SITE INFORMATION

Report Type: Closure Report

General Site Information:						
Site:	Showstopper 7 Federal COM #1H					
Company:	COG Operating LLC					
Section, Township and Range	Unit A	Sec 7	T25S	R29E		
Lease Number:	API-30-015-36659					
County:	Eddy County					
GPS:	32.15077° N			104.01644° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	South of Malaga at the intersection of Hwy 285 and Longhorn Rd., travel east on Longhorn Rd. for 4.2 miles, turn left (northeast) and travel for 1.8 miles, turn left (northwest) and travel for 0.2 mile stay to the right and travel for 2 miles, stay left and travel for 1.2 miles, turn left (northwest) and travel for 2.1 miles, turn left (west) and travel 0.3 miles, stay right and travel 0.9 miles, turn left (south) and travel 0.2 miles to site.					

Release Data:	
Date Released:	4/15/2013
Type Release:	Oil and Produced Water
Source of Contamination:	Well Packing
Fluid Released:	3 bbls oil 15 bbls water
Fluids Recovered:	2 bbls oil 12 bbls water

Official Communication:			
Name:	Robert Mc Neill		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Suite 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	rmcneill@concho.com		ike.tavarez@tetratech.com

Ranking Criteria:

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

Acceptable Soil RRAL (mg/kg)		
Benzene	*Total BTEX*	*TPH*
10	50	1,000

TETRA TECH

October 24, 2013

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

Re: Closure Report for the COG Operating LLC., Showstopper 7 Federal COM #1H, Unit A, Section 7, Township 25 South, Range 29 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 Showstopper 7 Federal COM #1H site located in Unit A, Section 7, Township 25 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.15077°, W 104.01644°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on April 15, 2013, and released approximately three (3) barrels of oil and fifteen (15) barrels of produced water from the packing on the wellhead. To alleviate the problem, COG personnel replaced the packing. Two (2) barrels of standing oil and twelve barrels of standing produced water were recovered. The spill initiated on the well pad affecting an area approximately 35' x 50', 65' X 200' and 20' x 185'. The final C-141 form is enclosed in Appendix A.

Groundwater

According to the Geology and Groundwater Resources of Eddy County, New Mexico (Report 3), the Rustler and Castile formation (Ochoa Series) is present west and east of the Pecos River. The Salado formation overlies the Castile formation east of the Pecos River and was removed by solution west of the river. The Rustler and Castile formations consist of anhydrite, gypsum, interbedded sandy clay and beds of dolomite. Groundwater from the Castile and Rustler formations west of the Pecos River is historically high in chloride and sulfate concentrations which increase towards the river.

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

According to the USGS, no water wells are listed in Section 7. One water well is reported in Section 6, with a depth to groundwater of 40.0' bgs. According to the NMOCD groundwater map the reported depth to groundwater in this area is approximately between 50.0' and 75.0' below surface. The groundwater data is shown in Appendix B.

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 1,000 mg/kg.

Soil Assessment and Analytical Results

On May 30, 2013, Tetra Tech personnel inspected and sampled the spill area. Ten (10) auger holes (AH-1 through AH-10) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, AH-8 and AH-10 exceeded the TPH RRAL and was not vertically defined. None of the auger holes exceeded the regulatory limits for Benzene or Total BTEX. Elevated chloride concentrations were detected in auger holes (AH-1, AH-4, AH-7, AH-8, AH-9 and AH-10) with chloride highs of 4,240 mg/kg at 1.0', 3,600 mg/kg at 1.0', 5,710 mg/kg at 1.0', 2,300 mg/kg at 1.0', 17,900 mg/kg at 1.0' and 3,850 mg/kg at 1.0', respectively. None of the auger holes were vertically defined.

Site Remediation and Conclusion

From August 22 through 29, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. In order to remove the chloride and TPH impacted soils, the area was excavated to a depth of 2.0' to 3.0' below grade. To define the extents, backhoe trenches were installed in some of the impacted area to define extents. In addition, a background trench was installed to evaluate the chlorides. Once excavated, Tetra Tech collected confirmation samples from the excavations. The confirmation sample results are shown in Table 1. The excavated areas are highlighted in Table 1 and shown on Figure 4.

TETRA TECH

Referring to Table 1, the east sidewalls showed elevated chlorides concentrations of 2,080 mg/kg (AH-1) and 5,850 mg/kg (AH-4) and additional excavation could not be completed due to the tank battery facility. In addition, the area of AH-4 (west sidewall) also showed a chloride of 2,480 mg/kg, however, a underground line was present in the west area. The areas of AH-4 and AH-7 did show a slight chloride concentrations in the bottom hole samples (approximately 2,000 mg/kg), as compared to the field chloride data.

Based on the background sampling data, a chloride high of 814 mg/kg was detected at 4.0' below surface. Deeper samples were not collected due to the dense formation. Some of the soils surrounding Malaga area have shown natural fluctuating chloride in the subsurface soils.

Based on the field data, BLM approved the backfilling of the excavations. The excavation was backfilled with clean material to surface grade. Approximately 860 cubic yards of soil were removed and transported to the R360 facility for proper disposal.

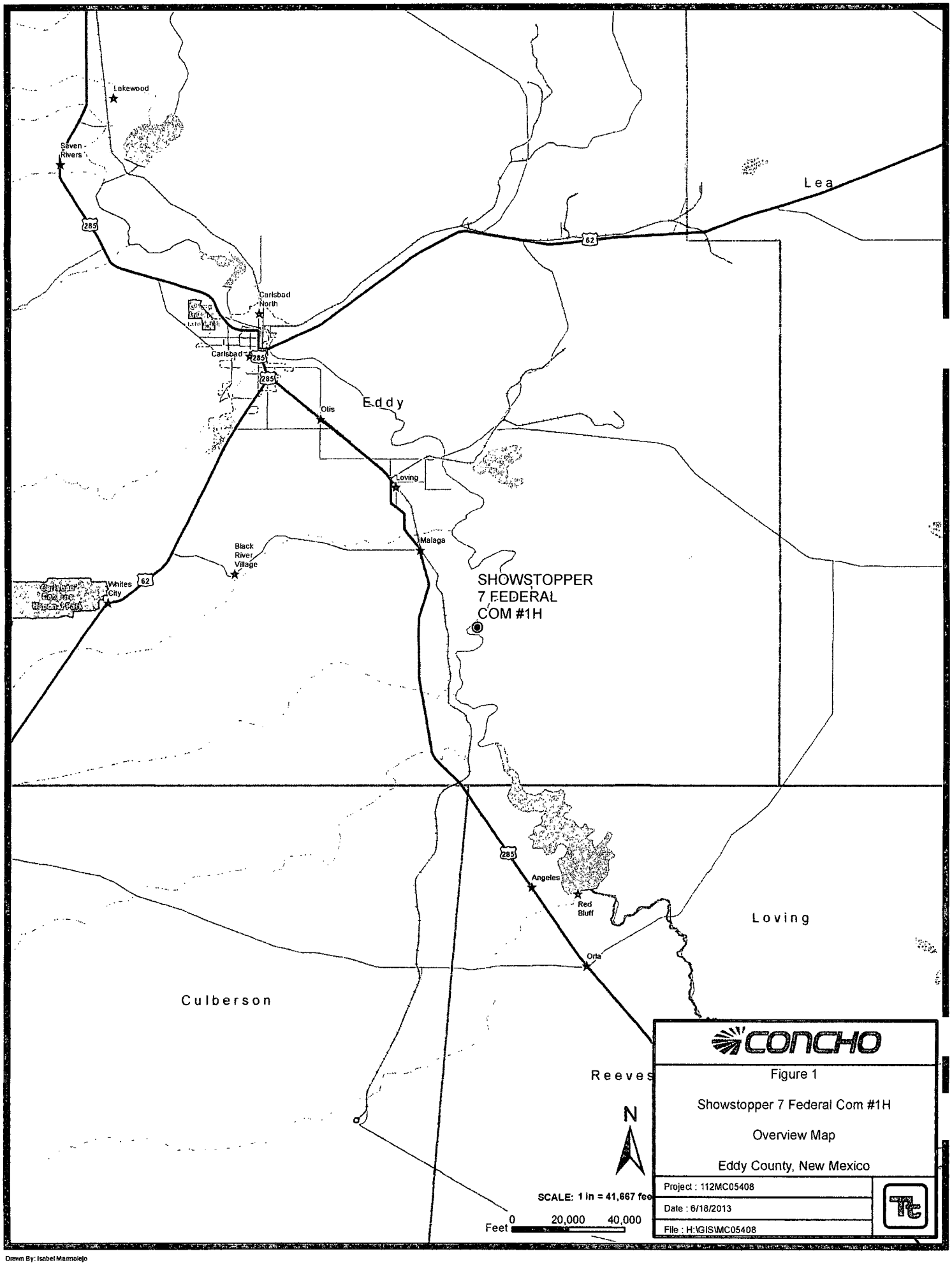
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

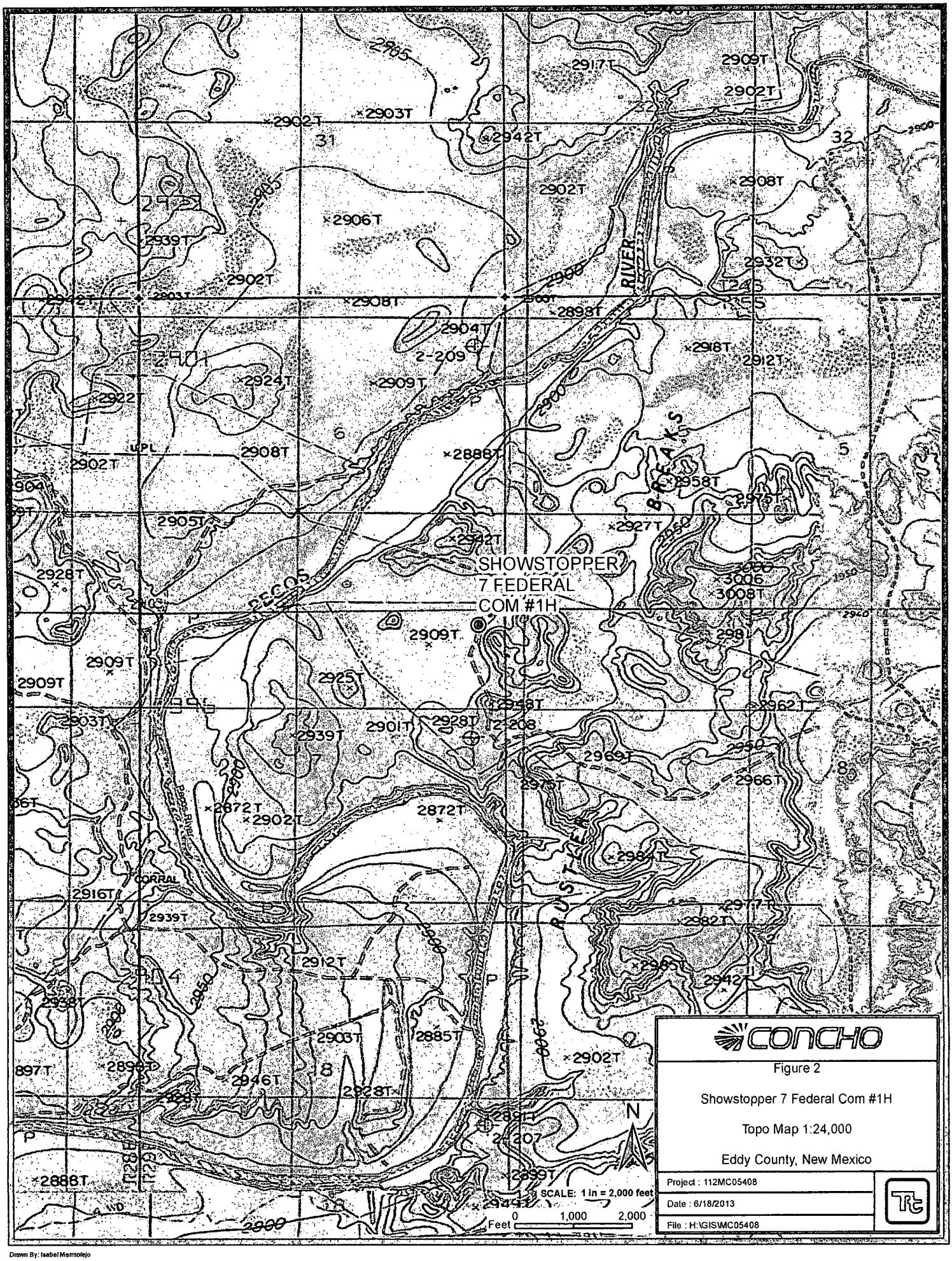
Ike Tavarez, PG
Senior Project Manager

cc: Robert McNeill – COG
Mike Burton – BLM
Jennifer Van Curen - BLM

Figures



Drawn By: Isabel Mamolejo



CONCHO

Figure 2

Showstopper 7 Federal Com #1H

Topo Map 1:24,000

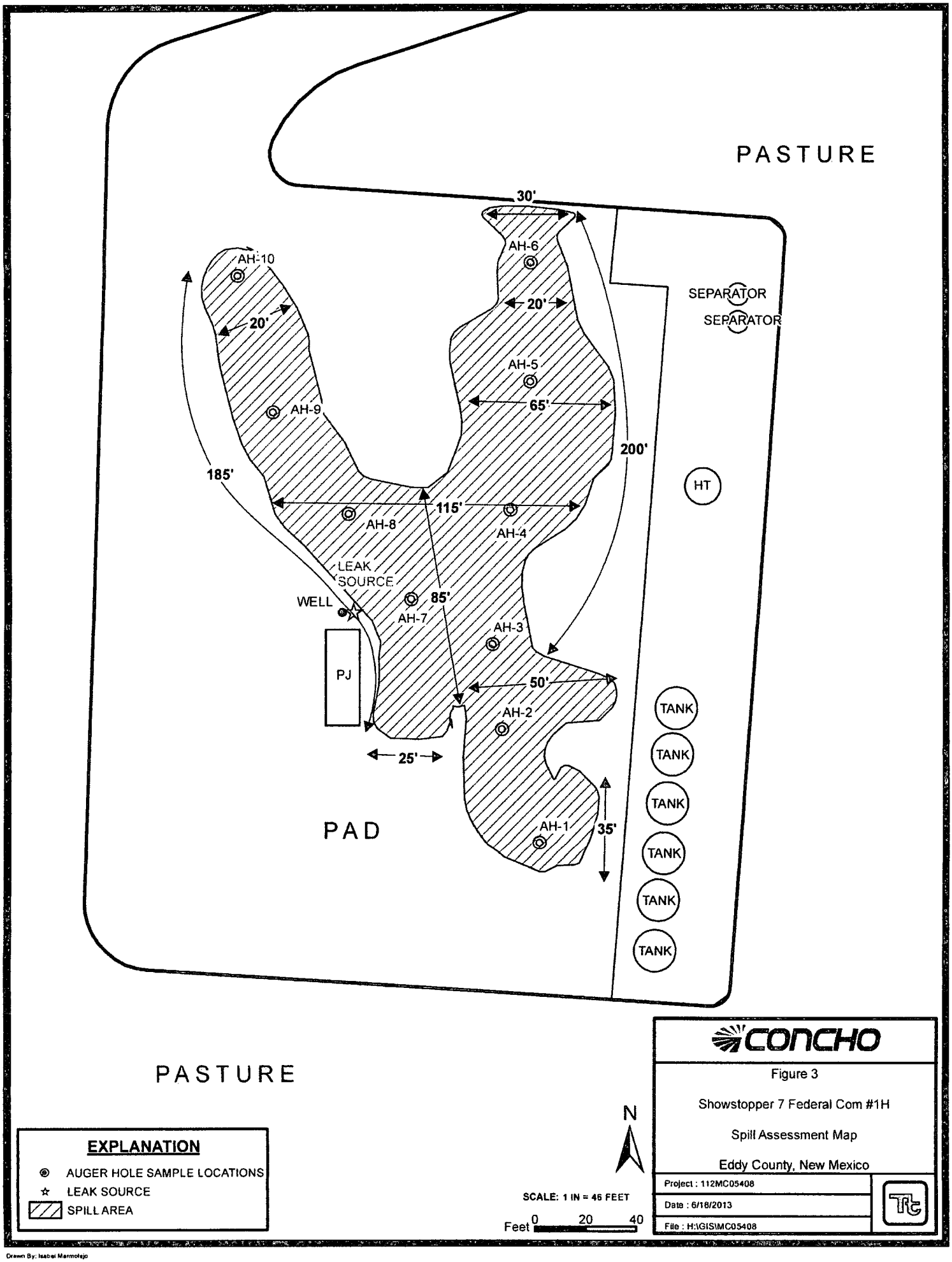
Eddy County, New Mexico

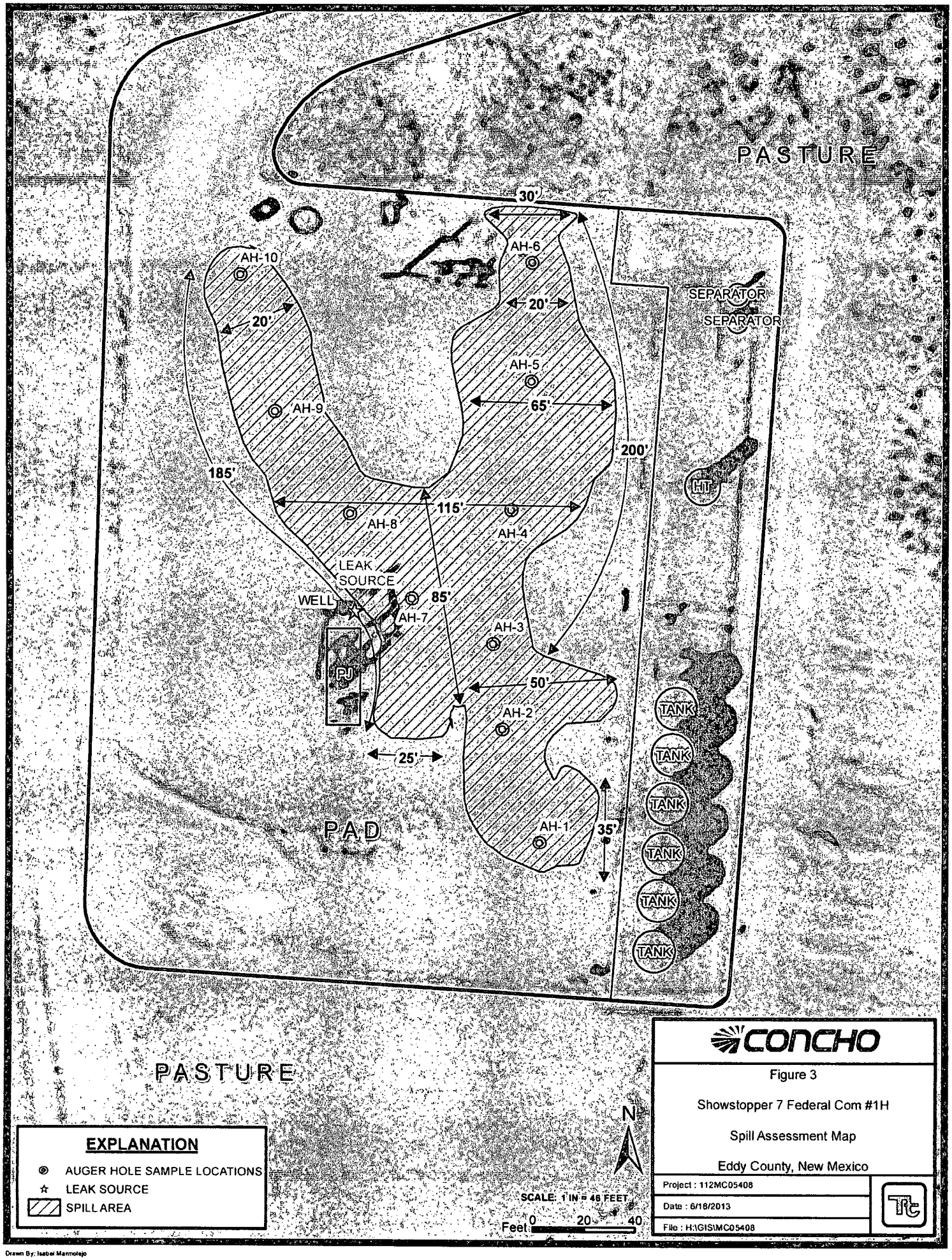
Project : 112MC05408

Date : 6/18/2013

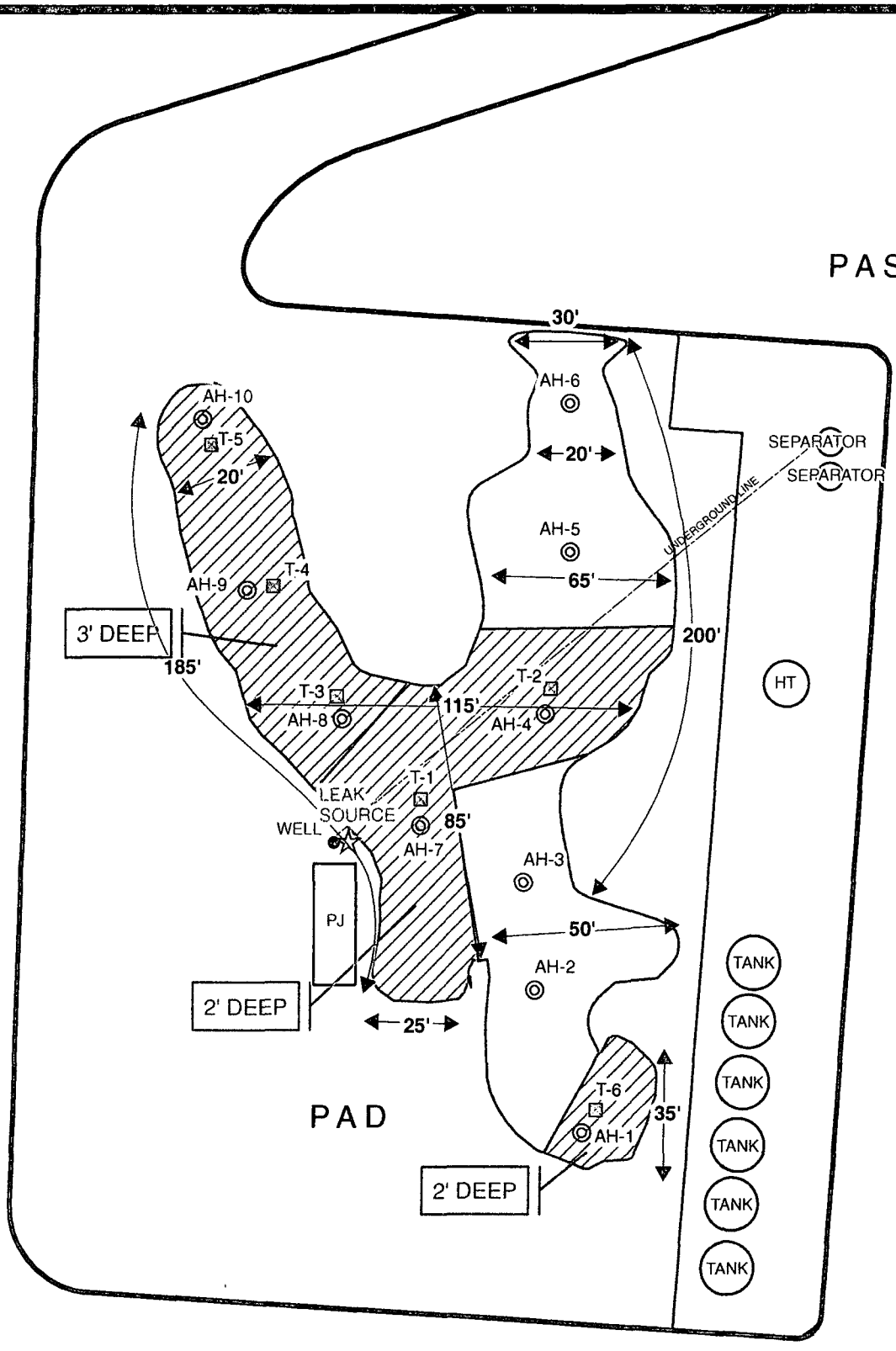
File : H:\GIS\MC05408

Drawn By: Isabel Marmolejo


PASTURE
30'
AH-6
AH-10
20'
20'
SEPARATOR
SEPARATOR
AH-5
AH-9
65'
200'
185'
HT
115'
AH-8
AH-4
LEAK SOURCE
WELL
85'
AH-7
AH-3
PJ
50'
AH-2
25'
TANK
TANK
TANK
TANK
TANK
TANK
PAD
AH-1
35'
PASTURE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
LEAK SOURCE
SPILL AREA
N
SCALE: 1 IN = 46 FEET
Feet 0 20 40
CONCHO
Figure 3
Showstopper 7 Federal Com #1H
Spill Assessment Map
Eddy County, New Mexico
Project : 112MC05408
Date : 6/18/2013
File : H:\GIS\MC05408
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- LEAK SOURCE
- EXCAVATED AREAS

N

SCALE: 1 IN = 50 FEET

Feet 0 20 40

CONCHO

Figure 4

Showstopper 7 Federal Com #1H

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC05408	
Date : 10/24/2013	
File : H:\GIS\MC05408	

Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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	5/30/2013	0-1	0		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,240
	"	1-1.5	"		X	-	-	-	-	-	-	-	-	2,360
	"	2-2.5	"		X	-	-	-	-	-	-	-	-	2,490
T-6	8/27/2013	0	0		X	-	-	-	-	-	-	-	-	7,870
	"	2	2		X	-	-	-	-	-	-	-	-	2,050
	"	4	"	X		-	-	-	-	-	-	-	-	2,040
	"	6	"	X		-	-	-	-	-	-	-	-	1,470
	"	8	"	X		-	-	-	-	-	-	-	-	896
	"	10	"	X		-	-	-	-	-	-	-	-	1,200
	8/27/2013	North SW	-	X		-	-	-	-	-	-	-	-	2,400
	"	South SW	-	X		-	-	-	-	-	-	-	-	1,860
	"	East SW	-	X		-	-	-	-	-	-	-	-	2,080
	"	West SW	-	X		-	-	-	-	-	-	-	-	1,190
	"	Bottom hole	2	X		-	-	-	-	-	-	-	-	1,060
AH-2	5/30/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	667
AH-3	5/30/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	493

Table 1
COG Operating LLC.
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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-4	5/30/2013	0-1	0		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,600
T-2	8/27/2013	0	0		X	-	-	-	-	-	-	-	-	1,960
	"	2	2		X									2,190
	"	4	"	X		-	-	-	-	-	-	-	-	1,840
	"	6	"	X		-	-	-	-	-	-	-	-	1,410
	"	8	"	X		-	-	-	-	-	-	-	-	1,520
	"	10	"	X		-	-	-	-	-	-	-	-	1,830
	8/27/2013	North SW	-	X		-	-	-	-	-	-	-	-	1,850
	"	South SW	-	X		-	-	-	-	-	-	-	-	1,230
	"	East SW	-	X		-	-	-	-	-	-	-	-	5,850
	"	West SW	-	X		-	-	-	-	-	-	-	-	2,480
AH-5	5/30/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	599
AH-6	5/30/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	629

Table 1
COG Operating LLC.
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom 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-7	5/30/2013	0-1	0		X	<8.00	63.8	63.8	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,710
T-1	8/27/2013	0	0		X	-								7,800
	"	2	2		X	-	-			-	-			2,170
	8/27/2013	North SW	-		X	-	-	-	-	-	-	-	-	1,080
	"	South SW	-		X	-	-	-	-	-	-	-	-	2,260
	"	Bottom hole	2		X	-	-	-	-	-	-	-	-	2,270
AH-8	5/30/2013	0-1	0		X	198	4,540	4,738	<0.0400	<0.0400	0.292	1.51	1.80	2,300
T-3	8/27/2013	2	3		X	-	-	-	-					3,980
	"	4	"	X		-	-	-	-	-	-	-	-	729
	"	8	"	X		-	-	-	-	-	-	-	-	803
	8/27/2013	East SW	-		X	-	-	-	-	-	-	-	-	1,470
	"	North SW	-		X	-	-	-	-	-	-	-	-	597
	"	West SW	-		X	-	-	-	-	-	-	-	-	604
	"	South SW	-		X	-	-	-	-	-	-	-	-	706
	"	Bottom hole	3		X	<10.0	<10.0	<10.0	-	-	-	-	-	624

Table 1
COG Operating LLC.
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

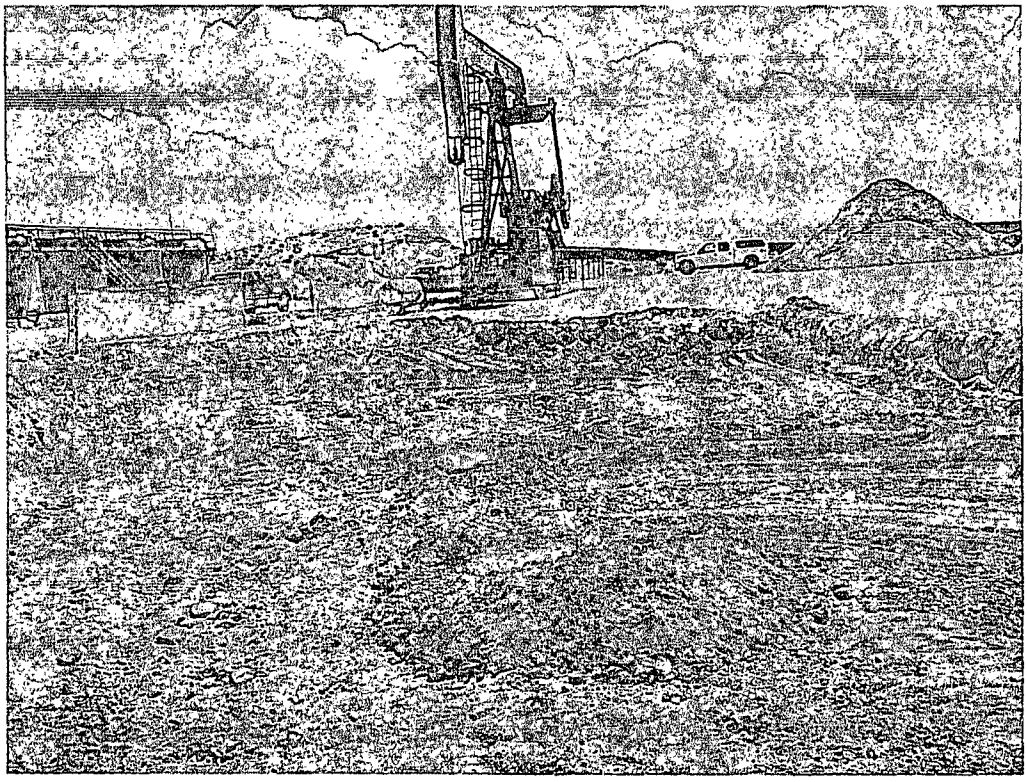
Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-9	5/30/2013	0-1	0		X	<4.00	99.7	99.7	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	17,900
T-4	8/27/2013	2	3		X	-	-	-	-	-	-	-	-	5,380
	"	4	"	X		-	-	-	-	-	-	-	-	1,160
	"	6	"	X		-	-	-	-	-	-	-	-	282
	"	8	"	X		-	-	-	-	-	-	-	-	215
	8/27/2013	Bottom hole	3		X	-	-	-	-	-	-	-	-	49.0
AH-10	5/30/2013	0-1	0		X	91.7	1,560	1,652	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	3,850
T-5	8/27/2013	2	3		X	-	-	-	-	-	-	-	-	2,640
	"	4	"	X		-	-	-	-	-	-	-	-	430
	"	6	"	X		-	-	-	-	-	-	-	-	239
	"	8	"	X		-	-	-	-	-	-	-	-	23.9
	8/28/2013	Bottom hole	3		X	<10.0	<10.0	<10.0	-	-	-	-	-	1,500
T-7 (BG)	8/27/2013	0	0	X		-	-	-	-	-	-	-	-	<20.0
Background	"	2	"	X		-	-	-	-	-	-	-	-	771
	"	4	"	X		-	-	-	-	-	-	-	-	814

(-) Not Analyzed
(BEB) Below Excavation Bottom
SW Sidewall
Excavation Depths

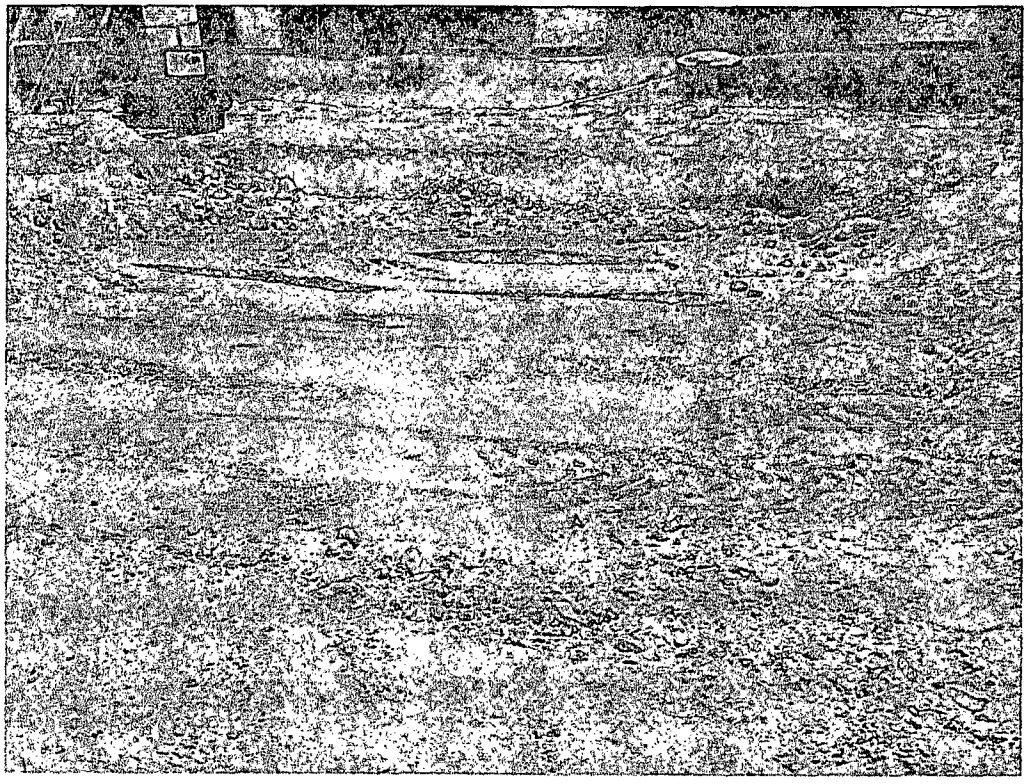
Photos

COG Operating LLC
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

TETRA TECH



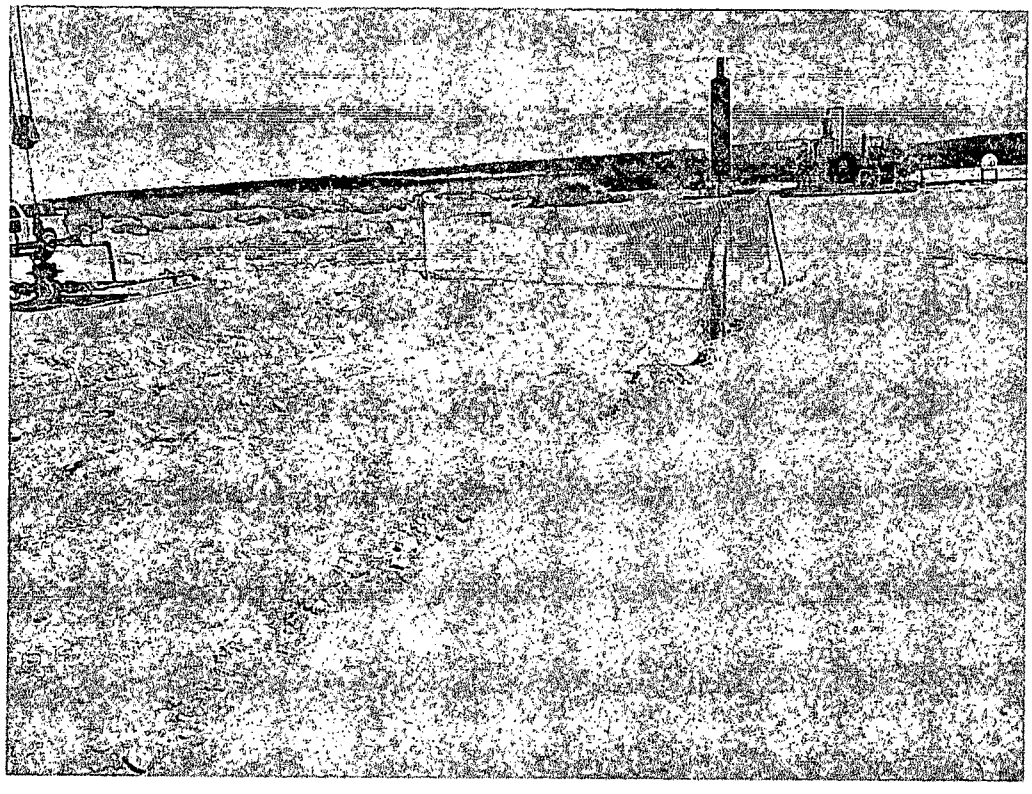
View Southwest – Excavation Area and Soil Stockpile



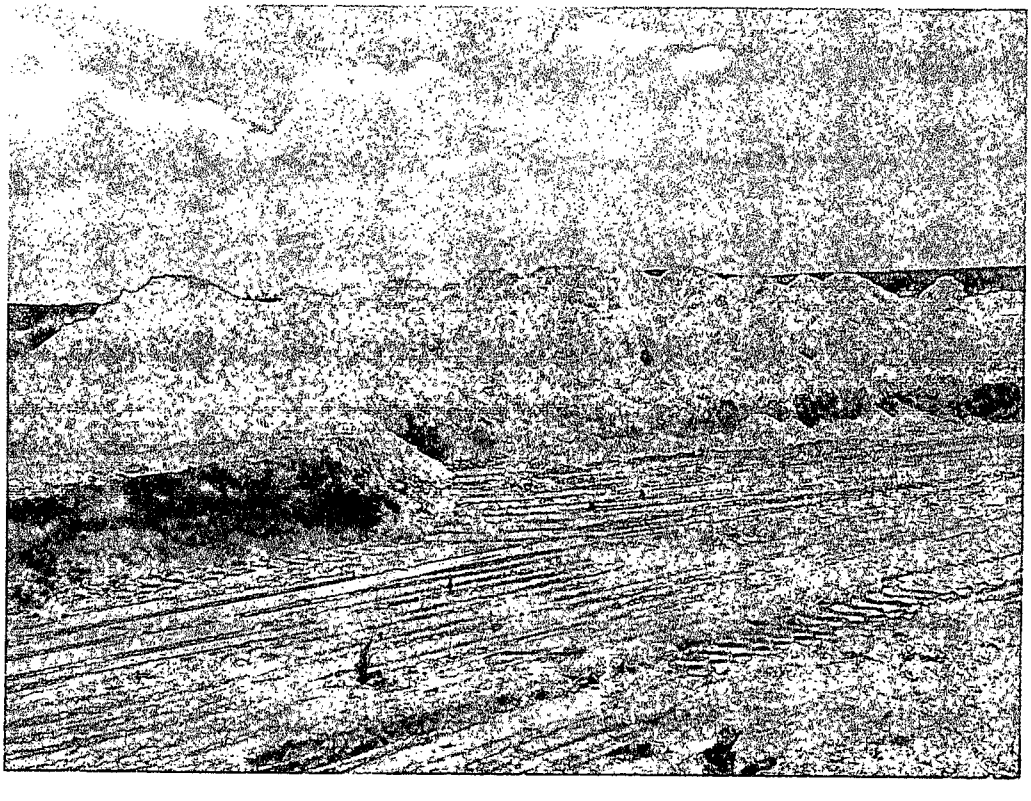
View East – Excavation Area of AH-1

COG Operating LLC
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

TETRA TECH



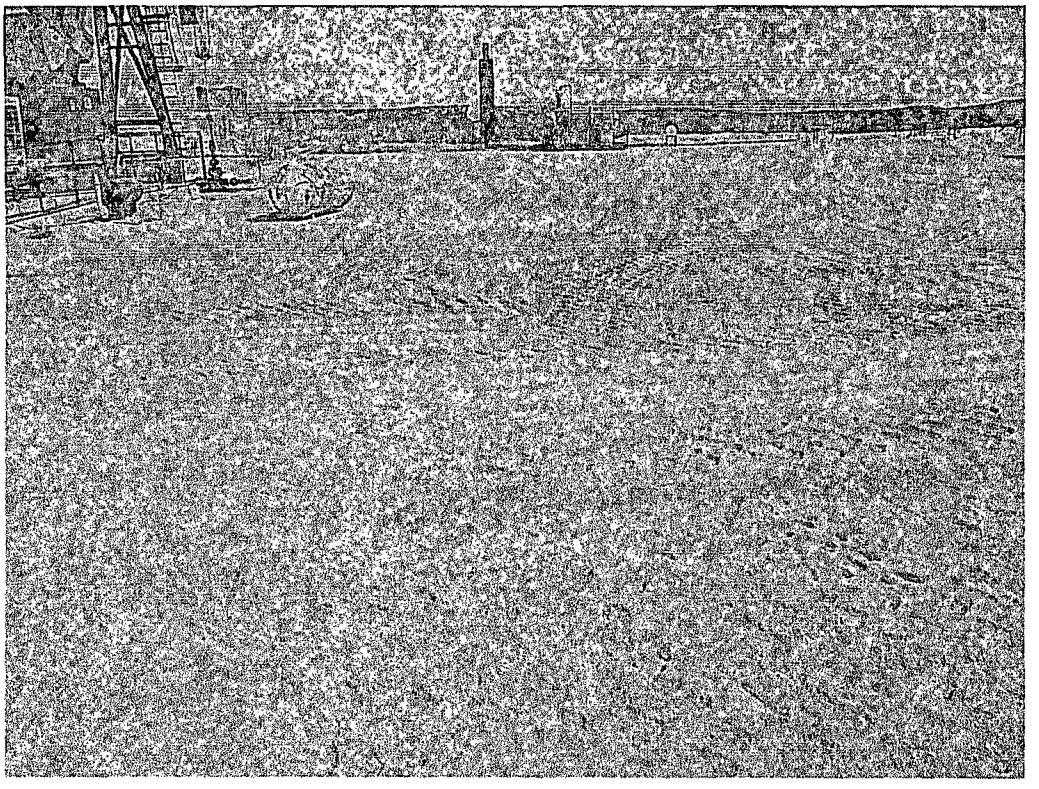
View Northwest – Well and Excavation Area of AH-8, 9 and 10



View West – Excavation Area and Soil Stockpile

COG Operating LLC
Showstopper 7 Federal COM #1H
Eddy County, New Mexico

TETRA TECH



View North – Well and Backfilled Excavation

View Northeast – Backfilled Excavation

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	SHOWSTOPPER 7 FEDERAL COM #001H	Facility Type	WELL PAD

Surface Owner FEDERAL	Mineral Owner	Lease No. (API#) 30-015-36659

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	07	25S	29E					EDDY

Latitude 32.15112 **Longitude** 104.01676

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 3bbls oil 15bbls produced water	Volume Recovered 2bbls oil 12bbls produced water
Source of Release Well packing	Date and Hour of Occurrence 04-15-2013	Date and Hour of Discovery 04-15-2013 6:45am
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.*

Well packing failed due to high flowline pressure caused by a compressor shutting down. We have replaced the well packing.

Describe Area Affected and Cleanup Action Taken.*

Initially 3bbls of oil and 15bbls of produced water were released due to high pressure in flowline causing the packing to fail. We were able to recover 2bbls of oil and 12bbls produced water with a vacuum truck. The spill was completely contained on location. All free fluid has been recovered. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a 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: Robert Grubbs Jr.	Approved by District Supervisor:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: rgrubbs@concho.com	Conditions of Approval:	Attached ☐
Date: 04-29-2013 Phone: 432-661-6601		

* Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	**COG Operating LLC**	Contact	**Pat Ellis**
Address	**600 West Illinois Avenue, Midland, Texas 79701**	Telephone No.	**(432) 230-0077**
Facility Name	**Showstopper 7 Federal COM #001H**	Facility Type	**Well Pad**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-36659

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	07	25S	29E					Eddy

Latitude 32.15112 **Longitude** 104.01676

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 3 bbls oil 15 bbls produced water	Volume Recovered 2 bbls oil 12 bbls produced water
Source of Release: Well Packing	Date and Hour of Occurrence 04-15-2013	Date and Hour of Discovery 04-15-2013 6:45 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.*

Well packing failed due to high flowline pressure caused by a compressor shutting down. The well packing was replaced.

Describe Area Affected and Cleanup Action Taken.*

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

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (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: 10-24-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Showstopper 7 Federal COM #1H
Eddy County, New Mexico

24 South 28 East

6 **70**	5 **30**	4 **30**	3	2 **55**	1 **60**
7	8 **60**	9	10 **17**	11 **20**	12 **73**
18	17 **42**	16 **29**	15 **18**	14 **52**	13 **34**
19	20 **48**	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 29 East

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

24 South 30 East

6	5	4	3	2	1
7	8 **186**	9	10	11	12
18	17	16	15	14	13
19 **231** **150**	20	21	22	23 **400**	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 28 East

6	5 **69**	4 **35**	3 **32**	2	1
7	8	9	10	11	12
18 **67**	17	16	15 **48** **49**	14	13
19	20 **96**	21	22	23	24
30	29 **15**	28 **90**	27	26 **30**	25
31	32	33	34	35	36 **40**

25 South 29 East

6 **40**	5	4	3	2	1
7 SITE	8	9	10 **40**	11	12
18	17	16	15 **60**	14	13
19	20	21	22	23	24
30 **30**	29	28	27	26	25
31	32 **115**	33	34	35	36

25 South 30 East

6	5	4	3	2 **295**	1
7 **264**	8	9 **295**	10	11	12 **390**
18	17	16	15	14	13
19	20	21 **265** **268**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 28 East

6	5	4	3	2 **120** **21**	1
7	8	9	10	11	12 **100**
18	17	16	15	14 **120**	13 **56**
19	20	21	22 **120**	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 **125**	15	14	13
19	20	21	22 **57** **69**	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 30 East

6	5 **179** **180**	4	3	2	1
7	8 **172**	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24 **180**
30	29	28	27	26	25
31	32	33	34	35	36

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

Appendix C

Summary Report

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

Report Date: June 11, 2013

Work Order: 13060318

Project Location: Eddy Co., NM
Project Name: COG/Showstopper 7 Fed. #1
Project Number: 112MC05408

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
330830	AH-1 0-1'	soil	2013-05-30	00:00	2013-05-31
330831	AH-1 1-1.5'	soil	2013-05-30	00:00	2013-05-31
330832	AH-1 2-2.5'	soil	2013-05-30	00:00	2013-05-31
330833	AH-2 0-1'	soil	2013-05-30	00:00	2013-05-31
330834	AH-3 0-1'	soil	2013-05-30	00:00	2013-05-31
330835	AH-4 0-1'	soil	2013-05-30	00:00	2013-05-31
330836	AH-5 0-1'	soil	2013-05-30	00:00	2013-05-31
330837	AH-6 0-1'	soil	2013-05-30	00:00	2013-05-31
330838	AH-7 0-1'	soil	2013-05-30	00:00	2013-05-31
330839	AH-8 0-1'	soil	2013-05-30	00:00	2013-05-31
330840	AH-9 0-1'	soil	2013-05-30	00:00	2013-05-31
330841	AH-10 0-1'	soil	2013-05-30	00:00	2013-05-31

	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)
330830 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330833 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330834 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330835 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330836 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330837 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
330838 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**63.8**	<8.00
330839 - AH-8 0-1'	<0.0400 [1]	<0.0400	**0.292**	**1.51**	**4540**	**198**
330840 - AH-9 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**99.7**	<4.00
330841 - AH-10 0-1'	<0.0400 [2]	<0.0400	<0.0400	<0.0400	**1560**	**91.7**

[1]Dilution due to hydrocarbons.
[2]Dilution due to hydrocarbons.

Sample: 330830 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**4240**	mg/Kg	4

Sample: 330831 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2360**	mg/Kg	4

Sample: 330832 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2490**	mg/Kg	4

Sample: 330833 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**667**	mg/Kg	4

Sample: 330834 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**493**	mg/Kg	4

Sample: 330835 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**3600**	mg/Kg	4

Sample: 330836 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**599**	mg/Kg	4

Sample: 330837 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**629**	mg/Kg	4

Sample: 330838 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**5710**	mg/Kg	4

Sample: 330839 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**2300**	mg/Kg	4

Sample: 330840 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		**17900**	mg/Kg	4

Sample: 330841 - AH-10 0-1'

Param	Flag	Result	Units	RL
Chloride		**3850**	mg/Kg	4

Summary Report

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

Report Date: September 20, 2013

Work Order: 13090631

Project Location: Eddy Co., NM
Project Name: COG/Showstopper 7 Fed. #1
Project Number: 112MC05408

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341356	T-1 (AH-7) 0'	soil	2013-08-27	00:00	2013-09-06
341357	T-1 (AH-7) 2'	soil	2013-08-27	00:00	2013-09-06
341358	T-2 (AH-4) 0'	soil	2013-08-27	00:00	2013-09-06
341359	T-2 (AH-4) 2'	soil	2013-08-27	00:00	2013-09-06
341360	T-2 (AH-4) 4'	soil	2013-08-27	00:00	2013-09-06
341361	T-2 (AH-4) 6'	soil	2013-08-27	00:00	2013-09-06
341362	T-2 (AH-4) 8'	soil	2013-08-27	00:00	2013-09-06
341363	T-2 (AH-4) 10'	soil	2013-08-27	00:00	2013-09-06
341364	T-3 (AH-8) 2'	soil	2013-08-27	00:00	2013-09-06
341365	T-3 (AH-8) 4'	soil	2013-08-27	00:00	2013-09-06
341366	T-3 (AH-8) 8'	soil	2013-08-27	00:00	2013-09-06
341367	T-4 (AH-9) 2'	soil	2013-08-27	00:00	2013-09-06
341368	T-4 (AH-9) 4'	soil	2013-08-27	00:00	2013-09-06
341369	T-4 (AH-9) 6'	soil	2013-08-27	00:00	2013-09-06
341370	T-4 (AH-9) 8'	soil	2013-08-27	00:00	2013-09-06
341371	T-5 (AH-10) 2'	soil	2013-08-27	00:00	2013-09-06
341372	T-5 (AH-10) 4'	soil	2013-08-27	00:00	2013-09-06
341373	T-5 (AH-10) 6'	soil	2013-08-27	00:00	2013-09-06
341374	T-5 (AH-10) 8'	soil	2013-08-27	00:00	2013-09-06
341375	T-6 (AH-1) 0'	soil	2013-08-27	00:00	2013-09-06
341376	T-6 (AH-1) 2'	soil	2013-08-27	00:00	2013-09-06
341377	T-6 (AH-1) 4'	soil	2013-08-27	00:00	2013-09-06
341378	T-6 (AH-1) 6'	soil	2013-08-27	00:00	2013-09-06
341379	T-6 (AH-1) 8'	soil	2013-08-27	00:00	2013-09-06
341380	T-6 (AH-1) 10'	soil	2013-08-27	00:00	2013-09-06
341381	T-7 (BG) 0'	soil	2013-08-27	00:00	2013-09-06
341382	T-7 (BG) 2'	soil	2013-08-27	00:00	2013-09-06
341383	T-7 (BG) 4'	soil	2013-08-27	00:00	2013-09-06
341384	AH-8 ESW	soil	2013-08-27	00:00	2013-09-06
341385	AH-8 NSW	soil	2013-08-27	00:00	2013-09-06

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341386	AH-8 WSW	soil	2013-08-27	00:00	2013-09-06
341387	AH-8 SSW	soil	2013-08-27	00:00	2013-09-06
341388	AH-4 NSW	soil	2013-08-27	00:00	2013-09-06
341389	AH-4 SSW	soil	2013-08-27	00:00	2013-09-06
341390	AH-4 ESW	soil	2013-08-27	00:00	2013-09-06
341391	AH-4 WSW	soil	2013-08-27	00:00	2013-09-06
341392	AH-1 NSW	soil	2013-08-27	00:00	2013-09-06
341393	AH-1 SSW	soil	2013-08-27	00:00	2013-09-06
341394	AH-1 ESW	soil	2013-08-27	00:00	2013-09-06
341395	AH-1 WSW	soil	2013-08-27	00:00	2013-09-06
341396	AH-1 BH 2'	soil	2013-08-27	00:00	2013-09-06
341397	AH-7 NSW	soil	2013-08-27	00:00	2013-09-06
341398	AH-7 SSW	soil	2013-08-27	00:00	2013-09-06
341399	AH-7 BH	soil	2013-08-27	00:00	2013-09-06
341400	AH-9 BH 3'	soil	2013-08-27	00:00	2013-09-06

Sample: 341356 - T-1 (AH-7) 0'

Param	Flag	Result	Units	RL
Chloride		**7800**	mg/Kg	4

Sample: 341357 - T-1 (AH-7) 2'

Param	Flag	Result	Units	RL
Chloride		**2170**	mg/Kg	4

Sample: 341358 - T-2 (AH-4) 0'

Param	Flag	Result	Units	RL
Chloride		**1960**	mg/Kg	4

Sample: 341359 - T-2 (AH-4) 2'

Param	Flag	Result	Units	RL
Chloride		**2190**	mg/Kg	4

Sample: 341360 - T-2 (AH-4) 4'

continued ...

sample 341360 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**1840**	mg/Kg	4

Sample: 341361 - T-2 (AH-4) 6'

Param	Flag	Result	Units	RL
Chloride		**1410**	mg/Kg	4

Sample: 341362 - T-2 (AH-4) 8'

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

Sample: 341363 - T-2 (AH-4) 10'

Param	Flag	Result	Units	RL
Chloride		**1830**	mg/Kg	4

Sample: 341364 - T-3 (AH-8) 2'

Param	Flag	Result	Units	RL
Chloride		**3980**	mg/Kg	4

Sample: 341365 - T-3 (AH-8) 4'

Param	Flag	Result	Units	RL
Chloride		**729**	mg/Kg	4

Sample: 341366 - T-3 (AH-8) 8'

Param	Flag	Result	Units	RL
Chloride		**803**	mg/Kg	4

Sample: 341367 - T-4 (AH-9) 2'

Param	Flag	Result	Units	RL
Chloride		**5380**	mg/Kg	4

Sample: 341368 - T-4 (AH-9) 4'

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

Sample: 341369 - T-4 (AH-9) 6'

Param	Flag	Result	Units	RL
Chloride		**282**	mg/Kg	4

Sample: 341370 - T-4 (AH-9) 8'

Param	Flag	Result	Units	RL
Chloride		**215**	mg/Kg	4

Sample: 341371 - T-5 (AH-10) 2'

Param	Flag	Result	Units	RL
Chloride		**2640**	mg/Kg	4

Sample: 341372 - T-5 (AH-10) 4'

Param	Flag	Result	Units	RL
Chloride		**430**	mg/Kg	4

Sample: 341373 - T-5 (AH-10) 6'

Param	Flag	Result	Units	RL
Chloride		**239**	mg/Kg	4

Sample: 341374 - T-5 (AH-10) 8'

Param	Flag	Result	Units	RL
Chloride		**23.9**	mg/Kg	4

Sample: 341375 - T-6 (AH-1) 0'

Param	Flag	Result	Units	RL
Chloride		**7870**	mg/Kg	4

Sample: 341376 - T-6 (AH-1) 2'

Param	Flag	Result	Units	RL
Chloride		**2050**	mg/Kg	4

Sample: 341377 - T-6 (AH-1) 4'

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

Sample: 341378 - T-6 (AH-1) 6'

Param	Flag	Result	Units	RL
Chloride		**1470**	mg/Kg	4

Sample: 341379 - T-6 (AH-1) 8'

Param	Flag	Result	Units	RL
Chloride		**896**	mg/Kg	4

Sample: 341380 - T-6 (AH-1) 10'

Param	Flag	Result	Units	RL
Chloride		**1200**	mg/Kg	4

Sample: 341381 - T-7 (BG) 0'

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

Sample: 341382 - T-7 (BG) 2'

Param	Flag	Result	Units	RL
Chloride		**771**	mg/Kg	4

Sample: 341383 - T-7 (BG) 4'

Param	Flag	Result	Units	RL
Chloride		**814**	mg/Kg	4

Sample: 341384 - AH-8 ESW

Param	Flag	Result	Units	RL
Chloride		**1470**	mg/Kg	4

Sample: 341385 - AH-8 NSW

Param	Flag	Result	Units	RL
Chloride		**597**	mg/Kg	4

Sample: 341386 - AH-8 WSW

Param	Flag	Result	Units	RL
Chloride		**604**	mg/Kg	4

Sample: 341387 - AH-8 SSW

Param	Flag	Result	Units	RL
Chloride		**706**	mg/Kg	4

Sample: 341388 - AH-4 NSW

Param	Flag	Result	Units	RL
Chloride		**1850**	mg/Kg	4

Sample: 341389 - AH-4 SSW

Param	Flag	Result	Units	RL
Chloride		**1230**	mg/Kg	4

Sample: 341390 - AH-4 ESW

Param	Flag	Result	Units	RL
Chloride		**5850**	mg/Kg	4

Sample: 341391 - AH-4 WSW

Param	Flag	Result	Units	RL
Chloride		**2480**	mg/Kg	4

Sample: 341392 - AH-1 NSW

Param	Flag	Result	Units	RL
Chloride		**2400**	mg/Kg	4

Sample: 341393 - AH-1 SSW

Param	Flag	Result	Units	RL
Chloride		**1860**	mg/Kg	4

Sample: 341394 - AH-1 ESW

Param	Flag	Result	Units	RL
Chloride		**2080**	mg/Kg	4

Sample: 341395 - AH-1 WSW

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

Sample: 341396 - AH-1 BH 2'

Param	Flag	Result	Units	RL
Chloride		**1060**	mg/Kg	4

Sample: 341397 - AH-7 NSW

Param	Flag	Result	Units	RL
Chloride		**1080**	mg/Kg	4

Sample: 341398 - AH-7 SSW

Param	Flag	Result	Units	RL
Chloride		**2260**	mg/Kg	4

Sample: 341399 - AH-7 BH

Param	Flag	Result	Units	RL
Chloride		**2270**	mg/Kg	4

Sample: 341400 - AH-9 BH 3'

Param	Flag	Result	Units	RL
Chloride		**49.0**	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: September 20, 2013

Work Order: 13090631

Project Location: Eddy Co., NM
Project Name: COG/Showstopper 7 Fed. #1
Project Number: 112MC05408

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
341356	T-1 (AH-7) 0'	soil	2013-08-27	00:00	2013-09-06
341357	T-1 (AH-7) 2'	soil	2013-08-27	00:00	2013-09-06
341358	T-2 (AH-4) 0'	soil	2013-08-27	00:00	2013-09-06
341359	T-2 (AH-4) 2'	soil	2013-08-27	00:00	2013-09-06
341360	T-2 (AH-4) 4'	soil	2013-08-27	00:00	2013-09-06
341361	T-2 (AH-4) 6'	soil	2013-08-27	00:00	2013-09-06
341362	T-2 (AH-4) 8'	soil	2013-08-27	00:00	2013-09-06
341363	T-2 (AH-4) 10'	soil	2013-08-27	00:00	2013-09-06
341364	T-3 (AH-8) 2'	soil	2013-08-27	00:00	2013-09-06
341365	T-3 (AH-8) 4'	soil	2013-08-27	00:00	2013-09-06
341366	T-3 (AH-8) 8'	soil	2013-08-27	00:00	2013-09-06
341367	T-4 (AH-9) 2'	soil	2013-08-27	00:00	2013-09-06
341368	T-4 (AH-9) 4'	soil	2013-08-27	00:00	2013-09-06
341369	T-4 (AH-9) 6'	soil	2013-08-27	00:00	2013-09-06
341370	T-4 (AH-9) 8'	soil	2013-08-27	00:00	2013-09-06
341371	T-5 (AH-10) 2'	soil	2013-08-27	00:00	2013-09-06
341372	T-5 (AH-10) 4'	soil	2013-08-27	00:00	2013-09-06
341373	T-5 (AH-10) 6'	soil	2013-08-27	00:00	2013-09-06

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341374	T-5 (AH-10) 8'	soil	2013-08-27	00:00	2013-09-06
341375	T-6 (AH-1) 0'	soil	2013-08-27	00:00	2013-09-06
341376	T-6 (AH-1) 2'	soil	2013-08-27	00:00	2013-09-06
341377	T-6 (AH-1) 4'	soil	2013-08-27	00:00	2013-09-06
341378	T-6 (AH-1) 6'	soil	2013-08-27	00:00	2013-09-06
341379	T-6 (AH-1) 8'	soil	2013-08-27	00:00	2013-09-06
341380	T-6 (AH-1) 10'	soil	2013-08-27	00:00	2013-09-06
341381	T-7 (BG) 0'	soil	2013-08-27	00:00	2013-09-06
341382	T-7 (BG) 2'	soil	2013-08-27	00:00	2013-09-06
341383	T-7 (BG) 4'	soil	2013-08-27	00:00	2013-09-06
341384	AH-8 ESW	soil	2013-08-27	00:00	2013-09-06
341385	AH-8 NSW	soil	2013-08-27	00:00	2013-09-06
341386	AH-8 WSW	soil	2013-08-27	00:00	2013-09-06
341387	AH-8 SSW	soil	2013-08-27	00:00	2013-09-06
341388	AH-4 NSW	soil	2013-08-27	00:00	2013-09-06
341389	AH-4 SSW	soil	2013-08-27	00:00	2013-09-06
341390	AH-4 ESW	soil	2013-08-27	00:00	2013-09-06
341391	AH-4 WSW	soil	2013-08-27	00:00	2013-09-06
341392	AH-1 NSW	soil	2013-08-27	00:00	2013-09-06
341393	AH-1 SSW	soil	2013-08-27	00:00	2013-09-06
341394	AH-1 ESW	soil	2013-08-27	00:00	2013-09-06
341395	AH-1 WSW	soil	2013-08-27	00:00	2013-09-06
341396	AH-1 BH 2'	soil	2013-08-27	00:00	2013-09-06
341397	AH-7 NSW	soil	2013-08-27	00:00	2013-09-06
341398	AH-7 SSW	soil	2013-08-27	00:00	2013-09-06
341399	AH-7 BH	soil	2013-08-27	00:00	2013-09-06
341400	AH-9 BH 3'	soil	2013-08-27	00:00	2013-09-06

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

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

Report Contents

Case Narrative

Samples for project COG/Showstopper 7 Fed. #1 were received by TraceAnalysis, Inc. on 2013-09-06 and assigned to work order 13090631. Samples for work order 13090631 were received intact at a temperature of 26.4 C. Samples were not on ice.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	89070	2013-09-17 at 14:11	105200	2013-09-18 at 15:23
Chloride (Titration)	SM 4500-Cl B	89070	2013-09-17 at 14:11	105205	2013-09-18 at 15:51
Chloride (Titration)	SM 4500-Cl B	89070	2013-09-17 at 14:11	105207	2013-09-18 at 15:56
Chloride (Titration)	SM 4500-Cl B	89070	2013-09-17 at 14:11	105266	2013-09-20 at 10:22
Chloride (Titration)	SM 4500-Cl B	89070	2013-09-17 at 14:11	105267	2013-09-20 at 10:33

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 13090631 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: 341356 - T-1 (AH-7) 0'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7800**	mg/Kg	10	4.00

Sample: 341357 - T-1 (AH-7) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2170**	mg/Kg	10	4.00

Sample: 341358 - T-2 (AH-4) 0'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1960**	mg/Kg	10	4.00

Sample: 341359 - T-2 (AH-4) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2190**	mg/Kg	10	4.00

Sample: 341360 - T-2 (AH-4) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1840**	mg/Kg	10	4.00

Sample: 341361 - T-2 (AH-4) 6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1410**	mg/Kg	10	4.00

Sample: 341362 - T-2 (AH-4) 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

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

Sample: 341363 - T-2 (AH-4) 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1830**	mg/Kg	10	4.00

Sample: 341364 - T-3 (AH-8) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3980**	mg/Kg	10	4.00

Sample: 341365 - T-3 (AH-8) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**729**	mg/Kg	5	4.00

Sample: 341366 - T-3 (AH-8) 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**803**	mg/Kg	5	4.00

Sample: 341367 - T-4 (AH-9) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**5380**	mg/Kg	10	4.00

Sample: 341368 - T-4 (AH-9) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

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

Sample: 341369 - T-4 (AH-9) 6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**282**	mg/Kg	5	4.00

Sample: 341370 - T-4 (AH-9) 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**215**	mg/Kg	5	4.00

Sample: 341371 - T-5 (AH-10) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2640**	mg/Kg	10	4.00

Sample: 341372 - T-5 (AH-10) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**430**	mg/Kg	5	4.00

Sample: 341373 - T-5 (AH-10) 6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**239**	mg/Kg	5	4.00

Sample: 341374 - T-5 (AH-10) 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**23.9**	mg/Kg	5	4.00

Sample: 341375 - T-6 (AH-1) 0'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**7870**	mg/Kg	10	4.00

Sample: 341376 - T-6 (AH-1) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2050**	mg/Kg	10	4.00

Sample: 341377 - T-6 (AH-1) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

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

Sample: 341378 - T-6 (AH-1) 6'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1470**	mg/Kg	10	4.00

Sample: 341379 - T-6 (AH-1) 8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**896**	mg/Kg	5	4.00

Sample: 341380 - T-6 (AH-1) 10'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1200**	mg/Kg	5	4.00

Sample: 341381 - T-7 (BG) 0'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

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

Sample: 341382 - T-7 (BG) 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**771**	mg/Kg	5	4.00

Sample: 341383 - T-7 (BG) 4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**814**	mg/Kg	5	4.00

Sample: 341384 - AH-8 ESW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1470**	mg/Kg	10	4.00

Sample: 341385 - AH-8 NSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**597**	mg/Kg	5	4.00

Sample: 341386 - AH-8 WSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**604**	mg/Kg	5	4.00

Sample: 341387 - AH-8 SSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**706**	mg/Kg	5	4.00

Sample: 341388 - AH-4 NSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1850**	mg/Kg	10	4.00

Sample: 341389 - AH-4 SSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1230**	mg/Kg	10	4.00

Sample: 341390 - AH-4 ESW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5850**	mg/Kg	10	4.00

Sample: 341391 - AH-4 WSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2480**	mg/Kg	10	4.00

Sample: 341392 - AH-1 NSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2400**	mg/Kg	10	4.00

Sample: 341393 - AH-1 SSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1860**	mg/Kg	10	4.00

Sample: 341394 - AH-1 ESW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2080**	mg/Kg	10	4.00

Sample: 341395 - AH-1 WSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

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

Sample: 341396 - AH-1 BH 2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1060**	mg/Kg	5	4.00

Sample: 341397 - AH-7 NSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1080**	mg/Kg	10	4.00

Sample: 341398 - AH-7 SSW

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2260**	mg/Kg	10	4.00

Sample: 341399 - AH-7 BH

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2270**	mg/Kg	10	4.00

Sample: 341400 - AH-9 BH 3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	Sample Preparation:	2013-09-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**49.0**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 105200

QC Batch:	105200	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	QC Preparation:	2013-09-17	Prepared By:	AR

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

Method Blank (1) QC Batch: 105205

QC Batch:	105205	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	QC Preparation:	2013-09-17	Prepared By:	AR

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

Method Blank (1) QC Batch: 105207

QC Batch:	105207	Date Analyzed:	2013-09-18	Analyzed By:	AR
Prep Batch:	89070	QC Preparation:	2013-09-17	Prepared By:	AR

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

Method Blank (1) QC Batch: 105266

QC Batch:	105266	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	QC Preparation:	2013-09-17	Prepared By:	AR

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

Method Blank (1) QC Batch: 105267

QC Batch:	105267	Date Analyzed:	2013-09-20	Analyzed By:	AR
Prep Batch:	89070	QC Preparation:	2013-09-17	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 105200 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2380	mg/Kg	1	2500	<3.85	95	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	89.7 - 115.9	3	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: 105205 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2500	mg/Kg	1	2500	<3.85	100	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2600	mg/Kg	1	2500	<3.85	104	89.7 - 115.9	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 105207 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	mg/Kg	1	2500	<3.85	105	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2530	mg/Kg	1	2500	<3.85	101	89.7 - 115.9	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 105266 | Date Analyzed: 2013-09-20 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2560	mg/Kg	1	2500	<3.85	102	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	89.7 - 115.9	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 105267 | Date Analyzed: 2013-09-20 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2370	mg/Kg	1	2500	<3.85	95	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2460	mg/Kg	1	2500	<3.85	98	89.7 - 115.9	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: 341365

QC Batch: 105200 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3310	mg/Kg	5	2500	728	103	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3180	mg/Kg	5	2500	728	98	78.9 - 121	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: 341375

QC Batch: 105205 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	10	2500	7870	101	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10300	mg/Kg	10	2500	7870	97	78.9 - 121	1	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: 341385

QC Batch: 105207 | Date Analyzed: 2013-09-18 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3110	mg/Kg	5	2500	597	100	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2990	mg/Kg	5	2500	597	96	78.9 - 121	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: 341395

QC Batch: 105266 | Date Analyzed: 2013-09-20 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3340	mg/Kg	10	2500	1190	86	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3700	mg/Kg	10	2500	1190	100	78.9 - 121	10	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: 341400

QC Batch: 105267 | Date Analyzed: 2013-09-20 | Analyzed By: AR
Prep Batch: 89070 | QC Preparation: 2013-09-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2560	mg/Kg	5	2500	49	100	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2420	mg/Kg	5	2500	49	95	78.9 - 121	6	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 105200 | Date Analyzed: 2013-09-18 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.7	100	85 - 115	2013-09-18

Standard (CCV-2)

QC Batch: 105200 | Date Analyzed: 2013-09-18 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-18

Standard (CCV-1)

QC Batch: 105205 | Date Analyzed: 2013-09-18 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.6	100	85 - 115	2013-09-18

Standard (CCV-2)

QC Batch: 105205 | Date Analyzed: 2013-09-18 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-18

Standard (CCV-1)

QC Batch: 105207 Date Analyzed: 2013-09-18 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2013-09-18

Standard (CCV-2)

QC Batch: 105207 Date Analyzed: 2013-09-18 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2013-09-18

Standard (CCV-1)

QC Batch: 105266 Date Analyzed: 2013-09-20 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.7	100	85 - 115	2013-09-20

Standard (CCV-2)

QC Batch: 105266 Date Analyzed: 2013-09-20 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-20

Standard (CCV-1)

QC Batch: 105267 Date Analyzed: 2013-09-20 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2013-09-20

Standard (CCV-2)

QC Batch: 105267 | Date Analyzed: 2013-09-20 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2013-09-20

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

Attachments

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

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 28, 2013

IKE TAVAREZ

TETRA TECH

1910 N. BOG SPRING STREET

MIDLAND, TX 79705

RE: SHOWSTOPPER 7 FED COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 08/27/13 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TETRA TECH
IKE TAVAREZ
1910 N. BOG SPRING STREET
MIDLAND TX, 79705
Fax To: (432) 682-3946

Received:	08/27/2013	Sampling Date:	08/27/2013
Reported:	08/28/2013	Sampling Type:	Soil
Project Name:	SHOWSTOPPER 7 FED COM #1H	Sampling Condition:	** (See Notes)
Project Number:	112MC05194	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH 8 (BH) 3' (H302068-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	08/28/2013	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: CK/**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2013	ND	182	90.8	200	1.55	
DRO >C10-C28	<10.0	10.0	08/28/2013	ND	168	83.8	200	0.0292	

Surrogate: 1-Chlorooctane	*84.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*86.5 %*	*63.6-154*

Sample ID: AH 10 (BH) 3' (H302068-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1500**	16.0	08/28/2013	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: CK/**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2013	ND	182	90.8	200	1.55	
DRO >C10-C28	<10.0	10.0	08/28/2013	ND	168	83.8	200	0.0292	

Surrogate: 1-Chlorooctane	*90.9 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*94.3 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record

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

H3020168

CLIENT NAME: COG

SITE MANAGER:

PROJECT NO.: 112MC05194

PROJECT NAME: COG / Showstopper 7 Fed Com #1 H — Eddy Co., NM

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. (Ext. to C35) TX1005	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
1	8/27		S		X	AH 8 (BH) 3'	1				X			1										1				
2	"		S		X	AH 10 (BH) 3'	1				X			1										1				

RELINQUISHED BY: (Signature) — Date: — Time: 1400
RECEIVED BY: (Signature) Jodie Henson — Date: 8/27/13 — Time: 1400
SAMPLED BY: (Print & Initial) Ryan Reich RR — Date: — Time: 0800

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: — Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: — Time:
TETRA TECH CONTACT PERSON: Ike Tavarez 432-425-3878 — Results by:

RECEIVING LABORATORY: Cardinal
ADDRESS: — CITY: — STATE: — ZIP:
CONTACT: — PHONE:
RECEIVED BY: (Signature) — DATE: — TIME:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: * Straight from field *

ike.tavarez@tetratech.com

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

Bill to COG - Midland 12c #54 432-250-0680

Page 4 of 4