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

HOBBS OCD
JUL 01 2011
RECEIVED

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **COG Operating LLC**	Contact **Pat Ellis**
Address **550 W. Texas, Suite 1300 Midland, Texas 79701**	Telephone No. **(432) 685-4332**
Facility Name BC Federal #3	Facility Type **Well**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-34932

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	20	17S	32E	1650	North	940	East	Lea

Latitude N 32.82283° **Longitude** W 103.78315°

NATURE OF RELEASE

Type of Release: Oil/Produced Fluids	Volume of Release **55 bbls**	Volume Recovered **50 bbls**
Source of Release Wellhead	Date and Hour of Occurrence 5/7/10	Date and Hour of Discovery **5/7/10 8:00 a.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? **Larry Johnson – OCD** **Geoffrey Leking – OCD**	
By Whom? Josh Russo	Date and Hour 5/7/10 5:53 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

The packing blew out of the BC Federal #3 well. The well has been re-packed and put back into service

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. Soil with elevated chlorides was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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

Signature: Patrick L. Ellis	OIL CONSERVATION DIVISION
Printed Name: Patrick L. Ellis	Approved by District Supervisor:
Title: Environmental and Safety Supervisor	Approval Date: / Expiration Date:
E-mail Address: pellis@conchoresources.com	Conditions of Approval: / Attached ☐
Date: 6-2-11 Phone: (432) 686-3023	

* Attach Additional Sheets If Necessary

pJXK1535637296
4056

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State of New Mexico
Energy Minerals and Natural Resources

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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 Repor

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	BC FEDERAL #3	Facility Type	WELL

Surface Owner	Mineral Owner	Lease No. (API#) 30-025-34932
FEDERAL		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	20	17S	32E	1650	NORTH	940	EAST	LEA

Latitude 32.82283 **Longitude** 103.78315

NATURE OF RELEASE

Type of Release: Oil / Produced Fluids	Volume of Release: 55bbls	Volume Recovered: 50bbls
Source of Release: Wellhead	Date and Hour of Occurrence: 05/07/2010	Date and Hour of Discovery: 05/07/2010 8:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson – OCD; Geoffrey Leking - OCD	
By Whom? Josh Russo	Date and Hour: 05/07/2010 5:53 p.m.	
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.*

The packing blew out of the BC Federal #3 well. The well has been re-packed and put back into service.

Describe Area Affected and Cleanup Action Taken.*

55bbls of oil and produced fluids was initially released from the wellhead and we were able to recover 50bbls. All free fluid from the release remained on the well pad and the dimensions of the spill area were 15'x30'. The well pad has been scraped and the contaminated pad material has been removed. (Any produced water that was released would have had an estimated chloride content of 110,000 mg/l. Any Oil that was released would have had an estimated oil gravity of 36) 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 BLM / NMOCD 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: 05/10/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

General Site Information:		
Site:	BC Federal #3	
Company:	COG Operating LLC	
Section, Township and Range	T-17S R-32E Sec. 20 Unit H	
Lease Number:	30-025-34932	
County:	Lea County	
GPS:	32.82283° N	103.78315° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 0.3 miles, turn right 0.3 miles, turn left 0.7 miles to location.	

Release Data:	
Date Released:	5/7/2010
Type Release:	Produced Water and oil
Source of Contamination:	Stuffing box blow out
Fluid Released:	55 bbls
Fluids Recovered:	50 bbls

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) 631-0348
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratch.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

150'

TETRA TECH

January 7, 2011

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

Re: Work Plan for the COG Operating LLC., BC Federal #3, Unit H, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #3, Unit H, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.82283°, W 103.78315°. The site location is shown on Figures 1 and 2.

Background

On May 7, 2010 the leak was discovered and released approximately fifty-five (55) barrels of produced water and oil due to the wellhead packing being blown out. To alleviate the problem, COG personnel repacked the well head and put the unit back into service. Fifty (50) barrels of standing fluids were recovered. The spill was contained on the well pad. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 20. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data is shown in Appendix A.

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 August 16, 2010, Tetra Tech personnel inspected and sampled the spill area, which measured approximately 15' x 30'. A single auger hole (AH-1) was installed using a stainless steel hand auger to assess the impacted soils. Select 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 B. The results of the sampling are summarized in Table 1. The auger hole location is shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected at the surface and declined significantly with depth. However, the bottom hole sample at 9-9.5' showed an increasing chloride concentration of 1,620 mg/kg.

On November 11, 2010, Tetra Tech personnel supervised the installation of one soil bore (SB-1) near AH-1 utilizing an air rotary drilling rig. The soil boring was installed to define the extent of the chloride impact detected at 9' below surface. Soil samples were collected to a depth of 25' to define the extent of the chloride impact. Referring to Table 1, the chloride concentrations significantly declined at 5' and decreased to 231 mg/kg at 15' bgs. Based on soil boring data, the auger hole sample collected at 9-9.5' may have been cross-contaminated with the upper soils during the sampling.

TETRA TECH

Work Plan

Tetra Tech proposes to supervise the removal of impacted material to approximately 4' to 5' below surface as shown in attached Table 1. Once the impacted area is excavated to the appropriate depth, the excavation will be backfilled with clean soil.

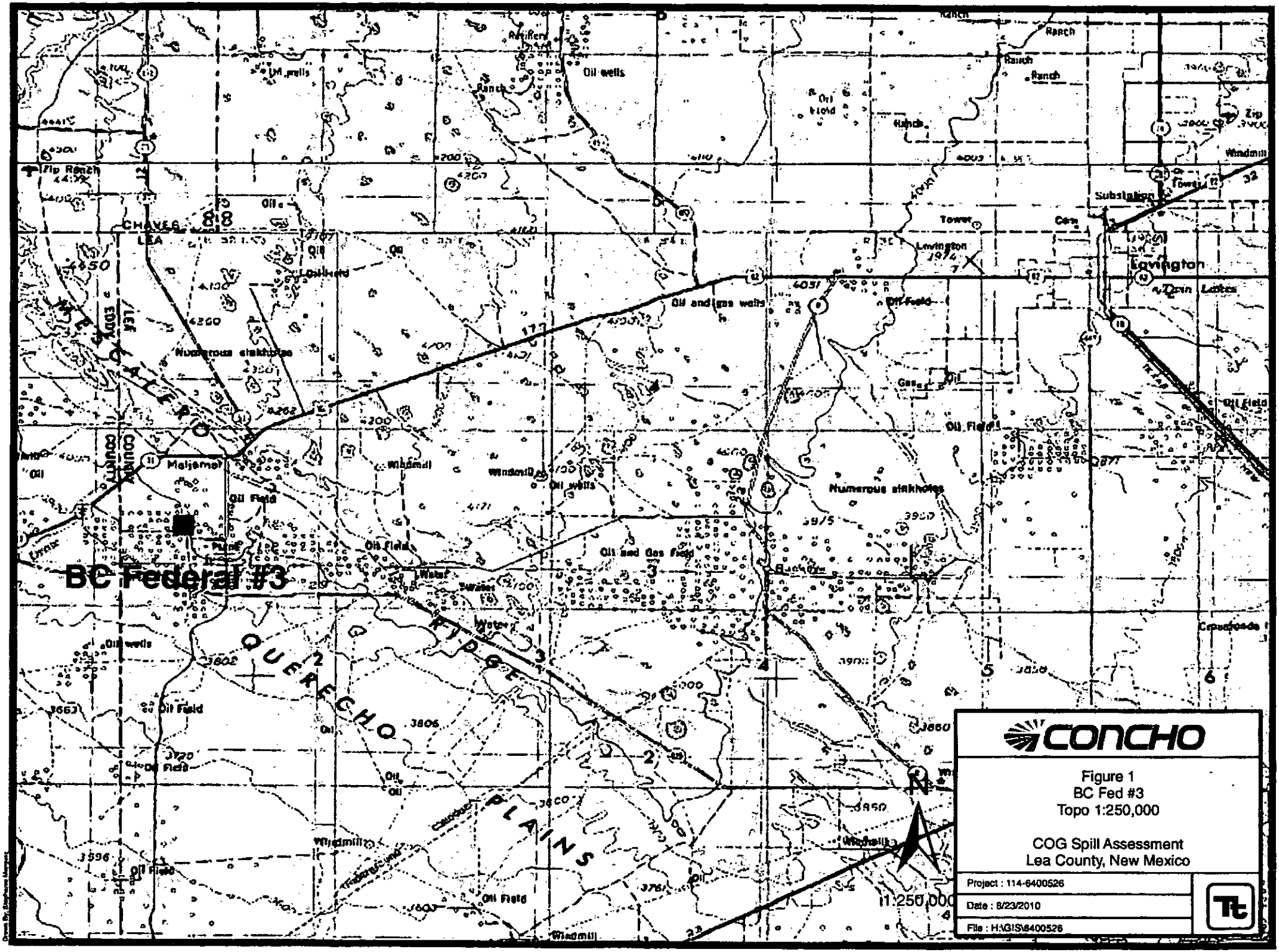
If the proposed excavation depths cannot be reached due to wall cave ins, safety concerns for lines, equipment and onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable. Upon completion a final closure report will be submitted to the NMOCD.

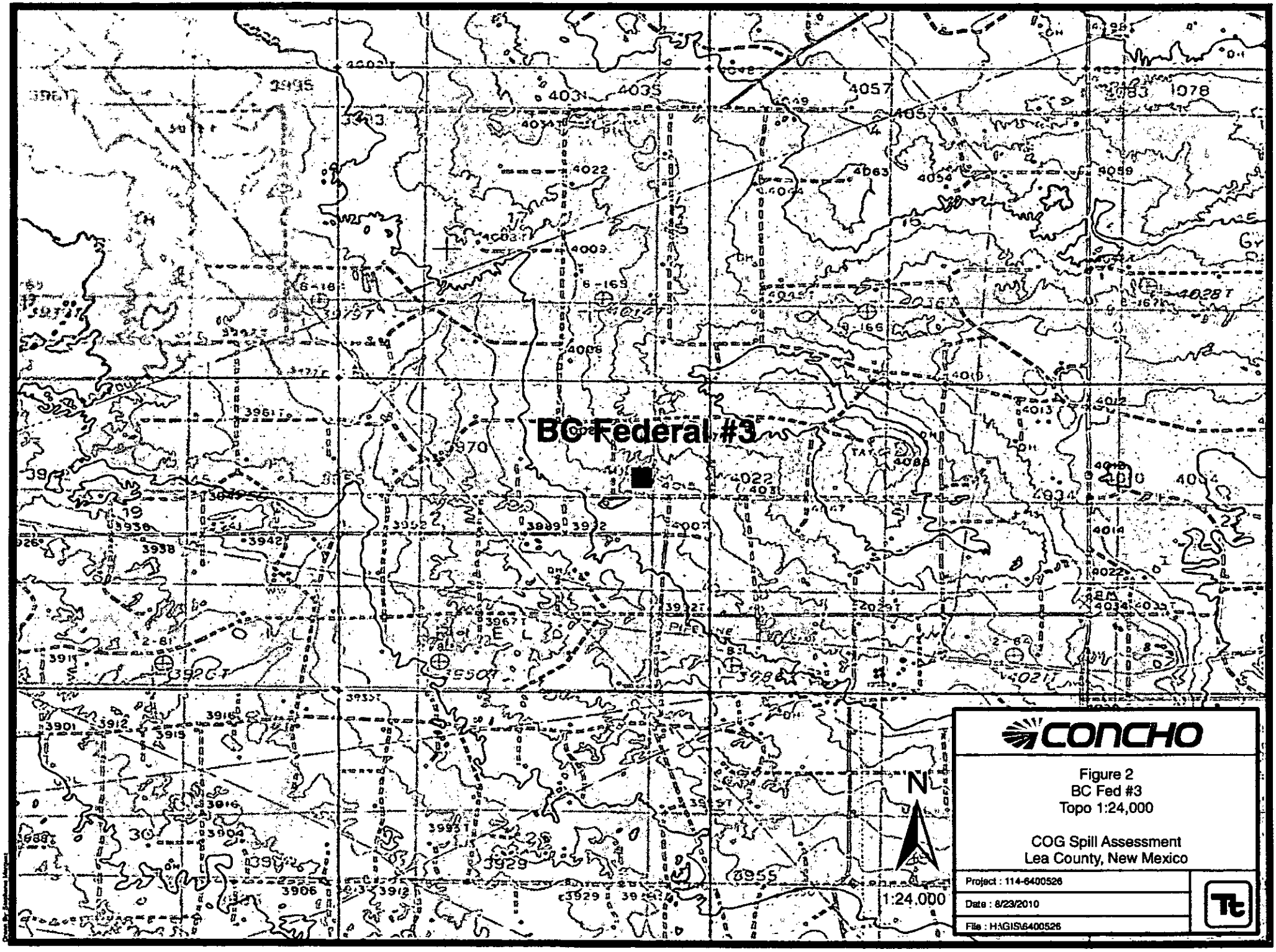
If you have any questions or require any additional information regarding this work plan proposal, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Project Manager, PG

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


BC Federal #3
CHAVES
LEA
EDDY
LEA
Lovington
Maljamar
Oil and gas wells
Numerous sinkholes
Oil Field
Oil wells
Windmill
QUERECHO
PLAINS
GUADALUPE RIDGE
CONCHO
Figure 1
BC Fed #3
Topo 1:250,000
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : H:\GIS\6400526
1:250,000


BC Federal #3
N
1:24,000
CONCHO
Figure 2
BC Fed #3
Topo 1:24,000
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : HAGIS\6400526

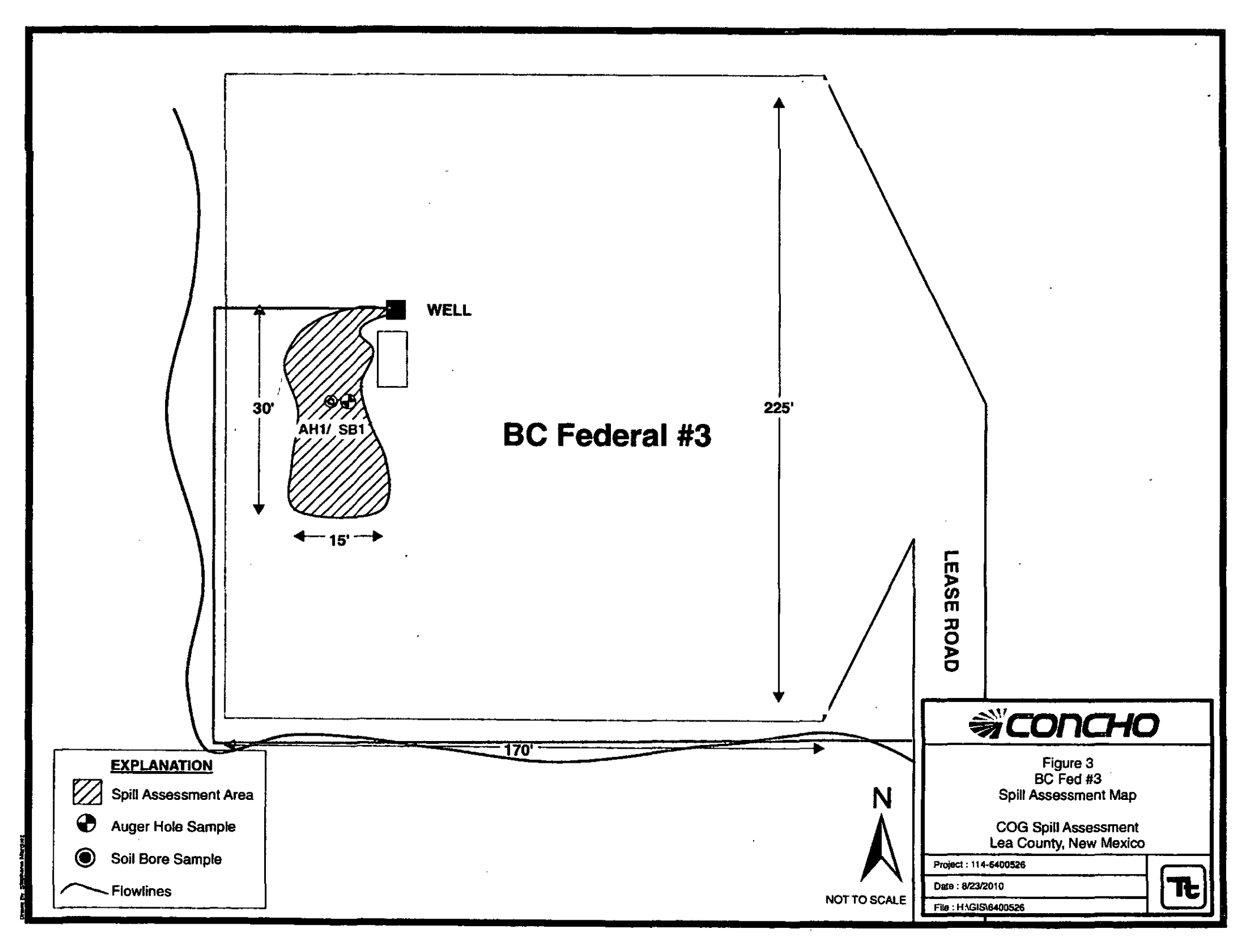

WELL
30'
AH1/ SB1
15'
BC Federal #3
225'
LEASE ROAD
170'
EXPLANATION
Spill Assessment Area
Auger Hole Sample
Soil Bore Sample
Flowlines
N
NOT TO SCALE
CONCHO
Figure 3
BC Fed #3
Spill Assessment Map
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : H:\GIS\6400526

Table 1
COG Operating LLC.
BC Federal #3
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-1	8/16/2010	0-1'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	5,100
	"	1-1.5'		X		-	-	-	-	-	-	-	938
	"	2-2.5'		X		-	-	-	-	-	-	-	1,160
	"	3-3.5'		X		-	-	-	-	-	-	-	1,370
	"	4-4.5'		X		-	-	-	-	-	-	-	1,090
	"	5-5.5'		X		-	-	-	-	-	-	-	459
	"	6-6.5'		X		-	-	-	-	-	-	-	462
	"	7-7.5'		X		-	-	-	-	-	-	-	441
	"	8-8.5'		X		-	-	-	-	-	-	-	275
	"	9-9.5'		X		-	-	-	-	-	-	-	1,620
SB-1	11/11/2010	0-1'		X		-	-	-	-	-	-	-	9,320
	"	3'		X		-	-	-	-	-	-	-	3,820
	"	5'		X		-	-	-	-	-	-	-	703
	"	7'		X		-	-	-	-	-	-	-	326
	"	10'		X		-	-	-	-	-	-	-	482
	"	15'		X		-	-	-	-	-	-	-	231
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	231

BEB Below Excavation Bottom

(--) Not Analyzed

☐ Proposed excavated depth

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #3 Well
Lea County, New Mexico

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 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 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

16 South 32 East

6	5	4	3 65	2 265	1 265
7	8	9	10	11	12 215
18	17	16 221	15	14	13 215
19 220	20	21 210	22	23 210	24
30	29	28	27	26 243	25
31	32	33	34	35	36 260

17 South 32 East

6	5	4 82	3 175	2 60	1 225
7	8	9	10	11 70 88	12 120
18	17	16	15	14	13
19	20 SITE	21	22	23	24
30 160	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	12
18	17	16 84	15	14	13
19	20 164	21	22 429	23	24
30	29	28	27	26	25
31	32	33	34 117	35	36

16 South 33 East

6	5 180	4 150	3 130	2 148	1 142
7	8 200	9	10 182	11	12 142
18	17 182	16 180	15 175	14 143	13 110
19	20	21	22	23 120	24
30 191	29	28 190	27 130	26 143	25 120
31 190	32 168	33	34 160	35	36

17 South 33 East

6 90	5	4	3 155	2 158	1 150
7 167	8 173	9 161	10	11	12
18 188	17 180	16	15	14	13 165
19	20 190	21	22	23 115	24
30	29	28	27	26	25
31	32	33	34	35 155	36

18 South 33 East

6	5	4	3	2	1
7	8 100	9	10 82	11	12 143 140
18	17 85	16	15	14 38	13 60
19 >140	20	21	22	23	24 195
30 35	29	28	27	26	25
31	32	33	34 177	35	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
- Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: August 25, 2010

Work Order: 10081710

Project Location: Lea County, NM
Project Name: COG/BC Fed. #3
Project Number: 114-6400526

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
241471	AH-1 0-1'	soil	2010-08-16	00:00	2010-08-16
241472	AH-1 1-1.5'	soil	2010-08-16	00:00	2010-08-16
241473	AH-1 2-2.5'	soil	2010-08-16	00:00	2010-08-16
241474	AH-1 3-3.5'	soil	2010-08-16	00:00	2010-08-16
241475	AH-1 4-4.5'	soil	2010-08-16	00:00	2010-08-16
241476	AH-1 5-5.5'	soil	2010-08-16	00:00	2010-08-16
241477	AH-1 6-6.5'	soil	2010-08-16	00:00	2010-08-16
241478	AH-1 7-7.5'	soil	2010-08-16	00:00	2010-08-16
241479	AH-1 8-8.5'	soil	2010-08-16	00:00	2010-08-16
241480	AH-1 9-9.5'	soil	2010-08-16	00:00	2010-08-16

	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)
241471 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 241471 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**5100**	mg/Kg	4.00

Sample: 241472 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**938**	mg/Kg	4.00

Sample: 241473 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1160**	mg/Kg	4.00

Sample: 241474 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1370**	mg/Kg	4.00

Sample: 241475 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	4.00

Sample: 241476 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**459**	mg/Kg	4.00

Sample: 241477 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**462**	mg/Kg	4.00

Sample: 241478 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**441**	mg/Kg	4.00

Sample: 241479 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**275**	mg/Kg	4.00

Sample: 241480 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**1620**	mg/Kg	4.00

SITE INFORMATION

Report Type: Closure Report

General Site Information:		
Site:	BC Federal #3	
Company:	COG Operating LLC	
Section, Township and Range	Unit H Sec. 20 T-17S R-32E	
Lease Number:	30-025-34932	
County:	Lea County	
GPS:	32.82283° N	103.78315° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Conoco Road and CR-126 (South of Maljamar, NM), travel west on Conoco road 0.3 miles, turn right 0.3 miles, turn left 0.7 miles to location.	

Release Data:	
Date Released:	5/7/2010
Type Release:	Produced Water and oil
Source of Contamination:	Stuffing box blow out
Fluid Released:	55 bbls
Fluids Recovered:	50 bbls

Official Communication:			
Name:	Pat Ellis		Kim Dorey
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) 631-0348
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		kim.dorey@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

HOBBS OCD

JUL 01 2011

RECEIVED

TETRA TECH

June 1, 2011

HOBBS OCD

JUL 01 2011

RECEIVED

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

Re: Remedial Activities and Closure Report for the COG Operating LLC., BC Federal #3, Unit H, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC Federal #3, Unit H, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.82283°, W 103.78315°. The site location is shown on Figures 1 and 2.

Background

On May 7, 2010 the leak was discovered and released approximately fifty-five (55) barrels of produced water and oil due to the wellhead packing being blown out. To alleviate the problem, COG personnel repacked the well head and put the unit back into service. Fifty (50) barrels of standing fluids were recovered. The spill was contained on the well pad. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 20. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data is shown in Appendix A.

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 August 16, 2010, Tetra Tech personnel inspected and sampled the spill area, which measured approximately 15' x 30'. A single auger hole (AH-1) was installed using a stainless steel hand auger to assess the impacted soils. Select 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 B. The results of the sampling are summarized in Table 1. The auger hole location is shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected at the surface and declined significantly with depth. However, the bottom hole sample at 9-9.5' showed an increasing chloride concentration of 1,620 mg/kg.

On November 11, 2010, Tetra Tech personnel supervised the installation of one soil bore (SB-1) near AH-1 utilizing an air rotary drilling rig. The soil boring was installed to define the extent of the chloride impact detected at 9' below surface. Soil samples were collected to a depth of 25' to define the extent of the chloride impact. Referring to Table 1, the chloride concentrations significantly declined at 5' and decreased to 231 mg/kg at 15' bgs. Based on soil boring data, the auger hole sample collected at 9-9.5' may have been cross-contaminated with the upper soils during the sampling.

TETRA TECH

Remedial Work and Closure Request

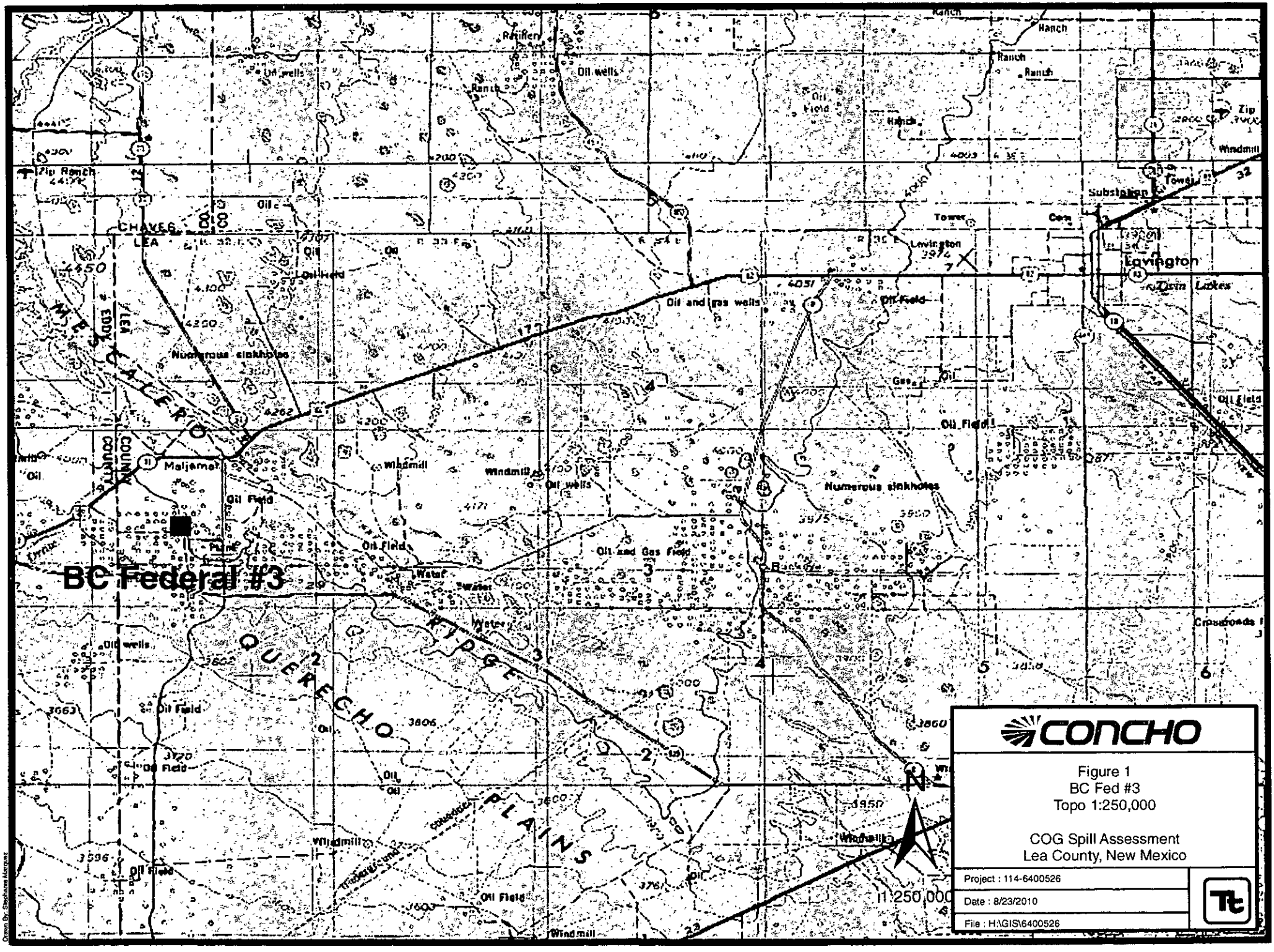
On March 30, 2011, Tetra Tech personnel supervised the excavation of the site. The remediation was performed as stated in the approved work plan. The excavation measured approximately 30' x 15', with a depth of 3' to 4' below surface. Approximately 120 yards^3 of soil were removed and transported to CRI Inc. for proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4. Once excavated, the excavation was backfilled with clean material. A copy of the C-141 (Final) is included in Appendix C.

Based on the remedial activities performed at this site, COG request closure of this site. If you require any additional information or have any questions or comments concerning this report, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Project Manager

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



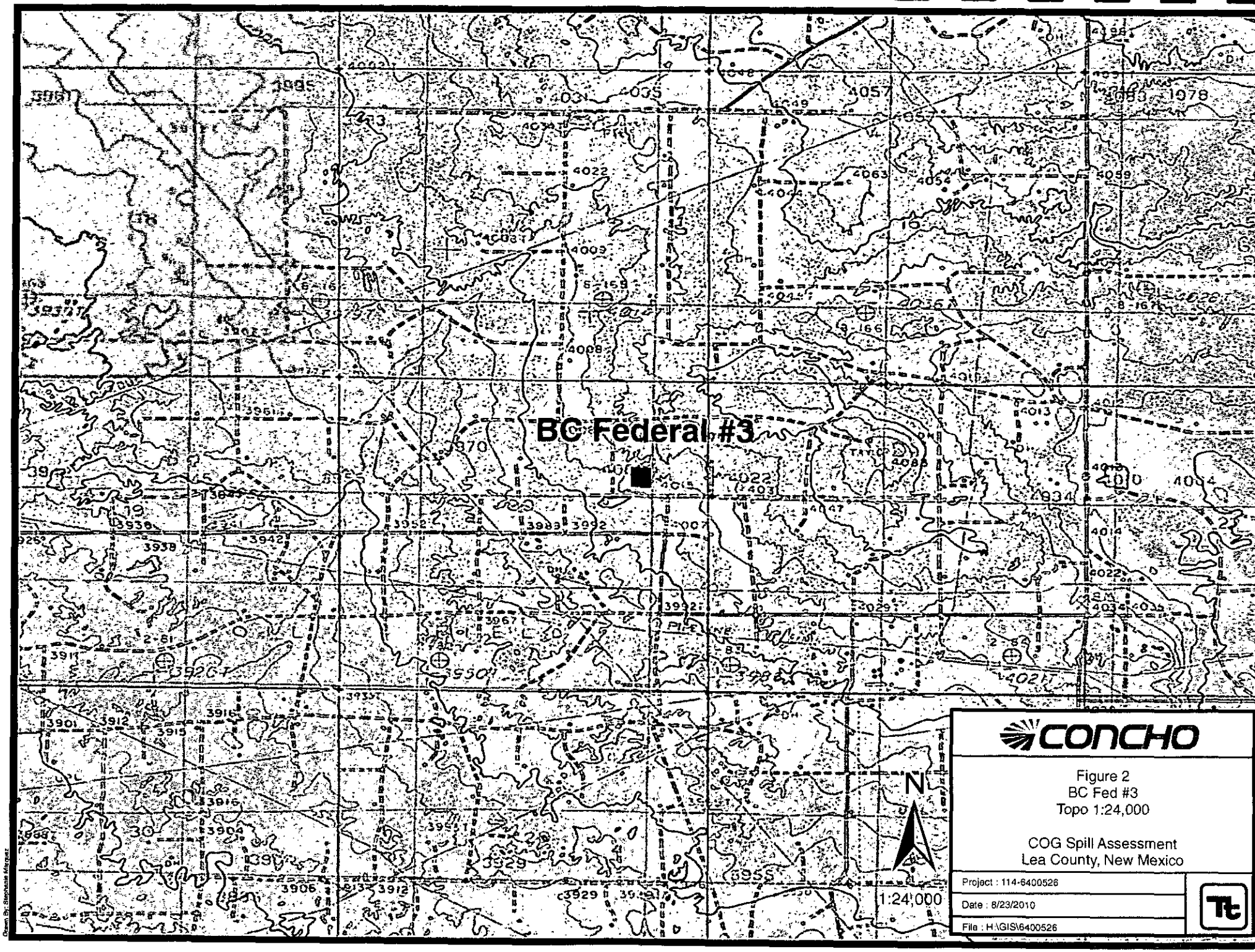
CONCHO

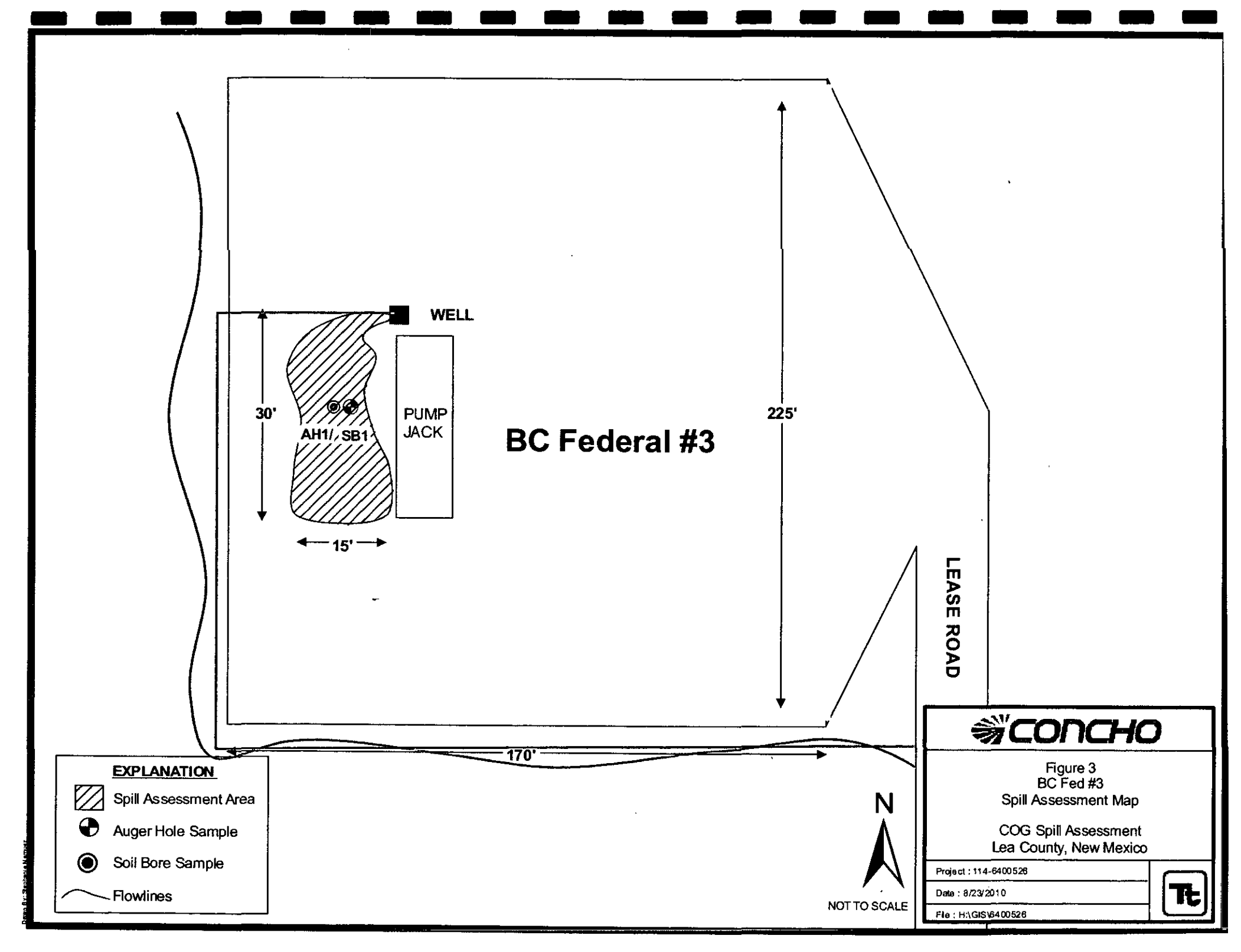
Figure 1
BC Fed #3
Topo 1:250,000

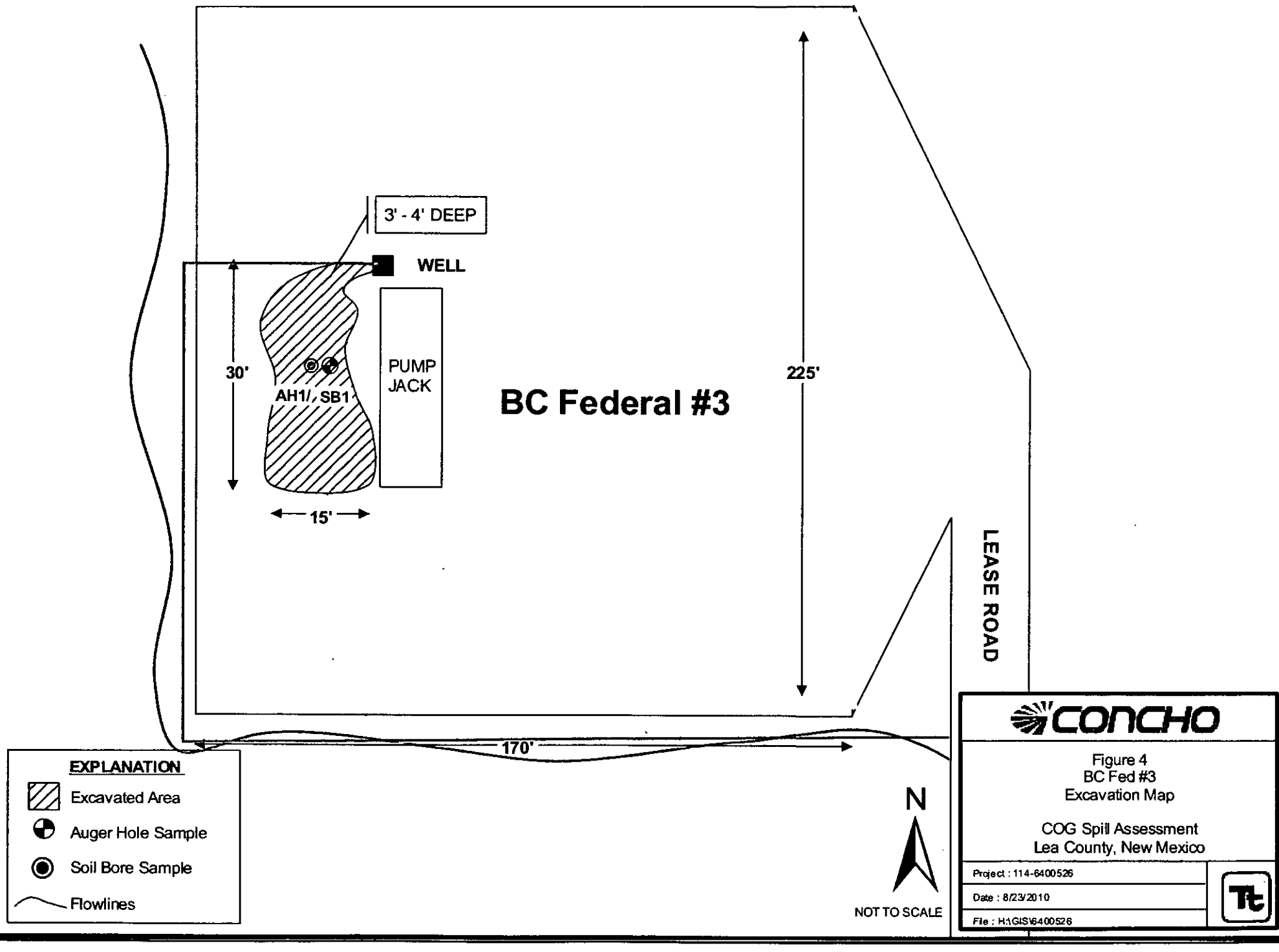
COG Spill Assessment
Lea County, New Mexico

Project : 114-6400526	
Date : 8/23/2010	
File : H:\GIS\6400526	

Drawn By: Stephanie Marquez

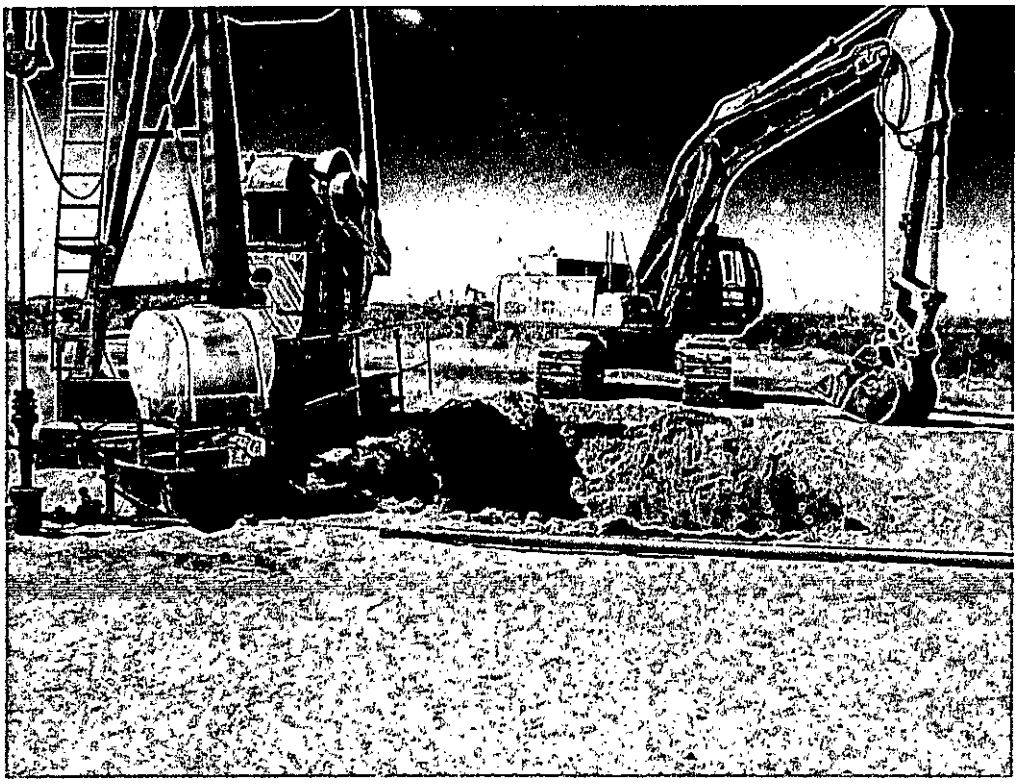

BC Federal #3
N
1:24,000
CONCHO
Figure 2
BC Fed #3
Topo 1:24,000
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : H:\GIS\6400526
Drawn By: Stephanie Marquez


WELL
PUMP JACK
AH1/ SB1
30'
15'
BC Federal #3
225'
LEASE ROAD
170'
EXPLANATION
Spill Assessment Area
Auger Hole Sample
Soil Bore Sample
Flowlines
N
NOT TO SCALE
CONCHO
Figure 3
BC Fed #3
Spill Assessment Map
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : H:\GIS\6400526


3' - 4' DEEP
WELL
PUMP JACK
AH1/ SB1
30'
15'
BC Federal #3
225'
LEASE ROAD
170'
EXPLANATION
Excavated Area
Auger Hole Sample
Soil Bore Sample
Flowlines
N
NOT TO SCALE
CONCHO
Figure 4
BC Fed #3
Excavation Map
COG Spill Assessment
Lea County, New Mexico
Project : 114-6400526
Date : 8/23/2010
File : H:\GIS\6400526

COG Operating LLC
BC Federal #3
Lea County, New Mexico

TETRA TECH



Excavating material from spill path

Final depth approximately 3-4' bgs

Table 1
COG Operating LLC.
BC Federal #3
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-1	8/16/2010	0-1'			X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	5,100
	"	1-1.5'			X	-	-	-	-	-	-	-	938
	"	2-2.5'			X	-	-	-	-	-	-	-	1,160
	"	3-3.5'			X	-	-	-	-	-	-	-	1,370
	"	4-4.5'			X	-	-	-	-	-	-	-	1,090
	"	5-5.5'		X		-	-	-	-	-	-	-	459
	"	6-6.5'		X		-	-	-	-	-	-	-	462
	"	7-7.5'		X		-	-	-	-	-	-	-	441
	"	8-8.5'		X		-	-	-	-	-	-	-	275
	"	9-9.5'		X		-	-	-	-	-	-	-	1,620
SB-1	11/11/2010	0-1'			X	-	-	-	-	-	-	-	9,320
	"	3'			X	-	-	-	-	-	-	-	3,820
	"	5'		X		-	-	-	-	-	-	-	703
	"	7'		X		-	-	-	-	-	-	-	326
	"	10'		X		-	-	-	-	-	-	-	482
	"	15'		X		-	-	-	-	-	-	-	231
	"	20'		X		-	-	-	-	-	-	-	<200
	"	25'		X		-	-	-	-	-	-	-	231

BEB Below Excavation Bottom

(--) Not Analyzed

☐ Excavation depth

Water Well Data
Average Depth to Groundwater (ft)
COG - BC Federal #3 Well
Lea County, New Mexico

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 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 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

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

17 South 32 East

6	5	4 **82**	3 **175**	2 **60**	1 **225**
7	8	9	10	11 **70 88**	12 **120**
18	17	16	15	14	13
19	20 SITE	21	22	23	24
30 **180**	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460 82**	8	9	10	11	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31	32	33	34 **117**	35	36

16 South 33 East

6	5 **180**	4 **150**	3 **130**	2 **148**	1 **142**
7	8 **200**	9	10 **182**	11	12 **142**
18	17 **182**	16 **180**	15 **175**	14 **143**	13 **110**
19	20	21	22	23 **120**	24
30 **191**	29	28 **190**	27 **130**	26 **143**	25 **120**
31 **190**	32 **168**	33	34 **160**	35	36

17 South 33 East

6 **90**	5	4	3 **155**	2 **158**	1 **150**
7 **167**	8 **173**	9 **161**	10	11	12
18 **186**	17 **180**	16	15	14	13 **165**
19	20 **190**	21	22	23 **115**	24
30	29	28	27	26	25
31	32	33	34	35 **155**	36

18 South 33 East

6	5	4	3	2	1
7	8 **100**	9	10 **62**	11	12 **143 140**
18	17 **85**	16	15	14 **36**	13 **60**
19 **>140**	20	21	22	23	24 **195**
30 **35**	29	28	27	26	25
31	32	33	34 **177**	35	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
- Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: August 25, 2010

Work Order: 10081710

Project Location: Lea County, NM
Project Name: COG/BC Fed. #3
Project Number: 114-6400526

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
241471	AH-1 0-1'	soil	2010-08-16	00:00	2010-08-16
241472	AH-1 1-1.5'	soil	2010-08-16	00:00	2010-08-16
241473	AH-1 2-2.5'	soil	2010-08-16	00:00	2010-08-16
241474	AH-1 3-3.5'	soil	2010-08-16	00:00	2010-08-16
241475	AH-1 4-4.5'	soil	2010-08-16	00:00	2010-08-16
241476	AH-1 5-5.5'	soil	2010-08-16	00:00	2010-08-16
241477	AH-1 6-6.5'	soil	2010-08-16	00:00	2010-08-16
241478	AH-1 7-7.5'	soil	2010-08-16	00:00	2010-08-16
241479	AH-1 8-8.5'	soil	2010-08-16	00:00	2010-08-16
241480	AH-1 9-9.5'	soil	2010-08-16	00:00	2010-08-16

	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)
241471 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 241471 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**5100**	mg/Kg	4.00

Sample: 241472 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**938**	mg/Kg	4.00

Sample: 241473 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1160**	mg/Kg	4.00

Sample: 241474 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1370**	mg/Kg	4.00

Sample: 241475 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	4.00

Sample: 241476 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**459**	mg/Kg	4.00

Sample: 241477 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**462**	mg/Kg	4.00

Sample: 241478 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**441**	mg/Kg	4.00

Sample: 241479 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**275**	mg/Kg	4.00

Sample: 241480 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**1620**	mg/Kg	4.00

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 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: August 25, 2010

Work Order: 10081710

Project Location: Lea County, NM
Project Name: COG/BC Fed. #3
Project Number: 114-6400526

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
241471	AH-1 0-1'	soil	2010-08-16	00:00	2010-08-16
241472	AH-1 1-1.5'	soil	2010-08-16	00:00	2010-08-16
241473	AH-1 2-2.5'	soil	2010-08-16	00:00	2010-08-16
241474	AH-1 3-3.5'	soil	2010-08-16	00:00	2010-08-16
241475	AH-1 4-4.5'	soil	2010-08-16	00:00	2010-08-16
241476	AH-1 5-5.5'	soil	2010-08-16	00:00	2010-08-16
241477	AH-1 6-6.5'	soil	2010-08-16	00:00	2010-08-16
241478	AH-1 7-7.5'	soil	2010-08-16	00:00	2010-08-16
241479	AH-1 8-8.5'	soil	2010-08-16	00:00	2010-08-16
241480	AH-1 9-9.5'	soil	2010-08-16	00:00	2010-08-16

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 15 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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/BC Fed. #3 were received by TraceAnalysis, Inc. on 2010-08-16 and assigned to work order 10081710. Samples for work order 10081710 were received intact at a temperature of 19.6 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	62423	2010-08-21 at 17:00	72813	2010-08-22 at 10:38
Chloride (Titration)	SM 4500-Cl B	62442	2010-08-23 at 09:04	72833	2010-08-23 at 14:44
Chloride (Titration)	SM 4500-Cl B	62443	2010-08-23 at 09:04	72834	2010-08-23 at 14:44
TPH DRO - NEW	S 8015 D	62428	2010-08-20 at 13:56	72812	2010-08-20 at 13:56
TPH GRO	S 8015 D	62423	2010-08-21 at 17:00	72815	2010-08-22 at 11:05

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 10081710 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.

Samples were received on ice.

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: 241471 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	72813	Date Analyzed:	2010-08-22	Analyzed By:	AG
Prep Batch:	62423	Sample Preparation:	2010-08-21	Prepared By:	AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	[1]	0.906	mg/Kg	1	2.00	45	52.8 - 137
4-Bromofluorobenzene (4-BFB)		0.794	mg/Kg	1	2.00	40	38.4 - 157

Sample: 241471 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**5100**		mg/Kg	100	4.00

Sample: 241471 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	72812	Date Analyzed:	2010-08-20	Analyzed By:	kg
Prep Batch:	62428	Sample Preparation:	2010-08-20	Prepared By:	kg

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

[1] SPECIAL-TFT is out of control limits due to an unknown anomaly. However, 4-BFB is within control limits and shows the method to be in control.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[2]	202	mg/Kg	1	100	202	70 - 130

Sample: 241471 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	72815	Date Analyzed:	2010-08-22	Analyzed By:	AG
Prep Batch:	62423	Sample Preparation:	2010-08-21	Prepared By:	AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.01	mg/Kg	1	2.00	50	48.5 - 152
4-Bromofluorobenzene (4-BFB)		0.859	mg/Kg	1	2.00	43	42 - 159

Sample: 241472 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**938**	mg/Kg	100	4.00

Sample: 241473 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1160**	mg/Kg	100	4.00

[2] High surrogate recovery. Sample non-detect, result bias high.

Sample: 241474 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1370**	mg/Kg	100	4.00

Sample: 241475 - AH-1 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1090**	mg/Kg	100	4.00

Sample: 241476 - AH-1 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72833	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62442	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**459**	mg/Kg	50	4.00

Sample: 241477 - AH-1 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72834	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62443	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**462**	mg/Kg	50	4.00

Sample: 241478 - AH-1 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72834	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62443	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**441**	mg/Kg	50	4.00

Sample: 241479 - AH-1 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72834	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62443	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**275**	mg/Kg	50	4.00

Sample: 241480 - AH-1 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	72834	Date Analyzed:	2010-08-23	Analyzed By:	AR
Prep Batch:	62443	Sample Preparation:	2010-08-23	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1620**	mg/Kg	100	4.00

Method Blank (1) QC Batch: 72812

QC Batch:	72812	Date Analyzed:	2010-08-20	Analyzed By:	kg
Prep Batch:	62428	QC Preparation:	2010-08-20	Prepared By:	kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		98.6	mg/Kg	1	100	99	70 - 130

Method Blank (1) QC Batch: 72813

QC Batch: 72813 Date Analyzed: 2010-08-22 Analyzed By: AG
Prep Batch: 62423 QC Preparation: 2010-08-21 Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0150	mg/Kg	0.02
Toluene		<0.00950	mg/Kg	0.02
Ethylbenzene		<0.0106	mg/Kg	0.02
Xylene		<0.00930	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.32	mg/Kg	1	2.00	66	55.4 - 132

Method Blank (1) QC Batch: 72815

QC Batch: 72815 Date Analyzed: 2010-08-22 Analyzed By: AG
Prep Batch: 62423 QC Preparation: 2010-08-21 Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
GRO		<1.65	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.07	mg/Kg	1	2.00	104	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.43	mg/Kg	1	2.00	72	52.4 - 130

Method Blank (1) QC Batch: 72833

QC Batch: 72833 Date Analyzed: 2010-08-23 Analyzed By: AR
Prep Batch: 62442 QC Preparation: 2010-08-23 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 72834

QC Batch: 72834 | Date Analyzed: 2010-08-23 | Analyzed By: AR
Prep Batch: 62443 | QC Preparation: 2010-08-23 | Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch: 72812 | Date Analyzed: 2010-08-20 | Analyzed By: kg
Prep Batch: 62428 | QC Preparation: 2010-08-20 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	241	mg/Kg	1	250	<14.5	96	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	234	mg/Kg	1	250	<14.5	94	57.4 - 133.4	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	110	108	mg/Kg	1	100	110	108	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 72813 | Date Analyzed: 2010-08-22 | Analyzed By: AG
Prep Batch: 62423 | QC Preparation: 2010-08-21 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.98	mg/Kg	1	2.00	<0.0150	99	81.9 - 108
Toluene	1.87	mg/Kg	1	2.00	<0.00950	94	81.9 - 107
Ethylbenzene	1.69	mg/Kg	1	2.00	<0.0106	84	78.4 - 107
Xylene	5.09	mg/Kg	1	6.00	<0.00930	85	79.1 - 107

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.06	mg/Kg	1	2.00	<0.0150	103	81.9 - 108	4	20

continued ...

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene	1.95	mg/Kg	1	2.00	<0.00950	98	81.9 - 107	4	20
Ethylbenzene	1.81	mg/Kg	1	2.00	<0.0106	90	78.4 - 107	7	20
Xylene	5.43	mg/Kg	1	6.00	<0.00930	90	79.1 - 107	6	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)	1.66	1.61	mg/Kg	1	2.00	83	80	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.49	1.43	mg/Kg	1	2.00	74	72	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 72815 | Date Analyzed: 2010-08-22 | Analyzed By: AG
Prep Batch: 62423 | QC Preparation: 2010-08-21 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.3	mg/Kg	1	20.0	<1.65	72	69.9 - 95.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	14.2	mg/Kg	1	20.0	<1.65	71	69.9 - 95.4	1	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)	2.05	1.86	mg/Kg	1	2.00	102	93	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.64	1.51	mg/Kg	1	2.00	82	76	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 72833 | Date Analyzed: 2010-08-23 | Analyzed By: AR
Prep Batch: 62442 | QC Preparation: 2010-08-23 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.2	mg/Kg	1	100	<2.18	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	6	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: 72834 | Date Analyzed: 2010-08-23 | Analyzed By: AR
Prep Batch: 62443 | QC Preparation: 2010-08-23 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.5	mg/Kg	1	100	<2.18	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	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: 241463

QC Batch: 72812 | Date Analyzed: 2010-08-20 | Analyzed By: kg
Prep Batch: 62428 | QC Preparation: 2010-08-20 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	216	mg/Kg	1	250	<14.5	86	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	226	mg/Kg	1	250	<14.5	90	35.2 - 167.1	4	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	98.4	104	mg/Kg	1	100	98	104	70 - 130

Matrix Spike (MS-1) Spiked Sample: 241471

QC Batch: 72813 | Date Analyzed: 2010-08-22 | Analyzed By: AG
Prep Batch: 62423 | QC Preparation: 2010-08-21 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene [3]	2.38	mg/Kg	1	2.00	<0.0150	119	80.5 - 112
Toluene [4]	2.32	mg/Kg	1	2.00	<0.00950	116	82.4 - 113
Ethylbenzene	2.27	mg/Kg	1	2.00	<0.0106	114	83.9 - 114
Xylene	6.80	mg/Kg	1	6.00	<0.00930	113	84 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.16	mg/Kg	1	2.00	<0.0150	108	80.5 - 112	10	20
Toluene	2.13	mg/Kg	1	2.00	<0.00950	106	82.4 - 113	8	20
Ethylbenzene	2.10	mg/Kg	1	2.00	<0.0106	105	83.9 - 114	8	20
Xylene	6.31	mg/Kg	1	6.00	<0.00930	105	84 - 114	8	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)	1.68	1.43	mg/Kg	1	2	84	72	41.3 - 117
4-Bromofluorobenzene (4-BFB)	1.57	1.28	mg/Kg	1	2	78	64	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 241593

QC Batch: 72815 | Date Analyzed: 2010-08-22 | Analyzed By: AG
Prep Batch: 62423 | QC Preparation: 2010-08-21 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.6	mg/Kg	1	20.0	<1.65	83	61.8 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.4	mg/Kg	1	20.0	<1.65	82	61.8 - 114	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)	1.70	2.03	mg/Kg	1	2	85	102	50 - 162
4-Bromofluorobenzene (4-BFB)	1.54	1.80	mg/Kg	1	2	77	90	50 - 162

[3] Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
[4] Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Matrix Spike (MS-1) Spiked Sample: 241476

QC Batch: 72833 | Date Analyzed: 2010-08-23 | Analyzed By: AR
Prep Batch: 62442 | QC Preparation: 2010-08-23 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10600	mg/Kg	100	10000	459	101	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	11000	mg/Kg	100	10000	459	105	85 - 115	4	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: 241493

QC Batch: 72834 | Date Analyzed: 2010-08-23 | Analyzed By: AR
Prep Batch: 62443 | QC Preparation: 2010-08-23 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	17300	mg/Kg	100	10000	7060	102	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	17700	mg/Kg	100	10000	7060	106	85 - 115	2	20

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

Standard (CCV-1)

QC Batch: 72812 | Date Analyzed: 2010-08-20 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	223	89	80 - 120	2010-08-20

Standard (CCV-2)

QC Batch: 72812 | Date Analyzed: 2010-08-20 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	230	92	80 - 120	2010-08-20

Standard (CCV-1)

QC Batch: 72813 Date Analyzed: 2010-08-22 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.101	101	80 - 120	2010-08-22
Toluene		mg/Kg	0.100	0.0964	96	80 - 120	2010-08-22
Ethylbenzene		mg/Kg	0.100	0.0882	88	80 - 120	2010-08-22
Xylene		mg/Kg	0.300	0.266	89	80 - 120	2010-08-22

Standard (CCV-2)

QC Batch: 72813 Date Analyzed: 2010-08-22 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.105	105	80 - 120	2010-08-22
Toluene		mg/Kg	0.100	0.0994	99	80 - 120	2010-08-22
Ethylbenzene		mg/Kg	0.100	0.0915	92	80 - 120	2010-08-22
Xylene		mg/Kg	0.300	0.274	91	80 - 120	2010-08-22

Standard (CCV-1)

QC Batch: 72815 Date Analyzed: 2010-08-22 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.892	89	80 - 120	2010-08-22

Standard (CCV-2)

QC Batch: 72815 Date Analyzed: 2010-08-22 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.860	86	80 - 120	2010-08-22

Standard (ICV-1)

QC Batch: 72833 Date Analyzed: 2010-08-23 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2010-08-23

Standard (CCV-1)

QC Batch: 72833 Date Analyzed: 2010-08-23 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-08-23

Standard (ICV-1)

QC Batch: 72834 Date Analyzed: 2010-08-23 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-08-23

Standard (CCV-1)

QC Batch: 72834 Date Analyzed: 2010-08-23 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2010-08-23

Order #: 1008710

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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:	SITE MANAGER:
COG	Ike Tavarez

PROJECT NO.:	PROJECT NAME:
114-640526	COG / B.C. Fed #3 Lea Co, NM

LAB I.D. NUMBER	DATE 2010	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. 608/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
241471	8/16		S		X	AH-1 0-1'	1				X		X	X											X				
472						AH-1 1'-1.5'																							
473						AH-1 2'-2.5'																							
474						AH-1 3'-3.5'																							
476						AH-1 4'-4.5'																							
476						AH-1 5'-5.5'																							
477						AH-1 6'-6.5'																							
478						AH-1 7'-7.5'																							
479						AH-1 8'-8.5'																							
480						AH-1 9'-9.5'																							

RELINQUISHED BY: (Signature)	Date: 8/16/10 Time: 1700	RECEIVED BY: (Signature)	Date: 8/16/10 Time: 17:10
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RECEIVING LABORATORY: Trace		RECEIVED BY: (Signature)	
ADDRESS:			
CITY: Midland STATE: TX ZIP:			
CONTACT: PHONE:		DATE: TIME:	

SAMPLED BY: (Print & Initial) JT / RG Date: 8/16/10 Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 19.6°C Wet

REMARKS: If total TPH exceeds 1,000 mg/kg run deeper horizons

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

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

Report Date: November 19, 2010

Work Order: 10111515

Project Location: Lea County, NM
Project Name: COG/BC Fed. #3
Project Number: 114-6400526

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250497	SB-1 0-1'	soil	2010-11-11	00:00	2010-11-15
250498	SB-1 3'	soil	2010-11-11	00:00	2010-11-15
250499	SB-1 5'	soil	2010-11-11	00:00	2010-11-15
250500	SB-1 7'	soil	2010-11-11	00:00	2010-11-15
250501	SB-1 10'	soil	2010-11-11	00:00	2010-11-15
250502	SB-1 15'	soil	2010-11-11	00:00	2010-11-15
250503	SB-1 20'	soil	2010-11-11	00:00	2010-11-15
250504	SB-1 25'	soil	2010-11-11	00:00	2010-11-15

Sample: 250497 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**9320**	mg/Kg	4.00

Sample: 250498 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		**3820**	mg/Kg	4.00

Sample: 250499 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**703**	mg/Kg	4.00

Sample: 250500 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**326**	mg/Kg	4.00

Sample: 250501 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**482**	mg/Kg	4.00

Sample: 250502 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**231**	mg/Kg	4.00

Sample: 250503 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 250504 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		**231**	mg/Kg	4.00

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 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: November 19, 2010

Work Order: 10111515

Project Location: Lea County, NM
Project Name: COG/BC Fed. #3
Project Number: 114-6400526

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
250497	SB-1 0-1'	soil	2010-11-11	00:00	2010-11-15
250498	SB-1 3'	soil	2010-11-11	00:00	2010-11-15
250499	SB-1 5'	soil	2010-11-11	00:00	2010-11-15
250500	SB-1 7'	soil	2010-11-11	00:00	2010-11-15
250501	SB-1 10'	soil	2010-11-11	00:00	2010-11-15
250502	SB-1 15'	soil	2010-11-11	00:00	2010-11-15
250503	SB-1 20'	soil	2010-11-11	00:00	2010-11-15
250504	SB-1 25'	soil	2010-11-11	00:00	2010-11-15

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.

This report consists of a total of 7 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/BC Fed. #3 were received by TraceAnalysis, Inc. on 2010-11-15 and assigned to work order 10111515. Samples for work order 10111515 were received intact at a temperature of 3.0 C.

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	64661	2010-11-16 at 08:29	75453	2010-11-18 at 10:32

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 10111515 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: 250497 - SB-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**9320**	mg/Kg	100	4.00

Sample: 250498 - SB-1 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**3820**	mg/Kg	100	4.00

Sample: 250499 - SB-1 5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**703**	mg/Kg	50	4.00

Sample: 250500 - SB-1 7'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

continued ...

sample 250500 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**326**	mg/Kg	50	4.00

Sample: 250501 - SB-1 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**482**	mg/Kg	50	4.00

Sample: 250502 - SB-1 15'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**231**	mg/Kg	50	4.00

Sample: 250503 - SB-1 20'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

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

Sample: 250504 - SB-1 25'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	Sample Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**231**	mg/Kg	50	4.00

Method Blank (1) QC Batch: 75453

QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	QC Preparation:	2010-11-16	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	QC Preparation:	2010-11-16	Prepared By:	AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.0	mg/Kg	1	100	<2.18	97	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	4	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: 250504

QC Batch:	75453	Date Analyzed:	2010-11-18	Analyzed By:	AR
Prep Batch:	64661	QC Preparation:	2010-11-16	Prepared By:	AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10000	mg/Kg	100	10000	231	98	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10300	mg/Kg	100	10000	231	101	85 - 115	3	20

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

Standard (ICV-1)

QC Batch: 75453 Date Analyzed: 2010-11-18 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.9	99	85 - 115	2010-11-18

Standard (CCV-1)

QC Batch: 75453 Date Analyzed: 2010-11-18 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-11-18

& WO #: 1011576

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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.: 114-6400526

PROJECT NAME: COG / BC Federal #3
Lea Co., NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
230497	11/11		S		X	SB-1 0-1'	1				X	
498						SB-1 3'	1				X	
499						SB-1 5'	1				X	
500						SB-1 7'	1				X	
501						SB-1 10'	1				X	
502						SB-1 15'	1				X	
503						SB-1 20'	1				X	
504						SB-1 25'	1				X	

ANALYSIS REQUEST (Circle or Specify Method No.)

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. 809/606	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				
												X				
												X				
												X				
												X				
												X				
												X				

RELINQUISHED BY: (Signature) — Date: 11/15/10 Time: 1240
RECEIVED BY: (Signature) — Date: Time:
SAMPLED BY: (Print & Initial) Kim — Date: 11/11/10 Time:

RELINQUISHED BY: (Signature) — Date: Time:
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:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 11-15-10 TIME: 12:40
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.0°C intact

REMARKS: ALL tests Midland

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