SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Brigham H-3 Flow Line					
Company:	COG Operating LLC					
Section, Township and Range	Unit H	Sec 21	T17S	R30E		
Lease Number:	API# 30-015-30677					
County:	Eddy County					
GPS:	32.82050° N			103.98262° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Loco Hills take Goat Roper Road north approx. 0.17 miles and turn west on the first caliche road north of Loco Hills. Follow the caliche raod approx 0.22 miles west to the location.					

Release Data:

Date Released:	11/2/2012
Type Release:	Produced Water with Skim Oil
Source of Contamination:	Flowline
Fluid Released:	13 bbls
Fluids Recovered:	12 bbls

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AUG 23 2013
NMOCD ARTESIA

Official Communication:

Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
P.O. Box	600 W. Illnois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

Ranking Criteria

Depth to Groundwater:	*Ranking Score*	*Site Data*
<50 ft	20	0
50-99 ft	10	0
>100 ft.	0	0

WellHead Protection:	*Ranking Score*	*Site Data*
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	0	0

Surface Body of Water:	*Ranking Score*	*Site Data*
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0

Total Ranking Score:	0

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

TETRA TECH

July 12, 2013

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

Re: Closure Report for the COG Operating LLC., Brigham H-3 Flow Line, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Brigham H-3 flowline located in Unit H, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82050°, W 103.98262°. 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 November 2, 2012, and released approximately thirteen (13) barrels of produced fluid and skim oil from a flowline. Approximately twelve (12) barrels of standing fluids were recovered. The spill initiated on the southeast edge of the pad adjacent to the lease road entering the well location and flowed south into the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

According to the New Mexico State Engineers Office no water wells were listed within Section 21. According to the NMOCD groundwater map, the depth to groundwater is approximately 300' below surface. The groundwater data is shown on Appendix B.

Tetra Tech
1910 North Big Spring, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.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 December 11, 2012, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. 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 analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole and spill area are shown on Figure 3.

Referring to Table 1, none of the samples exceeded the RRAL for either TPH or BTEX. Elevated chlorides were detected in the shallow soils ranging from 1,520 mg/kg to 5,340 mg/kg from 0 to 3.0' below surface. The chlorides significantly declined with depth at 4.0' below surface to 484 mg/kg. The deeper samples did show chloride concentrations spiking at 7-7.5' of 1,160 mg/kg and 8-8.5' of 1,190 mg/kg and declining to 862 mg/kg at 9-9.5' below surface. Deeper samples were not collected due to the dense caliche formation. The areas of AH-2, AH-3 and AH-4 showed no chloride impact to the subsurface soils.

Remedial Activities and Closure Request

On March 12, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4. In order to remove the elevated chloride concentrations, the proposed excavation depths ranged from 4.0' to 4.5' below surface. As requested by the BLM, confirmation sampling was collected from the side walls of the excavation, the results are shown in Table 1.

Approximately 80 cubic yards^3 of soil were removed and transported to the R360 facility for proper disposal. The site was then backfilled with clean material to surface grade, ripped and seeded.

TETRA TECH

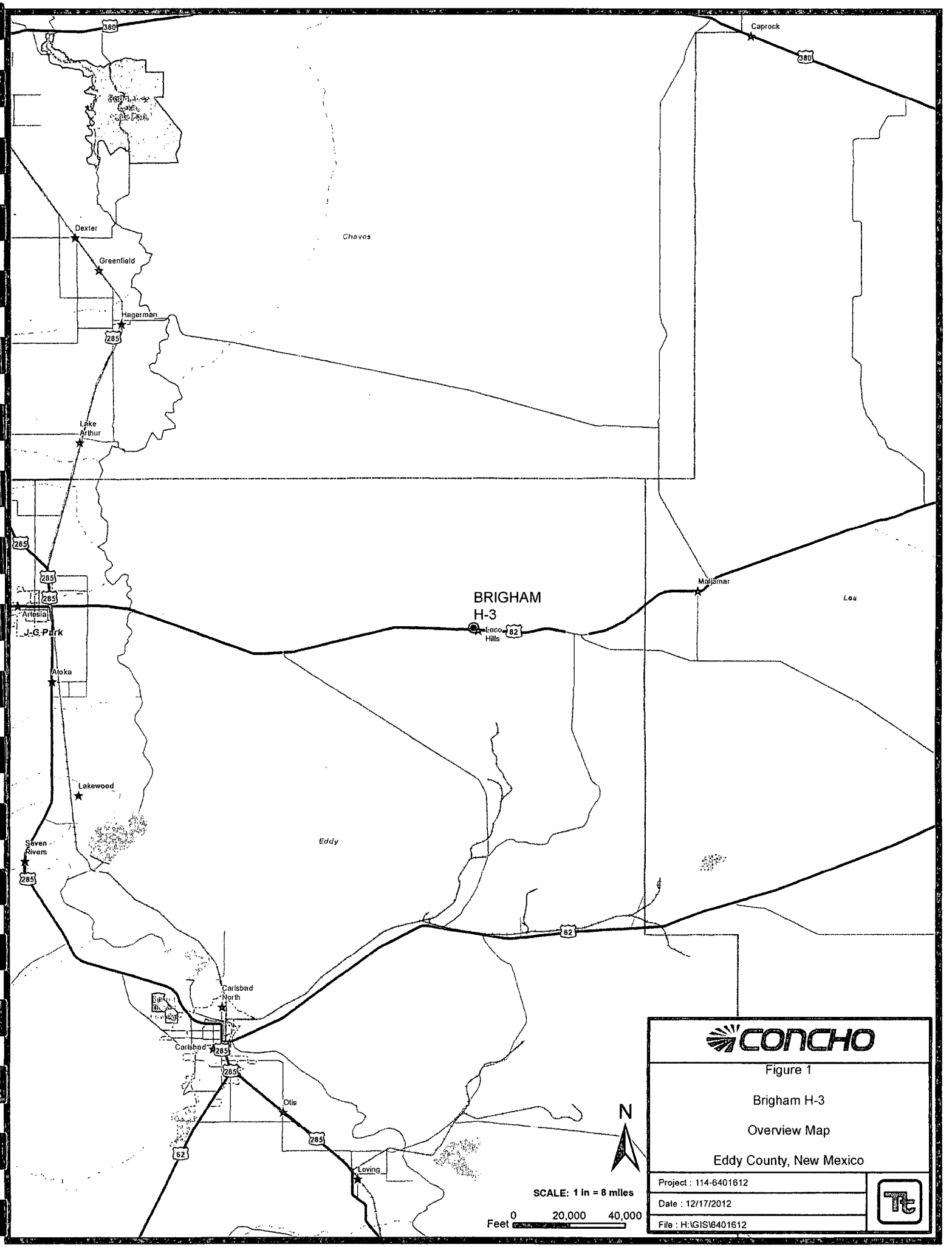
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

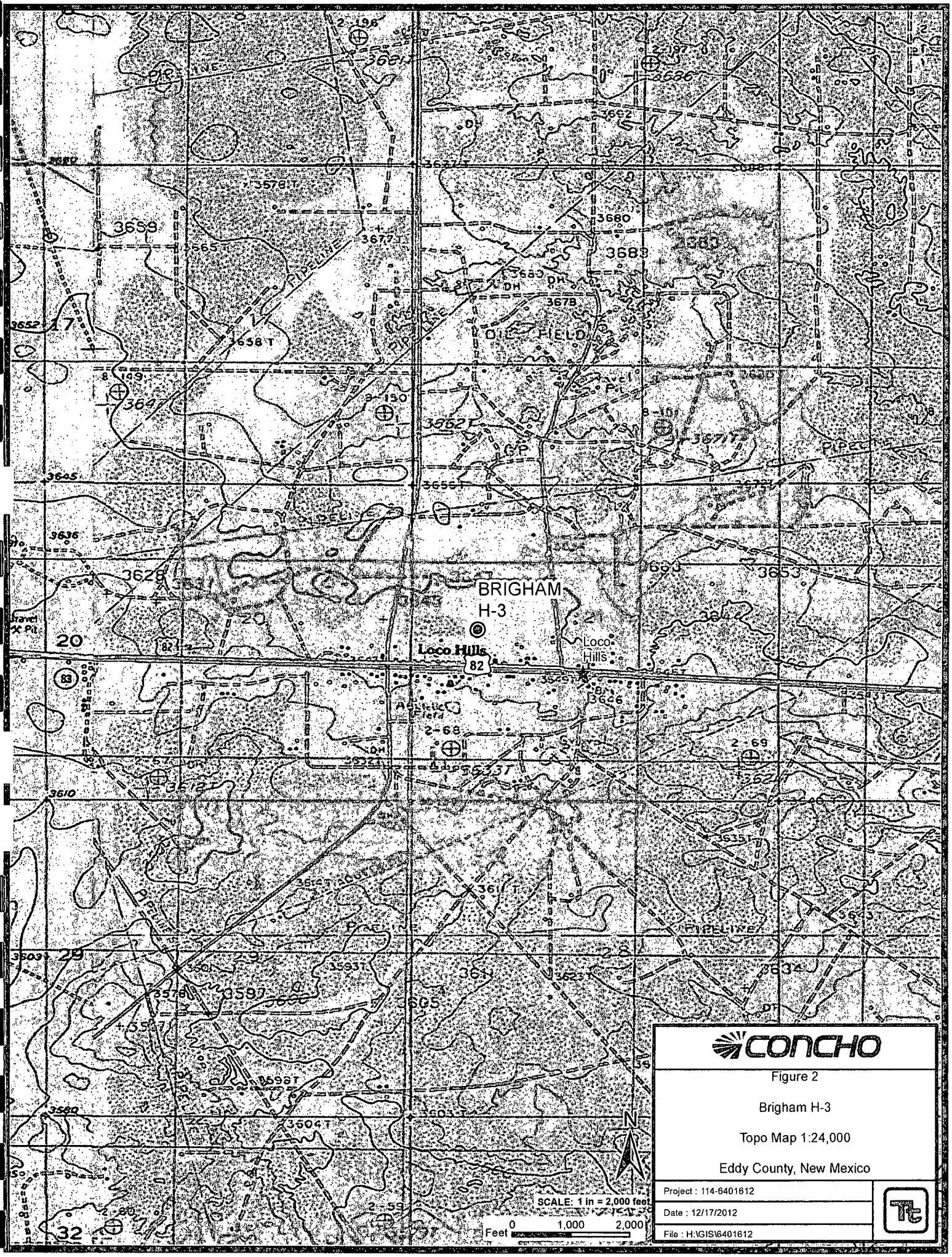
Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG
cc: BLM -Mike Burton

Figures



Drawn By: Isabel Marmolejo



CONCHO

Figure 2

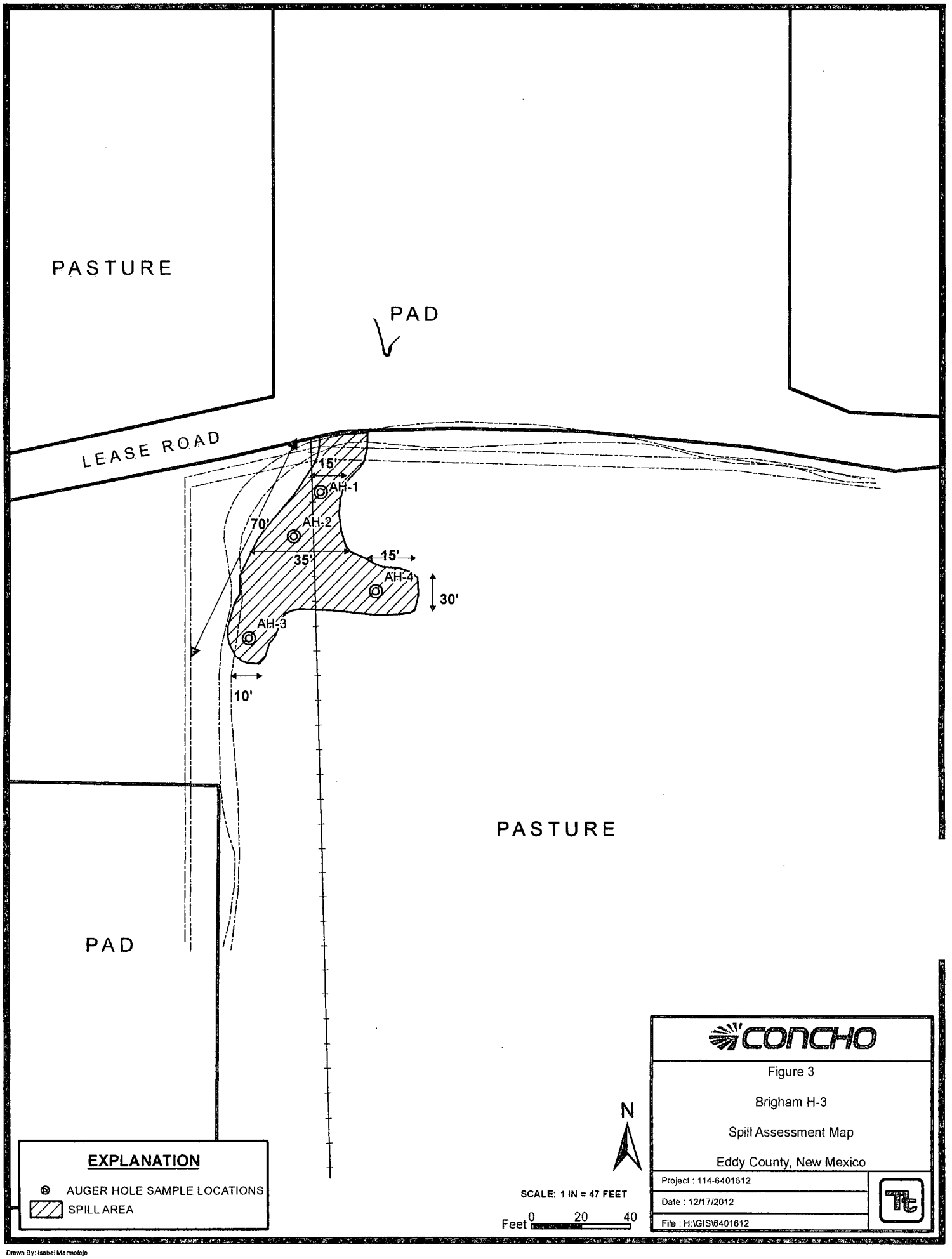
Brigham H-3

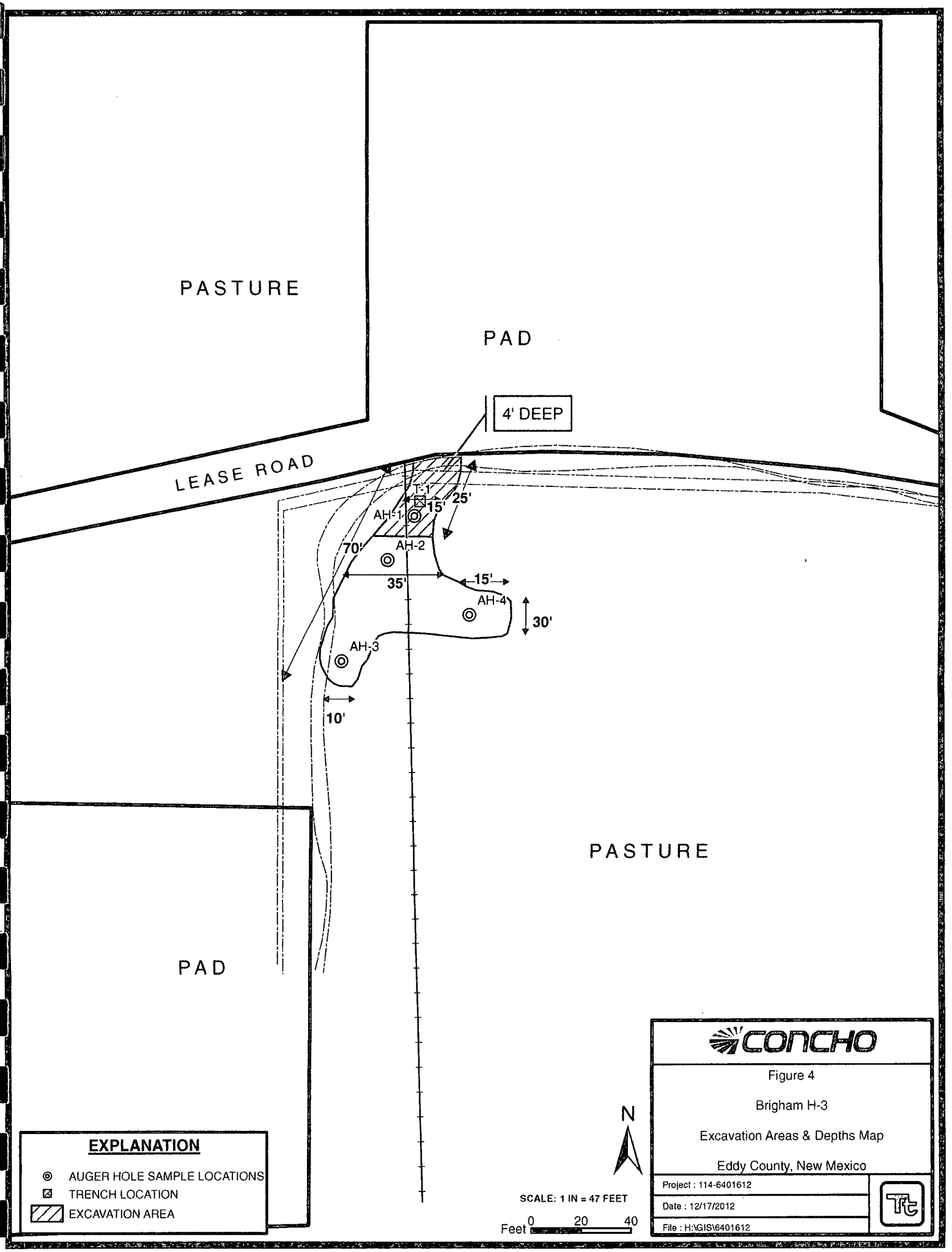
Topo Map 1:24,000

Eddy County, New Mexico

Project : 114-6401612	
Date : 12/17/2012	
File : H:\GIS\6401612	

Drawn By: Isabel Marmolejo


PASTURE
PAD
LEASE ROAD
15'
AH-1
70'
AH-2
35'
15'
AH-4
30'
AH-3
10'
PASTURE
PAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 47 FEET
Feet 0 20 40
CONCHO
Figure 3
Brigham H-3
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401612
Date : 12/17/2012
File : H:\GIS\6401612
Drawn By: Isabel Marmolejo


PASTURE
PAD
4' DEEP
LEASE ROAD
T-1
15'
25'
AH-1
AH-2
70'
35'
15'
AH-4
30'
AH-3
10'
PASTURE
PAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
TRENCH LOCATION
EXCAVATION AREA
N
SCALE: 1 IN = 47 FEET
Feet 0 20 40
CONCHO
Figure 4
Brigham H-3
Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 114-6401612
Date : 12/17/2012
File : H:\GIS\6401612

Tables

Table 1
COG Operating LLC.
Brigham H-3
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	12/11/2012	0-1		X	<4.00	68.0	68.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,340
	"	1-1.5		X	-	-	-	-	-	-	-	-	2,310
	"	2-2.5		X	-	-	-	-	-	-	-	-	1,520
	"	3-3.5		X	-	-	-	-	-	-	-	-	2,450
	"	4-4.5		X	-	-	-	-	-	-	-	-	484
	"	5-5.5	X		-	-	-	-	-	-	-	-	746
	"	6-6.5	X		-	-	-	-	-	-	-	-	800
	"	7-7.5	X		-	-	-	-	-	-	-	-	1,160
	"	8-8.5	X		-	-	-	-	-	-	-	-	1,190
	"	9-9.5	X		-	-	-	-	-	-	-	-	862
T-1	3/13/2013	0	X		-	-	-	-	-	-	-	-	1,920
	"	2	X		-	-	-	-	-	-	-	-	372
	"	4	X		-	-	-	-	-	-	-	-	1,530
	"	6	X		-	-	-	-	-	-	-	-	842
	"	8	X		-	-	-	-	-	-	-	-	117
	"	10	X		-	-	-	-	-	-	-	-	460
	"	12	X		-	-	-	-	-	-	-	-	103
CS-1 North Wall	3/13/2013	-	X		-	-	-	-	-	-	-	-	349
CS-1 South Wall	3/14/2013	-	X		-	-	-	-	-	-	-	-	29.1
CS-1 East Wall	3/13/2013	-	X		-	-	-	-	-	-	-	-	<20.0
CS-1 West Wall	3/14/2013	-	X		-	-	-	-	-	-	-	-	<20.0

Table 1
COG Operating LLC.
Brigham H-3
Eddy County, New Mexico

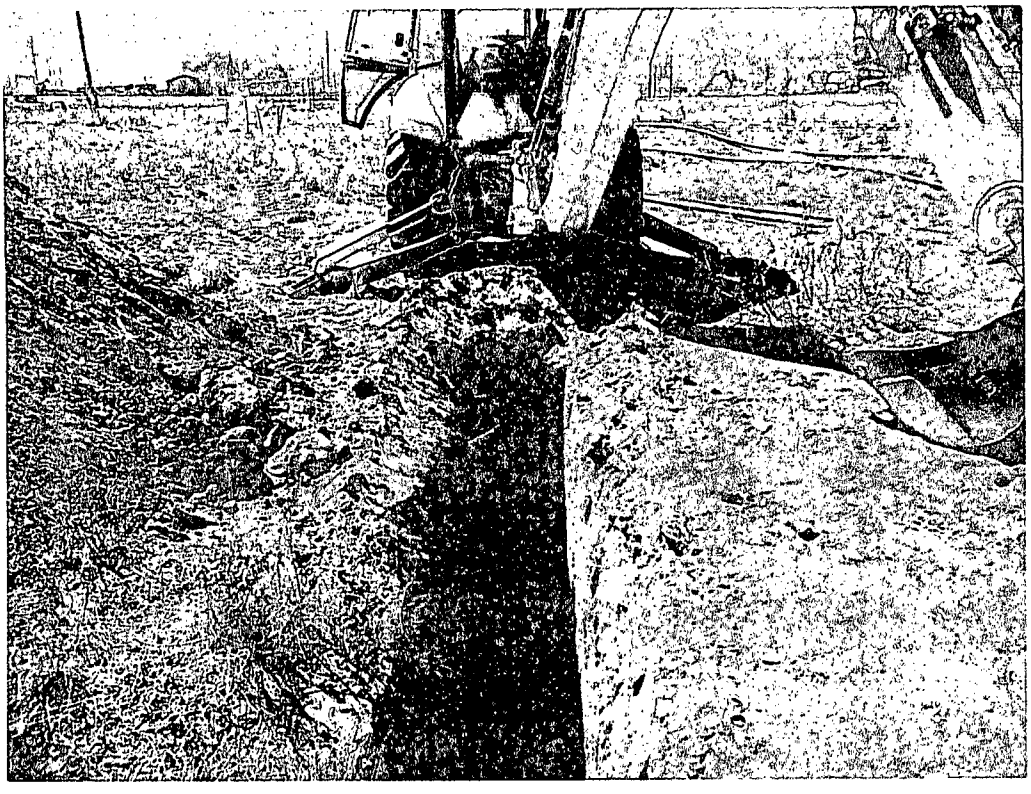
Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-2	12/11/2012	0-1	X		<40.0	707	707	<0.200	<0.200	<0.200	<0.200	<0.200	<20.0
	"	1-1.5	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-3	12/11/2012	0-1	X		<20.0	<500	<500	<0.100	<0.100	<0.100	<0.100	<0.100	<20.0
	"	1-1.5	X		-	-	-	-	-	-	-	-	<20.0
AH-4	12/10/2012	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	1-1.5	X		-	-	-	-	-	-	-	-	<20.0

(-) Not Analyzed

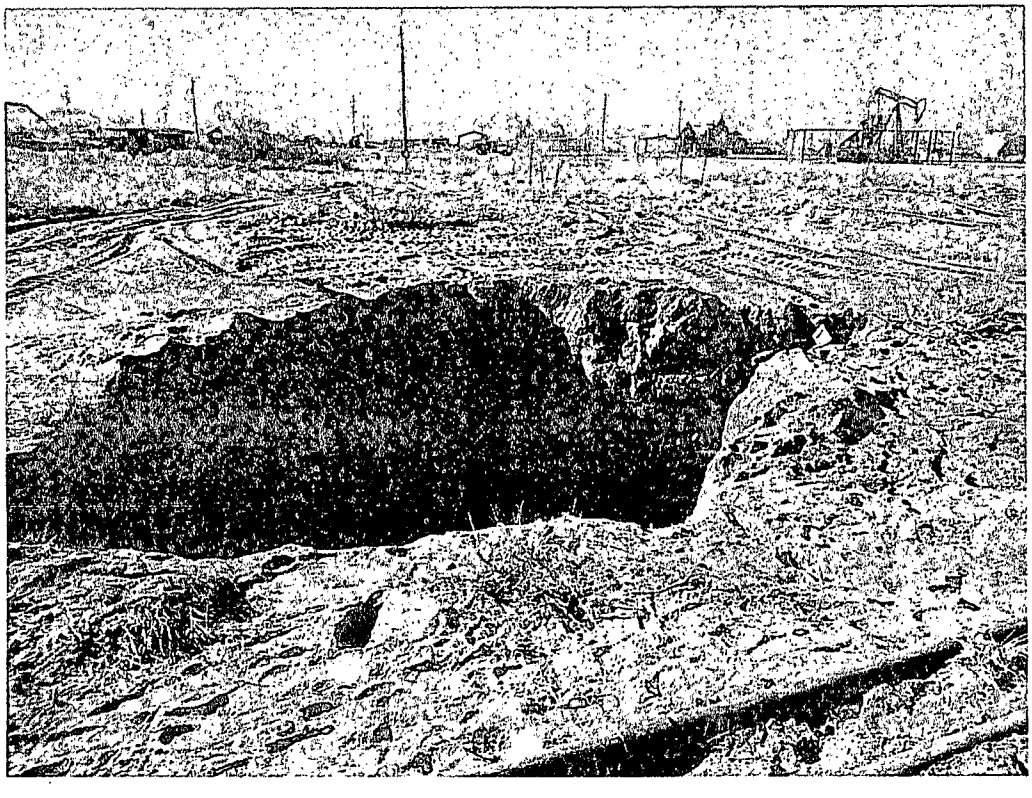
Excavated Depths

COG Operating LLC
Brigham H-3
Eddy County, New Mexico

TETRA TECH



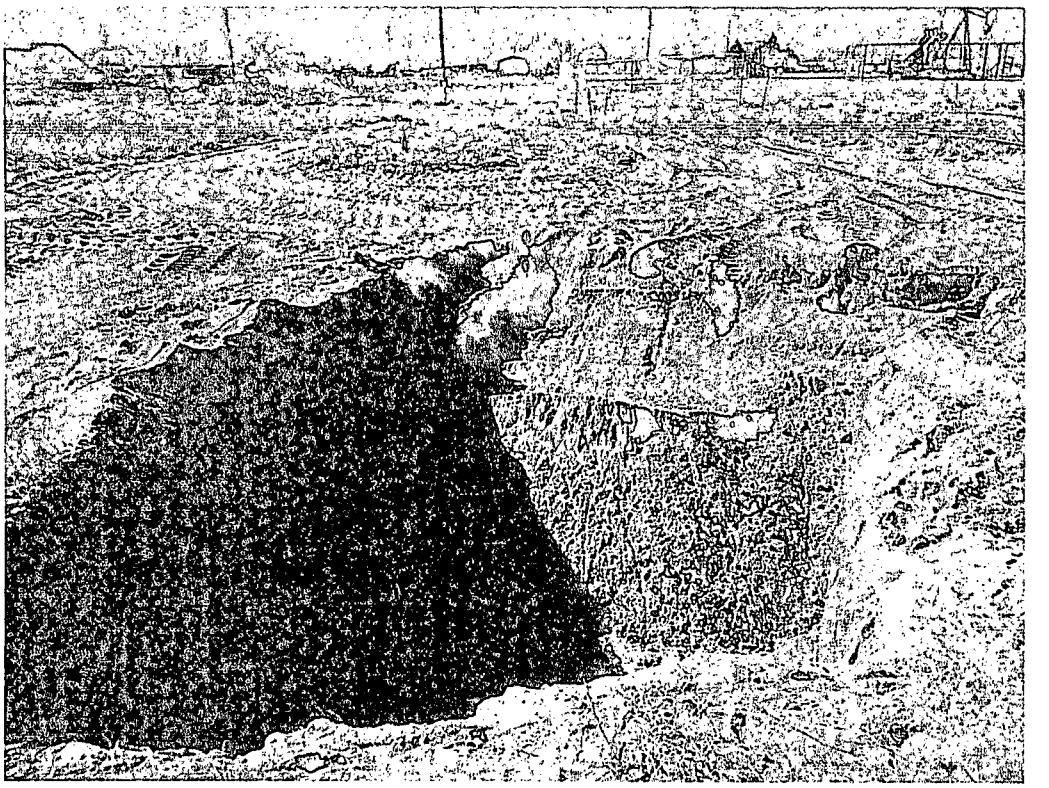
View South – Area of T-1



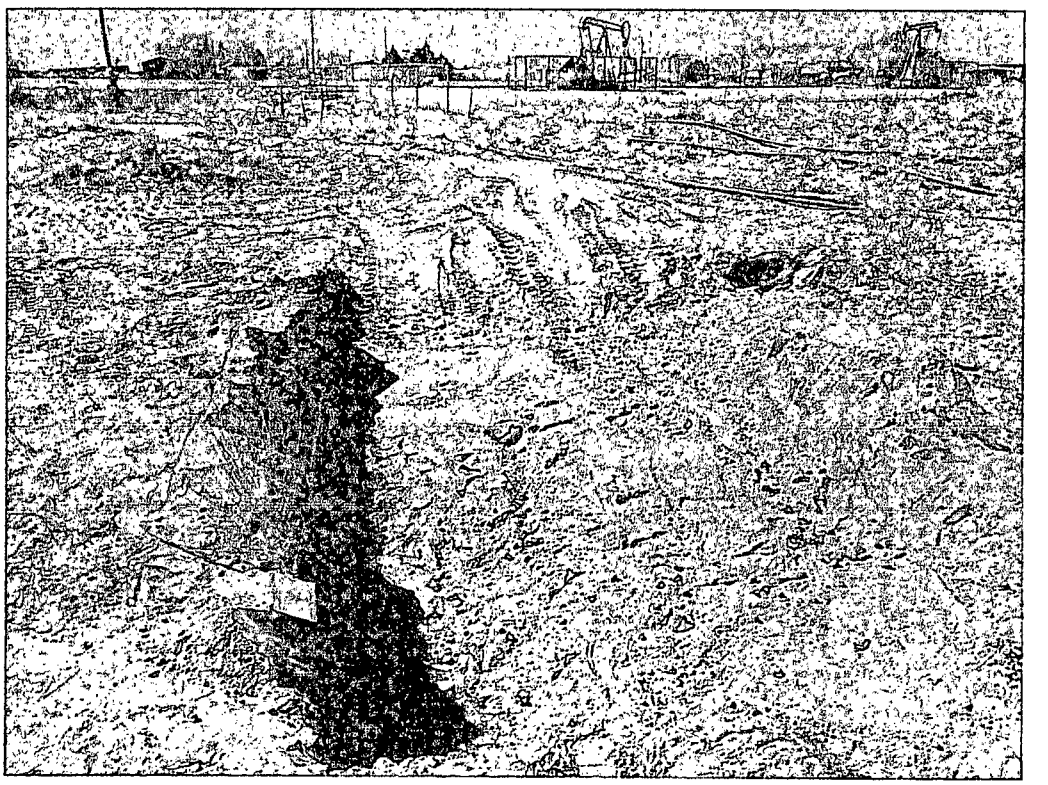
View South – Area of AH-1

COG Operating LLC
Brigham H-3
Eddy County, New Mexico

TETRA TECH



View South - Backfill



View South - Backfill

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
301 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	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Brigham H 3	Facility Type	Flowline

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-30677

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	21	17S	30E					Eddy

Latitude 32.81998 **Longitude** 103.98310

NATURE OF RELEASE

Type of Release Produced water w/ skim oil	Volume of Release 13bbls	Volume Recovered 12bbls
Source of Release Flowline	Date and Hour of Occurrence 11/02/2012	Date and Hour of Discovery 11/02/2012 3:00 p.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A steel line corroded and released fluid into the adjacent pasture area. We have added a temporary clamp to the line and will replace the joint with a new section.

Describe Area Affected and Cleanup Action Taken.*

Initially 13bbls of fluid were released from the steel line and we were able to recover 12bbls with a vacuum truck. Tetra Tech will sample the spill site area to delineate any possible contamination form the release and we will present a remediation work plan to the NMOCD/BLM 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.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@concho.com	Conditions of Approval:	Attached ☐
Date: 11/13/2012 Phone: 432-212-2399		

Attach Additional Sheets If Necessary

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

RECEIVED
AUG 23 2013
NMOCD ARTESIA

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	**Brigham H 3**	Facility Type	**Flow Line**

Surface Owner: Federal	Mineral Owner	Lease No. NM 0467931

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	21	17S	30E					Eddy

Latitude N 32.82050° **Longitude** W 103.98262°

NATURE OF RELEASE

Type of Release: Produced water w/ skim oil	Volume of Release 13 bbls	Volume Recovered 12 bbls
Source of Release: Flowline	Date and Hour of Occurrence 11/02/2012	Date and Hour of Discovery 11/02/2012 3:00 p.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour .	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A steel line corroded and released fluid into the adjacent pasture area. We have added a temporary clamp to the line and will replace the joint with a new section.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 7-12-13 Phone: (432) 682-4559		

Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Brigham H-3 Flowline
Eddy County, New Mexico

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 **220** dry	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

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

16 South 31 East

6	5	4	3	2 **290**	1
7	8	9	10	11	12 **288**
18	17	16	15	14 **314**	13 **299** **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 **80**	21 SITE	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 **95**	11	12
18	17	16	15	14	13
19	20	21	22	23	24 **158**
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

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

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

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

Appendix C

Summary Report

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

Report Date: March 25, 2013

Work Order: 13031528

Project Location: Eddy Co., NM
Project Name: COG/Brigham H-3
Project Number: 114-6401612

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
323559	CS-1 (AH-1) North Wall	soil	2013-03-13	00:00	2013-03-15
323560	CS-1 (AH-1) South Wall	soil	2013-03-14	00:00	2013-03-15
323561	CS-1 (AH-1) East Wall	soil	2013-03-13	00:00	2013-03-15
323562	CS-1 (AH-1) West Wall	soil	2013-03-14	00:00	2013-03-15

Sample: 323559 - CS-1 (AH-1) North Wall

Param	Flag	Result	Units	RL
Chloride		**349**	mg/Kg	4

Sample: 323560 - CS-1 (AH-1) South Wall

Param	Flag	Result	Units	RL
Chloride		**29.1**	mg/Kg	4

Sample: 323561 - CS-1 (AH-1) East Wall

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

Sample: 323562 - CS-1 (AH-1) West Wall

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

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: March 25, 2013

Work Order: 13031528

Project Location: Eddy Co., NM
Project Name: COG/Brigham H-3
Project Number: 114-6401612

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
323559	CS-1 (AH-1) North Wall	soil	2013-03-13	00:00	2013-03-15
323560	CS-1 (AH-1) South Wall	soil	2013-03-14	00:00	2013-03-15
323561	CS-1 (AH-1) East Wall	soil	2013-03-13	00:00	2013-03-15
323562	CS-1 (AH-1) West Wall	soil	2013-03-14	00:00	2013-03-15

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

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

Report Contents

Case Narrative

Samples for project COG/Brigham H-3 were received by TraceAnalysis, Inc. on 2013-03-15 and assigned to work order 13031528. Samples for work order 13031528 were received intact at a temperature of 18.1 C. Samples were not on ice.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	84647	2013-03-21 at 09:58	99926	2013-03-22 at 13:46

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 13031528 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: 323559 - CS-1 (AH-1) North Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99926	Date Analyzed:	2013-03-22	Analyzed By:	AR
Prep Batch:	84647	Sample Preparation:	2013-03-21	Prepared By:	AR

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

Sample: 323560 - CS-1 (AH-1) South Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99926	Date Analyzed:	2013-03-22	Analyzed By:	AR
Prep Batch:	84647	Sample Preparation:	2013-03-21	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**29.1**		mg/Kg	5	4.00

Sample: 323561 - CS-1 (AH-1) East Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99926	Date Analyzed:	2013-03-22	Analyzed By:	AR
Prep Batch:	84647	Sample Preparation:	2013-03-21	Prepared By:	AR

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

Sample: 323562 - CS-1 (AH-1) West Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	99926	Date Analyzed:	2013-03-22	Analyzed By:	AR
Prep Batch:	84647	Sample Preparation:	2013-03-21	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 99926

QC Batch:	99926	Date Analyzed:	2013-03-22	Analyzed By:	AR
Prep Batch:	84647	QC Preparation:	2013-03-21	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: 99926 | Date Analyzed: 2013-03-22 | Analyzed By: AR
Prep Batch: 84647 | QC Preparation: 2013-03-21 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2680	mg/Kg	1	2500	<3.85	107	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			2610	mg/Kg	1	2500	<3.85	104	85 - 115	3	20

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

Matrix Spike (MS-1) Spiked Sample: 323567

QC Batch: 99926 | Date Analyzed: 2013-03-22 | Analyzed By: AR
Prep Batch: 84647 | QC Preparation: 2013-03-21 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			7290	mg/Kg	10	2500	4850	98	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			7610	mg/Kg	10	2500	4850	110	78.9 - 121	4	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 99926 | Date Analyzed: 2013-03-22 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2013-03-22

Standard (CCV-2)

QC Batch: 99926 | Date Analyzed: 2013-03-22 | 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	2013-03-22

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less 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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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.

1303528

Analysis Request of Chain of Custody Record

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

PAGE: 1 OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:	SITE MANAGER:
COG	Ike Tavarez

PROJECT NO.:	PROJECT NAME:
114-640-612	COG - Brigham H-3 Flowline Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	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 Vr Pd 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
523559	3/13		S		X	CS-1 (AH-1) North wall	1																		X				
560	3/14					CS-1 (AH-1) South wall	1																		X				
561	3/13					CS-1 (AH-1) East wall	1																		X				
562	3/14		↓		↓	CS-1 (AH-1) West wall	1																		X				
																									X				
																									X				
																									X				
																									/				

RELINQUISHED BY: (Signature)	Date: 3-15-13 Time: 1145	RECEIVED BY: (Signature)	Date: 3/15/13 Time: 1145	SAMPLED BY: (Print & Initial) Marcus Kuiawski / MK	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:	SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #: OTHER:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:	TETRA TECH CONTACT PERSON: Ike Tavarez	Results by:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 18.1°

REMARKS: Midland all

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

Summary Report

(Corrected Report)

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

Report Date: January 2, 2013

Work Order: 12121344

Project Location: Eddy Co., NM
Project Name: COG/Brigham H-3
Project Number: 114-6401612

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316728	AH-1 0-1'	soil	2012-12-11	00:00	2012-12-13
316729	AH-1 1-1.5'	soil	2012-12-11	00:00	2012-12-13
316730	AH-1 2-2.5'	soil	2012-12-11	00:00	2012-12-13
316731	AH-1 3-3.5'	soil	2012-12-11	00:00	2012-12-13
316732	AH-1 4-4.5'	soil	2012-12-11	00:00	2012-12-13
316733	AH-1 5-5.5'	soil	2012-12-11	00:00	2012-12-13
316734	AH-1 6-6.5'	soil	2012-12-11	00:00	2012-12-13
316735	AH-1 7-7.5'	soil	2012-12-11	00:00	2012-12-13
316736	AH-1 8-8.5'	soil	2012-12-11	00:00	2012-12-13
316737	AH-1 9-9.5'	soil	2012-12-11	00:00	2012-12-13
316738	AH-2 0-1'	soil	2012-12-11	00:00	2012-12-13
316739	AH-2 1-1.5'	soil	2012-12-11	00:00	2012-12-13
316740	AH-2 2-2.5'	soil	2012-12-11	00:00	2012-12-13
316741	AH-2 3-3.5'	soil	2012-12-11	00:00	2012-12-13
316742	AH-3 0-1'	soil	2012-12-11	00:00	2012-12-13
316743	AH3 1-1.5'	soil	2012-12-11	00:00	2012-12-13
316744	AH-4 0-1'	soil	2012-12-11	00:00	2012-12-13
316745	AH-4 1-1.5'	soil	2012-12-11	00:00	2012-12-13

Sample - Field Code	BTEX Benzene (mg/Kg)	BTEX Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	BTEX Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
316728 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**68.0** Qs	<4.00
316738 - AH-2 0-1'	<0.200 [1]	<0.200	<0.200	<0.200	**707** Qs	<40.0

continued ...

[1] Dilution due to surfactants.

... continued

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
316742 - AH-3 0-1'	<0.100 [2]	<0.100	<0.100	<0.100	<500 Qs	<20.0
316744 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<4.00

Sample: 316728 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**5340**	mg/Kg	4

Sample: 316729 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2310**	mg/Kg	4

Sample: 316730 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1520**	mg/Kg	4

Sample: 316731 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**2450**	mg/Kg	4

Sample: 316732 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**484**	mg/Kg	4

Sample: 316733 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**746**	mg/Kg	4

Sample: 316734 - AH-1 6-6.5'

[2] Dilution due to surfactants.

Param	Flag	Result	Units	RL
Chloride		**800**	mg/Kg	4

Sample: 316735 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**1160**	mg/Kg	4

Sample: 316736 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**1190**	mg/Kg	4

Sample: 316737 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**862**	mg/Kg	4

Sample: 316738 - AH-2 0-1'

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

Sample: 316739 - AH-2 1-1.5'

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

Sample: 316740 - AH-2 2-2.5'

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

Sample: 316741 - AH-2 3-3.5'

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

Sample: 316742 - AH-3 0-1'

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

Sample: 316743 - AH3 1-1.5'

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

Sample: 316744 - AH-4 0-1'

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

Sample: 316745 - AH-4 1-1.5'

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

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

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

Report Date: January 2, 2013

Work Order: 12121344

Project Location: Eddy Co., NM
Project Name: COG/Brigham H-3
Project Number: 114-6401612

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
316728	AH-1 0-1'	soil	2012-12-11	00:00	2012-12-13
316729	AH-1 1-1.5'	soil	2012-12-11	00:00	2012-12-13
316730	AH-1 2-2.5'	soil	2012-12-11	00:00	2012-12-13
316731	AH-1 3-3.5'	soil	2012-12-11	00:00	2012-12-13
316732	AH-1 4-4.5'	soil	2012-12-11	00:00	2012-12-13
316733	AH-1 5-5.5'	soil	2012-12-11	00:00	2012-12-13
316734	AH-1 6-6.5'	soil	2012-12-11	00:00	2012-12-13
316735	AH-1 7-7.5'	soil	2012-12-11	00:00	2012-12-13
316736	AH-1 8-8.5'	soil	2012-12-11	00:00	2012-12-13
316737	AH-1 9-9.5'	soil	2012-12-11	00:00	2012-12-13
316738	AH-2 0-1'	soil	2012-12-11	00:00	2012-12-13
316739	AH-2 1-1.5'	soil	2012-12-11	00:00	2012-12-13
316740	AH-2 2-2.5'	soil	2012-12-11	00:00	2012-12-13
316741	AH-2 3-3.5'	soil	2012-12-11	00:00	2012-12-13
316742	AH-3 0-1'	soil	2012-12-11	00:00	2012-12-13
316743	AH3 1-1.5'	soil	2012-12-11	00:00	2012-12-13

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
316744	AH-4 0-1'	soil	2012-12-11	00:00	2012-12-13
316745	AH-4 1-1.5'	soil	2012-12-11	00:00	2012-12-13

Report Corrections (Work Order 12121344)

- 1/2/13: Corrected project name per chain of custody.

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.

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

Report Contents

Case Narrative

Samples for project COG/Brigham H-3 were received by TraceAnalysis, Inc. on 2012-12-13 and assigned to work order 12121344. Samples for work order 12121344 were received intact at a temperature of 1.3 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	82659	2012-12-18 at 16:47	97553	2012-12-18 at 16:47
BTEX	S 8021B	82683	2012-12-19 at 16:47	97588	2012-12-19 at 16:47
Chloride (Titration)	SM 4500-Cl B	82736	2012-12-20 at 14:28	97666	2012-12-21 at 16:07
Chloride (Titration)	SM 4500-Cl B	82736	2012-12-20 at 14:28	97667	2012-12-21 at 16:11
Chloride (Titration)	SM 4500-Cl B	82736	2012-12-20 at 14:28	97669	2012-12-21 at 16:19
TPH DRO - NEW	S 8015 D	82605	2012-12-14 at 12:00	97481	2012-12-17 at 09:53
TPH GRO	S 8015 D	82665	2012-12-18 at 16:47	97558	2012-12-18 at 16:47
TPH GRO	S 8015 D	82693	2012-12-19 at 16:47	97594	2012-12-19 at 16:47

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 12121344 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: 316728 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97553	Date Analyzed:	2012-12-18	Analyzed By:	YG
Prep Batch:	82659	Sample Preparation:	2012-12-18	Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	71.4 - 108

Sample: 316728 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97666	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5340**	mg/Kg	10	4.00

Sample: 316728 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97481	Date Analyzed:	2012-12-17	Analyzed By:	CW
Prep Batch:	82605	Sample Preparation:	2012-12-14	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**68.0**	mg/Kg	1	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		161	mg/Kg	1	100	161	70 - 130

Sample: 316728 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97558	Date Analyzed:	2012-12-18	Analyzed By:	YG
Prep Batch:	82665	Sample Preparation:	2012-12-18	Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	70 - 130

Sample: 316729 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97666	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2310**	mg/Kg	10	4.00

Sample: 316730 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97666	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

continued ...

sample 316730 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1520**	mg/Kg	10	4.00

Sample: 316731 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97666	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2450**	mg/Kg	10	4.00

Sample: 316732 - AH-1 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**484**	mg/Kg	5	4.00

Sample: 316733 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**746**	mg/Kg	5	4.00

Sample: 316734 - AH-1 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**800**	mg/Kg	5	4.00

Sample: 316735 - AH-1 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1160**	mg/Kg	10	4.00

Sample: 316736 - AH-1 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1190**	mg/Kg	10	4.00

Sample: 316737 - AH-1 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**862**	mg/Kg	5	4.00

Sample: 316738 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97553	Date Analyzed:	2012-12-18	Analyzed By:	YG
Prep Batch:	82659	Sample Preparation:	2012-12-18	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [1]	U	1	<0.200	mg/Kg	10	0.0200
Toluene	U	1	<0.200	mg/Kg	10	0.0200
Ethylbenzene	U	1	<0.200	mg/Kg	10	0.0200
Xylene	U	1	<0.200	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			19.1	mg/Kg	10	20.0	96	79.5 - 108
4-Bromofluorobenzene (4-BFB)			18.0	mg/Kg	10	20.0	90	71.4 - 108

Sample: 316738 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316738 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97481	Date Analyzed:	2012-12-17	Analyzed By:	CW
Prep Batch:	82605	Sample Preparation:	2012-12-14	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**707**	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		187	mg/Kg	10	100	187	70 - 130

Sample: 316738 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97558	Date Analyzed:	2012-12-18	Analyzed By:	YG
Prep Batch:	82665	Sample Preparation:	2012-12-18	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		1	<40.0	mg/Kg	10	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			18.0	mg/Kg	10	20.0	90	70 - 130
4-Bromofluorobenzene (4-BFB)			18.7	mg/Kg	10	20.0	94	70 - 130

Sample: 316739 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316740 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316741 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316742 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97588	Date Analyzed:	2012-12-19	Analyzed By:	YG
Prep Batch:	82683	Sample Preparation:	2012-12-19	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene [2]	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	U	1	<0.100	mg/Kg	5	0.0200
Xylene	U	1	<0.100	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.74	mg/Kg	5	10.0	97	79.5 - 108
4-Bromofluorobenzene (4-BFB)			9.14	mg/Kg	5	10.0	91	71.4 - 108

Sample: 316742 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97669	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316742 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97481	Date Analyzed:	2012-12-17	Analyzed By:	CW
Prep Batch:	82605	Sample Preparation:	2012-12-14	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	<500	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		155	mg/Kg	10	100	155	70 - 130

Sample: 316742 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97594	Date Analyzed:	2012-12-19	Analyzed By:	YG
Prep Batch:	82693	Sample Preparation:	2012-12-19	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	1	<20.0	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.05	mg/Kg	5	10.0	90	70 - 130
4-Bromofluorobenzene (4-BFB)			9.24	mg/Kg	5	10.0	92	70 - 130

Sample: 316743 - AH3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97669	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316744 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	97588	Date Analyzed:	2012-12-19	Analyzed By:	YG
Prep Batch:	82683	Sample Preparation:	2012-12-19	Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	71.4 - 108

Sample: 316744 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97669	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Sample: 316744 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	97481	Date Analyzed:	2012-12-17	Analyzed By:	CW
Prep Batch:	82605	Sample Preparation:	2012-12-14	Prepared By:	CW

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		131	mg/Kg	1	100	131	70 - 130

Sample: 316744 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	97594	Date Analyzed:	2012-12-19	Analyzed By:	YG
Prep Batch:	82693	Sample Preparation:	2012-12-19	Prepared By:	YG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.44	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Sample: 316745 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	97669	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	Sample Preparation:	2012-12-20	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 97481

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW
Prep Batch: 82605 | QC Preparation: 2012-12-14 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	70 - 130

Method Blank (1) QC Batch: 97553

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82659 | QC Preparation: 2012-12-18 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	71.4 - 108

Method Blank (1) QC Batch: 97558

QC Batch: 97558 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82665 | QC Preparation: 2012-12-18 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 97588

QC Batch: 97588 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82683 | QC Preparation: 2012-12-19 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	79.5 - 108
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	71.4 - 108

Method Blank (1) QC Batch: 97594

QC Batch: 97594 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82693 | QC Preparation: 2012-12-19 | Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 97666

QC Batch:	97666	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	QC Preparation:	2012-12-20	Prepared By:	AR

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

Method Blank (1) QC Batch: 97667

QC Batch:	97667	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	QC Preparation:	2012-12-20	Prepared By:	AR

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

Method Blank (1) QC Batch: 97669

QC Batch:	97669	Date Analyzed:	2012-12-21	Analyzed By:	AR
Prep Batch:	82736	QC Preparation:	2012-12-20	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: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW
Prep Batch: 82605 | QC Preparation: 2012-12-14 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	239	mg/Kg	1	250	<6.88	96	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	258	mg/Kg	1	250	<6.88	103	70 - 130	8	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	113	118	mg/Kg	1	100	113	118	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82659 | QC Preparation: 2012-12-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.68	mg/Kg	1	2.00	<0.00810	84	72.4 - 111
Toluene		1	1.71	mg/Kg	1	2.00	<0.00750	86	77 - 110
Ethylbenzene		1	1.77	mg/Kg	1	2.00	<0.00730	88	71.8 - 115
Xylene		1	5.20	mg/Kg	1	6.00	<0.00700	87	78.3 - 114

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.80	mg/Kg	1	2.00	<0.00810	90	72.4 - 111	7	20
Toluene		1	1.84	mg/Kg	1	2.00	<0.00750	92	77 - 110	7	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00730	94	71.8 - 115	7	20
Xylene		1	5.56	mg/Kg	1	6.00	<0.00700	93	78.3 - 114	7	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.01	2.00	mg/Kg	1	2.00	100	100	82.1 - 110
4-Bromofluorobenzene (4-BFB)	2.01	1.86	mg/Kg	1	2.00	100	93	79.6 - 114

Laboratory Control Spike (LCS-1)

QC Batch: 97558 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82665 | QC Preparation: 2012-12-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	20.9	mg/Kg	1	20.0	<2.32	104	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	20.8	mg/Kg	1	20.0	<2.32	104	70 - 130	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.95	1.96	mg/Kg	1	2.00	98	98	70 - 130
4-Bromofluorobenzene (4-BFB)	1.93	1.95	mg/Kg	1	2.00	96	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97588 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82683 | QC Preparation: 2012-12-19 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.76	mg/Kg	1	2.00	<0.00810	88	72.4 - 111
Toluene		1	1.78	mg/Kg	1	2.00	<0.00750	89	77 - 110
Ethylbenzene		1	1.86	mg/Kg	1	2.00	<0.00730	93	71.8 - 115
Xylene		1	5.45	mg/Kg	1	6.00	<0.00700	91	78.3 - 114

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.62	mg/Kg	1	2.00	<0.00810	81	72.4 - 111	8	20

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene		1	1.65	mg/Kg	1	2.00	<0.00750	82	77 - 110	8	20
Ethylbenzene		1	1.69	mg/Kg	1	2.00	<0.00730	84	71.8 - 115	10	20
Xylene		1	5.03	mg/Kg	1	6.00	<0.00700	84	78.3 - 114	8	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.96	1.95	mg/Kg	1	2.00	98	98	82.1 - 110
4-Bromofluorobenzene (4-BFB)	1.90	1.85	mg/Kg	1	2.00	95	92	79.6 - 114

Laboratory Control Spike (LCS-1)

QC Batch: 97594 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82693 | QC Preparation: 2012-12-19 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	20.5	mg/Kg	1	20.0	4.49	102	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	21.1	mg/Kg	1	20.0	4.49	106	70 - 130	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
Trifluorotoluene (TFT)	2.54	2.21	mg/Kg	1	2.00	127	110	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	1.96	mg/Kg	1	2.00	98	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 97666 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2390	mg/Kg	1	2500	<3.85	96	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 97667 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	mg/Kg	1	2500	<3.85	105	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2520	mg/Kg	1	2500	<3.85	101	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 97669 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2420	mg/Kg	1	2500	<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			2560	mg/Kg	1	2500	<3.85	102	85 - 115	6	20

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

Matrix Spike (MS-1) Spiked Sample: 316621

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW
Prep Batch: 82605 | QC Preparation: 2012-12-14 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Qs	Qs	11300	mg/Kg	5	250	10400	360	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Qs	Qs	10500	mg/Kg	5	250	10400	40	70 - 130	7	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	477	434	mg/Kg	5	100	477	434	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316702

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82659 | QC Preparation: 2012-12-18 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.16	mg/Kg	1	2.00	<0.00810	108	66.3 - 138
Toluene		1	2.22	mg/Kg	1	2.00	<0.00750	111	64.8 - 142
Ethylbenzene		1	2.30	mg/Kg	1	2.00	<0.00730	115	72 - 132
Xylene		1	6.77	mg/Kg	1	6.00	<0.00700	113	60.8 - 148

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.04	mg/Kg	1	2.00	<0.00810	102	66.3 - 138	6	20
Toluene		1	2.06	mg/Kg	1	2.00	<0.00750	103	64.8 - 142	8	20
Ethylbenzene		1	2.14	mg/Kg	1	2.00	<0.00730	107	72 - 132	7	20
Xylene		1	6.29	mg/Kg	1	6.00	<0.00700	105	60.8 - 148	7	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.00	1.98	mg/Kg	1	2	100	99	76.6 - 112

continued ...

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.86	1.83	mg/Kg	1	2	93	92	67.6 - 125

Matrix Spike (MS-1) Spiked Sample: 316702

QC Batch: 97558 | Date Analyzed: 2012-12-18 | Analyzed By: YG
Prep Batch: 82665 | QC Preparation: 2012-12-18 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	23.0	mg/Kg	1	20.0	<2.32	115	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	22.7	mg/Kg	1	20.0	<2.32	114	70 - 130	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.77	1.79	mg/Kg	1	2	88	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.99	2.01	mg/Kg	1	2	100	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316746

QC Batch: 97588 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82683 | QC Preparation: 2012-12-19 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.88	mg/Kg	1	2.00	<0.00810	94	66.3 - 138
Toluene		1	1.90	mg/Kg	1	2.00	<0.00750	95	64.8 - 142
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00730	98	72 - 132
Xylene		1	5.77	mg/Kg	1	6.00	<0.00700	96	60.8 - 148

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	1.97	mg/Kg	1	2.00	<0.00810	98	66.3 - 138	5	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene		1	1.99	mg/Kg	1	2.00	<0.00750	100	64.8 - 142	5	20
Ethylbenzene		1	2.08	mg/Kg	1	2.00	<0.00730	104	72 - 132	6	20
Xylene		1	6.13	mg/Kg	1	6.00	<0.00700	102	60.8 - 148	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.97	1.95	mg/Kg	1	2	98	98	76.6 - 112
4-Bromofluorobenzene (4-BFB)	1.86	1.84	mg/Kg	1	2	93	92	67.6 - 125

Matrix Spike (MS-1) Spiked Sample: 316746

QC Batch: 97594 | Date Analyzed: 2012-12-19 | Analyzed By: YG
Prep Batch: 82693 | QC Preparation: 2012-12-19 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	22.8	mg/Kg	1	20.0	<2.32	114	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	21.5	mg/Kg	1	20.0	<2.32	108	70 - 130	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.74	1.78	mg/Kg	1	2	87	89	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.92	mg/Kg	1	2	99	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 316731

QC Batch: 97666 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			4520	mg/Kg	10	2500	2450	83	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			4760	mg/Kg	10	2500	2450	92	78.9 - 121	5	20

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

Matrix Spike (MS-1) Spiked Sample: 316741

QC Batch: 97667 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2400	mg/Kg	5	2500	<19.2	96	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2590	mg/Kg	5	2500	<19.2	104	78.9 - 121	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: 316751

QC Batch: 97669 | Date Analyzed: 2012-12-21 | Analyzed By: AR
Prep Batch: 82736 | QC Preparation: 2012-12-20 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3920	mg/Kg	10	2500	1700	89	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			4130	mg/Kg	10	2500	1700	97	78.9 - 121	5	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	277	111	80 - 120	2012-12-17

Standard (CCV-2)

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	274	110	80 - 120	2012-12-17

Standard (CCV-3)

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	280	112	80 - 120	2012-12-17

Standard (CCV-4)

QC Batch: 97481 | Date Analyzed: 2012-12-17 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	273	109	80 - 120	2012-12-17

Standard (CCV-1)

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0934	93	80 - 120	2012-12-18
Toluene		1	mg/kg	0.100	0.0931	93	80 - 120	2012-12-18
Ethylbenzene		1	mg/kg	0.100	0.0930	93	80 - 120	2012-12-18
Xylene		1	mg/kg	0.300	0.271	90	80 - 120	2012-12-18

Standard (CCV-2)

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0962	96	80 - 120	2012-12-18
Toluene		1	mg/kg	0.100	0.0962	96	80 - 120	2012-12-18
Ethylbenzene		1	mg/kg	0.100	0.0965	96	80 - 120	2012-12-18
Xylene		1	mg/kg	0.300	0.282	94	80 - 120	2012-12-18

Standard (CCV-3)

QC Batch: 97553 | Date Analyzed: 2012-12-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0937	94	80 - 120	2012-12-18
Toluene		1	mg/kg	0.100	0.0933	93	80 - 120	2012-12-18
Ethylbenzene		1	mg/kg	0.100	0.0927	93	80 - 120	2012-12-18
Xylene		1	mg/kg	0.300	0.270	90	80 - 120	2012-12-18

Standard (CCV-1)

QC Batch: 97558 | Date Analyzed: 2012-12-18 | Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2012-12-18

Standard (CCV-2)

QC Batch: 97558 Date Analyzed: 2012-12-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.12	112	80 - 120	2012-12-18

Standard (CCV-3)

QC Batch: 97558 Date Analyzed: 2012-12-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.02	102	80 - 120	2012-12-18

Standard (CCV-1)

QC Batch: 97588 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0960	96	80 - 120	2012-12-19
Toluene		1	mg/kg	0.100	0.0953	95	80 - 120	2012-12-19
Ethylbenzene		1	mg/kg	0.100	0.0942	94	80 - 120	2012-12-19
Xylene		1	mg/kg	0.300	0.276	92	80 - 120	2012-12-19

Standard (CCV-2)

QC Batch: 97588 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0954	95	80 - 120	2012-12-19
Toluene		1	mg/kg	0.100	0.0953	95	80 - 120	2012-12-19
Ethylbenzene		1	mg/kg	0.100	0.0942	94	80 - 120	2012-12-19
Xylene		1	mg/kg	0.300	0.276	92	80 - 120	2012-12-19

Standard (CCV-3)

QC Batch: 97588 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0974	97	80 - 120	2012-12-19
Toluene		1	mg/kg	0.100	0.0965	96	80 - 120	2012-12-19
Ethylbenzene		1	mg/kg	0.100	0.0958	96	80 - 120	2012-12-19
Xylene		1	mg/kg	0.300	0.279	93	80 - 120	2012-12-19

Standard (CCV-1)

QC Batch: 97594 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.971	97	80 - 120	2012-12-19

Standard (CCV-2)

QC Batch: 97594 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.960	96	80 - 120	2012-12-19

Standard (CCV-3)

QC Batch: 97594 Date Analyzed: 2012-12-19 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.969	97	80 - 120	2012-12-19

Standard (CCV-1)

QC Batch: 97666 Date Analyzed: 2012-12-21 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-12-21

Standard (CCV-2)

QC Batch: 97666 Date Analyzed: 2012-12-21 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2012-12-21

Standard (CCV-1)

QC Batch: 97667 Date Analyzed: 2012-12-21 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-12-21

Standard (CCV-2)

QC Batch: 97667 Date Analyzed: 2012-12-21 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	2012-12-21

Standard (CCV-1)

QC Batch: 97669 Date Analyzed: 2012-12-21 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	99.2	99	85 - 115	2012-12-21

Standard (CCV-2)

QC Batch: 97669 Date Analyzed: 2012-12-21 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	2012-12-21

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less 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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 Dilution due to surfactants.
2 Dilution due to surfactants.

Attachments

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

1212-47

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 Tavarez

PROJECT NO.: 114-640 1612

PROJECT NAME: COG - Brigham H-J Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	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 Vr Pd 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
316728	12/11		S		X	AH-1 0-1	1				X		X	X											X				
729						AH-1 1-1.5																			X				
730						AH-1 2-2.5																			X				
731						AH-1 3-3.5																			X				
732						AH-1 4-4.5																			X				
733						AH-1 5-5.5																			X				
734						AH-1 6-6.5																			X				
735						AH-1 7-7.5																			X				
736						AH-1 8-8.5																			X				
737						AH-1 9-9.5																			X				

RELINQUISHED BY: (Signature) Mason Kirk Date: Time:
RECEIVED BY: (Signature) Jeanne Fitch Date: 12-13-12 Time: 0900
SAMPLED BY: (Print & Initial) Marcus Kinsel: / Ryan Reich Date: 12-11-12 Time:

RELINQUISHED BY: (Signature) Jeanne Fitch Date: 12-13-12 Time: 1412
RECEIVED BY: (Signature) Date: 12-13-12 Time: 14:12
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez Results by:

RECEIVING LABORATORY: Xenco
ADDRESS:
CITY: Midland STATE: Tx ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes / No

SAMPLE CONDITION WHEN RECEIVED: 1.3°

REMARKS: RUSH deeper samples of TPH exceed 5,000 mg/kg. Standard - All

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

RUSH deeper samples of benzene exceed 10 mg/kg & total BTEX exceeds 50 mg/kg.

1212044

Analysis Request of Chain of Custody Record

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640-612

PROJECT NAME: COG - Brigham AH-3

Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	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 Vr Pd 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
738	12/11		S		X	AH-2 0-1	1				X		X	X											X				
739						AH-2 1-1.5																			X				
740						AH-2 2-2.5																			X				
741						AH-2 3-3.5																			X				
742						AH-3 0-1							X	X											X				
743						AH-3 1-1.5																			X				
744						AH-4 0-1							X	X											X				
745	↓		↓		↓	AH-4 1-1.5	↓				↓														X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Mariusz Kijowski	Date:	RECEIVED BY: (Signature) Jeanne Tites	Date: 12-13-12 Time: 0910	SAMPLED BY: (Print & Initial) Mariusz Kijowski / Ryan Reich	Date: 12-11-12 Time:
RELINQUISHED BY: (Signature) Jeanne Tites	Date: 12-13-12 Time: 1455 CST	RECEIVED BY: (Signature) M. Hernandez	Date: 12/13/12 Time: 14:12	SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #: OTHER:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:	TETRA TECH CONTACT PERSON: Ike Tavarez	Results by: RUSH Charges Authorized: Yes No
RECEIVING LABORATORY: Trace		RECEIVED BY: (Signature)			
ADDRESS: CITY: Midland STATE: TX ZIP:					
CONTACT: PHONE:		DATE: TIME:			

SAMPLE CONDITION WHEN RECEIVED: 1.3°

REMARKS:

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

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 Tavarez

PROJECT NO.: 114-640534

PROJECT NAME: COG - Way South State Com #3H Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	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 Vr Pd 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
316746	12/12		S		X	AH-1 0-1	1				X		X	X											X				
747						AH-2 0-1							X	X											X				
748						AH-3 0-1							X	X											X				
749						AH-3 1-1.5																			X				
750						AH-3 2-2.5																			X				
751						AH-3 3-3.5																			X				
752						AH-3 4-4.5																			X				
753						AH-3 5-5.5																			X				
754						AH-3 6-6.5																			X				
755						AH-3 7-7.5																			X				

RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date: 12-13-12
	Time:	Jessie Fitzhugh	Time: 0900
RELINQUISHED BY: (Signature) Jessie Fitzhugh	Date: 12-13-12	RECEIVED BY: (Signature)	Date: 12/13/12
	Time: 1412		Time: 14:12
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
	Time:		Time:

SAMPLED BY: (Print & Initial) Marcus Kujawski / Ryan Rudd — Date: 12-12-12 Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.3°

REMARKS: Run deeper sample if TPH exceeds 100 mg/kg. AH

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

Run deeper sample if benzene exceed 10 mg/kg or total BTEX exceeds 50 mg/kg.

Analysis Request of Chain of Custody Record

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 Tavarez

PROJECT NO.: 114-640 1534

PROJECT NAME: Cage Way South State Com #1H
Eddy County

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	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 Vr Pd 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
756	12/12		S		X	AH-3 8-8.5	1				X														X				
757	12/12		S		X	AH-3 9-9.5	1				X														X				

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) Jeanne Fitch — Date: 12-13-12 — Time: 0900
SAMPLED BY: (Print & Initial) Matt Kijowski/Ryan Reich — Date: 12-12-12 — Time:

RELINQUISHED BY: (Signature) Jeanne Fitch — Date: 12-13-12 — Time: 1412
RECEIVED BY: (Signature) — Date: 12/13/12 — Time: 14:12
SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS UPS — AIRBILL #: — OTHER:

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: — Time:

RECEIVING LABORATORY: Trila
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.3

REMARKS: AH

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