SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	McIntyre C #6 Flowline					
Company:	COG Operating LLC					
Section, Township and Range	Unit H	Sec. 20	T-17-S	R-30-E		
Lease Number:	API-30-015-30292					
County:	Eddy County					
GPS:	32.82701° N			103.99143° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	Intersection of Hwy 82 and Chagerman Cutoff (Loco Hills), travel west on 82 0.2 mi, turn right 0.2 mi, stay right 0.3 mi to location on right side of lease road					

Release Data:	
Date Released:	6/21/2012
Type Release:	Produced Fluids
Source of Contamination:	Steel line ruptured
Fluid Released:	5 bbls oil and 5 bbls of produced water
Fluids Recovered:	3 bbls oil and 4 bbls of produced water

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Official Communication:			
Name:	Pat Ellis		Ike Tavarez
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.Tavarez@tetratech.com

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

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

TETRA TECH

October 10, 2012

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., McIntyre C #6 Located in Unit H, Section 20, 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 McIntyre C #6 Located in Unit H, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82701°, W 103.99143°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on June 21, 2012, and released approximately five (5) barrels (bbls) of produced water and five (5) bbls of oil due to a failure in a joint of steel flowline. COG personnel replaced the defective section of joint. Approximately four (4) bbls of oil and three (3) bbls produced water were recovered from the spill area.

The spill impacted an area in the pasture measuring approximately 30' x 30' and migrated south impacting an area of 6' x 50' and 15' x 40'. The footprint of the spill is shown on Figure 3. The initial Form C-141 is enclosed in Appendix A.

Tetra Tech
1910 North Big Spring, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Groundwater

No wells were located in Section 20. According to the NMOCD groundwater map, depth to groundwater in this area is approximately 250' below surface. The groundwater data is shown in Appendix B.

Regulatory

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

Soil Assessment

On July 12, 2012, Tetra Tech personnel inspected and sampled the spill area. A total of four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, a shallow TPH impact was detected at the site. The TPH concentrations were above the RRAL in all of the auger holes, but declined below the RRAL at 1.0' to 2.0' below surface. All of the auger hole samples were below the RRAL for BTEX. In addition, AH-4 (0-1') detected an elevated chloride of 2,040 mg/kg and declined to 396 mg/kg at 1-1.5' below surface.

Remediation and Closure Request

Tetra Tech personnel supervised the site remediation from September 10 to 11, 2012. The excavation areas and depths are highlighted (green) in Table 1 and shown in Figure 4. As stated in the work plan, the areas of AH-1 and AH-3 were excavated to a depth of 1.0' below surface and 2.0' in the area of AH-2. The area of AH-4 was excavated deeper to a depth of 2.0'

due to some staining noted at 1.0' below surface. Approximately 80 cubic yards were removed and transported to R360 facility for proper disposal. Based on the field chloride concentrations, the BLM approved the backfilling of the excavation with clean material to grade. Once backfilled, the disturbed areas were prepared and seeded for restoration.

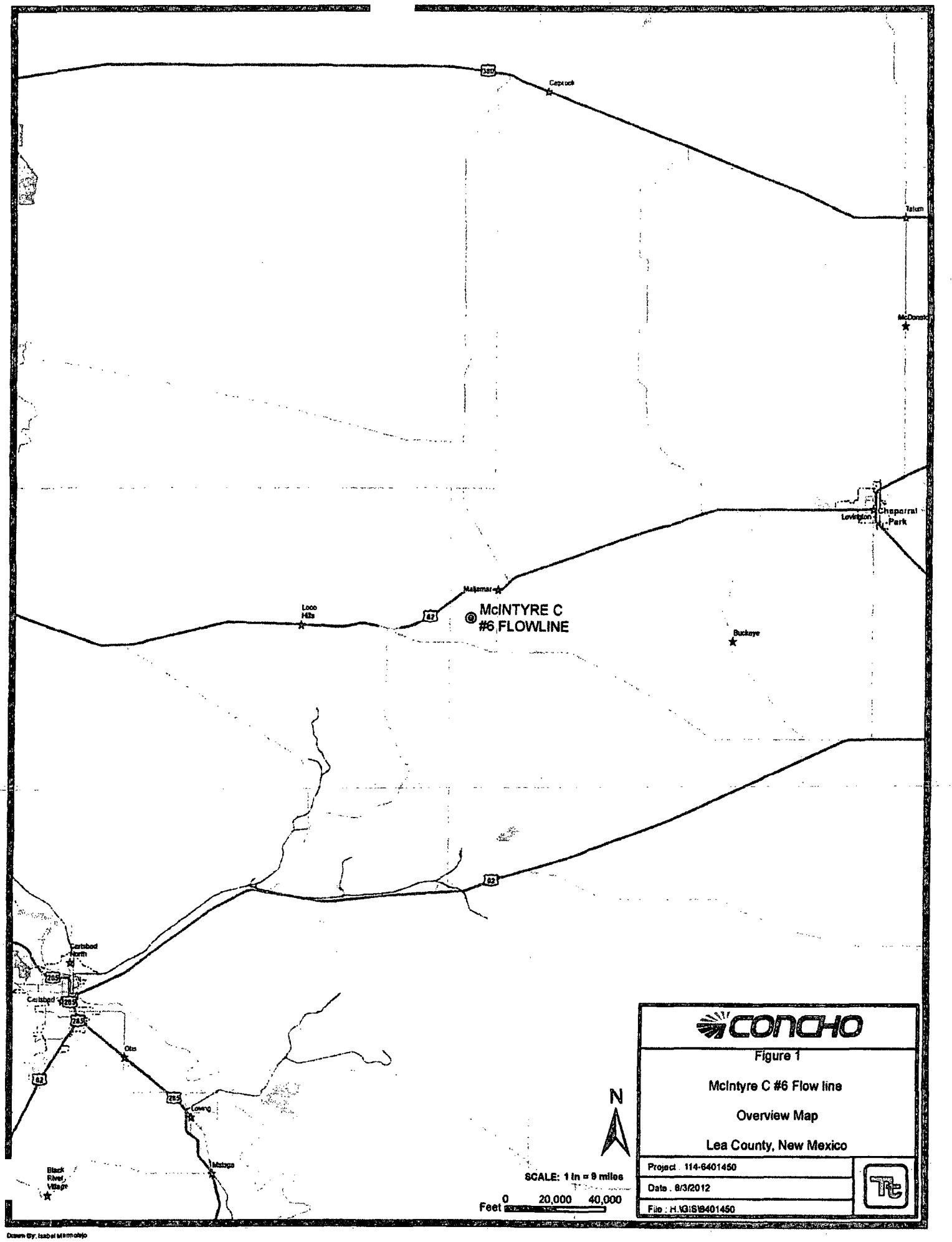
Based on the remediation activities performed at the site, COG requests closure of the site. The final C-141 is enclosed in Appendix A. If you should requires any additional information or have any questions or comments concerning this closure request, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

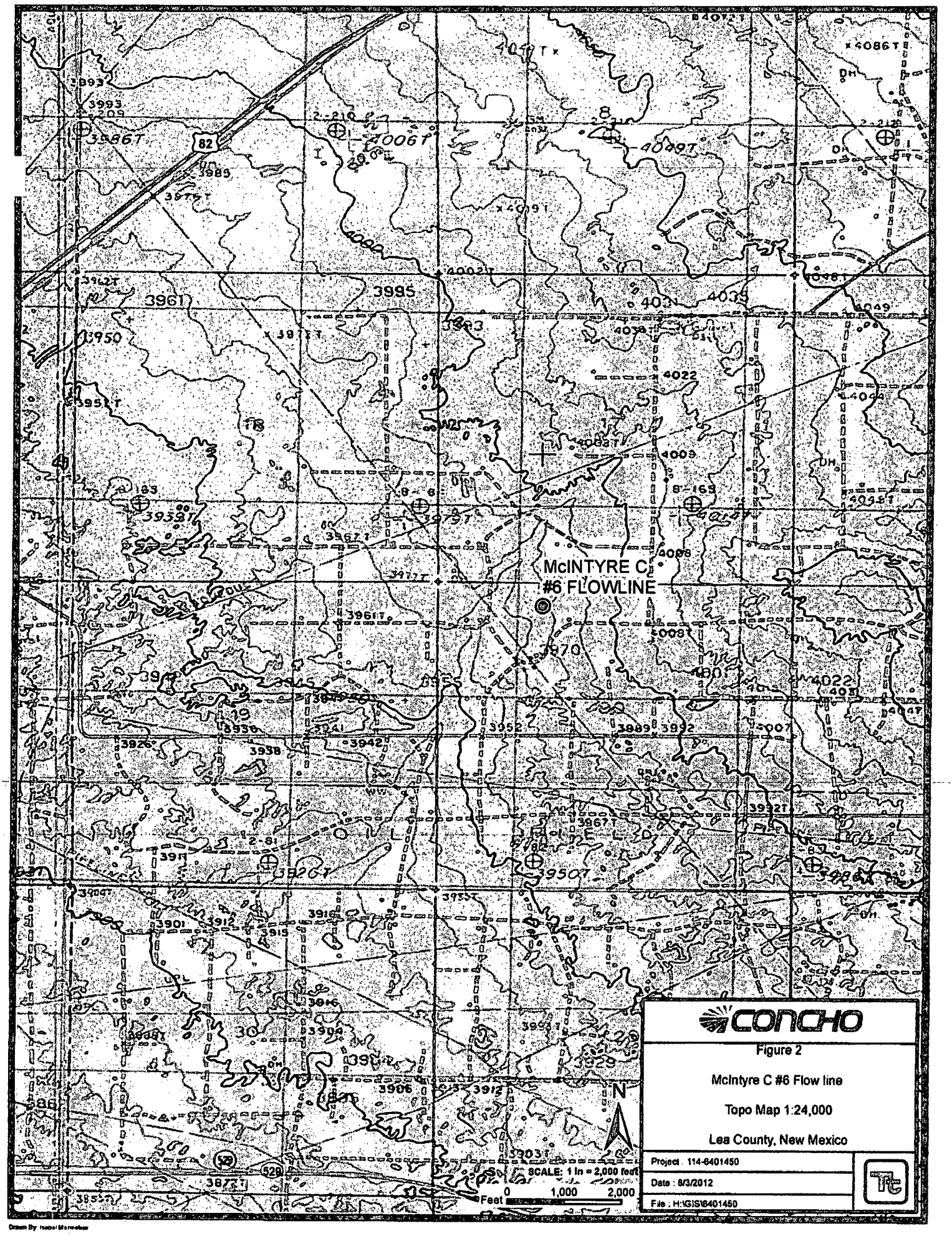
Ike Tavarez
Senior Project Manager

cc: Pat Ellis – COG
Terry Gregston - BLM

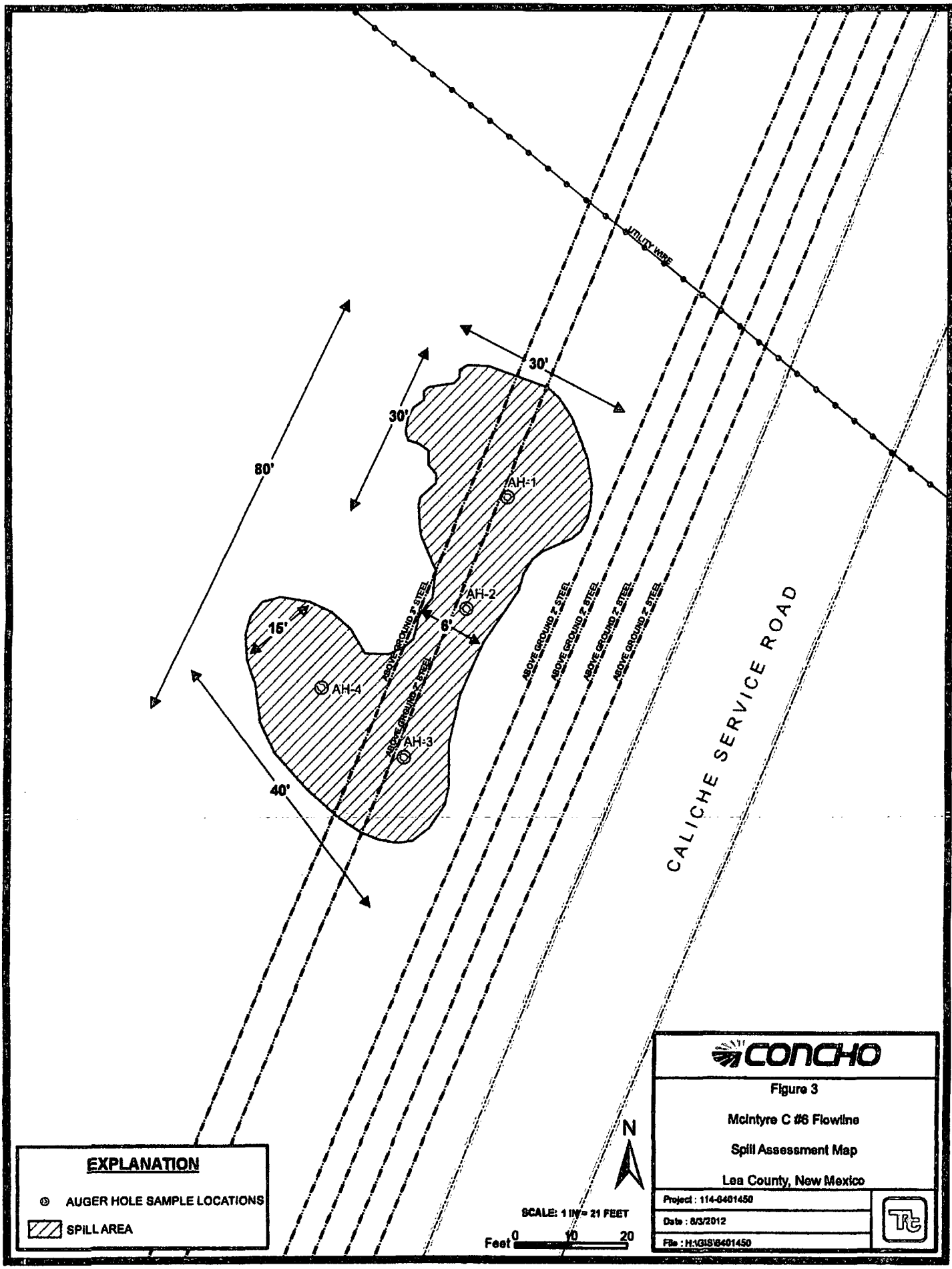
FIGURES



Drawn By: Isabel Miramontejo



Drawn By: Isabel Meneses



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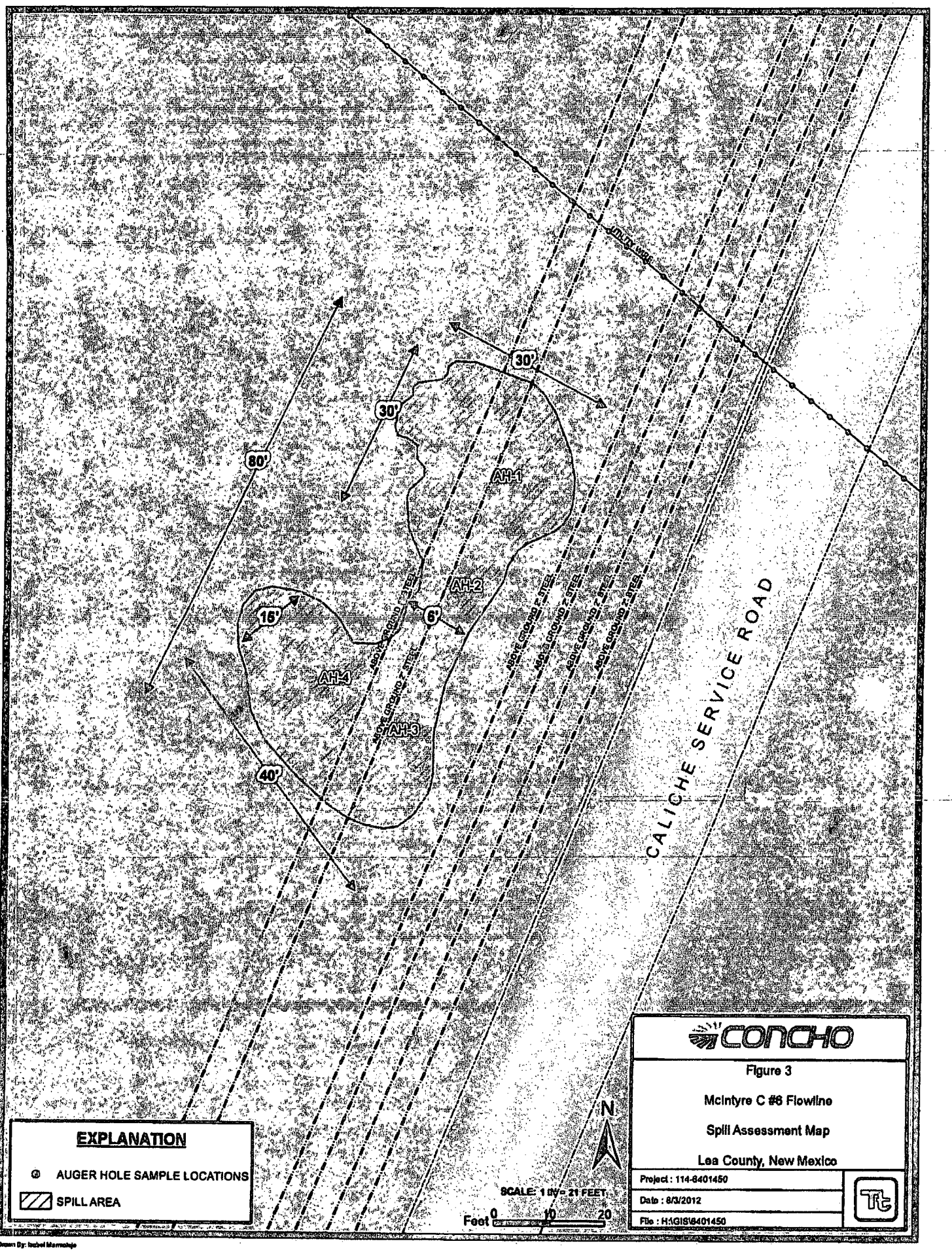
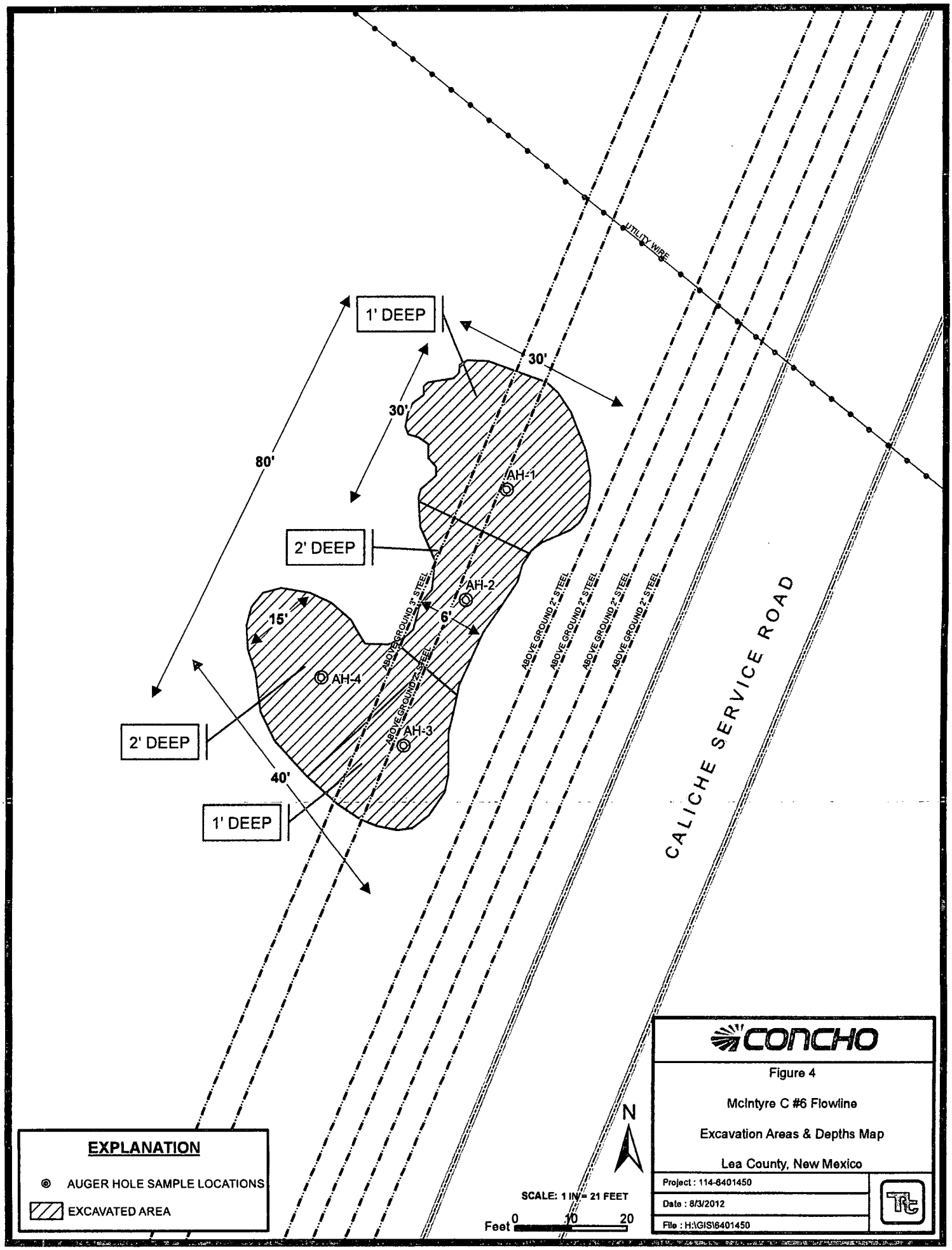


Drawn By: Isabel Marmolejo


1' DEEP
30'
30'
80'
AH-1
2' DEEP
AH-2
6'
15'
AH-4
AH-3
2' DEEP
40'
1' DEEP
UTILITY WIRE
ABOVE GROUND 2" STEEL
ABOVE GROUND 2" STEEL
ABOVE GROUND 2" STEEL
ABOVE GROUND 2" STEEL
ABOVE GROUND 2" STEEL
CALICHE SERVICE ROAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
EXCAVATED AREA
N
SCALE: 1 IN = 21 FEET
Feet 0 10 20
CONCHO
Figure 4
McIntyre C #6 Flowline
Excavation Areas & Depths Map
Lea County, New Mexico
Project : 114-6401450
Date : 8/3/2012
File : H:\GIS\6401450
Drawn By: Isabel Marmolejo

TABLES

Table 1
COG Operating LLC.
McIntyre C #6 Flow Line
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	7/12/2012	0-1		X	35.0	9,370	9,405	<0.200	<0.200	<0.200	0.326	0.326	736
	"	1-1.5	X		<10.0	481	481	<0.100	<0.100	<0.100	<0.100	<0.100	68.7
	"	2-2.5	X		-	-	-	-	-	-	-	-	39.3
	"	3-3.5	X		-	-	-	-	-	-	-	-	123
AH-2	7/12/212	0-1		X	26.4	14,900	14,926	<0.200	<0.200	0.207	0.378	0.585	351
	"	1-1.5		X	10.1	6,070	6,080	<0.100	<0.100	0.208	0.415	0.623	<20.0
	"	2-2.5	X		<10.0	646	646	-	-	-	-	-	<20.0
	"	3-3.5	X		<10.0	<250	<250	-	-	-	-	-	<20.0
AH-3	7/12/2012	0-1		X	29.4	12,500	12,529	<0.200	<0.200	<0.200	<0.200	<0.200	678
	"	1-1.5	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
AH-4	7/12/2012	0-1		X	24.7	11,100	11,125	<0.100	<0.100	<0.100	0.132	0.132	2,040
	"	1-1.5		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	396
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0

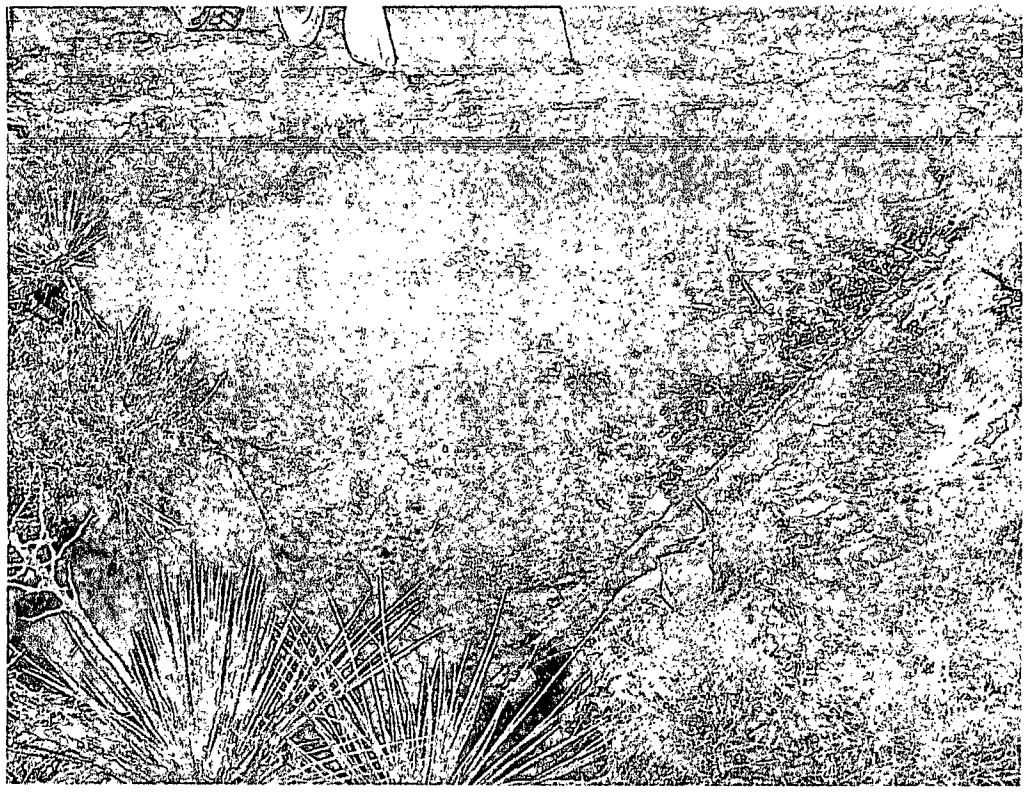
(-) Not Analyzed

[ ] Excavation Depths

PHOTOGRAPHS

COG Operating LLC
McIntyre C #6 Flowline
Eddy County, New Mexico

TETRA TECH

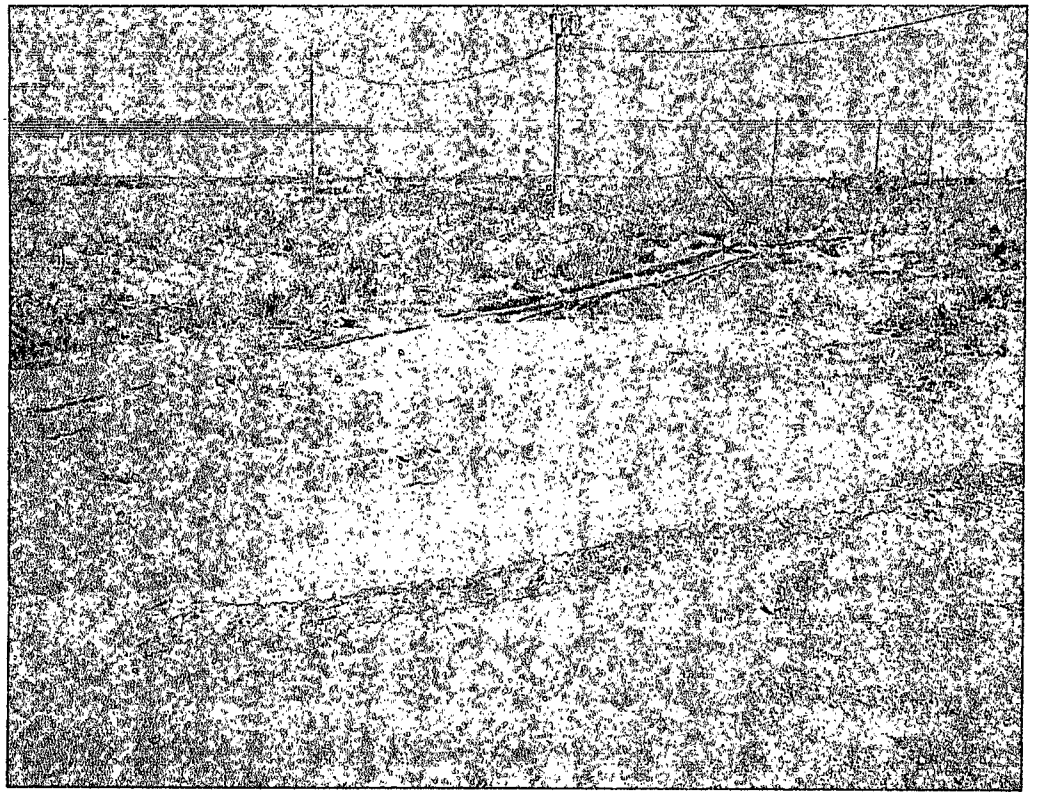


View Southwest - Excavation of AH-4.

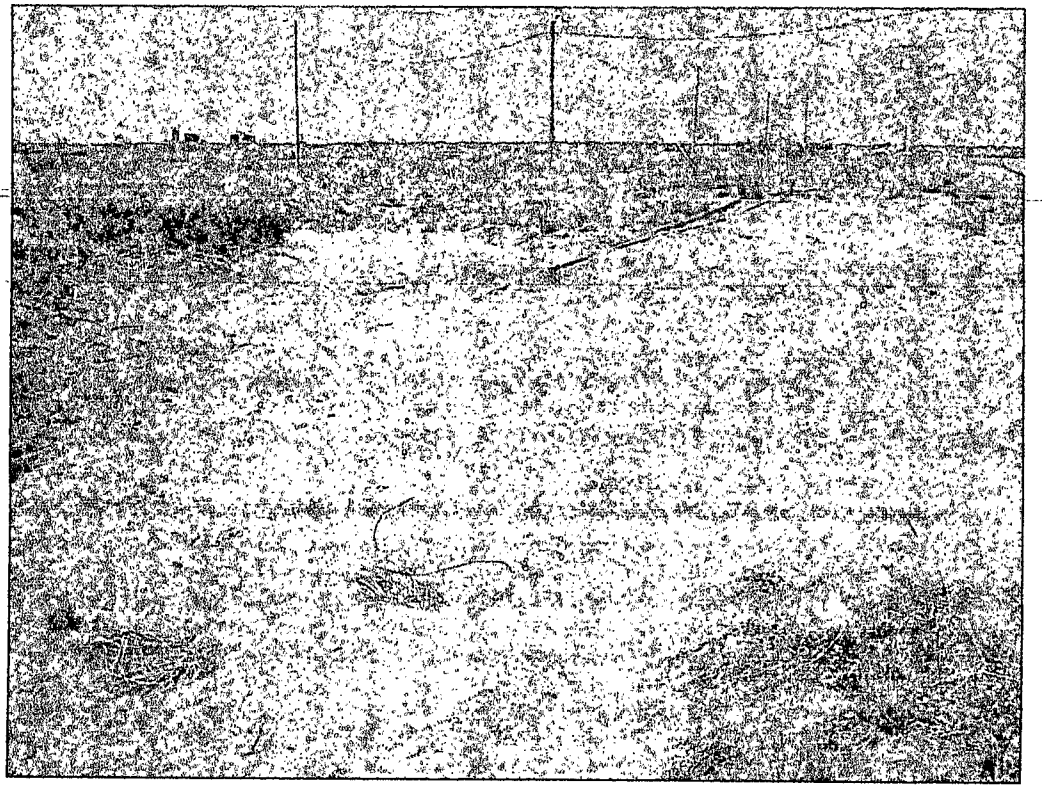
View Northeast – Excavated areas of AH-3, AH-2 and AH-1.

COG Operating LLC
McIntyre C #6 Flowline
Eddy County, New Mexico

TETRA TECH



View North – Backfill



View North – Backfill

APPENDIX A

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

State of New Mexico
Energy Minerals and Natural Resources

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

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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	**McIntyre C #6**	Facility Type	**Flow line**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-30292

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	20	17S	30E					Eddy

Latitude 32 49.618 **Longitude** 103 59.475

NATURE OF RELEASE

Type of Release: Produced Fluid	Volume of Release 5 bbls oil 5 bbls pw	Volume Recovered 3 bbls oil 4 bbls pw
Source of Release: Steel flow line	Date and Hour of Occurrence 06/21/2012	Date and Hour of Discovery 06/21/2012 11:15 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom? Josh Russo	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 flow line developed a hole causing the release of fluid. The inoperable joint has been replaced by a new joint of pipe.

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 to a proper disposal facility. 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 (agent fort COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 10/16/12 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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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 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	McIntyre C #6	Facility Type	Flowline

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-30292

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
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Latitude 32 49.618 **Longitude** 103 59.475

NATURE OF RELEASE

Type of Release Produced fluid	Volume of Release 5bbls oil 5bbls produced water	Volume Recovered 3bbls oil 4bbls produced water
Source of Release Steel flowline	Date and Hour of Occurrence 06/21/2012	Date and Hour of Discovery 06/21/2012 11:15 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A steel flowline developed a hole causing the release of fluid. The inoperable joint has been replaced with a new joint of pipe.

Describe Area Affected and Cleanup Action Taken.*

Initially 10bbls of produced fluid was released from the steel flowline and we were able to recover 7bbls with a vacuum truck. The spill area is in the pasture adjacent to the flowline that ruptured and measures a 3' x 50' area. There was also a spill area of 10' x 25' at the end of the stream. The closest well location is the COG "Thunder Road Federal #4"). Tetra Tech will sample the spill site area to delineate any possible contamination from 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: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 06/28/2012 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - McIntyre C #6
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	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	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **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 *SITE*	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

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

18 South 29 East

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

18 South 30 East

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

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
- Site Location - McIntyre C #6

APPENDIX C

Summary Report

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

Report Date: August 1, 2012

Work Order: 12071602

Project Location: Eddy Co., NM
Project Name: COG/McIntyre C #6 Flow Line
Project Number: 114-6401450

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
303763	AH-1 0-1'	soil	2012-07-12	00:00	2012-07-13
303764	AH-1 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303765	AH-1 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303766	AH-1 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303767	AH-2 0-1'	soil	2012-07-12	00:00	2012-07-13
303768	AH-2 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303769	AH-2 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303770	AH-2 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303771	AH-3 0-1'	soil	2012-07-12	00:00	2012-07-13
303772	AH-3 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303773	AH-3 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303774	AH-4 0-1'	soil	2012-07-12	00:00	2012-07-13
303775	AH-4 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303776	AH-4 2-2.5'	soil	2012-07-12	00:00	2012-07-13

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)
303763 - AH-1 0-1'	<0.200 [1]	<0.200	<0.200	**0.326**	**9370**	**35.0**
303764 - AH-1 1-1.5'	<0.100 [2]	<0.100	<0.100	<0.100	**481** Q$_R$	<10.0 [3]
303767 - AH-2 0-1'	<0.200 [4]	<0.200	**0.207**	**0.378**	**14900**	**26.4**
303768 - AH-2 1-1.5'	<0.100 [5]	<0.100	**0.208**	**0.415**	**6070** Q$_R$	**10.1**
303769 - AH-2 2-2.5'					**646**	<10.0 [6] H

continued ...

[1]Dilution due to hydrocarbons/surfactants
[2]Dilution due to surfactants.
[3]Dilution due to surfactants.
[4]Dilution due to hydrocarbons/surfactants
[5]Dilution due to hydrocarbons.
[6]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)
303770 - AH-2 3-3.5'					<250	<10.0 [7,11]
303771 - AH-3 0-1'	<0.200 [8]	<0.200	<0.200	<0.200	**12500**	**29.4**
303772 - AH-3 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<2.00
303774 - AH-4 0-1'	<0.100 [9]	<0.100	<0.100	**0.132**	**11100**	**24.7**
303775 - AH-4 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Qs	<2.00

Sample: 303763 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**736**	mg/Kg	4

Sample: 303764 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**68.7**	mg/Kg	4

Sample: 303765 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**39.3**	mg/Kg	4

Sample: 303766 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**123**	mg/Kg	4

Sample: 303767 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**351**	mg/Kg	4

Sample: 303768 - AH-2 1-1.5'

continued ...

[7]Dilution due to surfactants.
[8]Dilution due to hydrocarbons/surfactants.
[9]Dilution due to hydrocarbons.

sample 303768 continued ...

Param	Flag	Result	Units	RL

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

Sample: 303769 - AH-2 2-2.5'

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

Sample: 303770 - AH-2 3-3.5'

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

Sample: 303771 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**678**	mg/Kg	4

Sample: 303772 - AH-3 1-1.5'

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

Sample: 303773 - AH-3 2-2.5'

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

Sample: 303774 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**2040**	mg/Kg	4

Sample: 303775 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**396**	mg/Kg	4

Sample: 303776 - AH-4 2-2.5'

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

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

Report Date: August 1, 2012

Work Order: 12071602

Project Location: Eddy Co., NM
Project Name: COG/McIntyre C #6 Flow Line
Project Number: 114-6401450

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
303763	AH-1 0-1'	soil	2012-07-12	00:00	2012-07-13
303764	AH-1 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303765	AH-1 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303766	AH-1 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303767	AH-2 0-1'	soil	2012-07-12	00:00	2012-07-13
303768	AH-2 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303769	AH-2 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303770	AH-2 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303771	AH-3 0-1'	soil	2012-07-12	00:00	2012-07-13
303772	AH-3 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303773	AH-3 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303774	AH-4 0-1'	soil	2012-07-12	00:00	2012-07-13
303775	AH-4 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303776	AH-4 2-2.5'	soil	2012-07-12	00:00	2012-07-13

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

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

Report Contents

Case Narrative

Samples for project COG/McIntyre C #6 Flow Line were received by TraceAnalysis, Inc. on 2012-07-13 and assigned to work order 12071602. Samples for work order 12071602 were received intact at a temperature of 4.8 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	79057	2012-07-20 at 16:07	93245	2012-07-20 at 16:07
Chloride (Titration)	SM 4500-Cl B	78994	2012-07-18 at 08:58	93258	2012-07-19 at 16:37
Chloride (Titration)	SM 4500-Cl B	78994	2012-07-18 at 08:58	93259	2012-07-19 at 16:38
TPH DRO - NEW	S 8015 D	78968	2012-07-17 at 16:30	93140	2012-07-18 at 19:00
TPH DRO - NEW	S 8015 D	79064	2012-07-20 at 14:00	93247	2012-07-20 at 18:00
TPH DRO - NEW	S 8015 D	79252	2012-07-30 at 09:00	93467	2012-07-31 at 07:47
TPH GRO	S 8015 D	79057	2012-07-20 at 16:07	93244	2012-07-20 at 16:07
TPH GRO	S 8015 D	79214	2012-07-27 at 15:49	93420	2012-07-27 at 15:49

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 12071602 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: 303763 - AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	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		1	<0.200	mg/Kg	10	0.0200
Xylene	B	1	**0.326**	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.47	mg/Kg	10	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	10	2.00	102	70 - 130

Sample: 303763 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			**736**	mg/Kg	5	4.00

Sample: 303763 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		2	**9370**	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		972	mg/Kg	10	100	972	49.3 - 157.5

Sample: 303763 - AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**35.0**	mg/Kg	10	2.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.28	mg/Kg	10	2.00	64	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		2.77	mg/Kg	10	2.00	138	70 - 130

Sample: 303764 - AH-1 1-1.5'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

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)			1.58	mg/Kg	5	2.00	79	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	5	2.00	95	70 - 130

Sample: 303764 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**68.7**	mg/Kg	5	4.00

Sample: 303764 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93247	Date Analyzed:	2012-07-20	Analyzed By:	CW
Prep Batch:	79064	Sample Preparation:		Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	2	**481**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		172	mg/Kg	5	100	172	49.3 - 157.5

Sample: 303764 - AH-1 1-1.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO [3]	U	1	<10.0	mg/Kg	5	2.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.38	mg/Kg	5	2.00	69	70 - 130
4-Bromofluorobenzene (4-BFB)				1.97	mg/Kg	5	2.00	98	70 - 130

Sample: 303765 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**39.3**		mg/Kg	5	4.00

Sample: 303766 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**123**		mg/Kg	5	4.00

Sample: 303767 - AH-2 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene [4]	U	1	<0.200		mg/Kg	10	0.0200
Toluene	U	1	<0.200		mg/Kg	10	0.0200
Ethylbenzene		1	**0.207**		mg/Kg	10	0.0200
Xylene	B	1	**0.378**		mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.49	mg/Kg	10	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	10	2.00	102	70 - 130

Sample: 303767 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**351**	mg/Kg	5	4.00

Sample: 303767 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**14900**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	746	mg/Kg	10	100	746	49.3 - 157.5

Sample: 303767 - AH-2 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		1	**26.4**	mg/Kg	10	2.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.34	mg/Kg	10	2.00	67	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		2.67	mg/Kg	10	2.00	134	70 - 130

Sample: 303768 - AH-2 1-1.5'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene [5]	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene		1	**0.208**	mg/Kg	5	0.0200
Xylene	B	1	**0.415**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.56	mg/Kg	5	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	5	2.00	91	70 - 130

Sample: 303768 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303768 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93247	Date Analyzed:	2012-07-20	Analyzed By:	CW
Prep Batch:	79064	Sample Preparation:		Prepared By:	CW

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	2	**6070**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane Qsr	Qsr		393	mg/Kg	5	100	393	49.3 - 157.5

Sample: 303768 - AH-2 1-1.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		1	**10.1**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) Qsr	Qsr		1.38	mg/Kg	5	2.00	69	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	5	2.00	100	70 - 130

Sample: 303769 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303769 - AH-2 2-2.5'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93467	Date Analyzed:	2012-07-31	Analyzed By:	CM
Prep Batch:	79252	Sample Preparation:	2012-07-30	Prepared By:	CM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	B	1	**646**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane Qsr	Qsr		189	mg/Kg	5	100	189	75.4 - 130

Sample: 303769 - AH-2 2-2.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93420	Date Analyzed:	2012-07-27	Analyzed By:	ZLM
Prep Batch:	79214	Sample Preparation:	2012-07-27	Prepared By:	ZLM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.46	mg/Kg	5	2.00	73	70 - 130
4-Bromofluorobenzene (4-BFB)			2.33	mg/Kg	5	2.00	116	70 - 130

Sample: 303770 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303770 - AH-2 3-3.5'

Laboratory:	Lubbock				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93467	Date Analyzed:	2012-07-31	Analyzed By:	CM
Prep Batch:	79252	Sample Preparation:	2012-07-30	Prepared By:	CM

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
DRO	JB	1		<250	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	5	100	118	75.4 - 130

Sample: 303770 - AH-2 3-3.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93420	Date Analyzed:	2012-07-27	Analyzed By:	ZLM
Prep Batch:	79214	Sample Preparation:	2012-07-27	Prepared By:	ZLM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO [7]	H,U	1	<10.0	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.27	mg/Kg	5	2.00	64	70 - 130
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	5	2.00	106	70 - 130

Sample: 303771 - AH-3 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [8]	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)			1.63	mg/Kg	10	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	10	2.00	95	70 - 130

Sample: 303771 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

continued ...

sample 303771 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**678**	mg/Kg	5	4.00

Sample: 303771 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**12500**	mg/Kg	10	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		880	mg/Kg	10	100	880	49.3 - 157.5

Sample: 303771 - AH-3 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**29.4**	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.45	mg/Kg	10	2.00	72	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	10	2.00	98	70 - 130

Sample: 303772 - AH-3 1-1.5'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.70	mg/Kg	1	2.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Sample: 303772 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303772 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93247	Date Analyzed:	2012-07-20	Analyzed By:	CW
Prep Batch:	79064	Sample Preparation:		Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	49.3 - 157.5

Sample: 303772 - AH-3 1-1.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

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)			1.58	mg/Kg	1	2.00	79	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Sample: 303773 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303774 - AH-4 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	U	1	<0.100	mg/Kg	5	0.0200
Xylene	B	1	**0.132**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.68	mg/Kg	5	2.00	84	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	5	2.00	94	70 - 130

Sample: 303774 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2040**	mg/Kg	10	4.00

Sample: 303774 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**11100**	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	851	mg/Kg	10	100	851	49.3 - 157.5

Sample: 303774 - AH-4 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**24.7**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.50	mg/Kg	5	2.00	75	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	5	2.00	100	70 - 130

Sample: 303775 - AH-4 1-1.5'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

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)			2.07	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 303775 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**396**	mg/Kg	5	4.00

Sample: 303775 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93247	Date Analyzed:	2012-07-20	Analyzed By:	CW
Prep Batch:	79064	Sample Preparation:		Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	QR	2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	49.3 - 157.5

Sample: 303775 - AH-4 1-1.5'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL 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)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70 - 130

Sample: 303776 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93259	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Method Blanks

Method Blank (1) QC Batch: 93140

QC Batch: 93140 | Date Analyzed: 2012-07-18 | Analyzed By: CW
Prep Batch: 78968 | QC Preparation: 2012-07-17 | Prepared By: CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			107	mg/Kg	1	100	107	52 - 160.8

Method Blank (1) QC Batch: 93244

QC Batch: 93244 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.55	mg/Kg	1	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 93245

QC Batch: 93245 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

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

continued ...

10W 11E 20

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 Tavarez

PROJECT NO.: 114-6401450

PROJECT NAME: McIntyre C #6 Flow Line
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 TX1005 (Ext. to C35)	8015 MOD.	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
773	7/12/12		S		X	AH-3 (2'-2.5')	1	N			X	X		X												X				
774	"		"		"	AH-4 (0'-1')	"	"			"	"		X												X				
775	"		"		"	AH-4 (1'-1.5')	"	"			"	"		X												X				
776	↓		↓		↓	A-H-4 (2'-2.5')	↓	↓			↓	↓														X				

RELINQUISHED BY: (Signature) — Date: 7/13/12 Time: 1500
RECEIVED BY: (Signature) — Date: 7/13/12 Time: 15:00
SAMPLED BY: (Print & Initial) MANUEL / MDA — Date: Time:

RELINQUISHED BY: (Signature) — Date: 7/16/12 Time: 10:00
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS 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: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 7/17/12 TIME: 9:05
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.0

REMARKS: LS ZN 902031 4.1 | 4.0

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