SITE INFORMATION

Report Type: Work Plan

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

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

August 3, 2012

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, New Mexico 88210

Re: Assessment and Work Plan 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.

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown in Figure 4. The areas of AH-1, AH-3 and AH-4 will be excavated to a depth of approximately 1.0' below surface and 2.0' in the area of AH-2. All of the excavated soil will be transported to proper disposal.

Once excavated to the appropriate depths, the site will be backfilled with clean material.

Due to the location of the spill, the proposed excavation depths and areas may not be achieved due to wall cave ins, oil and gas equipment, electrical, structures or lines which may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the impacted soil is not accessible, the soil will be deferred until the abandonment of the facility. If deeper impact is encountered and excavation cannot be achieved, the impacted soil will be capped with either 40 mil liner or clay material at 3.0' to 4.0' below surface and backfilled with soil to grade.

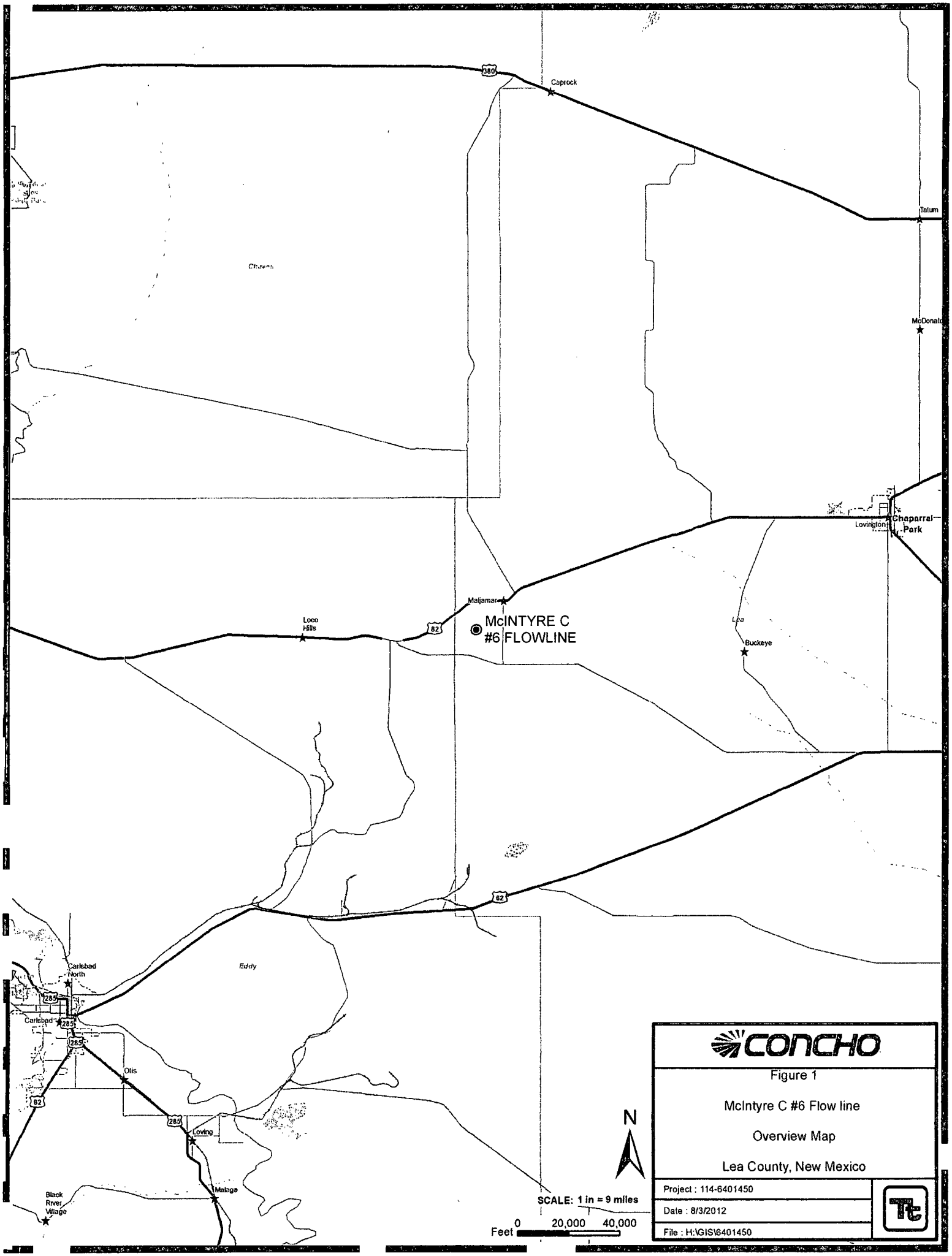
Upon completion, a final report will be submitted to the NMOCD. If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

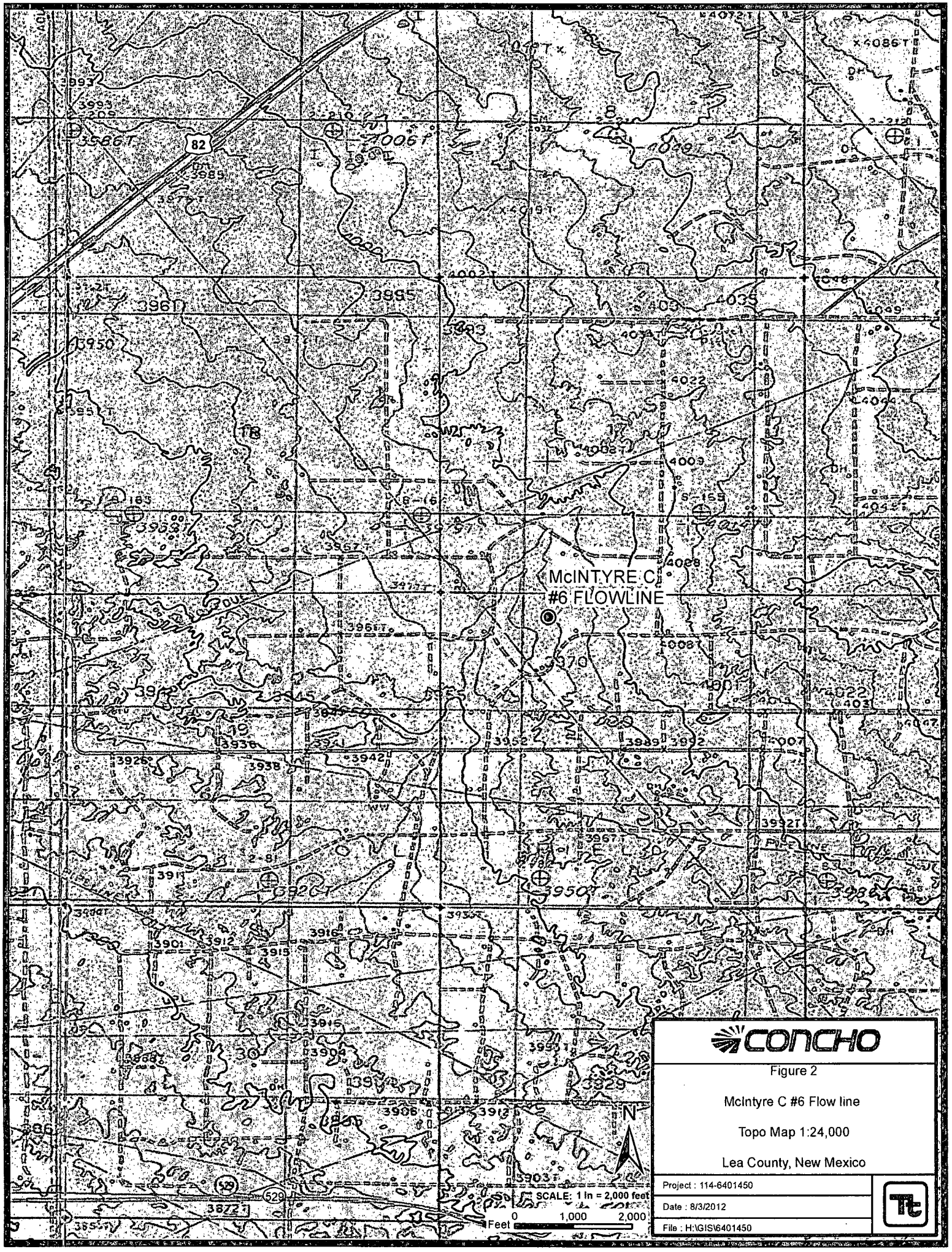
Respectfully submitted,
TETRA TECH

Ike Tavarez
Senior Project Manager

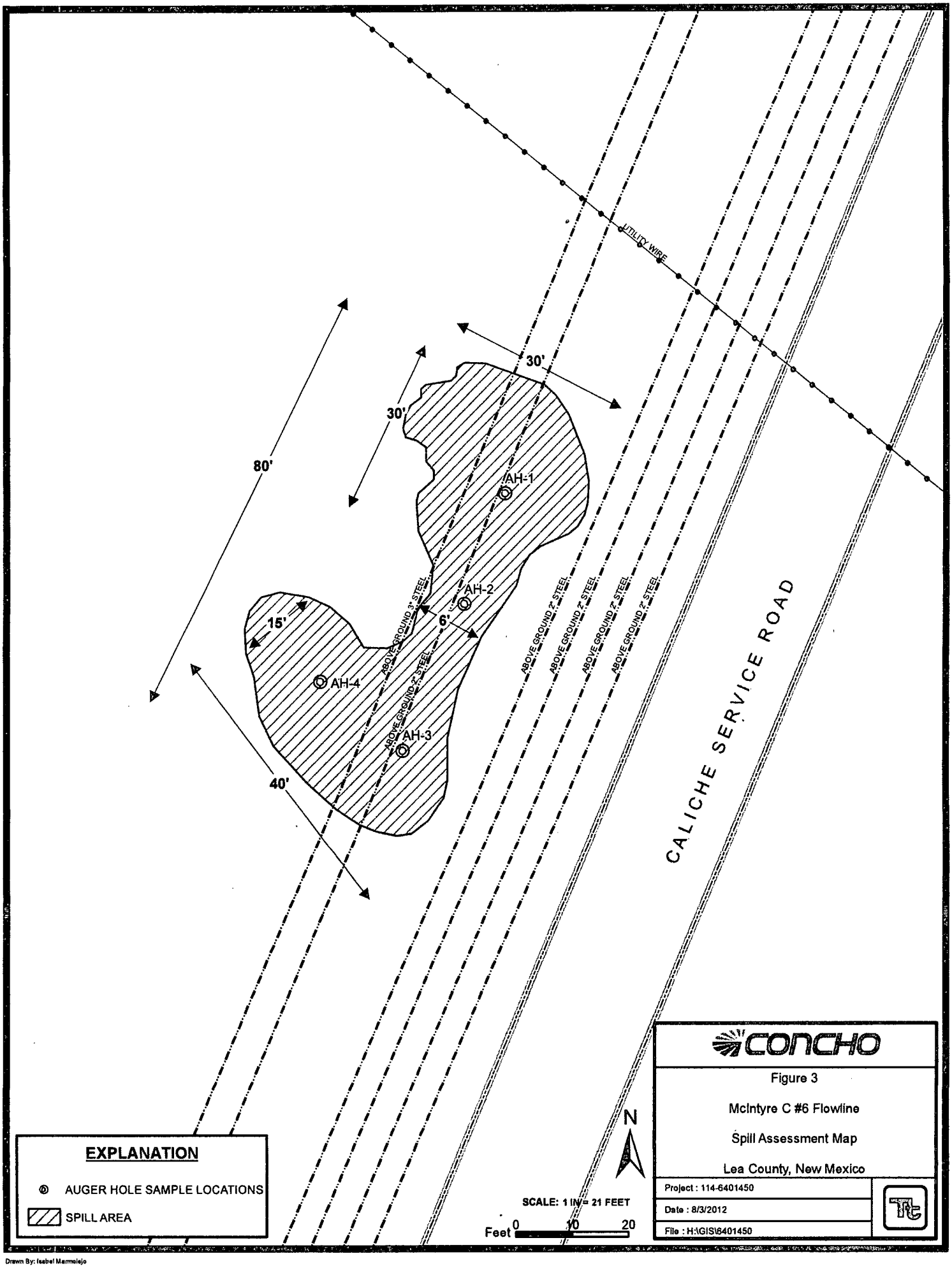
cc: Pat Ellis – COG
Terry Gregston - BLM

Figures

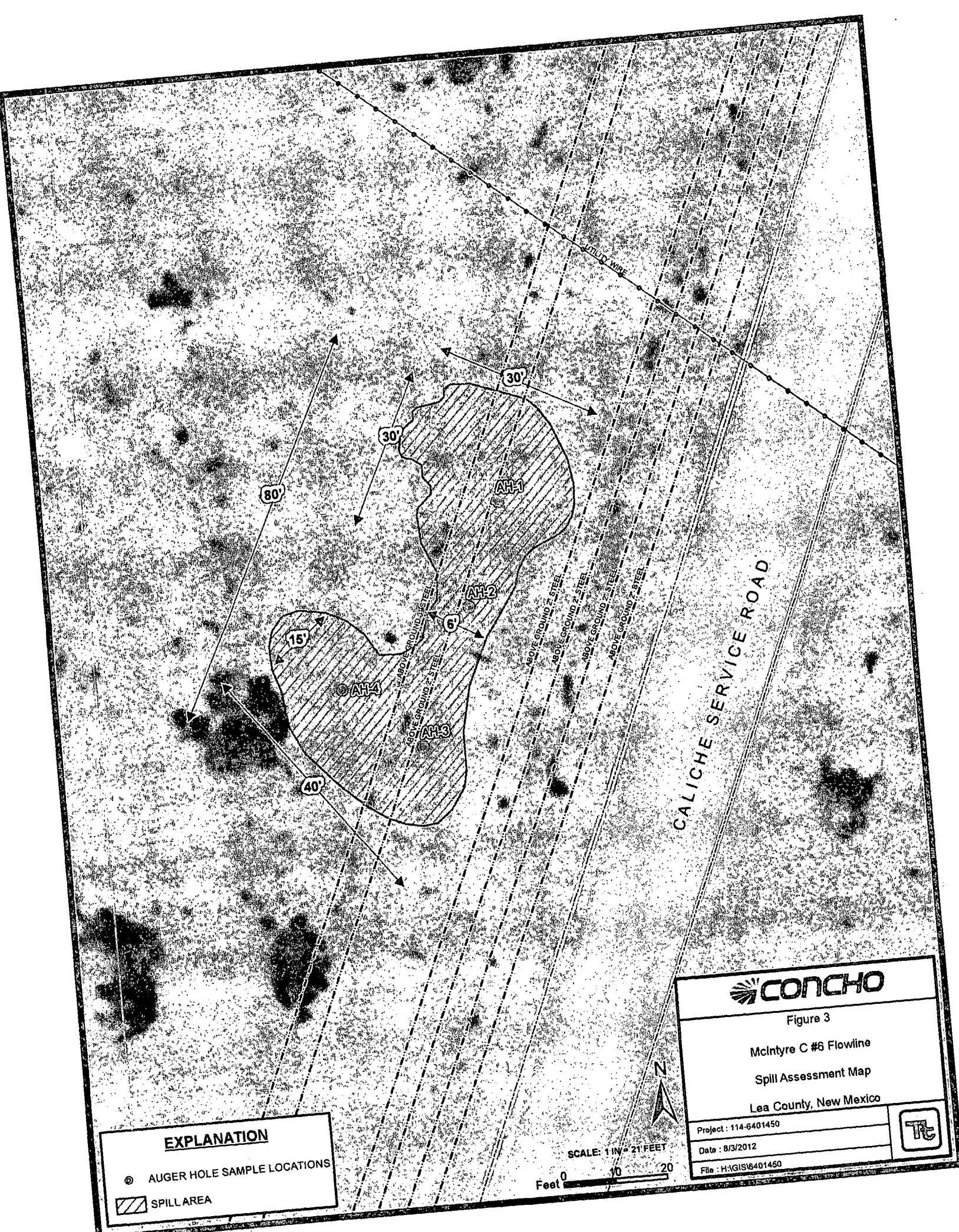

380
Caprock
Tatum
Chaves
McDonald
Lovington
Chaparral-Park
Maljamar
Loco Hills
82
McINTYRE C
#6 FLOWLINE
Lea
Buckeye
Eddy
Carlsbad North
285
Carlsbad
Otis
62
Loving
Malaga
Black River Village
N
SCALE: 1 in = 9 miles
0 20,000 40,000
Feet
CONCHO
Figure 1
McIntyre C #6 Flow line
Overview Map
Lea County, New Mexico
Project : 114-6401450
Date : 8/3/2012
File : H:\GIS\6401450
Drawn By: Isabel Marmolejo

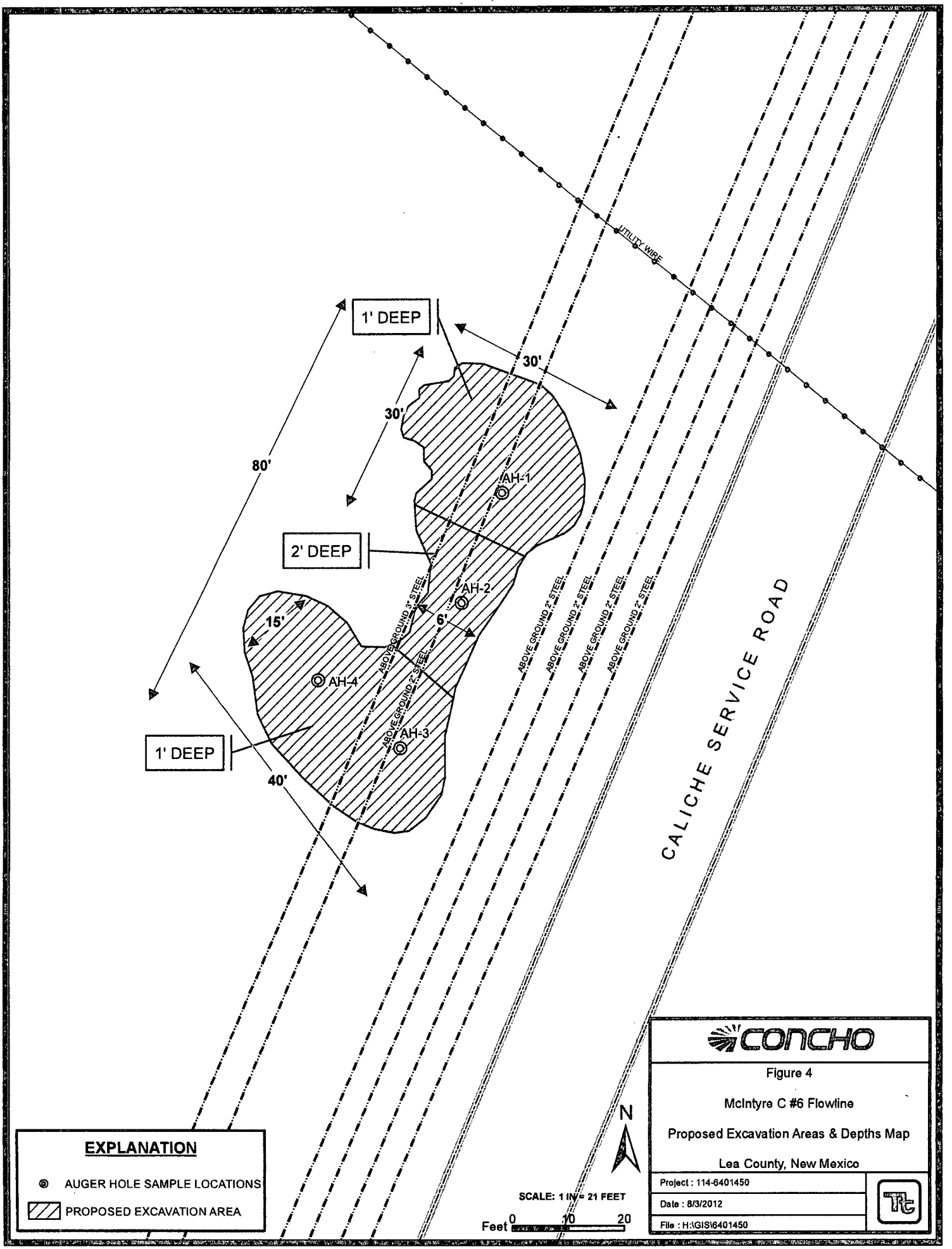


Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo


UTILITY WIRE
30'
30'
80'
AH-1
AH-2
6'
15'
AH-4
AH-3
40'
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
SPILL AREA
N
SCALE: 1 IN = 21 FEET
Feet 0 10 20
CONCHO
Figure 3
McIntyre C #6 Flowline
Spill Assessment Map
Lea County, New Mexico
Project : 114-6401450
Date : 8/3/2012
File : H:\GIS\6401450
Drawn By: Isabel Marmolejo



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

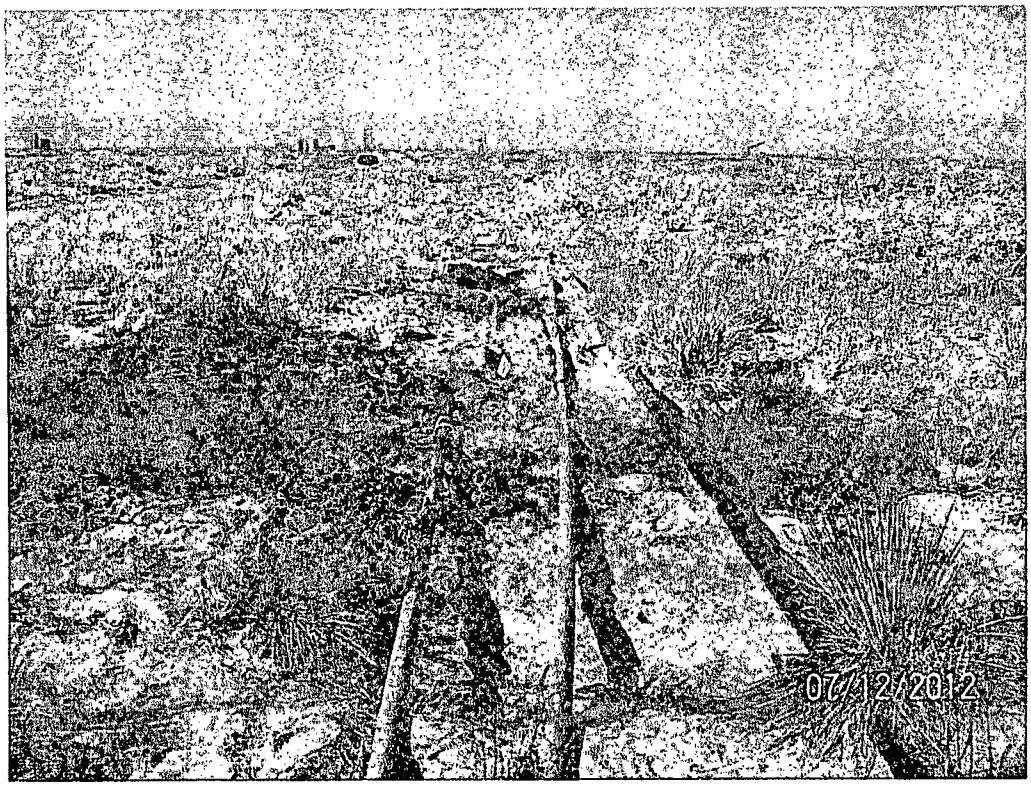
(-) Not Analyzed

Proposed Excavation Depths

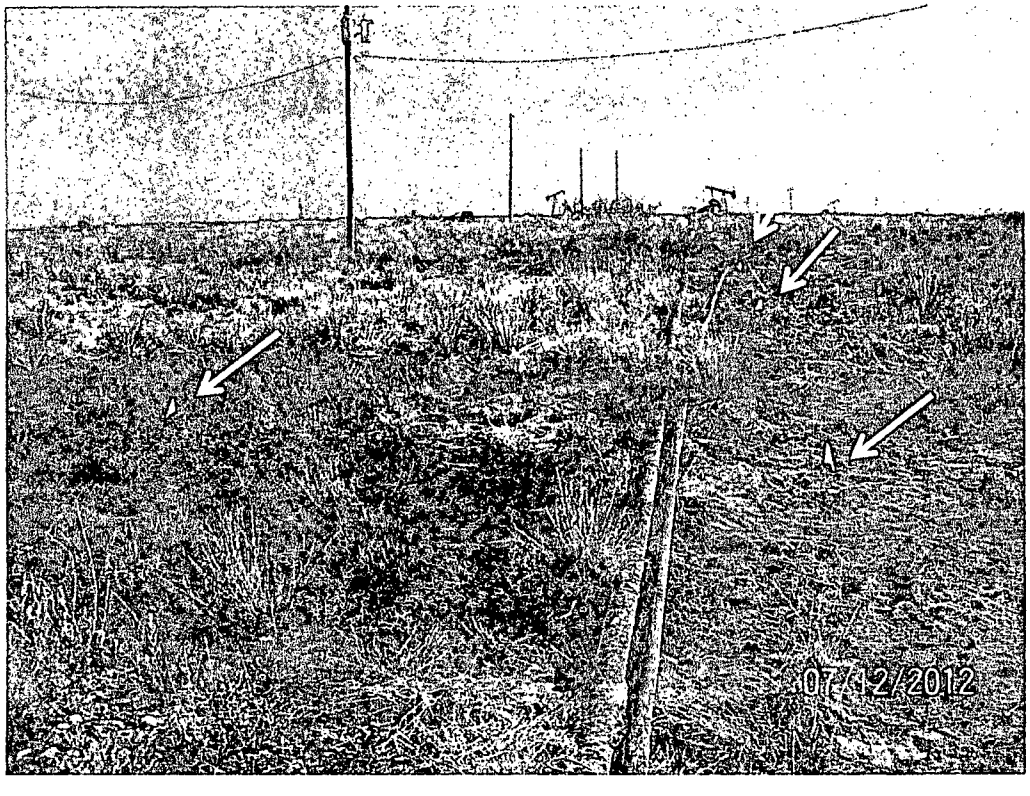
Photos

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

TETRA TECH



View south – Near Source



View North – Spill footprint with AH-1 through AH-4

Appendix A

250'

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 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
H	20	17S	30E					Eddy

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

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	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** Qs	<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** Qs	**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] H
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