

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Burch Keely Unit #205					
Company:	COG Operating LLC					
Section, Township and Range	Unit O	Sec 26	T 17S	R 29E		
Lease Number:	API-30-015-03133					
County:	Eddy County					
GPS:	32 48.163° N			104 02.567° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Loco Hills from the intersection of CR 217 and HWY 82 travel WEST on HWY 82 for approximately 3.1 miles, and turn SOUTH onto lease road for 1.2 miles to the location on the west side of the lease road.					

Release Data:

Date Released:	8/14/2013
Type Release:	Produced water
Source of Contamination:	Fiberglass Line
Fluid Released:	75 bbls
Fluids Recovered:	50 bbls

Official Communication:

Name:	Robert McNeill	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	4000 N. Big Spring St.
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	rmcneill@conchoresources.com	ike.tavarez@tetrattech.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:		0

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



September 18, 2014

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

Re: Work Plan for the COG Operating LLC., Burch Keely Unit #205, Unit O, Section 26, Township 17 South, Range 97 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 Burch Keely Unit #205, Unit O, Section 26, Township 17 South, Range 97 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32 48.163 °, W 104 02.567°. 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 August 14, 2013, and released approximately seventy five (75) barrels of produced water from a failed fitting on a fiberglass water line. To alleviate the problem, COG personnel replaced the fitting to prevent a reoccurrence. Fifty (50) barrels of produced water was recovered. The spill initiated in the pasture affecting an area approximately 90' X 60' and 70' x 30'. The initial C-141 form is enclosed in Appendix A.

Groundwater

According to the NM State Engineers Well Report, two (2) water wells were listed in Section 34 with depth to groundwater of approximately 60' below surface. The Geology and Groundwater Conditions in Southern Eddy County, New Mexico Resource shows groundwater depth of approximately 150' below surface. The NMOC groundwater map shows a depth to groundwater of approximately 150' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.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

Auger holes

On September 3, 2013, Tetra Tech personnel inspected and sampled the spill area. Five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, none of the samples showed BTEX or TPH concentrations above the RRAL. Auger holes (AH-1 and AH-2) showed elevated chloride concentrations down to 9.5' below surface with chloride highs of 20,400 mg/kg and 22,100 mg/kg at 2.5' below surface, respectively. The areas of auger holes (AH-1 and AH2) were not vertically defined.

The areas of auger holes (AH-3, AH-4 and AH-5) all showed elevated chloride concentrations with chloride highs of 17,800 mg/kg at 2.5', 20,400 mg/kg at 4.5', and 20,800 mg/kg at 1.5' below surface, respectively. Auger holes (AH-3, AH-4, and AH-5) showed a decline in chloride concentrations with depth with chloride concentrations of 445 mg/kg at 6.5', 327 mg/kg at 8.5' and 299 mg/kg at 7.5' below surface, respectively. However, in the areas of auger holes (AH-4 and AH-5) the chloride concentrations increase or spiked to 3,120 mg/kg at 9.5' and 1,770 mg/kg at 5.5' below depth, respectively; possibly due to cross contamination.

Boreholes

On June 18, 2014, Tetra Tech personnel supervised the installation of a borehole in order to vertically delineate the chloride impact in the areas of auger holes (AH-1 and AH-2). A shallow underground line (Phillips pipeline) located in the center of the spill area. Due to access issues and safety concerns, one (1) borehole (BH-1) was installed between auger holes (AH-1 and AH-2). The area of BH-1 showed elevated chloride concentrations with a chloride high of 12,900 mg/kg at 6'-7' below surface, but declined with depth to 148 mg/kg at 29'-30' below surface. Based on the data, the impacted area was vertically defined.

Work Plan

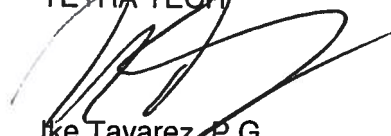
COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The areas of auger holes (AH-1, AH-2, AH-3 and AH-5) will be excavated to a depth of approximately 3.0' to 4.0' and the area of auger hole (AH-4) will be excavated to a depth of approximately 6.0' below surface. Once the areas of AH-1 and AH-2 are excavated to the appropriate depth, the areas will be lined with a 40 mil liner to cap the remaining impact.

Due to proximity of the shallow line in the area, deeper excavation cannot be completed safely in the areas of AH-1 and AH-2. In addition, the high pressure underground line located in the vicinity AH-4 and AH-5 may also hinder some of the excavation for safety concerns.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH



Ike Tavarez, P.G.
Senior Project Manager

Figures

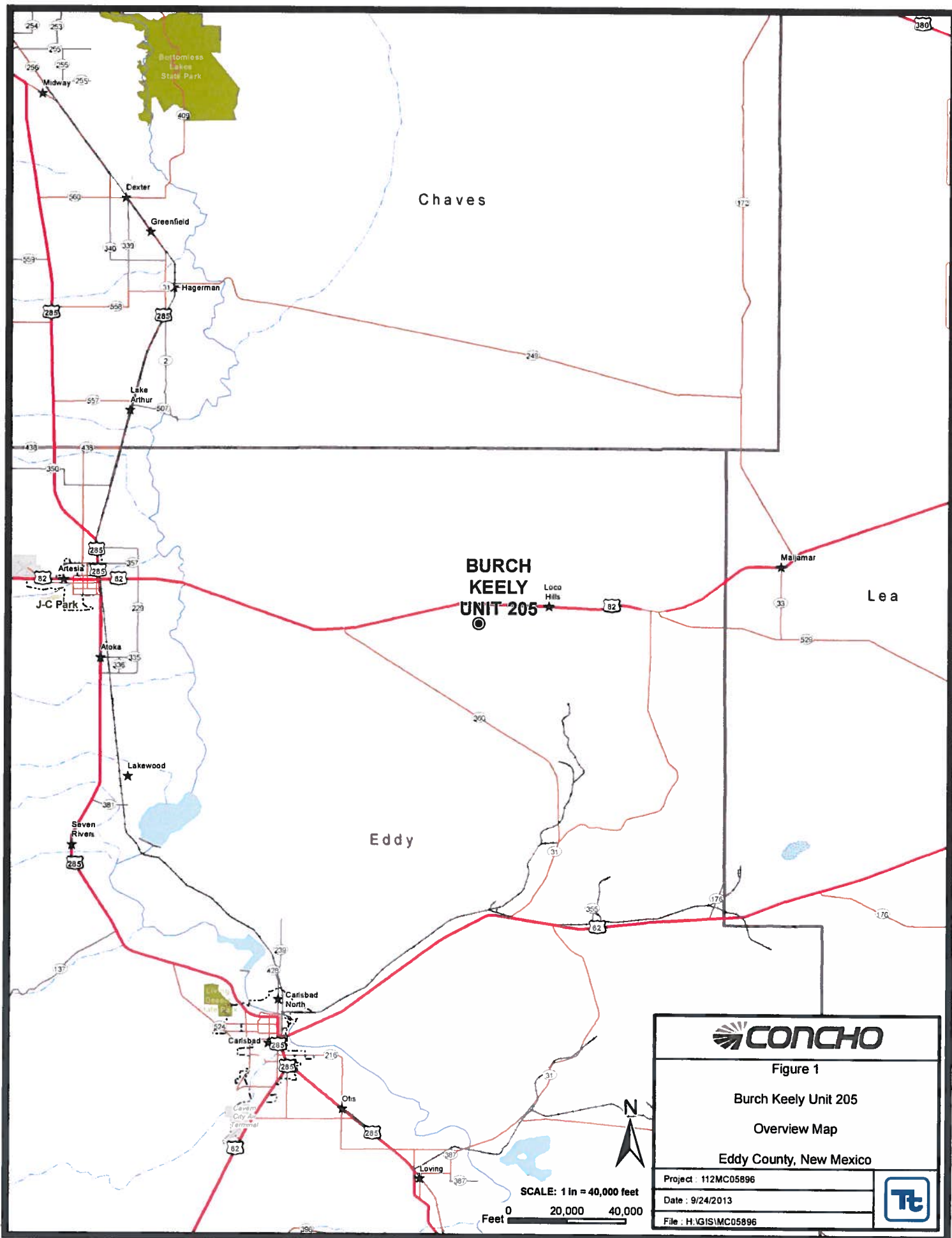


Figure 1

Burch Keely Unit 205

Overview Map

Eddy County, New Mexico

Project : 112MC05896

Date : 9/24/2013

File : H:\GIS\MC05896



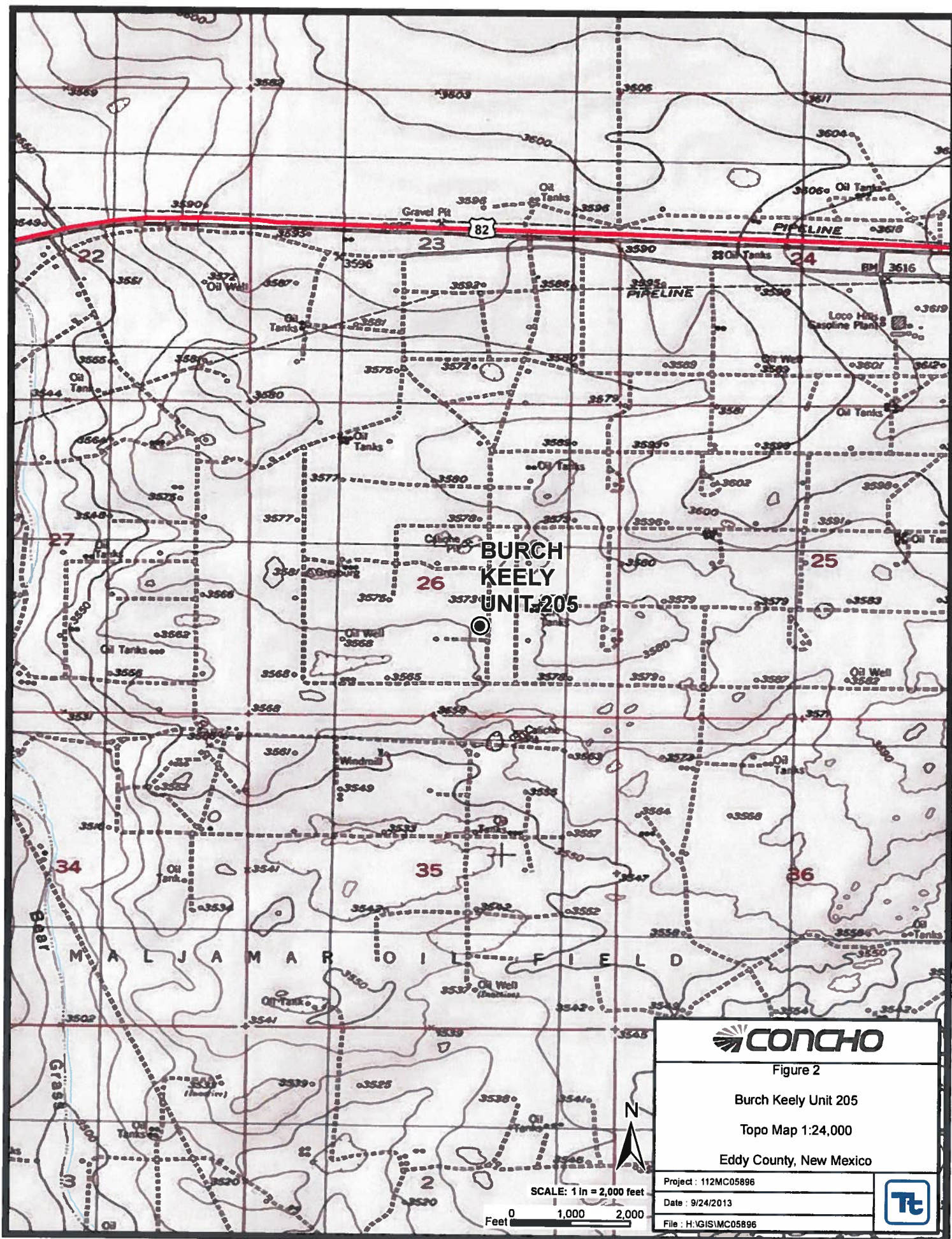


Figure 2

Burch Keely Unit 205

Topo Map 1:24,000

Eddy County, New Mexico

Project : 112MC05896

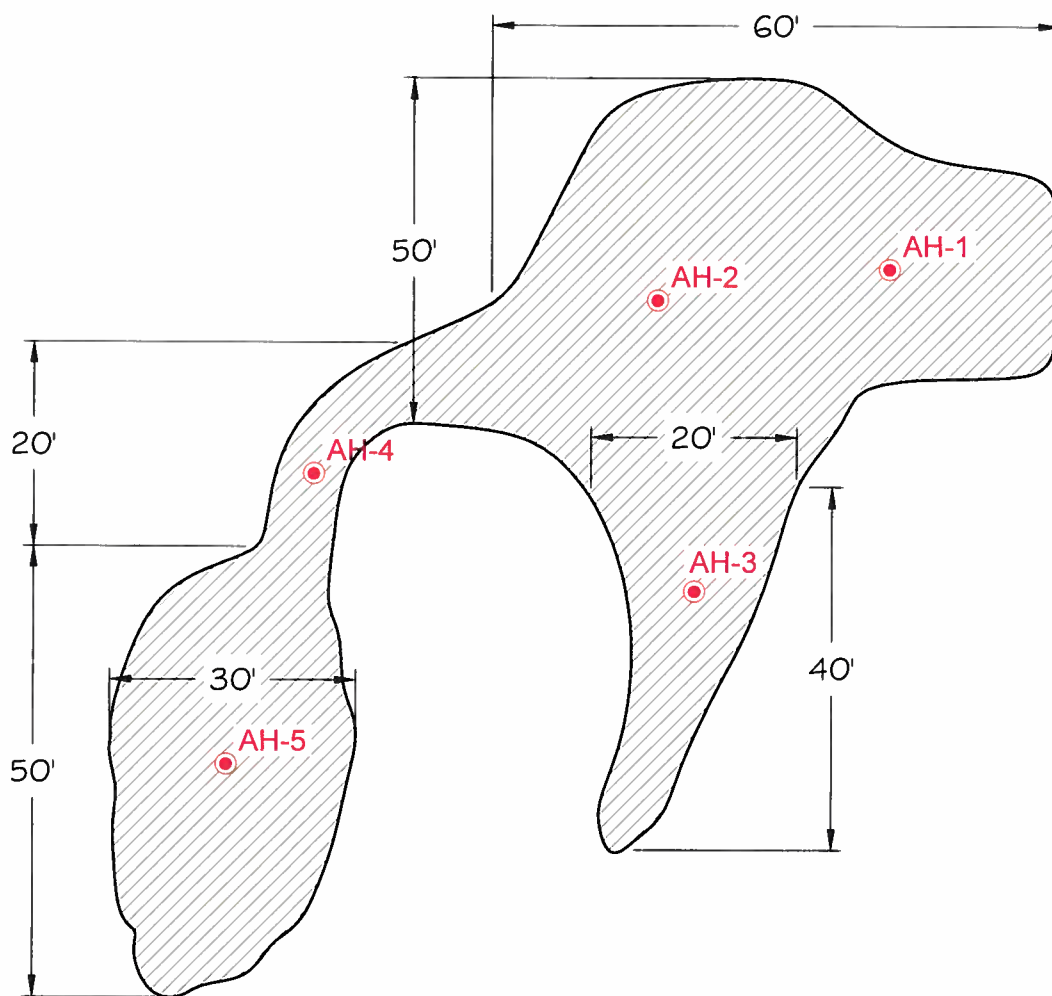
Date : 9/24/2013

File : H:\GIS\MC05896



SCALE: 1 in = 2,000 feet

0 1,000 2,000
Feet



LEASE ROAD

LEGEND

-  AUGER HOLE SAMPLE LOCATIONS
-  SPILL AREA

0 10 20
Scale: 1" = 20'-0"



Figure 3

Burch Keely Unit 205

Spill Assessment Map

Eddy County, New Mexico

Project: 112MC05896

Date: 9/24/2013

File: H:\COG\112MC05896\BKU 205





LEGEND

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA

0 10 20
Scale: 1" = 20'-0"

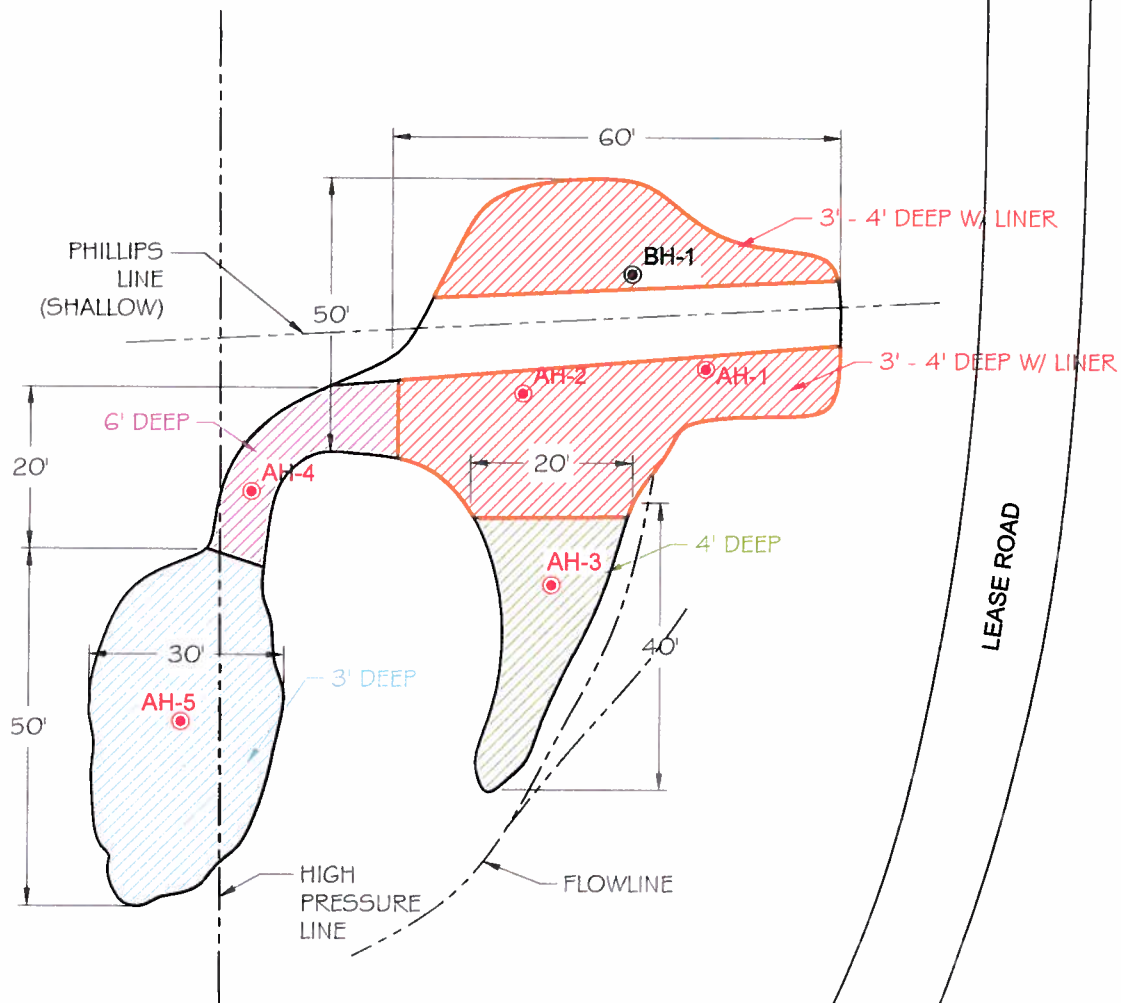


Figure 3

Burch Keely Unit 205
Spill Assessment Aerial Map
Eddy County, New Mexico

Project: 112MC05896
Date: 9/24/2013
File: H:\COG\112MC05896\BKU 205





LEGEND

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATION
- PROPOSED 40MIL LINER
- PROPOSED EXCAVATION AREA



Figure 4

Burch Keely Unit 205

Proposed Excavation Areas & Depths Map

Eddy County, New Mexico

Project: 112MC05896

Date: 09/18/2014

File: H:\COG\112MC05896\BKU 205



Tables

Table 1
COG Operating LLC.
Burch Keely #205
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total							
AH-3	9/3/2013	0-1	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,260
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	7,040
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	17,800
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	13,800
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	-	1,790
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	-	675
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	-	445
AH-4	9/3/2013	0-1	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	12,500
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	8,880
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	2,650
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	4,990
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	-	20,400
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	-	10,200
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	-	8,240
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	-	347
	"	8-8.5	-	X		-	-	-	-	-	-	-	-	-	327
	"	9-9.5	-	X		-	-	-	-	-	-	-	-	3,120	
AH-5	9/3/2013	0-1	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,240
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	20,800
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	6,690
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	4,110
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	-	559
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	-	1,770
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	-	495
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	299	

Proposed Excavation Depth

Proposed Liner Installation

(-) Not Analyzed

(BEB) Below Excavation Bottom

Photos

COG Operating LLC
Burch Keely Unit #205
Eddy County, New Mexico



TETRA TECH



View West – Area of AH-1 and AH-2



View East – Areas of AH-2 and AH-3

COG Operating LLC
Burch Keely Unit #205
Eddy County, New Mexico



TETRA TECH



View North – Area of BH-1

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	Burch Keely Unit #205	Facility Type	Pasture
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-03133	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	26	17S	29E					Eddy

Latitude 32 48.163

Longitude 104 02.567

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	75bbls	Volume Recovered	50bbls
Source of Release	Fiberglass line	Date and Hour of Occurrence	08-14-2013	Date and Hour of Discovery	08-14-2013 11:00am
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher - NMOCD		
By Whom?	Michelle Mullins	Date and Hour	08-15-2013 10:03am		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			
If a Watercourse was Impacted, Describe Fully.*					
Describe Cause of Problem and Remedial Action Taken.*					
A fiberglass fitting came loose. Replaced the fitting a new fitting.					
Describe Area Affected and Cleanup Action Taken.*					
Initially 75bbls of produced water were released due to a fitting came loose on a fiberglass line. We were able to recover 50bbls with a vacuum truck. All free fluid has been recovered. The spill was located in the pasture. 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.					

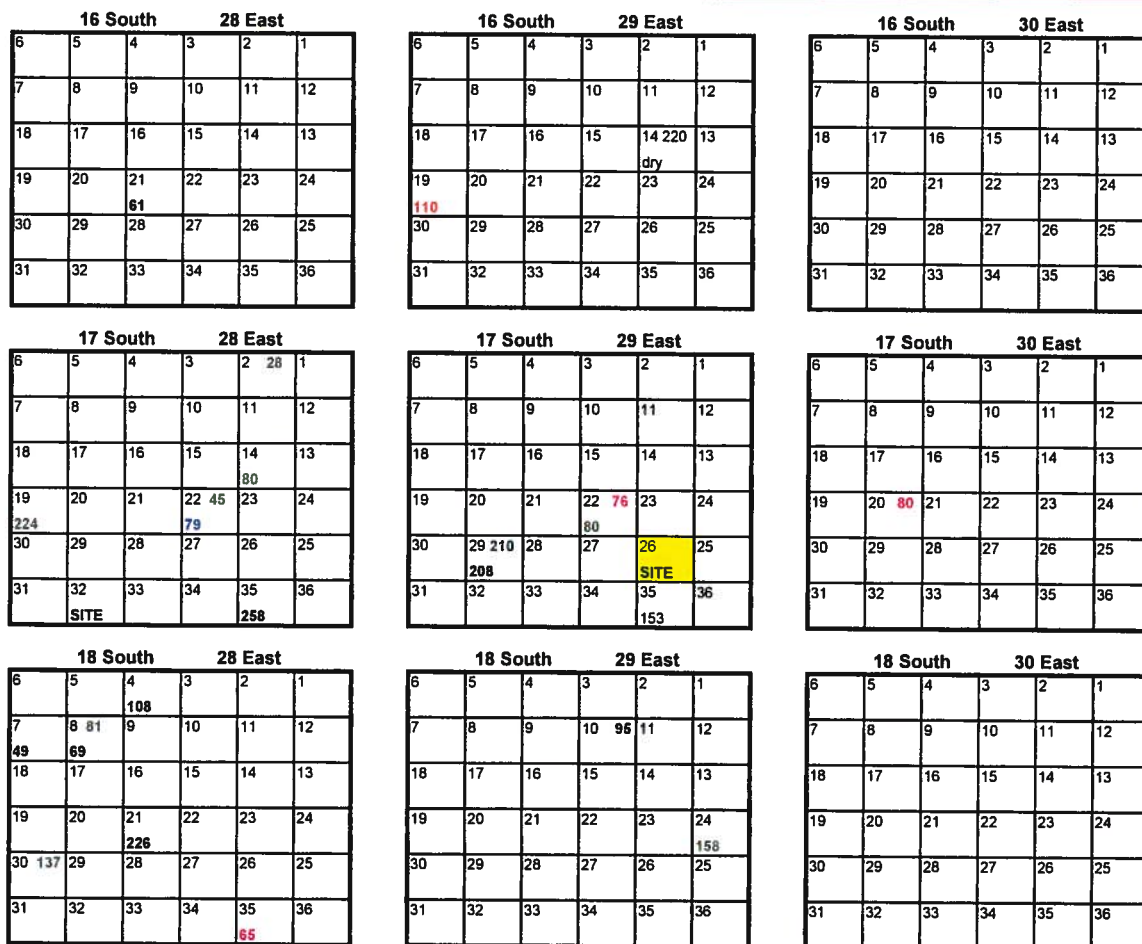
OIL CONSERVATION DIVISION

Signature:		Approved by District Supervisor:	
Printed Name:	Robert Grubbs Jr.	Approval Date:	Expiration Date:
Title:	Senior Environmental Coordinator	Conditions of Approval:	
E-mail Address:	rgrubbs@concho.com	Attached ☐	
Date:	08-15-2013	Phone:	432-661-6601

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Burch Keely #205
Eddy County, New Mexico



- 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 Tavaréz
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: September 18, 2013

Work Order: 13090537



Project Location: NM
Project Name: COG/BKU #205
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341197	AH-1 0-1'	soil	2013-09-03	00:00	2013-09-05
341198	AH-1 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341199	AH-1 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341200	AH-1 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341201	AH-1 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341202	AH-1 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341203	AH-1 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341204	AH-1 7-7.5'	soil	2013-09-03	00:00	2013-09-05
341205	AH-1 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341206	AH-1 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341207	AH-2 0-1'	soil	2013-09-03	00:00	2013-09-05
341208	AH-2 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341209	AH-2 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341210	AH-2 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341211	AH-2 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341212	AH-2 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341213	AH-2 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341214	AH-2 7-7.5'	soil	2013-09-03	00:00	2013-09-05
341215	AH-2 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341216	AH-2 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341217	AH-3 0-1'	soil	2013-09-03	00:00	2013-09-05
341218	AH-3 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341219	AH-3 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341220	AH-3 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341221	AH-3 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341222	AH-3 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341223	AH-3 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341224	AH-4 0-1'	soil	2013-09-03	00:00	2013-09-05
341225	AH-4 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341226	AH-4 2-2.5'	soil	2013-09-03	00:00	2013-09-05

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341227	AH-4 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341228	AH-4 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341229	AH-4 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341230	AH-4 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341231	AH-4 7-7.5'	soil	2013-09-03	00:00	2013-09-05
341232	AH-4 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341233	AH-4 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341234	AH-5 0-1'	soil	2013-09-03	00:00	2013-09-05
341235	AH-5 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341236	AH-5 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341237	AH-5 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341238	AH-5 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341239	AH-5 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341240	AH-5 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341244	AH-5 7-7.5	soil	2013-09-03	00:00	2013-09-05

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
341197 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Q ^u
341207 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	141	<4.00 Q ^u
341217 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Q ^u
341224 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Q ^u
341234 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Q ^u

Sample: 341197 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2770	mg/Kg	4

Sample: 341198 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3650	mg/Kg	4

Sample: 341199 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		20400	mg/Kg	4

Sample: 341200 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		17000	mg/Kg	4

Sample: 341201 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		14700	mg/Kg	4

Sample: 341202 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		12900	mg/Kg	4

Sample: 341203 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		11200	mg/Kg	4

Sample: 341204 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		6230	mg/Kg	4

Sample: 341205 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		10800	mg/Kg	4

Sample: 341206 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		4050	mg/Kg	4

Sample: 341207 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		3830	mg/Kg	4

Sample: 341208 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5680	mg/Kg	4

Sample: 341209 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		22100	mg/Kg	4

Sample: 341210 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		7740	mg/Kg	4

Sample: 341211 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		11800	mg/Kg	4

Sample: 341212 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7390	mg/Kg	4

Sample: 341213 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		5810	mg/Kg	4

Sample: 341214 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2730	mg/Kg	4

Sample: 341215 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		4260	mg/Kg	4

Sample: 341216 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1420	mg/Kg	4

Sample: 341217 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		3260	mg/Kg	4

Sample: 341218 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7040	mg/Kg	4

Sample: 341219 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		17800	mg/Kg	4

Sample: 341220 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		13800	mg/Kg	4

Sample: 341221 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1790	mg/Kg	4

Sample: 341222 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		675	mg/Kg	4

Sample: 341223 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		445	mg/Kg	4

Sample: 341224 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		12500	mg/Kg	4

Sample: 341225 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		8880	mg/Kg	4

Sample: 341226 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2650	mg/Kg	4

Sample: 341227 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4990	mg/Kg	4

Sample: 341228 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		20400	mg/Kg	4

Sample: 341229 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		10200	mg/Kg	4

Sample: 341230 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		8240	mg/Kg	4

Sample: 341231 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		347	mg/Kg	4

Sample: 341232 - AH-4 8-8.5'

Param	Flag	Result	Units	RL
Chloride		327	mg/Kg	4

Sample: 341233 - AH-4 9-9.5'

Param	Flag	Result	Units	RL
Chloride		3120	mg/Kg	4

Sample: 341234 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		5240	mg/Kg	4

Sample: 341235 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		20800	mg/Kg	4

Sample: 341236 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		6690	mg/Kg	4

Sample: 341237 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4110	mg/Kg	4

Sample: 341238 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		559	mg/Kg	4

Sample: 341239 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		1770	mg/Kg	4

Sample: 341240 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		495	mg/Kg	4

Sample: 341244 - AH-5 7-7.5

Param	Flag	Result	Units	RL
Chloride		299	mg/Kg	4



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1296
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 18, 2013

Work Order: 13090537



Project Location: NM
Project Name: COG/BKU #205
Project Number: TBD

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
341197	AH-1 0-1'	soil	2013-09-03	00:00	2013-09-05
341198	AH-1 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341199	AH-1 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341200	AH-1 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341201	AH-1 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341202	AH-1 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341203	AH-1 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341204	AH-1 7-7.5'	soil	2013-09-03	00:00	2013-09-05
341205	AH-1 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341206	AH-1 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341207	AH-2 0-1'	soil	2013-09-03	00:00	2013-09-05
341208	AH-2 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341209	AH-2 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341210	AH-2 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341211	AH-2 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341212	AH-2 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341213	AH-2 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341214	AH-2 7-7.5'	soil	2013-09-03	00:00	2013-09-05

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341215	AH-2 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341216	AH-2 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341217	AH-3 0-1'	soil	2013-09-03	00:00	2013-09-05
341218	AH-3 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341219	AH-3 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341220	AH-3 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341221	AH-3 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341222	AH-3 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341223	AH-3 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341224	AH-4 0-1'	soil	2013-09-03	00:00	2013-09-05
341225	AH-4 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341226	AH-4 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341227	AH-4 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341228	AH-4 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341229	AH-4 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341230	AH-4 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341231	AH-4 7-7.5'	soil	2013-09-03	00:00	2013-09-05
341232	AH-4 8-8.5'	soil	2013-09-03	00:00	2013-09-05
341233	AH-4 9-9.5'	soil	2013-09-03	00:00	2013-09-05
341234	AH-5 0-1'	soil	2013-09-03	00:00	2013-09-05
341235	AH-5 1-1.5'	soil	2013-09-03	00:00	2013-09-05
341236	AH-5 2-2.5'	soil	2013-09-03	00:00	2013-09-05
341237	AH-5 3-3.5'	soil	2013-09-03	00:00	2013-09-05
341238	AH-5 4-4.5'	soil	2013-09-03	00:00	2013-09-05
341239	AH-5 5-5.5'	soil	2013-09-03	00:00	2013-09-05
341240	AH-5 6-6.5'	soil	2013-09-03	00:00	2013-09-05
341244	AH-5 7-7.5	soil	2013-09-03	00:00	2013-09-05

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



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

Report Contents

Case Narrative	6
Analytical Report	7
Sample 341197 (AH-1 0-1')	7
Sample 341198 (AH-1 1-1.5')	8
Sample 341199 (AH-1 2-2.5')	8
Sample 341200 (AH-1 3-3.5')	9
Sample 341201 (AH-1 4-4.5')	9
Sample 341202 (AH-1 5-5.5')	9
Sample 341203 (AH-1 6-6.5')	10
Sample 341204 (AH-1 7-7.5')	10
Sample 341205 (AH-1 8-8.5')	10
Sample 341206 (AH-1 9-9.5')	10
Sample 341207 (AH-2 0-1')	11
Sample 341208 (AH-2 1-1.5')	12
Sample 341209 (AH-2 2-2.5')	12
Sample 341210 (AH-2 3-3.5')	13
Sample 341211 (AH-2 4-4.5')	13
Sample 341212 (AH-2 5-5.5')	13
Sample 341213 (AH-2 6-6.5')	14
Sample 341214 (AH-2 7-7.5')	14
Sample 341215 (AH-2 8-8.5')	14
Sample 341216 (AH-2 9-9.5')	14
Sample 341217 (AH-3 0-1')	15
Sample 341218 (AH-3 1-1.5')	16
Sample 341219 (AH-3 2-2.5')	16
Sample 341220 (AH-3 3-3.5')	17
Sample 341221 (AH-3 4-4.5')	17
Sample 341222 (AH-3 5-5.5')	17
Sample 341223 (AH-3 6-6.5')	18
Sample 341224 (AH-4 0-1')	18
Sample 341225 (AH-4 1-1.5')	19
Sample 341226 (AH-4 2-2.5')	20
Sample 341227 (AH-4 3-3.5')	20
Sample 341228 (AH-4 4-4.5')	20
Sample 341229 (AH-4 5-5.5')	20
Sample 341230 (AH-4 6-6.5')	21
Sample 341231 (AH-4 7-7.5')	21
Sample 341232 (AH-4 8-8.5')	21
Sample 341233 (AH-4 9-9.5')	22
Sample 341234 (AH-5 0-1')	22
Sample 341235 (AH-5 1-1.5')	23
Sample 341236 (AH-5 2-2.5')	24
Sample 341237 (AH-5 3-3.5')	24
Sample 341238 (AH-5 4-4.5')	24
Sample 341239 (AH-5 5-5.5')	24

Sample 341240 (AH-5 6-6.5')	25
Sample 341244 (AH-5 7-7.5)	25
Method Blanks	26
QC Batch 104931 - Method Blank (1)	26
QC Batch 105115 - Method Blank (1)	26
QC Batch 105116 - Method Blank (1)	26
QC Batch 105133 - Method Blank (1)	27
QC Batch 105152 - Method Blank (1)	27
QC Batch 105153 - Method Blank (1)	27
QC Batch 105170 - Method Blank (1)	27
QC Batch 105172 - Method Blank (1)	28
Laboratory Control Spikes	29
QC Batch 104931 - LCS (1)	29
QC Batch 105115 - LCS (1)	29
QC Batch 105116 - LCS (1)	30
QC Batch 105133 - LCS (1)	30
QC Batch 105152 - LCS (1)	30
QC Batch 105153 - LCS (1)	31
QC Batch 105170 - LCS (1)	31
QC Batch 105172 - LCS (1)	32
QC Batch 104931 - MS (1)	32
QC Batch 105115 - MS (1)	32
QC Batch 105116 - MS (1)	33
QC Batch 105133 - MS (1)	34
QC Batch 105152 - MS (1)	34
QC Batch 105153 - MS (1)	34
QC Batch 105170 - MS (1)	35
QC Batch 105172 - MS (1)	35
Calibration Standards	37
QC Batch 104931 - CCV (1)	37
QC Batch 104931 - CCV (2)	37
QC Batch 104931 - CCV (3)	37
QC Batch 105115 - CCV (1)	37
QC Batch 105115 - CCV (2)	38
QC Batch 105115 - CCV (3)	38
QC Batch 105116 - CCV (1)	38
QC Batch 105116 - CCV (2)	38
QC Batch 105116 - CCV (3)	39
QC Batch 105133 - CCV (1)	39
QC Batch 105133 - CCV (2)	39
QC Batch 105152 - CCV (1)	39
QC Batch 105152 - CCV (2)	40
QC Batch 105153 - CCV (1)	40
QC Batch 105153 - CCV (2)	40
QC Batch 105170 - CCV (1)	40
QC Batch 105170 - CCV (2)	41

Summary Report

Ike Tavarez
Tetra Tech
1901 N. Big Spring St.
Midland, TX 79705

Report Date: June 24, 2014

Work Order: 14062014



Project Location: Eddy Co, NM
Project Name: COG/BKU #205
Project Number: 112MC05896

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
366362	BH-1 0-1'	soil	2014-06-18	00:00	2014-06-20
366363	BH-1 2-3'	soil	2014-06-18	00:00	2014-06-20
366364	BH-1 4-5'	soil	2014-06-18	00:00	2014-06-20
366365	BH-1 6-7'	soil	2014-06-18	00:00	2014-06-20
366366	BH-1 9-10'	soil	2014-06-18	00:00	2014-06-20
366367	BH-1 14-15'	soil	2014-06-18	00:00	2014-06-20
366368	BH-1 19-20'	soil	2014-06-18	00:00	2014-06-20
366369	BH-1 24-25'	soil	2014-06-18	00:00	2014-06-20
366370	BH-1 29-30'	soil	2014-06-18	00:00	2014-06-20
366371	BH-1 34-35'	soil	2014-06-18	00:00	2014-06-20

Sample: 366362 - BH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		429	mg/Kg	4

Sample: 366363 - BH-1 2-3'

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

Sample: 366364 - BH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		2220	mg/Kg	4

Sample: 366365 - BH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		12900	mg/Kg	4

Sample: 366366 - BH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		3100	mg/Kg	4

Sample: 366367 - BH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		5520	mg/Kg	4

Sample: 366368 - BH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		4040	mg/Kg	4

Sample: 366369 - BH-1 24-25'

Param	Flag	Result	Units	RL
Chloride		1380	mg/Kg	4

Sample: 366370 - BH-1 29-30'

Param	Flag	Result	Units	RL
Chloride		148	mg/Kg	4

Sample: 366371 - BH-1 34-35'

Param	Flag	Result	Units	RL
Chloride		296	mg/Kg	4



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
1901 N. Big Spring St.
Midland, TX, 79705

Report Date: June 24, 2014

Work Order: 14062014



Project Location: Eddy Co, NM
Project Name: COG/BKU #205
Project Number: 112MC05896

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
366362	BH-1 0-1'	soil	2014-06-18	00:00	2014-06-20
366363	BH-1 2-3'	soil	2014-06-18	00:00	2014-06-20
366364	BH-1 4-5'	soil	2014-06-18	00:00	2014-06-20
366365	BH-1 6-7'	soil	2014-06-18	00:00	2014-06-20
366366	BH-1 9-10'	soil	2014-06-18	00:00	2014-06-20
366367	BH-1 14-15'	soil	2014-06-18	00:00	2014-06-20
366368	BH-1 19-20'	soil	2014-06-18	00:00	2014-06-20
366369	BH-1 24-25'	soil	2014-06-18	00:00	2014-06-20
366370	BH-1 29-30'	soil	2014-06-18	00:00	2014-06-20
366371	BH-1 34-35'	soil	2014-06-18	00:00	2014-06-20

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 13 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

Report Contents

Case Narrative	4
Analytical Report	5
Sample 366362 (BH-1 0-1')	5
Sample 366363 (BH-1 2-3')	5
Sample 366364 (BH-1 4-5')	5
Sample 366365 (BH-1 6-7')	5
Sample 366366 (BH-1 9-10')	6
Sample 366367 (BH-1 14-15')	6
Sample 366368 (BH-1 19-20')	6
Sample 366369 (BH-1 24-25')	7
Sample 366370 (BH-1 29-30')	7
Sample 366371 (BH-1 34-35')	7
Method Blanks	8
QC Batch 113052 - Method Blank (1)	8
QC Batch 113054 - Method Blank (1)	8
Laboratory Control Spikes	9
QC Batch 113052 - LCS (1)	9
QC Batch 113054 - LCS (1)	9
Matrix Spikes	10
QC Batch 113052 - MS (1)	10
QC Batch 113054 - MS (1)	10
Calibration Standards	11
QC Batch 113052 - ICV (1)	11
QC Batch 113052 - CCV (1)	11
QC Batch 113054 - ICV (1)	11
QC Batch 113054 - CCV (1)	11
Appendix	12
Report Definitions	12
Laboratory Certifications	12
Standard Flags	12
Attachments	12

Case Narrative

Samples for project COG/BKU #205 were received by TraceAnalysis, Inc. on 2014-06-20 and assigned to work order 14062014. Samples for work order 14062014 were received intact at a temperature of 10.6 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	95596	2014-06-20 at 13:47	113054	2014-06-23 at 14:18
Chloride (Titration)	SM 4500-Cl B	95597	2014-06-20 at 13:48	113052	2014-06-23 at 14:01

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 14062014 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.

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 5 of 13
Eddy Co, NM

Analytical Report

Sample: 366362 - BH-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113054	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95596				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			429	mg/Kg	5	4.00

Sample: 366363 - BH-1 2-3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

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

Sample: 366364 - BH-1 4-5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2220	mg/Kg	5	4.00

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 6 of 13
Eddy Co, NM

Sample: 366365 - BH-1 6-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			12900	mg/Kg	10	4.00

Sample: 366366 - BH-1 9-10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3100	mg/Kg	5	4.00

Sample: 366367 - BH-1 14-15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5520	mg/Kg	5	4.00

Sample: 366368 - BH-1 19-20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2014-06-23	Analyzed By:	SC
QC Batch:	113052	Sample Preparation:	2014-06-20	Prepared By:	SC
Prep Batch:	95597				

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 7 of 13
Eddy Co, NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4040	mg/Kg	5	4.00

Sample: 366369 - BH-1 24-25'

Laboratory: Midland						
Analysis: Chloride (Titration)		Analytical Method: SM 4500-Cl B		Prep Method: N/A		
QC Batch: 113052		Date Analyzed: 2014-06-23		Analyzed By: SC		
Prep Batch: 95597		Sample Preparation: 2014-06-20		Prepared By: SC		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1380	mg/Kg	5	4.00

Sample: 366370 - BH-1 29-30'

Laboratory: Midland						
Analysis: Chloride (Titration)		Analytical Method: SM 4500-Cl B		Prep Method: N/A		
QC Batch: 113052		Date Analyzed: 2014-06-23		Analyzed By: SC		
Prep Batch: 95597		Sample Preparation: 2014-06-20		Prepared By: SC		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			148	mg/Kg	5	4.00

Sample: 366371 - BH-1 34-35'

Laboratory: Midland						
Analysis: Chloride (Titration)		Analytical Method: SM 4500-Cl B		Prep Method: N/A		
QC Batch: 113052		Date Analyzed: 2014-06-23		Analyzed By: SC		
Prep Batch: 95597		Sample Preparation: 2014-06-20		Prepared By: SC		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			296	mg/Kg	5	4.00

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 8 of 13
Eddy Co, NM

Method Blanks

Method Blank (1) QC Batch: 113052

QC Batch: 113052
Prep Batch: 95597

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

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

Method Blank (1) QC Batch: 113054

QC Batch: 113054
Prep Batch: 95596

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

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

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 9 of 13
Eddy Co, NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 113052
Prep Batch: 95597

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2560	mg/Kg	5	2500	<19.2	102	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2560	mg/Kg	5	2500	<19.2	102	85 - 115	0	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: 113054
Prep Batch: 95596

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2620	mg/Kg	5	2500	<19.2	105	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2570	mg/Kg	5	2500	<19.2	103	85 - 115	2	20

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

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 10 of 13
Eddy Co, NM

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 366366

QC Batch: 113052
Prep Batch: 95597

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			5760	mg/Kg	5	2500	3100	106	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			5910	mg/Kg	5	2500	3100	112	78.9 - 121	3	20

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

Matrix Spike (MS-1) Spiked Sample: 366343

QC Batch: 113054
Prep Batch: 95596

Date Analyzed: 2014-06-23
QC Preparation: 2014-06-20

Analyzed By: SC
Prepared By: SC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			6810	mg/Kg	5	2500	4330	99	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			6810	mg/Kg	5	2500	4330	99	78.9 - 121	0	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 113052

Date Analyzed: 2014-06-23

Analyzed By: SC

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-06-23

Standard (CCV-1)

QC Batch: 113052

Date Analyzed: 2014-06-23

Analyzed By: SC

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	2014-06-23

Standard (ICV-1)

QC Batch: 113054

Date Analyzed: 2014-06-23

Analyzed By: SC

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-06-23

Standard (CCV-1)

QC Batch: 113054

Date Analyzed: 2014-06-23

Analyzed By: SC

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	2014-06-23

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 than 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

Report Date: June 24, 2014
112MC05896

Work Order: 14062014
COG/BKU #205

Page Number: 13 of 13
Eddy Co, NM

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

1406 2014

Analysis Request of Chain of Custody Record

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

CLIENT NAME:

COG

SITE MANAGER:

Ike Tovar

PROJECT NO.:

112MCOSE910

PROJECT NAME:

BKU 1205

LAB I.D.
NUMBER

DATE

TIME

GRAB

COMP

MATRIX

S

Y

BH-1

0-1

2-3

4-5

6-7

9-10

14-15

19-20

24-25

29-30

34-35

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702