery	01/12/2012 6:00 p.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?	Date and Hour			
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A			
If a Watercourse was Impacted, Describe Fully.*				
Describe Cause of Problem and Remedial Action Taken.* The fiberglass water tank ruptured at load line due to increased pressure inside tank. The impaired fiberglass tank will be removed and a new fiberglass water tank will be replacing the ruptured one.				
Describe Area Affected and Cleanup Action Taken.* Tetra Tech inspected and assessed the spill area to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted 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: 	 Environmental Specialist			
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:			
Title: Senior Project Manager	Approval Date: 10/25/12	Expiration Date: -		
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval: -			Attached <input type="checkbox"/>
Date: 9-24-12 Phone: (432) 682-4559				IRP-10-12-2857

* Attach Additional Sheets If Necessary

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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	Prohibition 12 Federal #7	Facility Type	Tank Battery
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#)	30-025-37228

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	12	22S	32E					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	01/12/2012	Date and Hour of Discovery	01/12/2012 6:00 p.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?	Date and Hour				
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

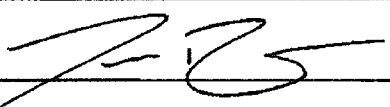
The fiberglass water tank ruptured at load line due to increased pressure inside tank. The impaired fiberglass tank will be removed and a new fiberglass water tank will be replacing the ruptured one.

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 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 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 <input type="checkbox"/>
Date: 01/25/2012 Phone: 432-212-2399			

* Attach Additional Sheets If Necessary

Appendix B

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

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

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

21 South			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

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





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

22 South			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

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

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

23 South			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

Appendix C

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

Sample	Description	Matrix	Date Taken	Time Taken	Date 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

Sample - Field Code	BTX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (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

Sample: 288874 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1990	mg/Kg	4

Sample: 288875 - AH-1 2-2.5'

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
Chloride		543	mg/Kg	4

Sample: 288881 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		291	mg/Kg	4

Sample: 288882 - AH-2 3-3.5'

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

Sample: 288883 - AH-2 4-4.5'

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

Sample: 288884 - AH-2 5-5.5'

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

Sample: 288885 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		4030	mg/Kg	4

Sample: 288886 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		360	mg/Kg	4



6701 Aberdeen Avenue, Suite D Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•6260
E-Mail lab@traceanalysis.com

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: February 15, 2012

Work Order: 12021026



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

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
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.

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

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

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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.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis 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.

Analytical Report

Sample: 288873 - AH-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 88547
Prep Batch: 75170

Analytical Method: S 8021B
Date Analyzed: 2012-02-13
Sample Preparation: 2012-02-13

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

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)			2.26	mg/Kg	1	2.00	113	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.73	mg/Kg	1	2.00	86	63.6 - 158.9

Sample: 288873 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88568
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7180	mg/Kg	100	4.00

Sample: 288873 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 88517
Prep Batch: 75146

Analytical Method: S 8015 D
Date Analyzed: 2012-02-13
Sample Preparation: 2012-02-13

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

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			114	mg/Kg	1	100	114	49.3 - 157.5

Sample: 288873 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88543
Prep Batch: 75170

Analytical Method: S 8015 D
Date Analyzed: 2012-02-13
Sample Preparation: 2012-02-13

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.86	mg/Kg	1	2.00	93	45.1 - 162.2

Sample: 288874 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88568
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1990	mg/Kg	100	4.00

Sample: 288875 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88568
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

continued ...

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sample 288875 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: 288876 - AH-1 3-3.5'

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

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

Sample: 288877 - AH-1 4-4.5'

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

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

Sample: 288879 - AH-2 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88547

Prep Batch: 75170

Analytical Method: S 8021B

Date Analyzed: 2012-02-13

Sample Preparation: 2012-02-13

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

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)			2.67	mg/Kg	1	2.00	134	75 - 135.4
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1	2.00	108	63.6 - 158.9

Sample: 288879 - AH-2 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 88569

Prep Batch: 75143

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-14

Sample Preparation: 2012-02-10

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6870	mg/Kg	100	4.00

Sample: 288879 - AH-2 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 88517

Prep Batch: 75146

Analytical Method: S 8015 D

Date Analyzed: 2012-02-13

Sample Preparation: 2012-02-13

Prep Method: N/A

Analyzed By: DA

Prepared By: DA

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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			106	mg/Kg	1	100	106	49.3 - 157.5

Sample: 288879 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88543
Prep Batch: 75170

Analytical Method: S 8015 D
Date Analyzed: 2012-02-13
Sample Preparation: 2012-02-13

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.50	mg/Kg	1	2.00	125	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			2.31	mg/Kg	1	2.00	116	45.1 - 162.2

Sample: 288880 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88569
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			543	mg/Kg	50	4.00

Sample: 288881 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88569
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			291	mg/Kg	50	4.00

Sample: 288882 - AH-2 3-3.5'

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

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

Sample: 288883 - AH-2 4-4.5'

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

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

Sample: 288884 - AH-2 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

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

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Sample: 288885 - AH-3 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 88547

Prep Batch: 75170

Analytical Method: S 8021B

Date Analyzed: 2012-02-13

Sample Preparation: 2012-02-13

Prep Method: S 5035

Analyzed By: tc

Prepared By: tc

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)			2.33	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: Midland

Analysis: Chloride (Titration)

QC Batch: 88569

Prep Batch: 75143

Analytical Method: SM 4500-Cl B

Date Analyzed: 2012-02-14

Sample Preparation: 2012-02-10

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4030	mg/Kg	100	4.00

Sample: 288885 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 88517

Prep Batch: 75146

Analytical Method: S 8015 D

Date Analyzed: 2012-02-13

Sample Preparation: 2012-02-13

Prep Method: N/A

Analyzed By: DA

Prepared By: DA

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			106	mg/Kg	1	100	106	49.3 - 157.5

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Sample: 288885 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 88543
Prep Batch: 75170

Analytical Method: S 8015 D
Date Analyzed: 2012-02-13
Sample Preparation: 2012-02-13

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	58.5 - 155.1
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	1	2.00	96	45.1 - 162.2

Sample: 288886 - AH-3 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 88569
Prep Batch: 75143

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-02-14
Sample Preparation: 2012-02-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			360	mg/Kg	50	4.00

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Method Blanks

Method Blank (1) QC Batch: 88517

QC Batch: 88517
Prep Batch: 75146

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: DA
Prepared By: DA

Parameter	Flag	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

Method Blank (1) QC Batch: 88543

QC Batch: 88543
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

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)			2.08	mg/Kg	1	2.00	104	78.6 - 109
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	58 - 100

Method Blank (1) QC Batch: 88547

QC Batch: 88547
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

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

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method blank continued . . .

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	78 - 123.6
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	55.9 - 112.4

Method Blank (1) QC Batch: 88568

QC Batch: 88568
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 88569

QC Batch: 88569
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 88517
Prep Batch: 75146

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: DA
Prepared By: DA

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	244	mg/Kg	1	250	<14.5	98	62 - 128.3

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	236	mg/Kg	1	250	<14.5	94	62 - 128.3	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	104	104	mg/Kg	1	100	104	104	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 88543
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.7	mg/Kg	1	20.0	<1.22	94	68.3 - 105.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	18.6	mg/Kg	1	20.0	<1.22	93	68.3 - 105.7	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
Trifluorotoluene (TFT)	2.12	2.01	mg/Kg	1	2.00	106	100	80 - 111.2
4-Bromofluorobenzene (4-BFB)	2.10	1.96	mg/Kg	1	2.00	105	98	66.4 - 106.6

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Laboratory Control Spike (LCS-1)

QC Batch: 88547
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.98	mg/Kg	1	2.00	<0.00470	99	86.5 - 124.9
Toluene		1	1.99	mg/Kg	1	2.00	<0.00980	100	84.7 - 122.5
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00500	99	79.4 - 118.9
Xylene		1	5.80	mg/Kg	1	6.00	<0.0170	97	79.5 - 118.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.17	mg/Kg	1	2.00	<0.00470	108	86.5 - 124.9	9	20
Toluene		1	2.20	mg/Kg	1	2.00	<0.00980	110	84.7 - 122.5	10	20
Ethylbenzene		1	2.15	mg/Kg	1	2.00	<0.00500	108	79.4 - 118.9	8	20
Xylene		1	6.37	mg/Kg	1	6.00	<0.0170	106	79.5 - 118.9	9	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)	2.32	2.38	mg/Kg	1	2.00	116	119	73.9 - 127
4-Bromofluorobenzene (4-BFB)	2.05	2.08	mg/Kg	1	2.00	102	104	70.4 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 88568
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			93.3	mg/Kg	1	100	<3.85	93	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			105	mg/Kg	1	100	<3.85	105	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
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.1	mg/Kg	1	100	<3.85	97	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			105	mg/Kg	1	100	<3.85	105	85 - 115	8	20

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

Matrix Spike (MS-1) Spiked Sample: 288885

QC Batch: 88517
Prep Batch: 75146

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: DA
Prepared By: DA

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	254	mg/Kg	1	250	<14.5	102	45.5 - 127

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	232	mg/Kg	1	250	<14.5	93	45.5 - 127	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
n-Tricosane	104	92.1	mg/Kg	1	100	104	92	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 288885

QC Batch: 88543
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.2	mg/Kg	1	20.0	<1.22	68	28.2 - 157.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.1	mg/Kg	1	20.0	<1.22	77	28.2 - 157.2	12	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.36	2.60	mg/Kg	1	2	118	130	75.5 - 122.3
4-Bromofluorobenzene (4-BFB)	2.28	2.51	mg/Kg	1	2	114	126	77.9 - 122.4

Matrix Spike (MS-1) Spiked Sample: 288887

QC Batch: 88547
Prep Batch: 75170

Date Analyzed: 2012-02-13
QC Preparation: 2012-02-13

Analyzed By: tc
Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.93	mg/Kg	1	2.00	<0.00470	96	69.3 - 159.2
Toluene		1	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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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		1	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.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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

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Matrix Spike (MS-1) Spiked Sample: 288876

QC Batch: 88568
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9890	mg/Kg	100	10000	<385	99	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			10600	mg/Kg	100	10000	<385	106	79.4 - 120.6	7	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: 288886

QC Batch: 88569
Prep Batch: 75143

Date Analyzed: 2012-02-14
QC Preparation: 2012-02-10

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10800	mg/Kg	100	10000	<385	104	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			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.

Calibration Standards

Standard (CCV-2)

QC Batch: 88517

Date Analyzed: 2012-02-13

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	242	97	80 - 120	2012-02-13

Standard (CCV-3)

QC Batch: 88517

Date Analyzed: 2012-02-13

Analyzed By: DA

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	260	104	80 - 120	2012-02-13

Standard (CCV-2)

QC Batch: 88543

Date Analyzed: 2012-02-13

Analyzed By: tc

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

Standard (CCV-3)

QC Batch: 88543

Date Analyzed: 2012-02-13

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.14	114	80 - 120	2012-02-13

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Standard (CCV-2)

QC Batch: 88547

Date Analyzed: 2012-02-13

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2012-02-13
Toluene		1	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: 88547

Date Analyzed: 2012-02-13

Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.110	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 Analyzed: 2012-02-14

Analyzed By: AR

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

Standard (CCV-1)

QC Batch: 88568

Date Analyzed: 2012-02-14

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	2012-02-14

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Standard (ICV-1)

QC Batch: 88569

Date Analyzed: 2012-02-14

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2012-02-14

Standard (CCV-1)

QC Batch: 88569

Date Analyzed: 2012-02-14

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	2012-02-14

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.

#12021026

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tarver

PROJECT NO.:

114-6401232

PROJECT NAME:

COG/ Prohibition 12 Fed #7

LAB I.D.
NUMBERDATE
2012

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

Ln B, NM

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

BTEX 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

288873

2/4

S

X

AH-1 0-1'

1

X

X

X

X

874

1'-1.5'

875

2'-2.5'

876

3'-3.5'

877

4'-4.5'

878

5'-5.5'

879

AH-2 0-1'

X

X

880

1'-1.5'

881

2'-2.5'

882

3'-3.5'

RELINQUISHED BY: (Signature)

Date:

2/10/12

Time:

1400

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

JT/RS

Date:

2/10/12

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX BUS

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Ike Tarver

Results by:

RUSH Charges
Authorized:

Yes No

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

PHONE:

ZIP:

SAMPLE CONDITION WHEN RECEIVED:

59°C intact

REMARKS:

If total AHA exceeds 500 mg/kg, run deeper samples. If BTEX exceeds 20 mg/kg or Benzene exceeds 10 mg/kg, run deeper samples.

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

#12021026

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

**TETRA TECH**
 1910 N. Big Spring St.
 Midland, Texas 79705
 (432) 682-4559 • Fax (432) 682-3946

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaruz

PROJECT NO.:

114-646,232

PROJECT NAME:

COG / Prohibition 12 Fed #7

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

 SAMPLE IDENTIFICATION
 La Cu, 10M

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD
 BTEX 802/5
 TPH 8015 MOD TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date:

2/10/12

Time:

1400

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Date:

2/15/12

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

UPS

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Ike Tavaruz

Results by:

RUSH Charges

Authorized:

Yes No

RECEIVING LABORATORY:

True

ADDRESS:

CITY: Midland

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

2-10-12

TIME:

1400

SAMPLE CONDITION WHEN RECEIVED:

5.9' c not art

REMARKS:

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