

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	RJ Unit #125 Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit C	Sec 35	T 17S	R 29E		
Lease Number:	API-330-015-03783					
County:	Eddy County					
GPS:	N 32.79474			W 104.04760		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From intersection of 360 and US 82, go east on 82 for 3.4 miles, turn south onto lease road and continue for 2 miles. Turn East onto another lease road for 0.3 miles to location					

Release Data:

Date Released:	8/9/2013
Type Release:	Produced Water
Source of Contamination:	Valve washout
Fluid Released:	35 bls
Fluids Recovered:	32 bbls

Official Communication:

Name:	Robert McNeil		Ike Tavaréz
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		(432) 682-3946
Email:	rmcneil@conchoresources.com		ike.tavaréz@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	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

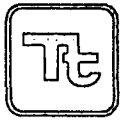
Total Ranking Score:	0	
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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 13 2014

RECEIVED



TETRA TECH

July 30, 2014

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

Re: Closure Report for the COG Operating LLC., RJ Unit, #125 Tank Battery, Unit C, Section 35, Township 17 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 RJ Unit, #125 Tank Battery located in Unit C, Section 35, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79474°, W 104.04760°. 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 9, 2013, and released approximately 35 barrels of produced water from a discharge water line. To alleviate the problem, COG personnel removed the discharge line going to the remover pump. Approximately 32 barrels of standing fluid was recovered. All of the fluids remained inside the facility firewalls. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 35. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 200' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Ste 401 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.

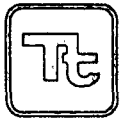
Soil Assessment and Analytical Results

On August 29, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the sample locations were below the RRAL for TPH and BTEX, except for the areas of AH-2. Auger hole (AH-2) showed a shallow impact with a TPH concentrations of 6,500 mg/kg at 0-1' and declining below the RRAL at 1-1.5' below surface. In addition, all of the auger hole locations showed elevated chloride in the subsurface soils to a depth of 9.0' below surface. The chloride impact was not vertically defined.

On November 11, 2013, Tetra Tech personnel installed four (4) boreholes using a drilling rig. Boreholes (BH-1 through BH-4) were installed to vertically define the chloride impact. The borehole locations are shown on Figure 3. The sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Borehole (BH-1) showed a deeper impact to the soils and detected a chloride high of 9,340 mg/kg at 0'-1', which steadily declined with depth to 848 mg/kg at 79-80' below surface. The areas of AH-2 did show a shallow impact to the soils declining to <20 mg/kg at 4-5' below surface. The chlorides spiked to 2,600 mg/kg at 14-15' and 2,930 mg/kg at 19-20', but declined to 594 mg/kg at 24-25' below surface. The areas of BH-3 and BH-4 did show declining chlorides with depth at approximately 49-50' below surface.



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Remedial Activities

On February 19, 2014, Tetra Tech supervised the removal of impacted material as highlighted (green) in Table 1 and shown in Figure 4. Due to accessibility, equipment and safety concerns, the areas of AH-1 through AH-4 were excavated to approximate depths of 3.0' to 4.0' below surface. Once removed, the excavation bottoms were capped with clay to prevent further vertical migration. In the areas that were not accessible, the impacted soil will be deferred until the abandonment of the facility.

Once excavated to the appropriate depths and capped with clay, the excavations were backfilled with clean soil. Approximately 80 cubic yards of excavated soil was transported to proper disposal.

Conclusion

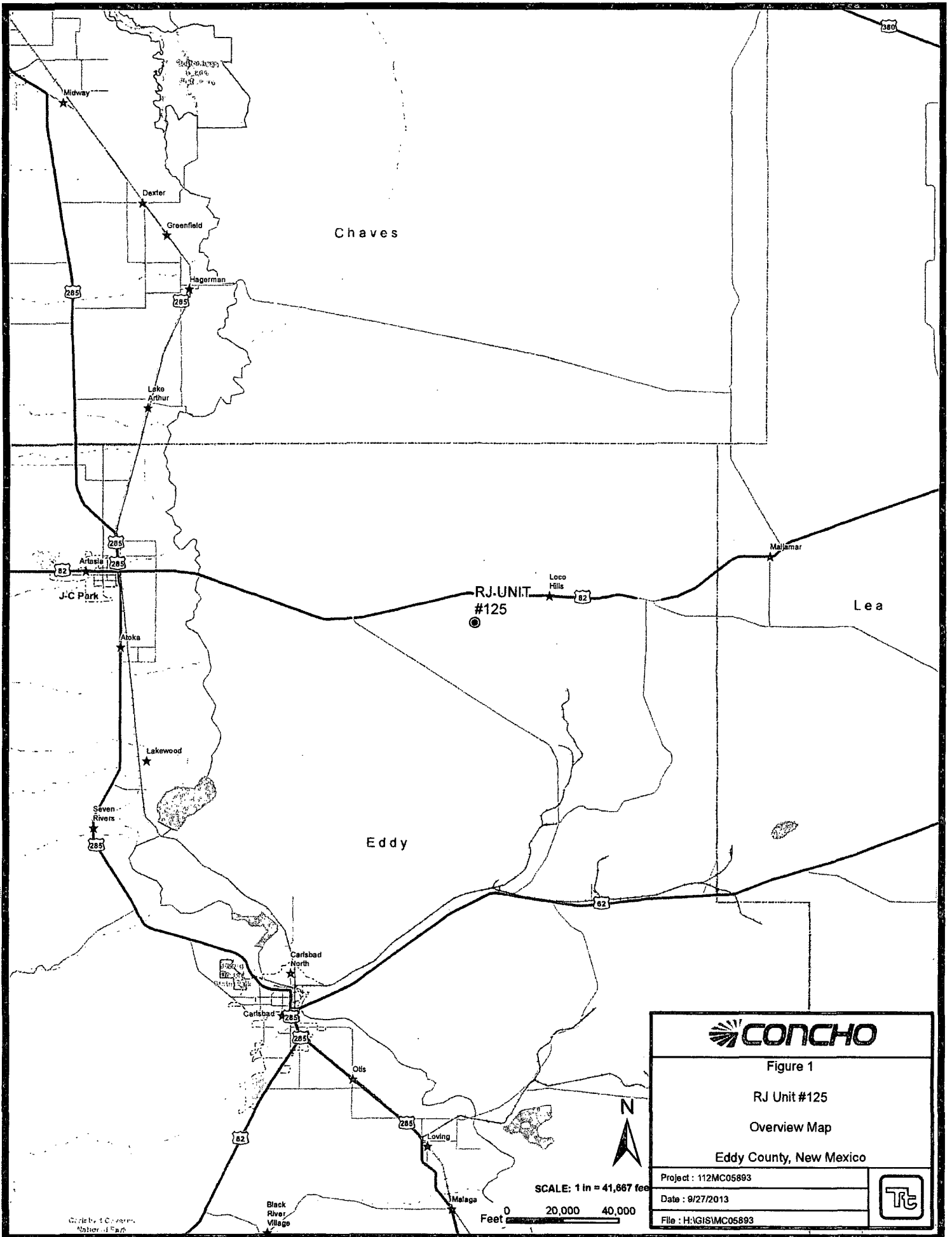
Due to the assessment and work performed, COG requests closure of this site. A Final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavaréz, PG
Senior Project Manager

cc: Robert McNeill – COG
cc: James Amos – BLM

Figures



CONCHO

Figure 1

RJ Unit #125

Overview Map

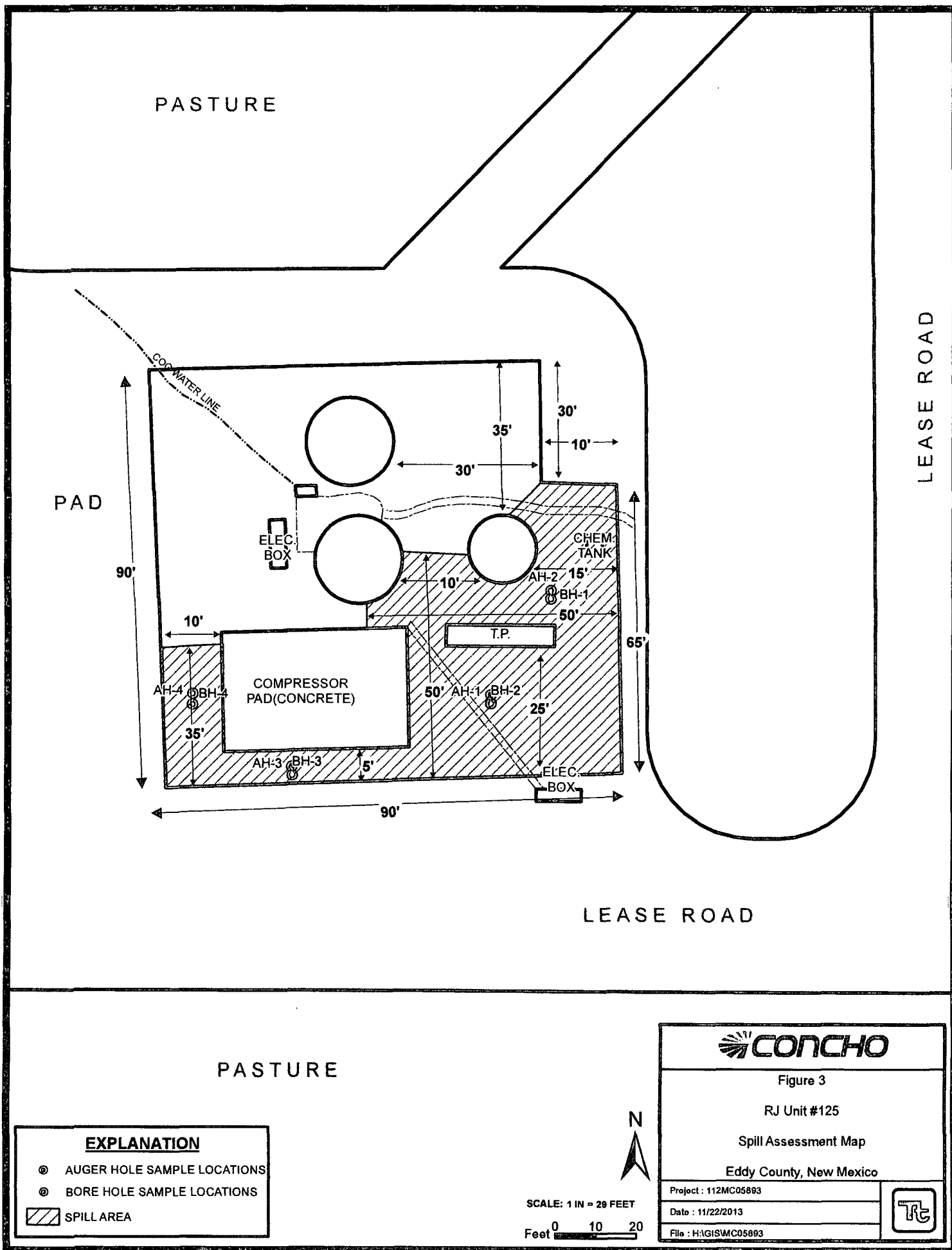
Eddy County, New Mexico

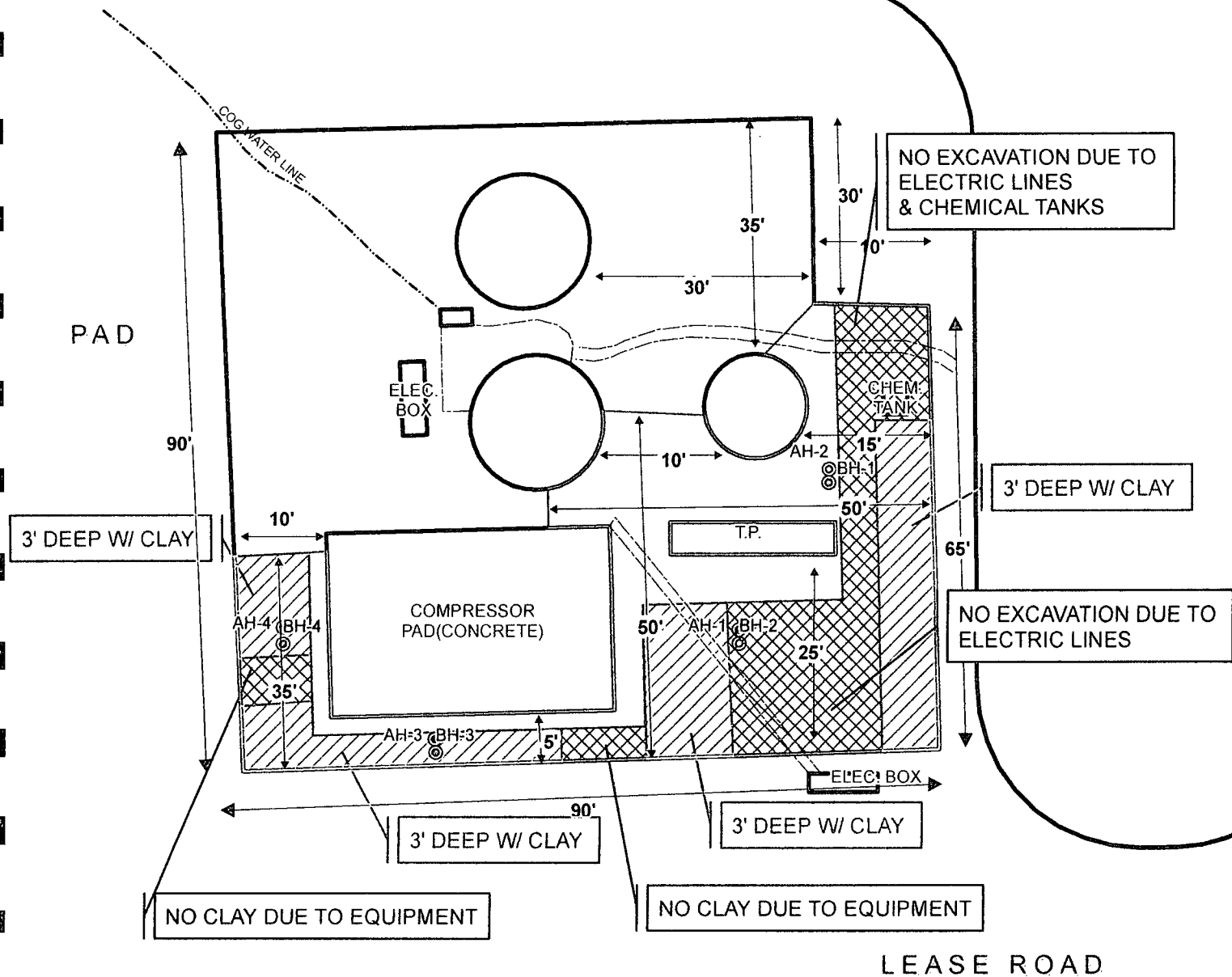
Project : 112MC05893

Date : 9/27/2013

File : H:\GIS\MC05893







EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ⊙ BORE HOLE SAMPLE LOCATIONS
- CLAY CAP
- EXCAVATION AREAS

SCALE: 1 IN = 25 FEET

Feet 0 10 20



Figure 4

RJ Unit #125

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC05893

Date : 3/11/2014

File : H:\GIS\MC05893



Tables

Table 1
COG Operating LLC.
RJ Unit #125
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
RJ Unit #125
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
RJ Unit #125
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
RJ Unit #125
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-4	8/30/2013	0-1			X	<4.0	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	12,400
		1-1.5			X									5,090
		2-2.5			X									7,760
		3-3.5			X									9,000
		4-4.5			X									10,300
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	7,270
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	12,400
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	5,950
	"	8-8.5	-	X		-	-	-	-	-	-	-	-	1,600
	"	9-9.5	-	X		-	-	-	-	-	-	-	-	2,650
BH-4	11/6/2013	0-1			X									4,290
	"	2-3			X									7,910
	"	4-5			X									3,980
	"	6-7	-	X		-	-	-	-	-	-	-	-	7,050
	"	9-10	-	X		-	-	-	-	-	-	-	-	10,200
	"	14-15	-	X		-	-	-	-	-	-	-	-	2,830
	"	19-20	-	X		-	-	-	-	-	-	-	-	3,430
	"	24-25	-	X		-	-	-	-	-	-	-	-	4,320
	"	29-30	-	X		-	-	-	-	-	-	-	-	1,890
	"	39-40	-	X		-	-	-	-	-	-	-	-	1,430
	"	49-50	-	X		-	-	-	-	-	-	-	-	730
Bottom Hole North SW South SW East SW West SW	2/20/2014	3-4	-	X		-	-	-	-	-	-	-	-	4,000
	"		-	X		-	-	-	-	-	-	-	-	7,560
	"		-	X		-	-	-	-	-	-	-	-	176
	"		-	X		-	-	-	-	-	-	-	-	464
	"		-	X		-	-	-	-	-	-	-	-	4,880

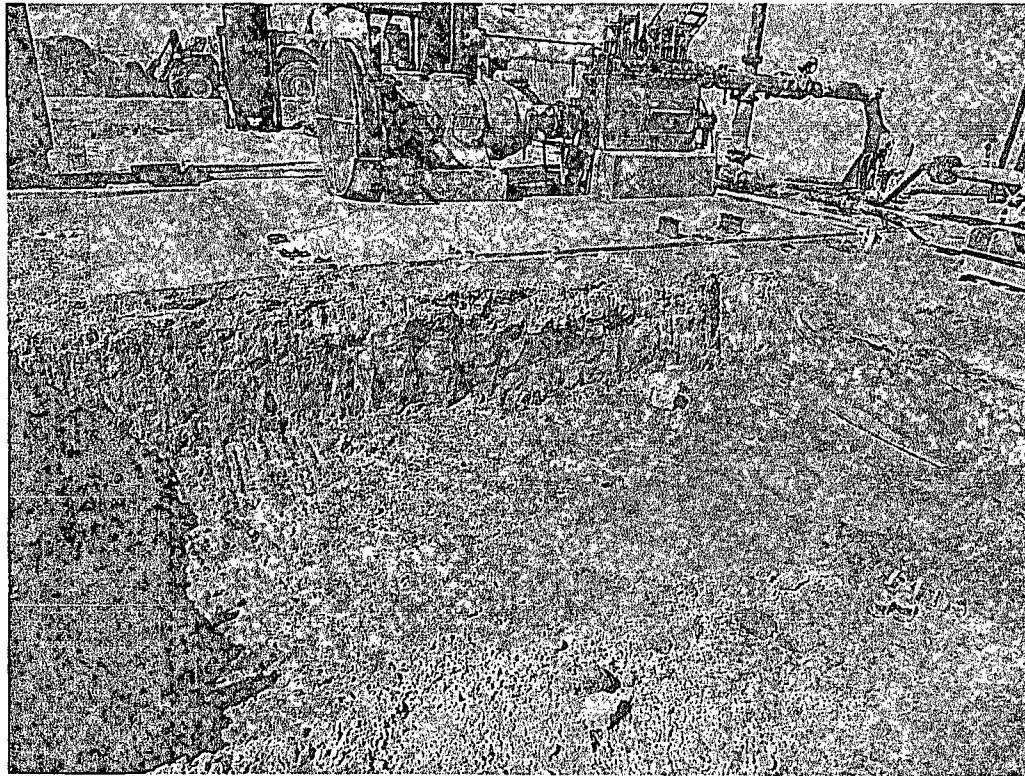
(-) Not Analyzed
(BEB) Below Excavation Bottom
 Excavation Depths
 Clay Material

Photos

COG Operating LLC
RJU #125 Tank Battery
Eddy County, New Mexico



TETRA TECH



View West – Area of AH-1 at 3.0'

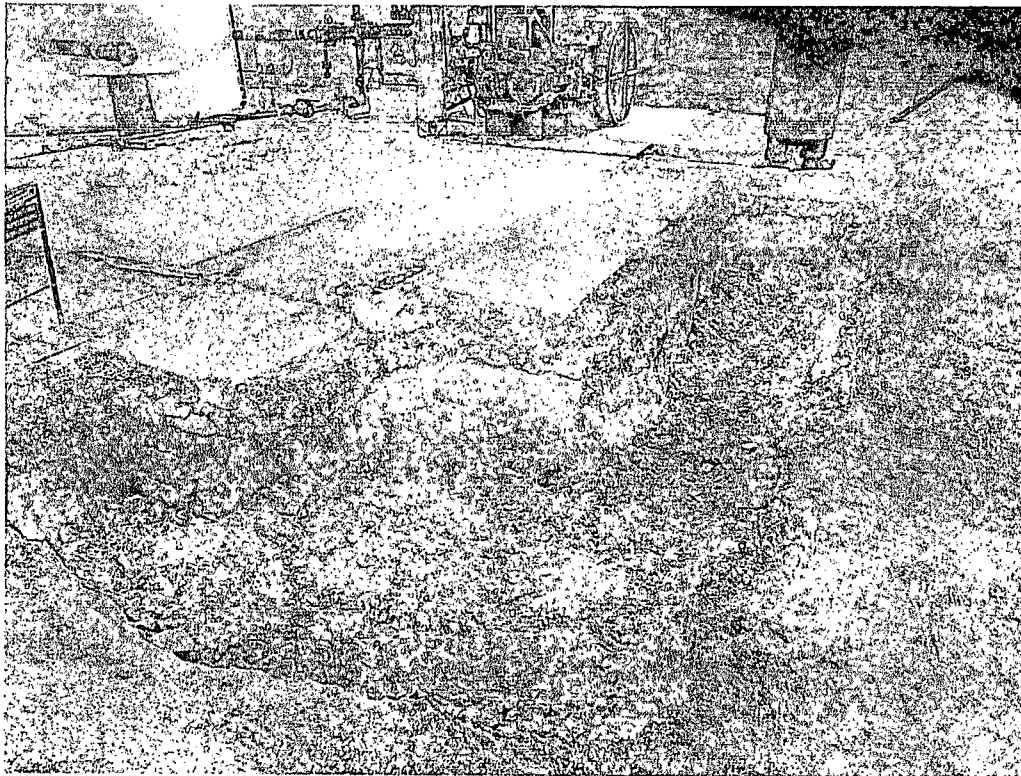


View South – Area of AH-2 at 3.0'

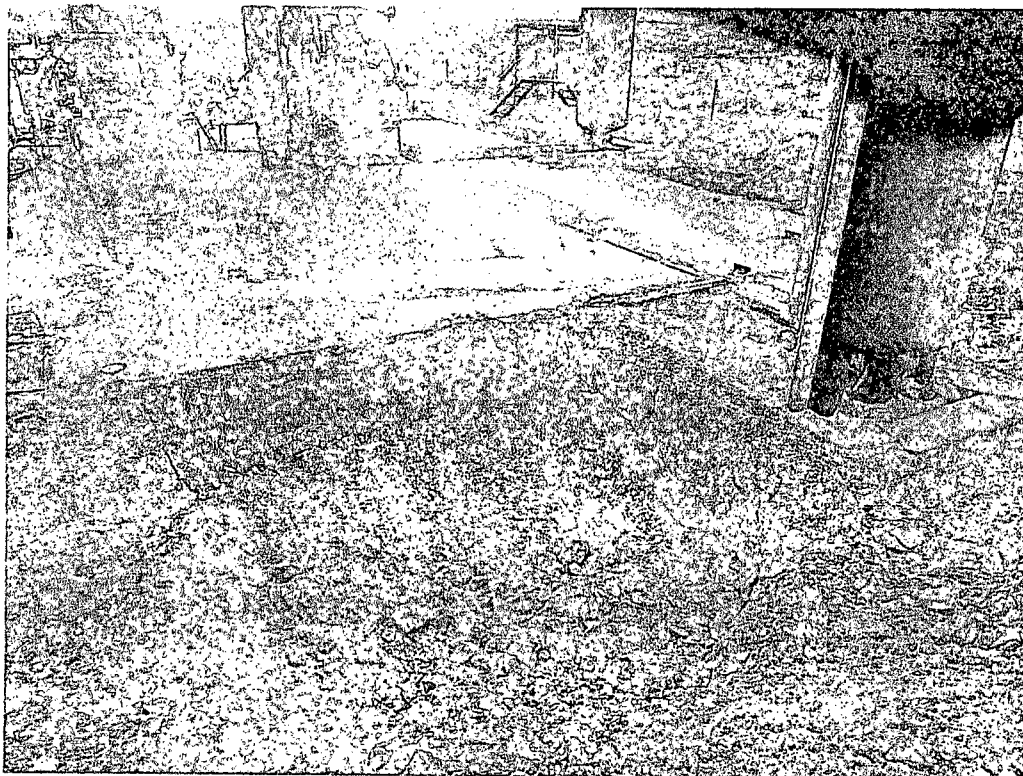
COG Operating LLC
RJU #125 Tank Battery
Eddy County, New Mexico



TETRA TECH

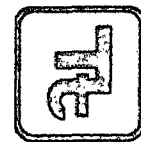


View East – Area of AH-3 at 3.0' and Clay Capped

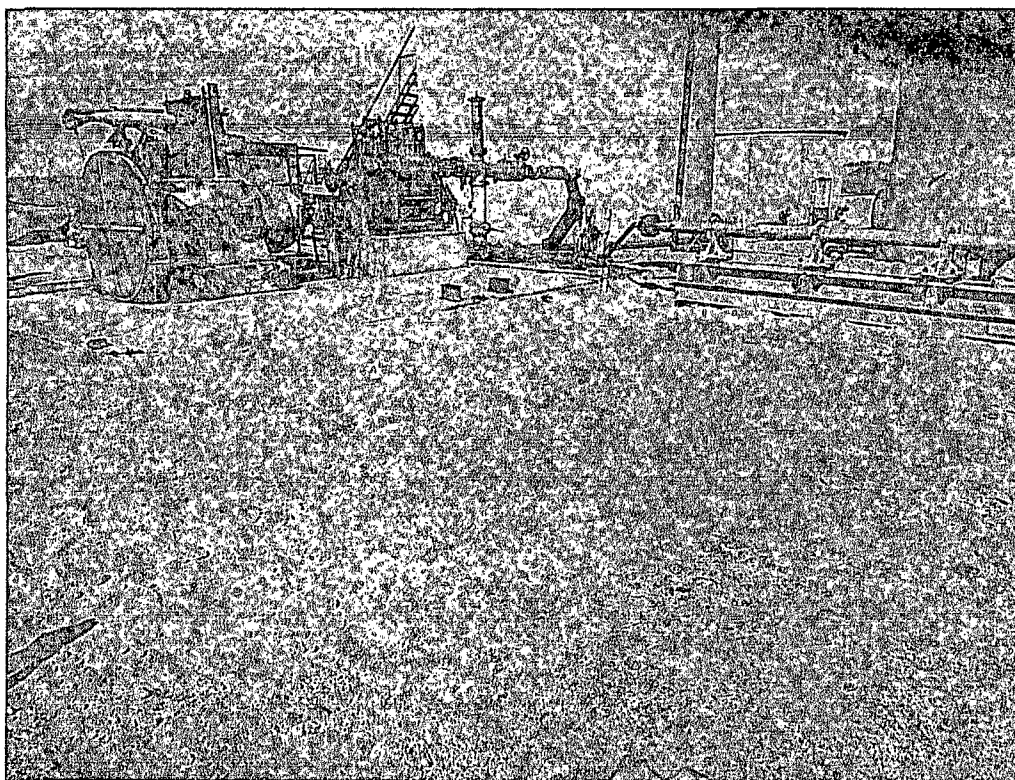


View East – Area of AH-4 at 3.0' and Clay Capped

COG Operating LLC
RJU #125 Tank Battery
Eddy County, New Mexico



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View West – Area of AH-1 Backfilled



View East – Area of AH-3 Backfilled

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	RJ Unit #125	Facility Type	Tank Battery
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-03783	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	35	17S	29E					Eddy

Latitude 32.79474

Longitude 104.04760

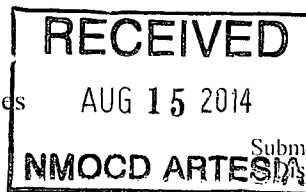
NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	35bbls	Volume Recovered	32bbls
Source of Release	Discharge water line	Date and Hour of Occurrence	08-09-2013	Date and Hour of Discovery	08-09-2013 11:00am
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher - NMOCD		
By Whom?	Michelle Mullins	Date and Hour	08-12-2013 1:38pm		
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.*					
Valve washed out on the discharge line. Removed discharge line going to the remover pump.					
Describe Area Affected and Cleanup Action Taken.*					
Initially 35bbls of produced water were released from a discharge water line we were able to recover 32bbls with a vacuum truck. 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 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: 08-13-2013		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
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Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
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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 Robert McNeill
Address 600 W. Illinois Ave, Midland, Texas 79701	Telephone No. (432) 685-4332
Facility Name RJU #125	Facility Type Tank Battery

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-015-03783
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LOCATION OF RELEASE

Unit Letter C	Section 35	Township 17S	Range 29E	Feet from the	North/South Line	Feet from the	East/West Line	County
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Latitude **32.79474° N** Longitude **104.04760° W**

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 35 bbls	Volume Recovered 32 bbls
Source of Release: Discharge Water Line	Date and Hour of Occurrence 08/09/2013	Date and Hour of Discovery 08/09/2013 11:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher - NMOCD	
By Whom? Michelle Mullins	Date and Hour 08/12/2013 1:38pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

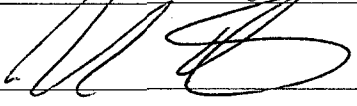
Describe Cause of Problem and Remedial Action Taken.*

Valve washed out on the discharge line. Removed discharge line going to the remover pump.

Describe Area Affected and Cleanup Action Taken.*

Initially 35bbls of produced water were released from a discharge water line. COG personnel were able to recover 32bbls with a vacuum truck. Tetra Tech inspected site and collected samples to define spill extents. Soil that exceeded RRAL was removed and hauled away for proper disposal. The impacted areas inside the firewalls were excavated to depth of approximately 3-4' below surface and capped with clay. Any impacted soil not accessible will be deferred. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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

Signature: 		<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Ike Tavarez (agent for COG)		Approved by District Supervisor:	
Title: Project Manager		Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com		Conditions of Approval:	Attached ☐
Date: 07/31/2014 Phone: (432) 682-4559			

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-RJ Unit #125
Eddy County, New Mexico

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

16 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

17 South			28 East		
6	5	4	3	2 28	1
7	8	9	10	11	12
18	17	16	15	14 80	13
19	20	21	22 45	23	24
30	29	28	27	26	25
31	32	33	34	35 258	36

17 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 76	23	24
30	29 210	28	27	26	25
31	32	33	34	35 153	36

17 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 80	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South			28 East		
6	5	4 108	3	2	1
7 49	8 81	9	10	11	12
18	17	16	15	14	13
19	20	21 226	22	23	24
30 137	29	28	27	26	25
31	32	33	34	35 65	36

18 South			29 East		
6	5	4	3	2	1
7	8	9	10 95	11	12
18	17	16	15	14	13
19	20	21	22	23	24 158
30	29	28	27	26	25
31	32	33	34	35	36

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

-  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: 13090441



Project Location: Eddy Co., NM
Project Name: COG/RJU #125
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
340980	AH-1 0-1'	soil	2013-08-30	00:00	2013-09-04
340981	AH-1 1-1.5'	soil	2013-08-30	00:00	2013-09-04
340982	AH-1 2-2.5'	soil	2013-08-30	00:00	2013-09-04
340983	AH-1 3-3.5'	soil	2013-08-30	00:00	2013-09-04
340984	AH-1 4-4.5'	soil	2013-08-30	00:00	2013-09-04
340985	AH-1 5-5.5'	soil	2013-08-30	00:00	2013-09-04
340986	AH-1 6-6.5'	soil	2013-08-30	00:00	2013-09-04
340987	AH-1 7-7.5'	soil	2013-08-30	00:00	2013-09-04
340988	AH-1 8-8.5'	soil	2013-08-30	00:00	2013-09-04
340989	AH-1 9-9.5'	soil	2013-08-30	00:00	2013-09-04
340990	AH-2 0-1'	soil	2013-08-30	00:00	2013-09-04
340991	AH-2 1-1.5'	soil	2013-08-30	00:00	2013-09-04
340992	AH-2 2-2.5'	soil	2013-08-30	00:00	2013-09-04
340993	AH-2 3-3.5'	soil	2013-08-30	00:00	2013-09-04
340994	AH-2 4-4.5'	soil	2013-08-30	00:00	2013-09-04
340995	AH-2 5-5.5'	soil	2013-08-30	00:00	2013-09-04
340996	AH-2 6-6.5'	soil	2013-08-30	00:00	2013-09-04
340997	AH-2 7-7.5'	soil	2013-08-30	00:00	2013-09-04
340998	AH-2 8-8.5'	soil	2013-08-30	00:00	2013-09-04
340999	AH-2 9-9.5'	soil	2013-08-30	00:00	2013-09-04
341000	AH-3 0-1'	soil	2013-08-30	00:00	2013-09-04
341001	AH-3 1-1.5'	soil	2013-08-30	00:00	2013-09-04
341002	AH-3 2-2.5'	soil	2013-08-30	00:00	2013-09-04
341003	AH-3 3-3.5'	soil	2013-08-30	00:00	2013-09-04
341004	AH-3 4-4.5'	soil	2013-08-30	00:00	2013-09-04
341005	AH-3 5-5.5'	soil	2013-08-30	00:00	2013-09-04
341006	AH-3 6-6.5'	soil	2013-08-30	00:00	2013-09-04
341007	AH-3 7-7.5'	soil	2013-08-30	00:00	2013-09-04
341008	AH-3 8-8.5'	soil	2013-08-30	00:00	2013-09-04
341009	AH-3 9-9.5'	soil	2013-08-30	00:00	2013-09-04

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296

This is only a summary. Please, refer to the complete report package for quality control data.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
341010	AH-4 0-1'	soil	2013-08-30	00:00	2013-09-04
341011	AH-4 1-1.5'	soil	2013-08-30	00:00	2013-09-04
341012	AH-4 2-2.5'	soil	2013-08-30	00:00	2013-09-04
341013	AH-4 3-3.5'	soil	2013-08-30	00:00	2013-09-04
341014	AH-4 4-4.5'	soil	2013-08-30	00:00	2013-09-04
341015	AH-4 5-5.5'	soil	2013-08-30	00:00	2013-09-04
341016	AH-4 6-6.5'	soil	2013-08-30	00:00	2013-09-04
341017	AH-4 7-7.5'	soil	2013-08-30	00:00	2013-09-04
341018	AH-4 8-8.5'	soil	2013-08-30	00:00	2013-09-04
341019	AH-4 9-9.5'	soil	2013-08-30	00:00	2013-09-04

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)
340980 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
340990 - AH-2 0-1'	<0.0200 ¹	<0.0200	<0.0200	0.0935	6500	<20.0 Qs
340991 - AH-2 1-1.5'					71.3	<4.00 Qs
341000 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	64.4	<4.00 Qs
341010 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs

Sample: 340980 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		11800	mg/Kg	4

Sample: 340981 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7980	mg/Kg	4

Sample: 340982 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		787	mg/Kg	4

Sample: 340983 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		573	mg/Kg	4

¹Dilution due to hydrocarbons.

Sample: 340984 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		801	mg/Kg	4

Sample: 340985 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		2230	mg/Kg	4

Sample: 340986 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		4080	mg/Kg	4

Sample: 340987 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		2310	mg/Kg	4

Sample: 340988 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4

Sample: 340989 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1190	mg/Kg	4

Sample: 340990 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		4780	mg/Kg	4

Sample: 340991 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		2900	mg/Kg	4

Sample: 340992 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		3470	mg/Kg	4

Sample: 340993 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		3770	mg/Kg	4

Sample: 340994 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		5740	mg/Kg	4

Sample: 340995 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7060	mg/Kg	4

Sample: 340996 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		7970	mg/Kg	4

Sample: 340997 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		4830	mg/Kg	4

Sample: 340998 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		4240	mg/Kg	4

Sample: 340999 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		4120	mg/Kg	4

Sample: 341000 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		463	mg/Kg	4

Sample: 341001 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		39.0	mg/Kg	4

Sample: 341002 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		974	mg/Kg	4

Sample: 341003 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		7910	mg/Kg	4

Sample: 341004 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		8330	mg/Kg	4

Sample: 341005 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		112	mg/Kg	4

Sample: 341006 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		112	mg/Kg	4

Sample: 341007 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		600	mg/Kg	4

Sample: 341008 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1720	mg/Kg	4

Sample: 341009 - AH-3 9-9.5'

Param	Flag	Result	Units	RL
Chloride		1050	mg/Kg	4

Sample: 341010 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		12400	mg/Kg	4

Sample: 341011 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5090	mg/Kg	4

Sample: 341012 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		7760	mg/Kg	4

Sample: 341013 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		9000	mg/Kg	4

Sample: 341014 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		10300	mg/Kg	4

Sample: 341015 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7270	mg/Kg	4

Sample: 341016 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		12400	mg/Kg	4

Sample: 341017 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		5950	mg/Kg	4

Sample: 341018 - AH-4 8-8.5'

Param	Flag	Result	Units	RL
Chloride		1600	mg/Kg	4

Sample: 341019 - AH-4 9-9.5'

Param	Flag	Result	Units	RL
Chloride		2650	mg/Kg	4

Summary Report

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

Report Date: November 18, 2013

Work Order: 13110805



Project Location: Eddy Co., NM
Project Name: COG/RJU #125
Project Number: 112MC05893

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
346108	BH-1 0-1'	soil	2013-11-06	00:00	2013-11-08
346109	BH-1 2-3'	soil	2013-11-06	00:00	2013-11-08
346110	BH-1 4-5'	soil	2013-11-06	00:00	2013-11-08
346111	BH-1 6-7'	soil	2013-11-06	00:00	2013-11-08
346112	BH-1 9-10'	soil	2013-11-06	00:00	2013-11-08
346113	BH-1 14-15'	soil	2013-11-06	00:00	2013-11-08
346114	BH-1 19-20'	soil	2013-11-06	00:00	2013-11-08
346115	BH-1 24-25'	soil	2013-11-06	00:00	2013-11-08
346116	BH-1 29-30'	soil	2013-11-06	00:00	2013-11-08
346117	BH-1 39-40'	soil	2013-11-06	00:00	2013-11-08
346118	BH-1 49-50'	soil	2013-11-06	00:00	2013-11-08
346119	BH-1 59-60'	soil	2013-11-06	00:00	2013-11-08
346120	BH-1 69-70'	soil	2013-11-06	00:00	2013-11-08
346121	BH-1 79-80'	soil	2013-11-06	00:00	2013-11-08
346122	BH-2 0-1'	soil	2013-11-07	00:00	2013-11-08
346123	BH-2 2-3'	soil	2013-11-07	00:00	2013-11-08
346124	BH-2 4-5'	soil	2013-11-07	00:00	2013-11-08
346125	BH-2 6-7'	soil	2013-11-07	00:00	2013-11-08
346126	BH-2 9-10'	soil	2013-11-07	00:00	2013-11-08
346127	BH-2 14-15'	soil	2013-11-07	00:00	2013-11-08
346128	BH-2 19-20'	soil	2013-11-07	00:00	2013-11-08
346129	BH-2 24-25'	soil	2013-11-07	00:00	2013-11-08
346130	BH-3 0-1'	soil	2013-11-06	00:00	2013-11-08
346131	BH-3 2-3'	soil	2013-11-06	00:00	2013-11-08
346132	BH-3 4-5'	soil	2013-11-06	00:00	2013-11-08
346133	BH-3 6-7'	soil	2013-11-06	00:00	2013-11-08
346134	BH-3 9-10'	soil	2013-11-06	00:00	2013-11-08
346135	BH-3 24-25'	soil	2013-11-06	00:00	2013-11-08
346136	BH-3 29-30'	soil	2013-11-06	00:00	2013-11-08
346137	BH-3 39-40'	soil	2013-11-06	00:00	2013-11-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
346138	BH-3 49-50'	soil	2013-11-06	00:00	2013-11-08
346139	BH-4 0-1'	soil	2013-11-06	00:00	2013-11-08
346140	BH-4 2-3'	soil	2013-11-06	00:00	2013-11-08
346141	BH-4 4-5'	soil	2013-11-06	00:00	2013-11-08
346142	BH-4 6-7'	soil	2013-11-06	00:00	2013-11-08
346143	BH-4 9-10'	soil	2013-11-06	00:00	2013-11-08
346144	BH-4 14-15'	soil	2013-11-06	00:00	2013-11-08
346145	BH-4 19-20'	soil	2013-11-06	00:00	2013-11-08
346146	BH-4 24-25'	soil	2013-11-06	00:00	2013-11-08
346147	BH-4 29-30'	soil	2013-11-06	00:00	2013-11-08
346148	BH-4 39-40'	soil	2013-11-06	00:00	2013-11-08
346149	BH-4 49-50'	soil	2013-11-06	00:00	2013-11-08
346150	BH-3 14-15'	soil	2013-11-06	00:00	2013-11-08
346151	BH-3 19-20'	soil	2013-11-06	00:00	2013-11-08
346152	BH-3 59-60'	soil	2013-11-06	00:00	2013-11-08

Sample: 346108 - BH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		9340	mg/Kg	4

Sample: 346109 - BH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		8920	mg/Kg	4

Sample: 346110 - BH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		1810	mg/Kg	4

Sample: 346111 - BH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		4150	mg/Kg	4

Sample: 346112 - BH-1 9-10'*continued ...*

sample 346112 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		2200	mg/Kg	4

Sample: 346113 - BH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		6720	mg/Kg	4

Sample: 346114 - BH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		4400	mg/Kg	4

Sample: 346115 - BH-1 24-25'

Param	Flag	Result	Units	RL
Chloride		3380	mg/Kg	4

Sample: 346116 - BH-1 29-30'

Param	Flag	Result	Units	RL
Chloride		3980	mg/Kg	4

Sample: 346117 - BH-1 39-40'

Param	Flag	Result	Units	RL
Chloride		3610	mg/Kg	4

Sample: 346118 - BH-1 49-50'

Param	Flag	Result	Units	RL
Chloride		2170	mg/Kg	4

Sample: 346119 - BH-1 59-60'

Param	Flag	Result	Units	RL
Chloride		1270	mg/Kg	4

Sample: 346120 - BH-1 69-70'

Param	Flag	Result	Units	RL
Chloride		1460	mg/Kg	4

Sample: 346121 - BH-1 79-80'

Param	Flag	Result	Units	RL
Chloride		848	mg/Kg	4

Sample: 346122 - BH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		3000	mg/Kg	4

Sample: 346123 - BH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		1620	mg/Kg	4

Sample: 346124 - BH-2 4-5'

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

Sample: 346125 - BH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		180	mg/Kg	4

Sample: 346126 - BH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		87.7	mg/Kg	4

Sample: 346127 - BH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		2600	mg/Kg	4

Sample: 346128 - BH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		2930	mg/Kg	4

Sample: 346129 - BH-2 24-25'

Param	Flag	Result	Units	RL
Chloride		594	mg/Kg	4

Sample: 346130 - BH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		336	mg/Kg	4

Sample: 346131 - BH-3 2-3'

Param	Flag	Result	Units	RL
Chloride		1090	mg/Kg	4

Sample: 346132 - BH-3 4-5'

Param	Flag	Result	Units	RL
Chloride		398	mg/Kg	4

Sample: 346133 - BH-3 6-7'

Param	Flag	Result	Units	RL
Chloride		3360	mg/Kg	4

Sample: 346134 - BH-3 9-10'

Param	Flag	Result	Units	RL
Chloride		7570	mg/Kg	4

Sample: 346135 - BH-3 24-25'

Param	Flag	Result	Units	RL
Chloride		1930	mg/Kg	4

Sample: 346136 - BH-3 29-30'

Param	Flag	Result	Units	RL
Chloride		1850	mg/Kg	4

Sample: 346137 - BH-3 39-40'

Param	Flag	Result	Units	RL
Chloride		1230	mg/Kg	4

Sample: 346138 - BH-3 49-50'

Param	Flag	Result	Units	RL
Chloride		719	mg/Kg	4

Sample: 346139 - BH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		4290	mg/Kg	4

Sample: 346140 - BH-4 2-3'

Param	Flag	Result	Units	RL
Chloride		7610	mg/Kg	4

Sample: 346141 - BH-4 4-5'

Param	Flag	Result	Units	RL
Chloride		3980	mg/Kg	4

Sample: 346142 - BH-4 6-7'

Param	Flag	Result	Units	RL
Chloride		7050	mg/Kg	4

Sample: 346143 - BH-4 9-10'

Param	Flag	Result	Units	RL
Chloride		10200	mg/Kg	4

Sample: 346144 - BH-4 14-15'

Param	Flag	Result	Units	RL
Chloride		2830	mg/Kg	4

Sample: 346145 - BH-4 19-20'

Param	Flag	Result	Units	RL
Chloride		3430	mg/Kg	4

Sample: 346146 - BH-4 24-25'

Param	Flag	Result	Units	RL
Chloride		4320	mg/Kg	4

Sample: 346147 - BH-4 29-30'

Param	Flag	Result	Units	RL
Chloride		1890	mg/Kg	4

Sample: 346148 - BH-4 39-40'

Param	Flag	Result	Units	RL
Chloride		1430	mg/Kg	4

Sample: 346149 - BH-4 49-50'

Param	Flag	Result	Units	RL
Chloride		730	mg/Kg	4

Sample: 346150 - BH-3 14-15'

Param	Flag	Result	Units	RL
Chloride		2250	mg/Kg	4

Sample: 346151 - BH-3 19-20'

Param	Flag	Result	Units	RL
Chloride		2270	mg/Kg	4

Sample: 346152 - BH-3 59-60'

Param	Flag	Result	Units	RL
Chloride		218	mg/Kg	4



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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: November 18, 2013

Work Order: 13110805



Project Location: Eddy Co., NM
Project Name: COG/RJU #125
Project Number: 112MC05893

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
346108	BH-1 0-1'	soil	2013-11-06	00:00	2013-11-08
346109	BH-1 2-3'	soil	2013-11-06	00:00	2013-11-08
346110	BH-1 4-5'	soil	2013-11-06	00:00	2013-11-08
346111	BH-1 6-7'	soil	2013-11-06	00:00	2013-11-08
346112	BH-1 9-10'	soil	2013-11-06	00:00	2013-11-08
346113	BH-1 14-15'	soil	2013-11-06	00:00	2013-11-08
346114	BH-1 19-20'	soil	2013-11-06	00:00	2013-11-08
346115	BH-1 24-25'	soil	2013-11-06	00:00	2013-11-08
346116	BH-1 29-30'	soil	2013-11-06	00:00	2013-11-08
346117	BH-1 39-40'	soil	2013-11-06	00:00	2013-11-08
346118	BH-1 49-50'	soil	2013-11-06	00:00	2013-11-08
346119	BH-1 59-60'	soil	2013-11-06	00:00	2013-11-08
346120	BH-1 69-70'	soil	2013-11-06	00:00	2013-11-08
346121	BH-1 79-80'	soil	2013-11-06	00:00	2013-11-08
346122	BH-2 0-1'	soil	2013-11-07	00:00	2013-11-08
346123	BH-2 2-3'	soil	2013-11-07	00:00	2013-11-08
346124	BH-2 4-5'	soil	2013-11-07	00:00	2013-11-08
346125	BH-2 6-7'	soil	2013-11-07	00:00	2013-11-08

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
346126	BH-2 9-10'	soil	2013-11-07	00:00	2013-11-08
346127	BH-2 14-15'	soil	2013-11-07	00:00	2013-11-08
346128	BH-2 19-20'	soil	2013-11-07	00:00	2013-11-08
346129	BH-2 24-25'	soil	2013-11-07	00:00	2013-11-08
346130	BH-3 0-1'	soil	2013-11-06	00:00	2013-11-08
346131	BH-3 2-3'	soil	2013-11-06	00:00	2013-11-08
346132	BH-3 4-5'	soil	2013-11-06	00:00	2013-11-08
346133	BH-3 6-7'	soil	2013-11-06	00:00	2013-11-08
346134	BH-3 9-10'	soil	2013-11-06	00:00	2013-11-08
346135	BH-3 24-25'	soil	2013-11-06	00:00	2013-11-08
346136	BH-3 29-30'	soil	2013-11-06	00:00	2013-11-08
346137	BH-3 39-40'	soil	2013-11-06	00:00	2013-11-08
346138	BH-3 49-50'	soil	2013-11-06	00:00	2013-11-08
346139	BH-4 0-1'	soil	2013-11-06	00:00	2013-11-08
346140	BH-4 2-3'	soil	2013-11-06	00:00	2013-11-08
346141	BH-4 4-5'	soil	2013-11-06	00:00	2013-11-08
346142	BH-4 6-7'	soil	2013-11-06	00:00	2013-11-08
346143	BH-4 9-10'	soil	2013-11-06	00:00	2013-11-08
346144	BH-4 14-15'	soil	2013-11-06	00:00	2013-11-08
346145	BH-4 19-20'	soil	2013-11-06	00:00	2013-11-08
346146	BH-4 24-25'	soil	2013-11-06	00:00	2013-11-08
346147	BH-4 29-30'	soil	2013-11-06	00:00	2013-11-08
346148	BH-4 39-40'	soil	2013-11-06	00:00	2013-11-08
346149	BH-4 49-50'	soil	2013-11-06	00:00	2013-11-08
346150	BH-3 14-15'	soil	2013-11-06	00:00	2013-11-08
346151	BH-3 19-20'	soil	2013-11-06	00:00	2013-11-08
346152	BH-3 59-60'	soil	2013-11-06	00:00	2013-11-08

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 30 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

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Case Narrative

Samples for project COG/RJU #125 were received by TraceAnalysis, Inc. on 2013-11-08 and assigned to work order 13110805. Samples for work order 13110805 were received intact at a temperature of 9.9 C. Samples 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	90362	2013-11-12 at 08:25	106792	2013-11-14 at 15:07
Chloride (Titration)	SM 4500-Cl B	90362	2013-11-12 at 08:25	106796	2013-11-14 at 15:19
Chloride (Titration)	SM 4500-Cl B	90362	2013-11-12 at 08:25	106815	2013-11-15 at 14:08
Chloride (Titration)	SM 4500-Cl B	90362	2013-11-12 at 08:25	106818	2013-11-15 at 14:39
Chloride (Titration)	SM 4500-Cl B	90362	2013-11-12 at 08:25	106819	2013-11-15 at 14:45
Chloride (Titration)	SM 4500-Cl B	90362	2013-11-12 at 08:25	106820	2013-11-15 at 14:52

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 13110805 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.

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Analytical Report

Sample: 346108 - BH-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106792	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9340	mg/Kg	10	4.00

Sample: 346109 - BH-1 2-3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106792	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			8920	mg/Kg	10	4.00

Sample: 346110 - BH-1 4-5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1810	mg/Kg	10	4.00

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Sample: 346111 - BH-1 6-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4150	mg/Kg	10	4.00

Sample: 346112 - BH-1 9-10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2200	mg/Kg	5	4.00

Sample: 346113 - BH-1 14-15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6720	mg/Kg	10	4.00

Sample: 346114 - BH-1 19-20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4400	mg/Kg	10	4.00

Sample: 346115 - BH-1 24-25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106796 Date Analyzed: 2013-11-14 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3380	mg/Kg	10	4.00

Sample: 346116 - BH-1 29-30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106796 Date Analyzed: 2013-11-14 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

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

Sample: 346117 - BH-1 39-40'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106796 Date Analyzed: 2013-11-14 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3610	mg/Kg	10	4.00

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Sample: 346118 - BH-1 49-50'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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

Sample: 346119 - BH-1 59-60'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-14	Analyzed By:	AR
QC Batch:	106796	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1270	mg/Kg	10	4.00

Sample: 346120 - BH-1 69-70'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1460	mg/Kg	10	4.00

Sample: 346121 - BH-1 79-80'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			848	mg/Kg	5	4.00

Sample: 346122 - BH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	106815	Date Analyzed:	2013-11-15	Analyzed By:	AR
Prep Batch:	90362	Sample Preparation:	2013-11-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3000	mg/Kg	10	4.00

Sample: 346123 - BH-2 2-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	106815	Date Analyzed:	2013-11-15	Analyzed By:	AR
Prep Batch:	90362	Sample Preparation:	2013-11-12	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1620	mg/Kg	10	4.00

Sample: 346124 - BH-2 4-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	106815	Date Analyzed:	2013-11-15	Analyzed By:	AR
Prep Batch:	90362	Sample Preparation:	2013-11-12	Prepared By:	AR

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

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Sample: 346125 - BH-2 6-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			180	mg/Kg	5	4.00

Sample: 346126 - BH-2 9-10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			87.7	mg/Kg	5	4.00

Sample: 346127 - BH-2 14-15'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2600	mg/Kg	10	4.00

Sample: 346128 - BH-2 19-20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106815	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2930	mg/Kg	10	4.00

Sample: 346129 - BH-2 24-25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106815 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			594	mg/Kg	5	4.00

Sample: 346130 - BH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			336	mg/Kg	5	4.00

Sample: 346131 - BH-3 2-3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1090	mg/Kg	5	4.00

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Sample: 346132 - BH-3 4-5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	106818	Date Analyzed:	2013-11-15
Prep Batch:	90362	Sample Preparation:	2013-11-12
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			398	mg/Kg	5	4.00

Sample: 346133 - BH-3 6-7'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	106818	Date Analyzed:	2013-11-15
Prep Batch:	90362	Sample Preparation:	2013-11-12
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3360	mg/Kg	5	4.00

Sample: 346134 - BH-3 9-10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	106818	Date Analyzed:	2013-11-15
Prep Batch:	90362	Sample Preparation:	2013-11-12
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7570	mg/Kg	10	4.00

Sample: 346135 - BH-3 24-25'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	106818	Date Analyzed:	2013-11-15
Prep Batch:	90362	Sample Preparation:	2013-11-12
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1930	mg/Kg	10	4.00

Sample: 346136 - BH-3 29-30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

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

Sample: 346137 - BH-3 39-40'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

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

Sample: 346138 - BH-3 49-50'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			719	mg/Kg	5	4.00

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Sample: 346139 - BH-4 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106818	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4290	mg/Kg	10	4.00

Sample: 346140 - BH-4 2-3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7610	mg/Kg	10	4.00

Sample: 346141 - BH-4 4-5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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

Sample: 346142 - BH-4 6-7'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7050	mg/Kg	10	4.00

Sample: 346143 - BH-4 9-10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106819 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			10200	mg/Kg	10	4.00

Sample: 346144 - BH-4 14-15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106819 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2830	mg/Kg	10	4.00

Sample: 346145 - BH-4 19-20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106819 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3430	mg/Kg	10	4.00

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Sample: 346146 - BH-4 24-25'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4320	mg/Kg	10	4.00

Sample: 346147 - BH-4 29-30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1890	mg/Kg	10	4.00

Sample: 346148 - BH-4 39-40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1430	mg/Kg	5	4.00

Sample: 346149 - BH-4 49-50'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-11-15	Analyzed By:	AR
QC Batch:	106819	Sample Preparation:	2013-11-12	Prepared By:	AR
Prep Batch:	90362				

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Eddy Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			730	mg/Kg	5	4.00

Sample: 346150 - BH-3 14-15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106820 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2250	mg/Kg	10	4.00

Sample: 346151 - BH-3 19-20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106820 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

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

Sample: 346152 - BH-3 59-60'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106820 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 Sample Preparation: 2013-11-12 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			218	mg/Kg	5	4.00

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Eddy Co., NM

Method Blanks

Method Blank (1) QC Batch: 106792

QC Batch: 106792 Date Analyzed: 2013-11-14 Analyzed By: AR
Prep Batch: 90362 QC Preparation: 2013-11-12 Prepared By: AR

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

Method Blank (1) QC Batch: 106796

QC Batch: 106796 Date Analyzed: 2013-11-14 Analyzed By: AR
Prep Batch: 90362 QC Preparation: 2013-11-12 Prepared By: AR

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

Method Blank (1) QC Batch: 106815

QC Batch: 106815 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 QC Preparation: 2013-11-12 Prepared By: AR

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

Method Blank (1) QC Batch: 106818

QC Batch: 106818 Date Analyzed: 2013-11-15 Analyzed By: AR
Prep Batch: 90362 QC Preparation: 2013-11-12 Prepared By: AR

Report Date: November 18, 2013
112MC05893

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Eddy Co., NM

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

Method Blank (1) QC Batch: 106819

QC Batch: 106819
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 106820

QC Batch: 106820
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

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

Report Date: November 18, 2013
112MC05893

Work Order: 13110805
COG/RJU #125

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Eddy Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 106792
Prep Batch: 90362

Date Analyzed: 2013-11-14
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2400	mg/Kg	1	2500	<3.85	96	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			2570	mg/Kg	1	2500	<3.85	103	89.7 - 115.9	7	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: 106796
Prep Batch: 90362

Date Analyzed: 2013-11-14
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2330	mg/Kg	1	2500	<3.85	93	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			2550	mg/Kg	1	2500	<3.85	102	89.7 - 115.9	9	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: 106815
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Report Date: November 18, 2013
112MC05893

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COG/RJU #125

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Eddy Co., NM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	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			2350	mg/Kg	1	2500	<3.85	94	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: 106818
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2550	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			2360	mg/Kg	1	2500	<3.85	94	89.7 - 115.9	8	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: 106819
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2470	mg/Kg	1	2500	<3.85	99	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			2400	mg/Kg	1	2500	<3.85	96	89.7 - 115.9	3	20

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

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112MC05893

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Eddy Co., NM

Laboratory Control Spike (LCS-1)

QC Batch: 106820
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2420	mg/Kg	1	2500	<3.85	97	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	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2490	mg/Kg	1	2500	<3.85	100	89.7 - 115.9	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: 346109

QC Batch: 106792
Prep Batch: 90362

Date Analyzed: 2013-11-14
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11600	mg/Kg	10	2500	8920	107	78.9 - 121

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

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11400	mg/Kg	10	2500	8920	99	78.9 - 121	2	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: 346119

QC Batch: 106796
Prep Batch: 90362

Date Analyzed: 2013-11-14
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3920	mg/Kg	10	2500	1270	106	78.9 - 121

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

Report Date: November 18, 2013
112MC05893

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Param	F	C	MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Chloride			3570	mg/Kg	10	2500	1270	92	78.9 - 121	9	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: 346129

QC Batch: 106815
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Chloride			3160	mg/Kg	5	2500	594	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		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Chloride			3050	mg/Kg	5	2500	594	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: 346139

QC Batch: 106818
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Chloride			6570	mg/Kg	10	2500	4290	91	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		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Chloride			6830	mg/Kg	10	2500	4290	102	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: 346149

QC Batch: 106819
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Report Date: November 18, 2013
112MC05893

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Eddy Co., NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3120	mg/Kg	5	2500	730	96	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			3250	mg/Kg	5	2500	730	101	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: 346152

QC Batch: 106820
Prep Batch: 90362

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2700	mg/Kg	5	2500	218	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			2600	mg/Kg	5	2500	218	95	78.9 - 121	4	20

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

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112MC05893

Work Order: 13110805
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Eddy Co., NM

Calibration Standards

Standard (CCV-1)

QC Batch: 106792

Date Analyzed: 2013-11-14

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	98.8	99	85 - 115	2013-11-14

Standard (CCV-2)

QC Batch: 106792

Date Analyzed: 2013-11-14

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	2013-11-14

Standard (CCV-1)

QC Batch: 106796

Date Analyzed: 2013-11-14

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	2013-11-14

Standard (CCV-2)

QC Batch: 106796

Date Analyzed: 2013-11-14

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	98.9	99	85 - 115	2013-11-14

Report Date: November 18, 2013
112MC05893

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COG/RJU #125

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Eddy Co., NM

Standard (CCV-1)

QC Batch: 106815

Date Analyzed: 2013-11-15

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	2013-11-15

Standard (CCV-2)

QC Batch: 106815

Date Analyzed: 2013-11-15

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	2013-11-15

Standard (CCV-1)

QC Batch: 106818

Date Analyzed: 2013-11-15

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	2013-11-15

Standard (CCV-2)

QC Batch: 106818

Date Analyzed: 2013-11-15

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	2013-11-15

Standard (CCV-1)

QC Batch: 106819

Date Analyzed: 2013-11-15

Analyzed By: AR

Report Date: November 18, 2013
112MC05893

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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	2013-11-15

Standard (CCV-2)

QC Batch: 106819

Date Analyzed: 2013-11-15

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	98.9	99	85 - 115	2013-11-15

Standard (CCV-1)

QC Batch: 106820

Date Analyzed: 2013-11-15

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	2013-11-15

Standard (CCV-2)

QC Batch: 106820

Date Analyzed: 2013-11-15

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	2013-11-15

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	WFWE384444Y0909	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: November 18, 2013
112MC05893

Work Order: 13110805
COG/RJU #125

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Eddy Co., NM

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

13110005

Analysis Request of Chain of Custody Record

PAGE:

OF: 5

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

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ile Tavaraz

PROJECT NO.:

112 NC65843

PROJECT NAME:

William State #1 RJU #125

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

346108

11/14

S

X

BH-1

0-1

109

2-3

110

4-5

111

6-7

112

9-10

113

14-15

114

19-20

115

24-25

116

29-30

117

39-40

RELINQUISHED BY: (Signature)

Date: 11/14/13

Time: 8:07

RECEIVED BY: (Signature)

Date: 11/14/13

Time: 8:07

SAMPLED BY: (Print & Initial)

Date: 11/14/13

Time: 8:07

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:

Results by:

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

RECEIVED BY: (Signature)

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

9.90

REMARKS:

Rec. Samples BH-3 14-15 BH-3 19-20 BH-3 39-60 not in CoC

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

Added per C.G.

Midland - all

Changed name to match
proj # - per C.G.

13110805

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 5

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

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

112M05893

PROJECT NAME:

W H H State #1 RJU #125

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION					NUMBER OF CONTAINERS	FILTERED	HCL	HNO3	ICE	NONE	BTEX 8021	TPH 8017	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volat	TCLP Semi	RCI	GC/MS Vol	GC/MS Sem	PCB's 8080	Pest. 808/6	Chlordane	Gamma Sp	Alpha Beta	PLM (Asbes)	Major Anion				
118	2013 11/4		S		X	BH-1	49-56									X														X							
119							59-60									X														X							
120							69-70									X														X							
121							79-80									X														X							
122	11/7/13					BH-2	0-1									X													X								
123							2-3									X													X								
124							4-5									X													X								
125							6-7									X													X								
126							9-10									X													X								
127							14-15									X													X								

RELINQUISHED BY: (Signature)

Date: 11/7/13
Time: 8:09

RECEIVED BY: (Signature)

Date: 11/8/13
Time: 8:05

SAMPLED BY: (Print & Initial)

Date: 11/6-7/13
Time: 8:05

Date: 11/6-7/13

Time: 8:05

RELINQUISHED BY: (Signature)

Date: _____
Time: _____

RECEIVED BY: (Signature)

Date: _____
Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX BUS

AIRBILL #: _____

HAND DELIVERED UPS

OTHER: _____

RELINQUISHED BY: (Signature)

Date: _____
Time: _____

RECEIVED BY: (Signature)

Date: _____
Time: _____

TETRA TECH CONTACT PERSON:

Results by:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT: _____ PHONE: _____ DATE: _____ TIME: _____

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

990

RUSH Charges

Authorized:

Yes No

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

13110805

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 5

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

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

117N105893

PROJECT NAME:

Enlow State #1 RJU#125

LAB I.D.
NUMBER

DATE

TIME

MATRIX
COMP.
GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

BTX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Vr Pd Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCL

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

128

11/7

5

X

BH-2

19-20

129

11/7

24-25

130

11/6

BH-3

0-1

131

2-3

132

4-5

133

6-7

134

9-10

135

24-25

136

29-30

RELINQUISHED BY: (Signature)

Date: 11/8/13

Time: 8:47

RECEIVED BY: (Signature)

Date: 11/8/13

Time: 8:07

SAMPLE BY: (Print & Initial)

Date: 11/8/13

Time: 8:07

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #: _____

HAND DELIVERED

UPS

OTHER: _____

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

TETRA TECH CONTACT PERSON:

Results by:

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

RECEIVED BY: (Signature)

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

RUSH Charges
Authorized:

Yes No

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

13110805

Analysis Request of Chain of Custody Record

PAGE: 21 OF: 5

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

CDG

SITE MANAGER:

116 Tovaraz

PROJECT NO.:

112M05893

PROJECT NAME:

Willow State #1 RSU #125

LAB I.D.
NUMBER

DATE

TIME

MATRIX
COMP
GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

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TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/808

Pest. 808/808

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 11/8/13

Time: 8:01

RECEIVED BY: (Signature)

Date: 11/8/13

Time: 8:07

SAMPLED BY: (Print & Initial)

Date: 11/6/13

Time: 8:07

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

AIRBILL #: _____

FEDEX

BUS

HAND DELIVERED

UPS

OTHER: _____

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

TETRA TECH CONTACT PERSON:

Results by:

RUSH Charges
Authorized:

Yes No

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

13110805

Analysis Request of Chain of Custody Record

PAGE: 5 OF: 5

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike TAVARE

PROJECT NO.:

112N105893

PROJECT NAME:

Wilton State #1 RJU #125

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

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PRESERVATIVE
METHOD

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Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Date:

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

FEDEX
HAND DELIVERED
BUS
UPS

OTHER:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

TETRA TECH CONTACT PERSON:

Results by:

RUSH Charges
Authorized:

Yes No

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