

# SITE INFORMATION

## Report Type: Work Plan

### General Site Information:

Site:	Birch Keely Unit #196 Well Site					
Company:	COG Operating LLC					
Section, Township and Range	Sec 25	T17S	R29E	Unit P		
Lease Number:	API-30-015-24976					
County:	Eddy County					
GPS:	32.80003° N			104.02646° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of CR 217 and Hwy 82 travel west of Hwy 82 for 1.8 miles, turn left onto lease road and travel 1.3 miles, turn right and travel 0.3 miles to site.					

### Release Data:

Date Released:	2/6/2011
Type Release:	Produced Water
Source of Contamination:	Steel Flowline
Fluid Released:	20 bbls
Fluids Recovered:	18 bbls

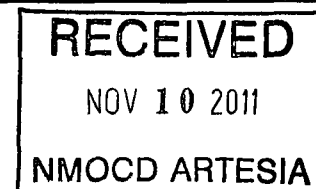
### Official Communication:

Name:	Pat Ellis	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavaréz@tetrattech.com

### Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

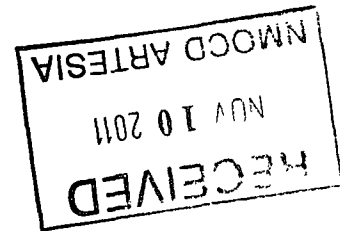
Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000





**TETRA TECH**

October 17, 2011



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

**Re: Work Plan for the COG Operating LLC., Birch Keely Unit #196  
Well Site, Unit P, Section 25, 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 Birch Keely Unit #196 well site located in Unit P, Section 25, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80003°, W 104.02646°. The site location is shown on Figures 1 and 2.

## **Background**

According to the New Mexico Oil Conservation Division (NMOCD) initial C-141 report, the leak was discovered on February 6, 2011, and released approximately twenty (20) barrels of produced fluid from a steel flow line. To alleviate the problem, COG personnel replaced the flow line. Eighteen (18) barrels of standing fluids were recovered. The spill initiated west of the pad affecting an area of approximately 35' X 135' in the pasture. The initial C-141 form is enclosed in Appendix A.

## **Groundwater**

No water wells were listed within Section 25. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 175' below surface. The average depth to groundwater map is show in Appendix B.

**Tetra Tech**

1910 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 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, ethyl-benzene 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, ethyl-benzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

## **Soil Assessment and Analytical Results**

On March 2, 2011, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1, AH-2 and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix 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 exceeded the RRAL for BTEX and TPH. The chloride concentrations were not vertically defined in all of the three auger hole locations.

In order to delineate the chloride impact, soil borings were installed utilizing an air rotary drilling rig. On May 6, 2011, Tetra Tech personnel supervised the installation of three (3) soil bores (SB-1, SB-2 and SB-3). Soil samples were collected to a depth of 50.0' below surface. Referring to Table 1, chloride concentrations declined with depth in SB-1 and SB-2. However, the samples in SB-3 chlorides declined with depth, but spiked at 50.0' below surface, with a chloride of 2,190 mg/kg. Deeper samples could not be collected due to the upper sands sloughing, which would not allow the bottom to remain open. The soil boring locations are shown on Figure 3.

On September 22, 2011, Tetra Tech installed an additional soil boring in the area of SB-3 to attempt to define the extents of the deeper chloride impact. The soil boring was installed to a total depth of 90.0' below surface. Samples were collected at 10.0' intervals from 40.0' to 90.0' below surface.



**TETRA TECH**

Referring to Table 1, the chloride concentrations declined with depth to 465 mg/kg at 70.0' and <200 at 90.0' below surface.

### **Work Plan**

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The spill area will be excavated to approximately 3.0' to 7.0' below surface. Once the areas are excavated to the appropriate depths, the areas of AH-1 (SB-1) and AH-3 (SB-3) will be capped with a 40 mil liner at 4.0' below surface and backfilled with clean soil.

If the excavation depths are not achieved due to safety concerns, 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.

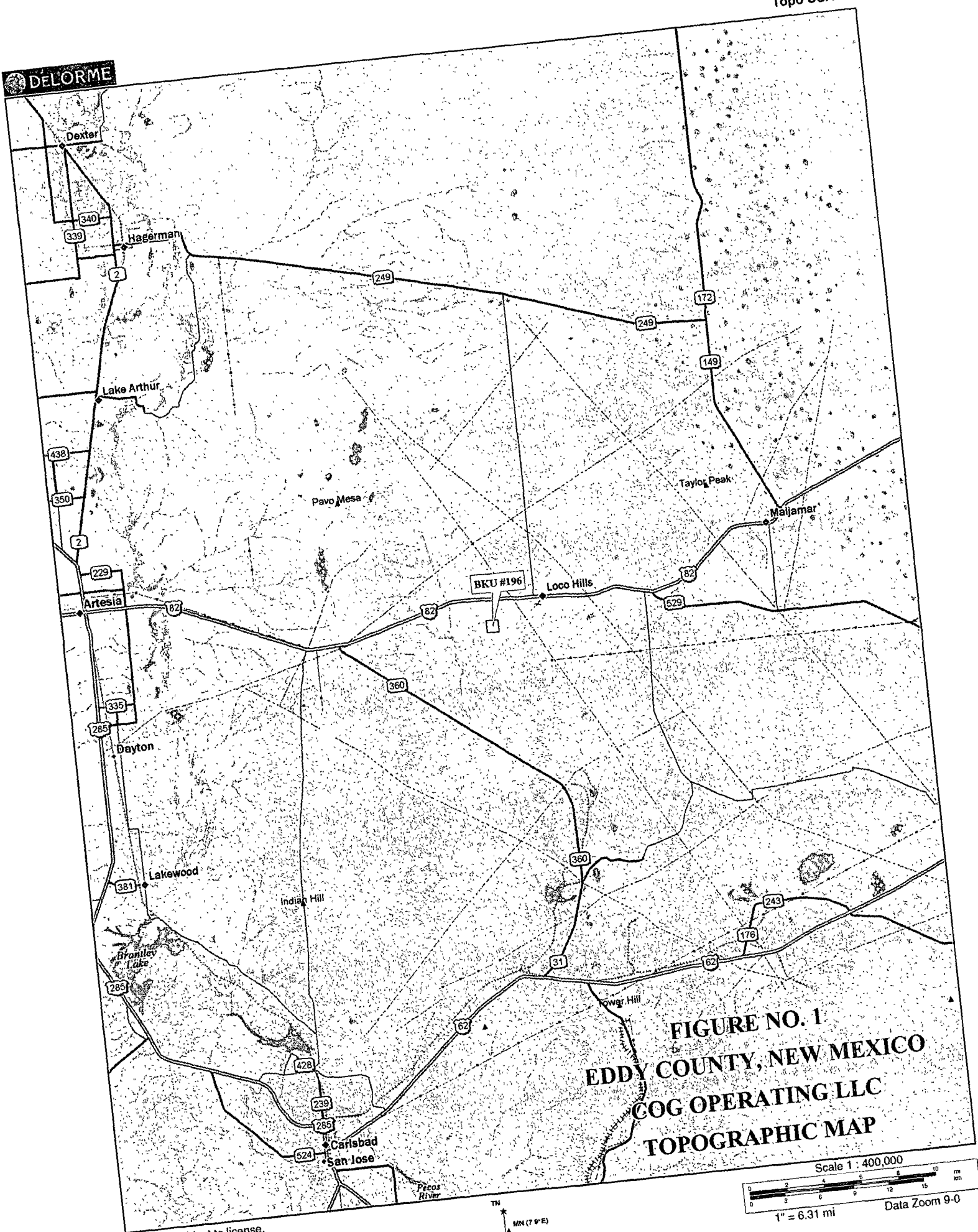
Respectfully submitted,  
TETRA TECH



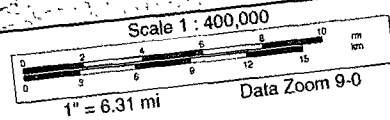
Ike Tavaréz  
Senior Project Manager

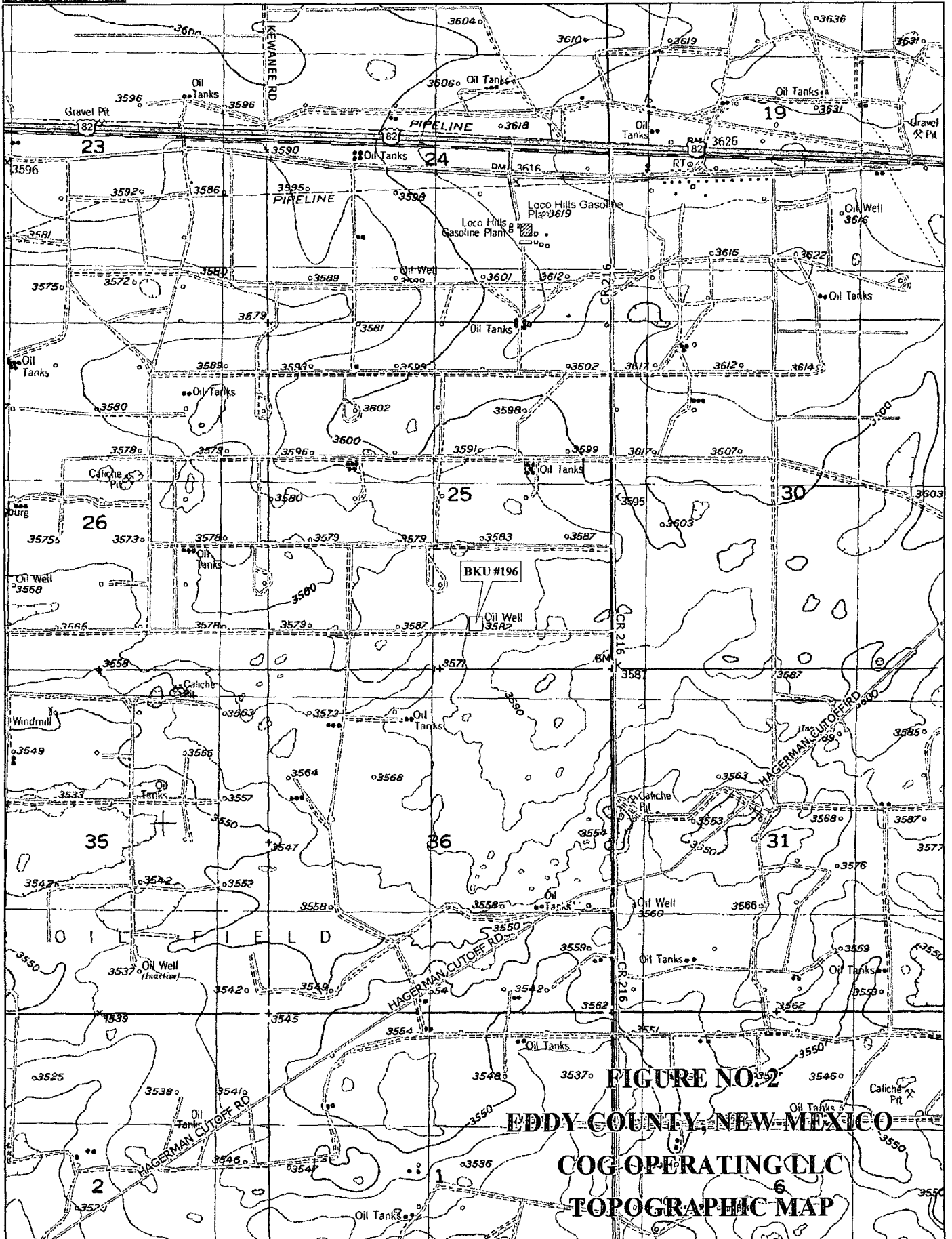
cc: Pat Ellis – COG  
cc: Terry Gregston – BLM

## Figures



**FIGURE NO. 1**  
**EDDY COUNTY, NEW MEXICO**  
**COG OPERATING LLC**  
**TOPOGRAPHIC MAP**

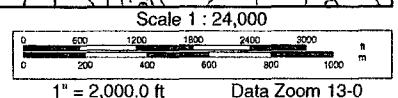


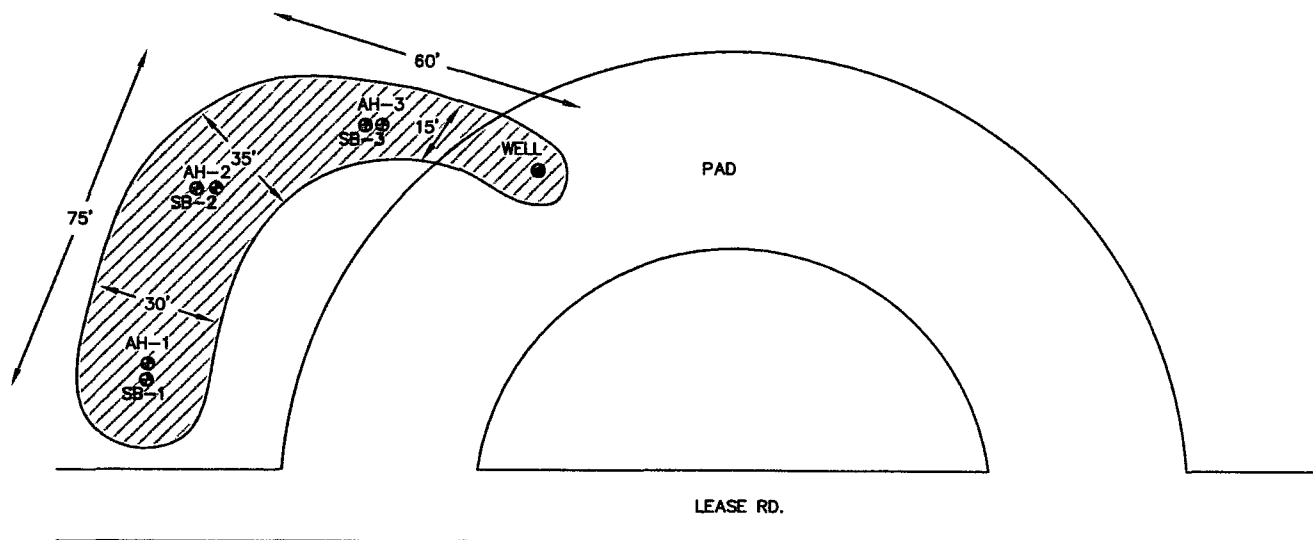


Data use subject to license.

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www.delorme.com





- ☒ SPILL AREA
- ☐ AUGER HOLE LOCATIONS
- ☐ SOIL BORE LOCATIONS

NOT TO SCALE

DATE:  
2/9/11  
DWN. BY:  
JJ  
FILE:  
HA\COG\6400827  
BKU #196

FIGURE NO. 3

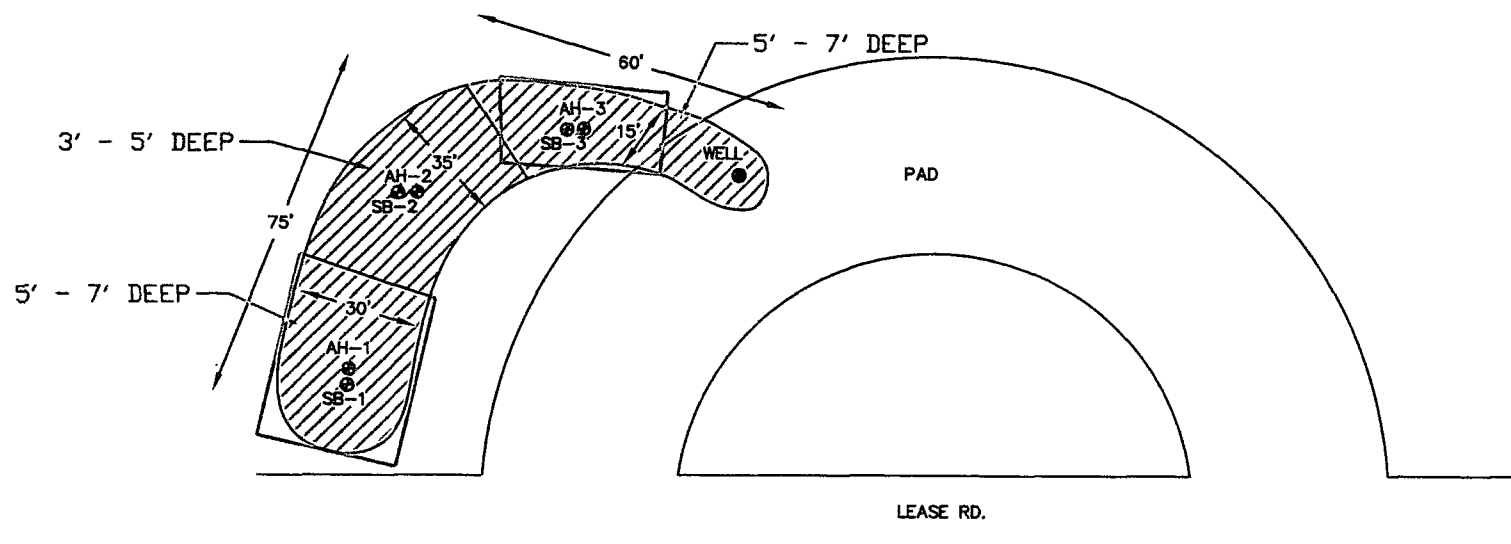
EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

BKU #196

TETRA TECH, INC.  
MIDLAND, TEXAS





- ☒ PROPOSED EXCAVATION DEPTHS
- ☐ PROPOSED LINER INSTALLATION
- ☒ AUGER HOLE LOCATIONS
- ☒ SOIL BORE LOCATIONS

NOT TO SCALE

DATE:  
10/13/2011  
DWN. BY:  
IM  
FILE:  
10-G02A-D400027  
BKU #196

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

BKU #196

TETRA TECH, INC.  
MIDLAND, TEXAS

*Tables*

**EDDY COUNTY, NEW MEXICO**

[illegible]

Table 1  
COG Operating LLC.  
BIRCH KEELY UNIT #196  
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-2	3/2/2011	0-1'	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	3,110
	"	1-1.5'	X									861
SB-2	5/6/2011	0-1'	X									1,630
	"	3'	X									5,100
	"	5'	X		-	-	-	-	-	-	-	736
	"	7'	X		-	-	-	-	-	-	-	518
	"	10'	X		-	-	-	-	-	-	-	670
	"	15'	X		-	-	-	-	-	-	-	381
	"	20'	X		-	-	-	-	-	-	-	599
	"	25'	X		-	-	-	-	-	-	-	676
	"	30'	X		-	-	-	-	-	-	-	<200
	"	40'	X		-	-	-	-	-	-	-	288
	"	50'	X		-	-	-	-	-	-	-	516
	"	60'	X		-	-	-	-	-	-	-	261

**Table 1**  
**COG Operating LLC.**  
**BIRCH KEELY UNIT #196**  
**EDDY COUNTY, NEW MEXICO**

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
<b>AH-3</b>	3/2/2011	0-1'	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	1,590
	"	1-1.5'	X									<200
	"	2-2.5'	X									<200
	"	3-3.5'	X									1,230
<b>SB-3</b>	5/6/2011	0-1'	X									1,730
	"	3'	X									6,240
	"	5'	X									1,490
	"	7'	X		-	-	-	-	-	-	-	3,000
	"	10'	X		-	-	-	-	-	-	-	3,180
	"	15'	X		-	-	-	-	-	-	-	3,010
	"	20'	X		-	-	-	-	-	-	-	3,280
	"	25'	X		-	-	-	-	-	-	-	2,160
	"	30'	X		-	-	-	-	-	-	-	1,540
	"	40'	X		-	-	-	-	-	-	-	1,750
	"	50'	X		-	-	-	-	-	-	-	2,190
<b>SB-3</b>	9/22/2011	40'	X		-	-	-	-	-	-	-	1,890
		50'	X		-	-	-	-	-	-	-	2,510
		60'	X		-	-	-	-	-	-	-	1,190
		70'	X		-	-	-	-	-	-	-	465
		80'	X		-	-	-	-	-	-	-	201
		90'	X		-	-	-	-	-	-	-	<200

(--)

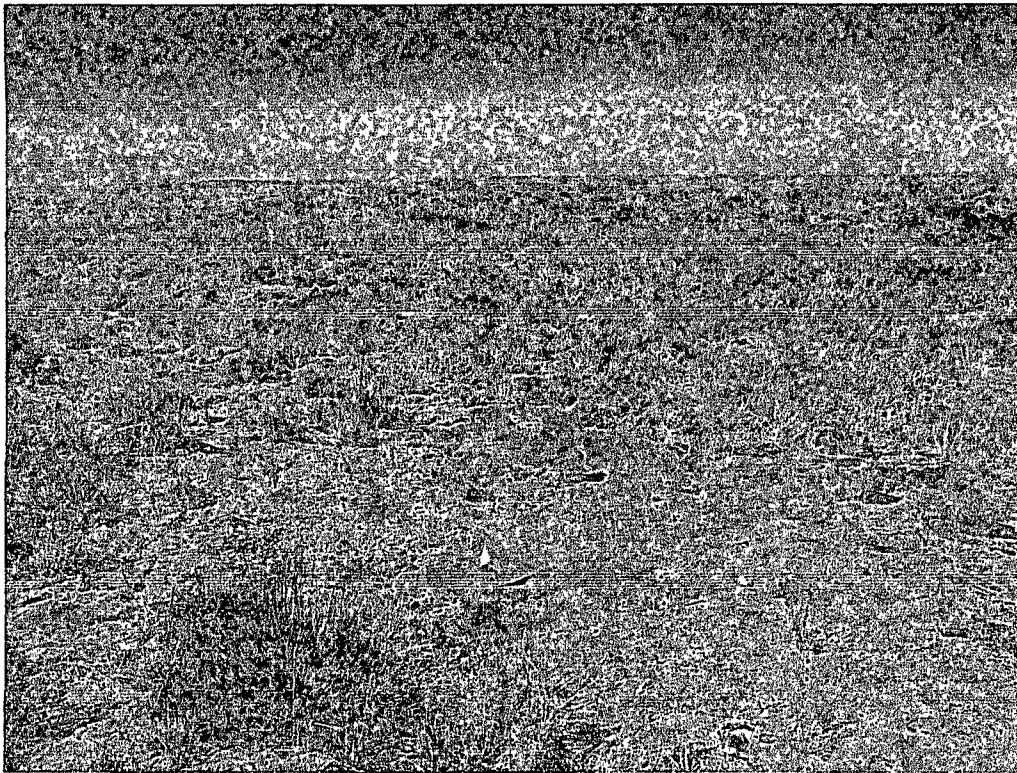
Not Analyzed



Proposed Excavated Depths

Proposed Liner

Photos



View West – AH-3 and AH-2



View South West – AH-2 and AH-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	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Birch Keely Unit #196	Facility Type	Well
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-24976	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	25	17S	29E					Eddy

Latitude 32 47.987 Longitude 104 01.569

**NATURE OF RELEASE**

Type of Release	Produced water	Volume of Release	20bbls	Volume Recovered	18bbls
Source of Release	Steel flowline	Date and Hour of Occurrence	02/06/2011	Date and Hour of Discovery	02/06/2011 6:00 a.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required				
By Whom?	If YES, To Whom?				
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If YES, Volume Impacting the Watercourse.					

If a Watercourse was Impacted, Describe Fully.\*

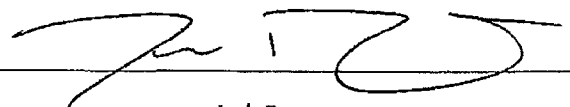
Describe Cause of Problem and Remedial Action Taken.\*

The steel flowline developed a hole due to corrosion. The pipe has been replaced and returned into service.

Describe Area Affected and Cleanup Action Taken.\*

Initially 20bbls of produced water was released from the steel flowline and we were able to recover 18bbls with a vacuum truck. From the source of the release, the water traveled 3' x 35' to a collecting area measuring 15' x 15' in the pasture. All standing fluid has been recovered. Tetra Tech will sample the spill site area to delineate any contamination from the release and we will present a remediation work plan to the NMOCD/BLM for approval prior to any significant remediation work.

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

Signature:				<b>OIL CONSERVATION DIVISION</b>	
Printed Name:	Josh Russo			Approved by District Supervisor:	
Title:	HSE Coordinator			Approval Date:	Expiration Date:
E-mail Address:	jrusso@conchoresources.com			Conditions of Approval:	Attached <input type="checkbox"/>
Date:	02/15/2011			Phone:	432-212-2399

\* Attach Additional Sheets If Necessary

## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG - Birch Keely Unit #196**  
**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	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	
7	8	9	10	11	
18	17	16	15	14	
19	20	21	22	23	
30	29	28	27	26	
31	32	33	34	35	

17 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





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	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

18 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

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

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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data

## Appendix C

## Summary Report

Tom Franklin  
Tetra Tech  
1910 N. Big Spring Street  
Midland, TX 79705

Report Date: March 17, 2011

Work Order: 11030238

Project Location: Eddy County, NM  
Project Name: Birch Keely Unit #196

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
259350	AH-1 0-1'	soil	2011-03-02	00:00	2011-03-02
259351	AH-1 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259352	AH-1 2-2.5'	soil	2011-03-02	00:00	2011-03-02
259353	AH-2 0-1'	soil	2011-03-02	00:00	2011-03-02
259354	AH-2 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259355	AH-3 0-1'	soil	2011-03-02	00:00	2011-03-02
259356	AH-3 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259357	AH-3 2-2.5'	soil	2011-03-02	00:00	2011-03-02
259358	AH-3 3-3.5'	soil	2011-03-02	00:00	2011-03-02

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)
259350 - AH-1 0-1'	<0.0200	0.222	0.204	0.438	97.0	<2.00
259353 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
259355 - AH-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 259350 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		3900	mg/Kg	4.00

Sample: 259351 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		10500	mg/Kg	4.00

**Sample: 259352 - AH-1 2-2.5'**

Param	Flag	Result	Units	RL
Chloride		15600	mg/Kg	4.00

**Sample: 259353 - AH-2 0-1'**

Param	Flag	Result	Units	RL
Chloride		3110	mg/Kg	4.00

**Sample: 259354 - AH-2 1-1.5'**

Param	Flag	Result	Units	RL
Chloride		861	mg/Kg	4.00

**Sample: 259355 - AH-3 0-1'**

Param	Flag	Result	Units	RL
Chloride		1590	mg/Kg	4.00

**Sample: 259356 - AH-3 1-1.5'**

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

**Sample: 259357 - AH-3 2-2.5'**

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

**Sample: 259358 - AH-3 3-3.5'**

Param	Flag	Result	Units	RL
Chloride		1230	mg/Kg	4.00



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298  
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313  
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: lab@traceanalysis.com

## Certifications

WBENC: 237019

HUB: 1752439743100-86536  
NCTRC A WFWB38444Y0909

DBE: VN 20657

## NELAP Certifications

Lubbock: T104704219-08-TX  
LELAP-02003  
Kansas E-10317

El Paso: T104704221-08-TX  
LELAP-02002

Midland: T104704392-08-TX

## Analytical and Quality Control Report

Victoria Inman  
Tetra Tech  
1910 N. Big Spring Street  
Midland, TX, 79705

Report Date: 11, 3

Work Order: 11030238



Project Location: Eddy County, NM  
Project Name: Birch Keely Unit #196  
Project Number: Birch Keely Unit #196

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
259350	AH-1 0-1'	soil	2011-03-02	00:00	2011-03-02
259351	AH-1 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259352	AH-1 2-2.5'	soil	2011-03-02	00:00	2011-03-02
259353	AH-2 0-1'	soil	2011-03-02	00:00	2011-03-02
259354	AH-2 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259355	AH-3 0-1'	soil	2011-03-02	00:00	2011-03-02
259356	AH-3 1-1.5'	soil	2011-03-02	00:00	2011-03-02
259357	AH-3 2-2.5'	soil	2011-03-02	00:00	2011-03-02
259358	AH-3 3-3.5'	soil	2011-03-02	00:00	2011-03-02

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

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive, flowing style.

---

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

**Standard Flags**

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



## Case Narrative

Samples for project Birch Keely Unit #196 were received by TraceAnalysis, Inc. on 2011-03-02 and assigned to work order 11030238. Samples for work order 11030238 were received intact at a temperature of 13.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	67073	2011-03-04 at 12:11	79035	2011-03-04 at 11:34
Chloride (Titration)	SM 4500-Cl B	67258	2011-03-04 at 14:22	79394	2011-03-07 at 09:27
Chloride (Titration)	SM 4500-Cl B	67259	2011-03-07 at 14:23	79396	2011-03-08 at 09:28
TPH DRO - NEW	S 8015 D	67158	2011-03-03 at 13:18	79169	2011-03-03 at 13:18
TPH DRO - NEW	S 8015 D	67236	2011-03-08 at 09:57	79250	2011-03-08 at 09:57
TPH GRO	S 8015 D	67106	2011-03-08 at 09:12	79088	2011-03-08 at 09:53

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 11030238 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: 259350 - AH-1 0-1'**

Laboratory: Midland

Analysis: BTEX

QC Batch: 79035

Prep Batch: 67073

Analytical Method: S 8021B

Date Analyzed: 2011-03-04

Sample Preparation: 2011-03-04

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0200	mg/Kg	1	0.0200
Toluene		<b>0.222</b>	mg/Kg	1	0.0200
Ethylbenzene		<b>0.204</b>	mg/Kg	1	0.0200
Xylene		<b>0.438</b>	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.45	mg/Kg	1	2.00	122	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.45	mg/Kg	1	2.00	122	38.4 - 157

**Sample: 259350 - AH-1 0-1'**

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79394

Prep Batch: 67258

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-07

Sample Preparation: 2011-03-04

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<b>3900</b>	mg/Kg	100	4.00

**Sample: 259350 - AH-1 0-1'**

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79250

Prep Batch: 67236

Analytical Method: S 8015 D

Date Analyzed: 2011-03-08

Sample Preparation: 2011-03-08

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<b>97.0</b>	mg/Kg	1	50.0

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		120	mg/Kg	1	100	120	70 - 130

**Sample: 259350 - AH-1 0-1'**

Laboratory: Midland  
Analysis: TPH GRO  
QC Batch: 79088  
Prep Batch: 67106

Analytical Method: S 8015 D  
Date Analyzed: 2011-03-08  
Sample Preparation: 2011-03-08

Prep Method: S 5035  
Analyzed By: ME  
Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.56	mg/Kg	1	2.00	128	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.26	mg/Kg	1	2.00	113	42 - 159

**Sample: 259351 - AH-1 1-1.5'**

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 79394  
Prep Batch: 67258

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2011-03-07  
Sample Preparation: 2011-03-04

Prep Method: N/A  
Analyzed By: AR  
Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10500	mg/Kg	100	4.00

**Sample: 259352 - AH-1 2-2.5'**

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 79394  
Prep Batch: 67258

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2011-03-07  
Sample Preparation: 2011-03-04

Prep Method: N/A  
Analyzed By: AR  
Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		15600	mg/Kg	100	4.00

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**Sample: 259353 - AH-2 0-1'**

Laboratory: Midland

Analysis: BTEX

QC Batch: 79035

Prep Batch: 67073

Analytical Method: S 8021B

Date Analyzed: 2011-03-04

Sample Preparation: 2011-03-04

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.56	mg/Kg	1	2.00	128	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.47	mg/Kg	1	2.00	124	38.4 - 157

**Sample: 259353 - AH-2 0-1'**

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79394

Prep Batch: 67258

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-07

Sample Preparation: 2011-03-04

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3110	mg/Kg	100	4.00

**Sample: 259353 - AH-2 0-1'**

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79169

Prep Batch: 67158

Analytical Method: S 8015 D

Date Analyzed: 2011-03-03

Sample Preparation: 2011-03-03

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		87.0	mg/Kg	1	100	87	70 - 130

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**Sample: 259353 - AH-2 0-1'**

Laboratory: Midland  
Analysis: TPH GRO  
QC Batch: 79088  
Prep Batch: 67106

Analytical Method: S 8015 D  
Date Analyzed: 2011-03-08  
Sample Preparation: 2011-03-08

Prep Method: S 5035  
Analyzed By: ME  
Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.46	mg/Kg	1	2.00	123	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.08	mg/Kg	1	2.00	104	42 - 159

**Sample: 259354 - AH-2 1-1.5'**

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 79394  
Prep Batch: 67258

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2011-03-07  
Sample Preparation: 2011-03-04

Prep Method: N/A  
Analyzed By: AR  
Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		861	mg/Kg	50	4.00

**Sample: 259355 - AH-3 0-1'**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 79035  
Prep Batch: 67073

Analytical Method: S 8021B  
Date Analyzed: 2011-03-04  
Sample Preparation: 2011-03-04

Prep Method: S 5035  
Analyzed By: ME  
Prepared By: ME

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.48	mg/Kg	1	2.00	124	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.39	mg/Kg	1	2.00	120	38.4 - 157

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**Sample: 259355 - AH-3 0-1'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-07	Analyzed By:	AR
QC Batch:	79394	Sample Preparation:	2011-03-04	Prepared By:	AR
Prep Batch:	67258				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1590	mg/Kg	100	4.00

**Sample: 259355 - AH-3 0-1'**

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-03-03	Analyzed By:	kg
QC Batch:	79169	Sample Preparation:	2011-03-03	Prepared By:	kg
Prep Batch:	67158				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		91.9	mg/Kg	1	100	92	70 - 130

**Sample: 259355 - AH-3 0-1'**

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-03-08	Analyzed By:	ME
QC Batch:	79088	Sample Preparation:	2011-03-08	Prepared By:	ME
Prep Batch:	67106				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.71	mg/Kg	1	2.00	136	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.18	mg/Kg	1	2.00	109	42 - 159

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**Sample: 259356 - AH-3 1-1.5'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-08	Analyzed By:	AR
QC Batch:	79396	Sample Preparation:	2011-03-07	Prepared By:	AR
Prep Batch:	67259				

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

**Sample: 259357 - AH-3 2-2.5'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-08	Analyzed By:	AR
QC Batch:	79396	Sample Preparation:	2011-03-07	Prepared By:	AR
Prep Batch:	67259				

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

**Sample: 259358 - AH-3 3-3.5'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-08	Analyzed By:	AR
QC Batch:	79396	Sample Preparation:	2011-03-07	Prepared By:	AR
Prep Batch:	67259				

Parameter	Flag	RL	Units	Dilution	RL
		Result			
Chloride		1230	mg/Kg	100	4.00

**Method Blank (1)**      QC Batch: 79035

QC Batch:	79035	Date Analyzed:	2011-03-04	Analyzed By:	ME
Prep Batch:	67073	QC Preparation:	2011-03-04	Prepared By:	ME

Parameter	Flag	MDL	Units	RL
		Result		
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02

*continued ...*

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method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.66	mg/Kg	1	2.00	83	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.59	mg/Kg	1	2.00	80	55.4 - 124

**Method Blank (1)**      QC Batch: 79088

QC Batch: 79088  
Prep Batch: 67106

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: ME  
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.98	mg/Kg	1	2.00	99	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.60	mg/Kg	1	2.00	80	52.4 - 130

**Method Blank (1)**      QC Batch: 79169

QC Batch: 79169  
Prep Batch: 67158

Date Analyzed: 2011-03-03  
QC Preparation: 2011-03-03

Analyzed By: kg  
Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		90.1	mg/Kg	1	100	90	70 - 130

**Method Blank (1)**      QC Batch: 79250

QC Batch: 79250  
Prep Batch: 67236

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: kg  
Prepared By: kg



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Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		104	mg/Kg	1	100	104	70 - 130

**Method Blank (1)**      QC Batch: 79394

QC Batch: 79394  
Prep Batch: 67258

Date Analyzed: 2011-03-07  
QC Preparation: 2011-03-04

Analyzed By: AR  
Prepared By: AR

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

**Method Blank (1)**      QC Batch: 79396

QC Batch: 79396  
Prep Batch: 67259

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-07

Analyzed By: AR  
Prepared By: AR

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

**Laboratory Control Spike (LCS-1)**

QC Batch: 79035  
Prep Batch: 67073

Date Analyzed: 2011-03-04  
QC Preparation: 2011-03-04

Analyzed By: ME  
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.81	mg/Kg	1	2.00	<0.0118	90	81.9 - 108
Toluene	1.78	mg/Kg	1	2.00	<0.00600	89	81.9 - 107
Ethylbenzene	1.73	mg/Kg	1	2.00	<0.00850	86	78.4 - 107
Xylene	5.22	mg/Kg	1	6.00	<0.00613	87	79.1 - 107

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.80	mg/Kg	1	2.00	<0.0118	90	81.9 - 108	1	20

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*control spikes continued ...*

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene	1.77	mg/Kg	1	2.00	<0.00600	88	81.9 - 107	1	20
Ethylbenzene	1.74	mg/Kg	1	2.00	<0.00850	87	78.4 - 107	1	20
Xylene	5.23	mg/Kg	1	6.00	<0.00613	87	79.1 - 107	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.88	1.81	mg/Kg	1	2.00	94	90	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.92	1.90	mg/Kg	1	2.00	96	95	69.8 - 121

#### Laboratory Control Spike (LCS-1)

QC Batch: 79088  
Prep Batch: 67106

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: ME  
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	12.9	mg/Kg	1	20.0	<0.753	64	60.9 - 95.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	13.7	mg/Kg	1	20.0	<0.753	68	60.9 - 95.4	6	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.98	1.93	mg/Kg	1	2.00	99	96	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.76	1.74	mg/Kg	1	2.00	88	87	68.2 - 132

#### Laboratory Control Spike (LCS-1)

QC Batch: 79169  
Prep Batch: 67158

Date Analyzed: 2011-03-03  
QC Preparation: 2011-03-03

Analyzed By: kg  
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	241	mg/Kg	1	250	<15.7	96	47.5 - 144.1

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	230	mg/Kg	1	250	<15.7	92	47.5 - 144.1	5	20

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

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

#### Laboratory Control Spike (LCS-1)

QC Batch: 79250  
Prep Batch: 67236

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: kg  
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	202	mg/Kg	1	250	<15.7	81	47.5 - 144.1

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	201	mg/Kg	1	250	<15.7	80	47.5 - 144.1	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	118	123	mg/Kg	1	100	118	123	70 - 130

#### Laboratory Control Spike (LCS-1)

QC Batch: 79394  
Prep Batch: 67258

Date Analyzed: 2011-03-07  
QC Preparation: 2011-03-04

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.1	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<3.85	102	85 - 115	6	20

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

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#### Laboratory Control Spike (LCS-1)

QC Batch: 79396  
Prep Batch: 67259

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-07

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	95.9	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 259205

QC Batch: 79035  
Prep Batch: 67073

Date Analyzed: 2011-03-04  
QC Preparation: 2011-03-04

Analyzed By: ME  
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	4.81	mg/Kg	5	5.00	0.5723	85	80.5 - 112
Toluene	<sup>1</sup> 4.82	mg/Kg	5	5.00	0.7424	82	82.4 - 113
Ethylbenzene	<sup>2</sup> 4.92	mg/Kg	5	5.00	0.874	81	83.9 - 114
Xylene	<sup>3</sup> 14.4	mg/Kg	5	15.0	2.1499	82	84 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	<sup>4</sup> 4.60	mg/Kg	5	5.00	0.5723	80	80.5 - 112	4	20
Toluene	<sup>5</sup> 4.69	mg/Kg	5	5.00	0.7424	79	82.4 - 113	3	20
Ethylbenzene	<sup>6</sup> 5.03	mg/Kg	5	5.00	0.874	83	83.9 - 114	2	20
Xylene	14.8	mg/Kg	5	15.0	2.1499	84	84 - 114	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.72	5.40	mg/Kg	5	5	114	108	41.3 - 117

*continued ...*

<sup>1</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>2</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>3</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>4</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>5</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>6</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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Birch Keely Unit #196

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*matrix spikes continued ...*

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	7.36	7.12	mg/Kg	5	5	147	142	35.5 - 129

**Matrix Spike (MS-1)** Spiked Sample: 259734

QC Batch: 79088  
Prep Batch: 67106

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: ME  
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.6	mg/Kg	1	20.0	<0.753	78	61.8 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	15.4	mg/Kg	1	20.0	<0.753	77	61.8 - 114	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.56	2.52	mg/Kg	1	2	128	126	50 - 162
4-Bromofluorobenzene (4-BFB)	2.15	2.03	mg/Kg	1	2	108	102	50 - 162

**Matrix Spike (MS-1)** Spiked Sample: 259355

QC Batch: 79169  
Prep Batch: 67158

Date Analyzed: 2011-03-03  
QC Preparation: 2011-03-03

Analyzed By: kg  
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	239	mg/Kg	1	250	37.1	81	11.7 - 152.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	263	mg/Kg	1	250	37.1	90	11.7 - 152.3	10	20

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

*continued ...*

<sup>7</sup>High surrogate recovery due to peak interference.

<sup>8</sup>High surrogate recovery due to peak interference.

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*matrix spikes continued ...*

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	109	107	mg/Kg	1	100	109	107	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 259832

QC Batch: 79250  
Prep Batch: 67236

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-08

Analyzed By: kg  
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	<sup>9</sup> 2990	mg/Kg	5	250	2990	0	11.7 - 152.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	<sup>10</sup> 2880	mg/Kg	5	250	2990	0	11.7 - 152.3	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	<sup>11 12</sup> 326	311	mg/Kg	5	100	326	311	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 259335

QC Batch: 79394  
Prep Batch: 67258

Date Analyzed: 2011-03-07  
QC Preparation: 2011-03-04

Analyzed By: AR  
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11400	mg/Kg	100	10000	1590	98	80 - 120

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12000	mg/Kg	100	10000	1590	104	80 - 120	5	20

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

<sup>9</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>10</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>11</sup>High surrogate recovery due to peak interference.

<sup>12</sup>High surrogate recovery due to peak interference.

Report Date: 11, 3  
Birch Keely Unit #196

Work Order: 11030238  
Birch Keely Unit #196

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**Matrix Spike (MS-1)** Spiked Sample: 259810

QC Batch: 79396  
Prep Batch: 67259

Date Analyzed: 2011-03-08  
QC Preparation: 2011-03-07

Analyzed By: AR  
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10100	mg/Kg	100	10000	<385	98	80 - 120

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10300	mg/Kg	100	10000	<385	100	80 - 120	2	20

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

**Standard (CCV-2)**

QC Batch: 79035

Date Analyzed: 2011-03-04

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0941	94	80 - 120	2011-03-04
Toluene		mg/Kg	0.100	0.0941	94	80 - 120	2011-03-04
Ethylbenzene		mg/Kg	0.100	0.0882	88	80 - 120	2011-03-04
Xylene		mg/Kg	0.300	0.268	89	80 - 120	2011-03-04

**Standard (CCV-3)**

QC Batch: 79035

Date Analyzed: 2011-03-04

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0973	97	80 - 120	2011-03-04
Toluene		mg/Kg	0.100	0.0967	97	80 - 120	2011-03-04
Ethylbenzene		mg/Kg	0.100	0.0918	92	80 - 120	2011-03-04
Xylene		mg/Kg	0.300	0.277	92	80 - 120	2011-03-04

**Standard (CCV-1)**

QC Batch: 79088

Date Analyzed: 2011-03-08

Analyzed By: ME

Report Date: 11, 3  
Birch Keely Unit #196

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Birch Keely Unit #196

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.850	85	80 - 120	2011-03-08

**Standard (CCV-2)**

QC Batch: 79088

Date Analyzed: 2011-03-08

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.804	80	80 - 120	2011-03-08

**Standard (CCV-2)**

QC Batch: 79169

Date Analyzed: 2011-03-03

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	234	94	80 - 120	2011-03-03

**Standard (CCV-3)**

QC Batch: 79169

Date Analyzed: 2011-03-03

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	230	92	80 - 120	2011-03-03

**Standard (CCV-3)**

QC Batch: 79250

Date Analyzed: 2011-03-08

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	232	93	80 - 120	2011-03-08

**Standard (CCV-4)**

QC Batch: 79250

Date Analyzed: 2011-03-08

Analyzed By: kg



Report Date: 11, 3  
Birch Keely Unit #196

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	222	89	80 - 120	2011-03-08

**Standard (ICV-1)**

QC Batch: 79394

Date Analyzed: 2011-03-07

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2011-03-07

**Standard (CCV-1)**

QC Batch: 79394

Date Analyzed: 2011-03-07

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.7	100	85 - 115	2011-03-07

**Standard (ICV-1)**

QC Batch: 79396

Date Analyzed: 2011-03-08

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.7	99	85 - 115	2011-03-08

**Standard (CCV-1)**

QC Batch: 79396

Date Analyzed: 2011-03-08

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2011-03-08

W0# 11030238

## Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

 ANALYSIS REQUEST  
 (Circle or Specify Method No.)

CLIENT NAME:

CDO

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

PROJECT NAME:

Birch Keely Unit #196

LAB I.D.  
NUMBERDATE  
2011

TIME

MATRIX

COMP.

GRAB

 Eddy Co NM  
 SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE  
METHOD

GTEX 802TB

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. 8240/8260/624

GC/MS Semi. Vol. 8270/825

PCB's 8080/808

Pest. 808/608

Chlorides

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

259350

3/2

S

X

AH-1

0-1'

1

X

X

X

X

351

AH-1

1-1.5'

352

AH-1

2-2.5

353

AH-2

0-1'

X

X

354

AH-2

1-1.5'

355

AH-3

0-1'

X

X

356

AH-3

1-1.5'

357

AH-3

2-2.5'

358

AH-3

3-3.5'

v

v

v

RELINQUISHED BY: (Signature)

Date:

3-2-11

Time:

15:45

RECEIVED BY: (Signature)

Date:

3/2/11

Time:

15:45

SAMPLED BY: (Print &amp; Initial)

TF

Date:

3-2-11

Time:

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:

Trace

RECEIVED BY: (Signature)

ADDRESS:

CITY: Midland

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

Ike Tavaraz

RUSH Charges  
Authorized:

Yes

No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

3.1°C intact

If total TPH exceeds 5,000 mg/kg run deeper samples.

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

## Summary Report

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

Report Date: May 19, 2011

Work Order: 11051002



Project Location: Eddy Co., NM  
Project Name: COG/Burch Keely Unit #197

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
265956	SB-1 0-1'	soil	2011-05-06	00:00	2011-05-09
265957	SB-1 3'	soil	2011-05-06	00:00	2011-05-09
265958	SB-1 5'	soil	2011-05-06	00:00	2011-05-09
265959	SB-1 7'	soil	2011-05-06	00:00	2011-05-09
265960	SB-1 10'	soil	2011-05-06	00:00	2011-05-09
265961	SB-1 15'	soil	2011-05-06	00:00	2011-05-09
265962	SB-1 20'	soil	2011-05-06	00:00	2011-05-09
265963	SB-1 25'	soil	2011-05-06	00:00	2011-05-09
265964	SB-1 30'	soil	2011-05-06	00:00	2011-05-09
265965	SB-1 40'	soil	2011-05-06	00:00	2011-05-09
265966	SB-1 50'	soil	2011-05-06	00:00	2011-05-09
265967	SB-2 0-1'	soil	2011-05-06	00:00	2011-05-09
265968	SB-2 3'	soil	2011-05-06	00:00	2011-05-09
265969	SB-2 5'	soil	2011-05-06	00:00	2011-05-09
265970	SB-2 7'	soil	2011-05-06	00:00	2011-05-09
265971	SB-2 10'	soil	2011-05-06	00:00	2011-05-09
265972	SB-2 15'	soil	2011-05-06	00:00	2011-05-09
265973	SB-2 20'	soil	2011-05-06	00:00	2011-05-09
265974	SB-2 25'	soil	2011-05-06	00:00	2011-05-09
265975	SB-2 30'	soil	2011-05-06	00:00	2011-05-09
265976	SB-2 40'	soil	2011-05-06	00:00	2011-05-09
265977	SB-2 50'	soil	2011-05-06	00:00	2011-05-09
265978	SB-2 60'	soil	2011-05-06	00:00	2011-05-09
265979	SB-3 0-1'	soil	2011-05-06	00:00	2011-05-09
265980	SB-3 3'	soil	2011-05-06	00:00	2011-05-09
265981	SB-3 5'	soil	2011-05-06	00:00	2011-05-09
265982	SB-3 7'	soil	2011-05-06	00:00	2011-05-09
265983	SB-3 10'	soil	2011-05-06	00:00	2011-05-09
265984	SB-3 15'	soil	2011-05-06	00:00	2011-05-09
265985	SB-3 20'	soil	2011-05-06	00:00	2011-05-09
265986	SB-3 25'	soil	2011-05-06	00:00	2011-05-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
265987	SB-3 30'	soil	2011-05-06	00:00	2011-05-09
265988	SB-3 40'	soil	2011-05-06	00:00	2011-05-09
265989	SB-3 50'	soil	2011-05-06	00:00	2011-05-09

**Sample: 265956 - SB-1 0-1'**

Param	Flag	Result	Units	RL
Chloride		4180	mg/Kg	4

**Sample: 265957 - SB-1 3'**

Param	Flag	Result	Units	RL
Chloride		12600	mg/Kg	4

**Sample: 265958 - SB-1 5'**

Param	Flag	Result	Units	RL
Chloride		8730	mg/Kg	4

**Sample: 265959 - SB-1 7'**

Param	Flag	Result	Units	RL
Chloride		2470	mg/Kg	4

**Sample: 265960 - SB-1 10'**

Param	Flag	Result	Units	RL
Chloride		1360	mg/Kg	4

**Sample: 265961 - SB-1 15'**

Param	Flag	Result	Units	RL
Chloride		1160	mg/Kg	4

**Sample: 265962 - SB-1 20'**

---

Param	Flag	Result	Units	RL
Chloride		1750	mg/Kg	4

---

**Sample: 265963 - SB-1 25'**

---

Param	Flag	Result	Units	RL
Chloride		2560	mg/Kg	4

---

**Sample: 265964 - SB-1 30'**

---

Param	Flag	Result	Units	RL
Chloride		862	mg/Kg	4

---

**Sample: 265965 - SB-1 40'**

---

Param	Flag	Result	Units	RL
Chloride		201	mg/Kg	4

---

**Sample: 265966 - SB-1 50'**

---

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

---

**Sample: 265967 - SB-2 0-1'**

---

Param	Flag	Result	Units	RL
Chloride		1630	mg/Kg	4

---

**Sample: 265968 - SB-2 3'**

---

Param	Flag	Result	Units	RL
Chloride		5100	mg/Kg	4

---

**Sample: 265969 - SB-2 5'**

---

Param	Flag	Result	Units	RL
Chloride		736	mg/Kg	4

---

**Sample: 265970 - SB-2 7'**

Param	Flag	Result	Units	RL
Chloride		518	mg/Kg	4

**Sample: 265971 - SB-2 10'**

Param	Flag	Result	Units	RL
Chloride		670	mg/Kg	4

**Sample: 265972 - SB-2 15'**

Param	Flag	Result	Units	RL
Chloride		381	mg/Kg	4

**Sample: 265973 - SB-2 20'**

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4

**Sample: 265974 - SB-2 25'**

Param	Flag	Result	Units	RL
Chloride		676	mg/Kg	4

**Sample: 265975 - SB-2 30'**

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

**Sample: 265976 - SB-2 40'**

Param	Flag	Result	Units	RL
Chloride		288	mg/Kg	4

**Sample: 265977 - SB-2 50'**

Param	Flag	Result	Units	RL
Chloride		516	mg/Kg	4

**Sample: 265978 - SB-2 60'**

Param	Flag	Result	Units	RL
Chloride		261	mg/Kg	4

**Sample: 265979 - SB-3 0-1'**

Param	Flag	Result	Units	RL
Chloride		1730	mg/Kg	4

**Sample: 265980 - SB-3 3'**

Param	Flag	Result	Units	RL
Chloride		6240	mg/Kg	4

**Sample: 265981 - SB-3 5'**

Param	Flag	Result	Units	RL
Chloride		1490	mg/Kg	4

**Sample: 265982 - SB-3 7'**

Param	Flag	Result	Units	RL
Chloride		3000	mg/Kg	4

**Sample: 265983 - SB-3 10'**

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4

**Sample: 265984 - SB-3 15'**

Param	Flag	Result	Units	RL
Chloride		3010	mg/Kg	4

**Sample: 265985 - SB-3 20'**

Param	Flag	Result	Units	RL
Chloride		3280	mg/Kg	4

**Sample: 265986 - SB-3 25'**

Param	Flag	Result	Units	RL
Chloride		2160	mg/Kg	4

**Sample: 265987 - SB-3 30'**

Param	Flag	Result	Units	RL
Chloride		1540	mg/Kg	4

**Sample: 265988 - SB-3 40'**

Param	Flag	Result	Units	RL
Chloride		1750	mg/Kg	4

**Sample: 265989 - SB-3 50'**

Param	Flag	Result	Units	RL
Chloride		2190	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 888•588•3443 915•588•3443 FAX 915•588•4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313  
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: lab@traceanalysis.com

## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

## Analytical and Quality Control Report

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

Report Date: May 19, 2011

Work Order: 11051002



Project Location: Eddy Co., NM  
Project Name: COG/Burch Keely Unit #197  
Project Number: COG/Burch Keely Unit #197

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
265956	SB-1 0-1'	soil	2011-05-06	00:00	2011-05-09
265957	SB-1 3'	soil	2011-05-06	00:00	2011-05-09
265958	SB-1 5'	soil	2011-05-06	00:00	2011-05-09
265959	SB-1 7'	soil	2011-05-06	00:00	2011-05-09
265960	SB-1 10'	soil	2011-05-06	00:00	2011-05-09
265961	SB-1 15'	soil	2011-05-06	00:00	2011-05-09
265962	SB-1 20'	soil	2011-05-06	00:00	2011-05-09
265963	SB-1 25'	soil	2011-05-06	00:00	2011-05-09
265964	SB-1 30'	soil	2011-05-06	00:00	2011-05-09
265965	SB-1 40'	soil	2011-05-06	00:00	2011-05-09
265966	SB-1 50'	soil	2011-05-06	00:00	2011-05-09
265967	SB-2 0-1'	soil	2011-05-06	00:00	2011-05-09
265968	SB-2 3'	soil	2011-05-06	00:00	2011-05-09
265969	SB-2 5'	soil	2011-05-06	00:00	2011-05-09
265970	SB-2 7'	soil	2011-05-06	00:00	2011-05-09
265971	SB-2 10'	soil	2011-05-06	00:00	2011-05-09
265972	SB-2 15'	soil	2011-05-06	00:00	2011-05-09
265973	SB-2 20'	soil	2011-05-06	00:00	2011-05-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
265974	SB-2 25'	soil	2011-05-06	00:00	2011-05-09
265975	SB-2 30'	soil	2011-05-06	00:00	2011-05-09
265976	SB-2 40'	soil	2011-05-06	00:00	2011-05-09
265977	SB-2 50'	soil	2011-05-06	00:00	2011-05-09
265978	SB-2 60'	soil	2011-05-06	00:00	2011-05-09
265979	SB-3 0-1'	soil	2011-05-06	00:00	2011-05-09
265980	SB-3 3'	soil	2011-05-06	00:00	2011-05-09
265981	SB-3 5'	soil	2011-05-06	00:00	2011-05-09
265982	SB-3 7'	soil	2011-05-06	00:00	2011-05-09
265983	SB-3 10'	soil	2011-05-06	00:00	2011-05-09
265984	SB-3 15'	soil	2011-05-06	00:00	2011-05-09
265985	SB-3 20'	soil	2011-05-06	00:00	2011-05-09
265986	SB-3 25'	soil	2011-05-06	00:00	2011-05-09
265987	SB-3 30'	soil	2011-05-06	00:00	2011-05-09
265988	SB-3 40'	soil	2011-05-06	00:00	2011-05-09
265989	SB-3 50'	soil	2011-05-06	00:00	2011-05-09

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




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

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## Case Narrative

Samples for project COG/Burch Keely Unit #197 were received by TraceAnalysis, Inc. on 2011-05-09 and assigned to work order 11051002. Samples for work order 11051002 were received intact at a temperature of 11.9 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	68908	2011-05-12 at 10:54	81304	2011-05-17 at 12:19
Chloride (Titration)	SM 4500-Cl B	68908	2011-05-12 at 10:54	81359	2011-05-18 at 15:05
Chloride (Titration)	SM 4500-Cl B	68908	2011-05-12 at 10:54	81360	2011-05-18 at 15:06
Chloride (Titration)	SM 4500-Cl B	68908	2011-05-12 at 10:54	81362	2011-05-18 at 15:08

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 11051002 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: 265956 - SB-1 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4180	mg/Kg	100	4.00

### Sample: 265957 - SB-1 3'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			12600	mg/Kg	100	4.00

### Sample: 265958 - SB-1 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			8730	mg/Kg	100	4.00

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**Sample: 265959 - SB-1 7'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2470	mg/Kg	100	4.00

**Sample: 265960 - SB-1 10'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1360	mg/Kg	100	4.00

**Sample: 265961 - SB-1 15'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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

**Sample: 265962 - SB-1 20'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81359	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1750	mg/Kg	100	4.00

**Sample: 265963 - SB-1 25'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81359      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2560	mg/Kg	100	4.00

**Sample: 265964 - SB-1 30'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81359      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			862	mg/Kg	50	4.00

**Sample: 265965 - SB-1 40'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81359      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			201	mg/Kg	50	4.00



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**Sample: 265966 - SB-1 50'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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

**Sample: 265967 - SB-2 0-1'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1630	mg/Kg	50	4.00

**Sample: 265968 - SB-2 3'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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

**Sample: 265969 - SB-2 5'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			736	mg/Kg	50	4.00

**Sample: 265970 - SB-2 7'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81360      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			518	mg/Kg	50	4.00

**Sample: 265971 - SB-2 10'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81360      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			670	mg/Kg	50	4.00

**Sample: 265972 - SB-2 15'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81360      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			381	mg/Kg	50	4.00

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**Sample: 265973 - SB-2 20'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			599	mg/Kg	50	4.00

**Sample: 265974 - SB-2 25'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			676	mg/Kg	50	4.00

**Sample: 265975 - SB-2 30'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81360	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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

**Sample: 265976 - SB-2 40'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81362	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			288	mg/Kg	50	4.00

**Sample: 265977 - SB-2 50'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			516	mg/Kg	50	4.00

**Sample: 265978 - SB-2 60'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			261	mg/Kg	50	4.00

**Sample: 265979 - SB-3 0-1'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1730	mg/Kg	50	4.00

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**Sample: 265980 - SB-3 3'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81362	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6240	mg/Kg	100	4.00

**Sample: 265981 - SB-3 5'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81362	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1490	mg/Kg	100	4.00

**Sample: 265982 - SB-3 7'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81362	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3000	mg/Kg	100	4.00

**Sample: 265983 - SB-3 10'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-18	Analyzed By:	AR
QC Batch:	81362	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3180	mg/Kg	100	4.00

**Sample: 265984 - SB-3 15'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3010	mg/Kg	100	4.00

**Sample: 265985 - SB-3 20'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3280	mg/Kg	100	4.00

**Sample: 265986 - SB-3 25'**

Laboratory: Midland  
Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 81304      Date Analyzed: 2011-05-17      Analyzed By: AR  
Prep Batch: 68908      Sample Preparation: 2011-05-12      Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2160	mg/Kg	100	4.00

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**Sample: 265987 - SB-3 30'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-17	Analyzed By:	AR
QC Batch:	81304	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1540	mg/Kg	100	4.00

**Sample: 265988 - SB-3 40'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-17	Analyzed By:	AR
QC Batch:	81304	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1750	mg/Kg	100	4.00

**Sample: 265989 - SB-3 50'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-17	Analyzed By:	AR
QC Batch:	81304	Sample Preparation:	2011-05-12	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2190	mg/Kg	100	4.00

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

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Eddy Co., NM

## Method Blanks

Method Blank (1)      QC Batch: 81304

QC Batch: 81304      Date Analyzed: 2011-05-17      Analyzed By: AR  
Prep Batch: 68908      QC Preparation: 2011-05-12      Prepared By: AR

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

Method Blank (1)      QC Batch: 81359

QC Batch: 81359      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      QC Preparation: 2011-05-12      Prepared By: AR

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

Method Blank (1)      QC Batch: 81360

QC Batch: 81360      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      QC Preparation: 2011-05-12      Prepared By: AR

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

Method Blank (1)      QC Batch: 81362

QC Batch: 81362      Date Analyzed: 2011-05-18      Analyzed By: AR  
Prep Batch: 68908      QC Preparation: 2011-05-12      Prepared By: AR



Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 17 of 24  
Eddy Co., NM

---

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

---

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 18 of 24  
Eddy Co., NM

## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 81304  
Prep Batch: 68908

Date Analyzed: 2011-05-17  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.5	mg/Kg	1	100	<3.85	98	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			106	mg/Kg	1	100	<3.85	106	85 - 115	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: 81359  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.2	mg/Kg	1	100	<3.85	96	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			104	mg/Kg	1	100	<3.85	104	85 - 115	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: 81360  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 19 of 24  
Eddy Co., NM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.4	mg/Kg	1	100	<3.85	97	85 - 115

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			103	mg/Kg	1	100	<3.85	103	85 - 115	6	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch: 81362  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.2	mg/Kg	1	100	<3.85	96	85 - 115

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			104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 266030

QC Batch: 81304  
Prep Batch: 68908

Date Analyzed: 2011-05-17  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			5160	mg/Kg	50	5000	239	98	80 - 120

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			5440	mg/Kg	50	5000	239	104	80 - 120	5	20

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

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 20 of 24  
Eddy Co., NM

**Matrix Spike (MS-1)** Spiked Sample: 265965

QC Batch: 81359  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9860	mg/Kg	100	10000	<385	96	80 - 120

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			10400	mg/Kg	100	10000	<385	102	80 - 120	5	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: 265975

QC Batch: 81360  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	<385	104	80 - 120

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			10800	mg/Kg	100	10000	<385	108	80 - 120	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: 265985

QC Batch: 81362  
Prep Batch: 68908

Date Analyzed: 2011-05-18  
QC Preparation: 2011-05-12

Analyzed By: AR  
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			13600	mg/Kg	100	10000	3280	103	80 - 120

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

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 21 of 24  
Eddy Co., NM

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			14100	mg/Kg	100	10000	3280	108	80 - 120	4	20

---

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

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 22 of 24  
Eddy Co., NM

## Calibration Standards

### Standard (ICV-1)

QC Batch: 81304

Date Analyzed: 2011-05-17

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	104	104	85 - 115	2011-05-17

### Standard (CCV-1)

QC Batch: 81304

Date Analyzed: 2011-05-17

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	95.8	96	85 - 115	2011-05-17

### Standard (ICV-1)

QC Batch: 81359

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.2	99	85 - 115	2011-05-18

### Standard (CCV-1)

QC Batch: 81359

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-05-18

Report Date: May 19, 2011  
COG/Burch Keely Unit #197

Work Order: 11051002  
COG/Burch Keely Unit #197

Page Number: 23 of 24  
Eddy Co., NM

**Standard (ICV-1)**

QC Batch: 81360

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-05-18

**Standard (CCV-1)**

QC Batch: 81360

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.7	99	85 - 115	2011-05-18

**Standard (ICV-1)**

QC Batch: 81362

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.5	98	85 - 115	2011-05-18

**Standard (CCV-1)**

QC Batch: 81362

Date Analyzed: 2011-05-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-05-18

## Appendix

### 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.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

### Attachments

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



\*Lab #: 11057002

# Analysis Request of Chain of Custody Record



**TETRA TECH**

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

PAGE: 1 OF: 4

ANALYSIS REQUEST  
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavares

PROJECT NO.:

114640

PROJECT NAME:

COG / Burch Keely Unit #197

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	Gddy Co., NM SAMPLE IDENTIFICATION	NUMBER OF	FILTERED (Y)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volatiles	TCLP Semi V	RCI	GC/MS Vol. 8	GC/MS Semi	PCB's 8080/608	Pest. 808/608	Chlorides	Gamma Spec	Alpha Beta (	PLM (Asbest	Major Anions	
216856	5/6		S		X	SB-1 0-1'	1				X														X					
957						3'	1				X														X					
958						5'	1				X														X					
959						7'	1				X														X					
960						10'	1				X														X					
961						15'	1				X														X					
962						20'	1				X														X					
963						25'	1				X														X					
964						30'	1				X														X					
965						40'	1				X														X					

RELINQUISHED BY: (Signature) <i>[Signature]</i>	Date: 5-9-11 Time: 10:45	RECEIVED BY: (Signature) <i>[Signature]</i>	Date: 5/9/11 Time: 10:45	SAMPLED BY: (Print & Initial) Kim	Date: 5/8/11 Time: 10:45
RELINQUISHED BY: (Signature)	Date: _____ Time: _____	RECEIVED BY: (Signature)	Date: _____ Time: _____	SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #: _____ OTHER: _____
RELINQUISHED BY: (Signature)	Date: _____ Time: _____	RECEIVED BY: (Signature)	Date: _____ Time: _____	TETRA TECH CONTACT PERSON: Ike Tavares	Results by: _____ RUSH Charges Authorized: Yes No
RECEIVING LABORATORY: TRACE	ADDRESS: _____	CITY: MIDLAND STATE: TX ZIP: _____	CONTACT: _____ PHONE: _____	DATE: _____ TIME: _____	

SAMPLE CONDITION WHEN RECEIVED: 11.9°C intact	REMARKS: _____
---	----------------

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

2 wo #: 11051002

# Analysis Request of Chain of Custody Record

PAGE: 2 OF: 4



**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 Tavares**

PROJECT NO.:  
**114-640**

PROJECT NAME:  
**COG / Burch Keely Unit #197**

LAB I.D. NUMBER: **265966** DATE: **2011** TIME: **516** MATRIX: **S** COMP: **X** GRAB: **SB-1 50'**  
SAMPLE IDENTIFICATION: **Eddy Co., NM**

NUMBER	2011		MAT	CON	GRA		NUM	FILT	HCL	HNO	ICE	NON		BTEX	TPH	PAH	RCR	TCL1	TCL1	TCL1	RCI	GC.M	GC.M	PCB	Pest	Chlor	Gamma	Alpha	PLM	Major	
265966	516		S	X		SB-1 50'	1				X															X					
967						SB-2 0-1'	1				X															X					
968						3'	1				X															X					
969						5'	1				X															X					
970						7'	1				X															X					
971						10'	1				X															X					
972						15'	1				X															X					
973						20'	1				X															X					
974						25'	1				X															X					
975						30'	1				X															X					

RELINQUISHED BY: (Signature) **[Signature]** Date: **5-9-11** Time: **16:45**

RECEIVED BY: (Signature) **[Signature]** Date: **5/9/11** Time: **16:45**

SAMPLED BY: (Print & Initial) **Kim** Date: **5/8/11**

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLE SHIPPED BY: (Circle) **FEDEX** **BUS** **UPS** AIRBILL #: **1645**

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: **Ike Tavares** Results by: **RUSH Charges Authorized: Yes No**

RECEIVING LABORATORY: **TRACE** ADDRESS: **MIDLAND** CITY: **TX** STATE: **TX** ZIP: **79705** CONTACT: **PHONE: DATE: TIME:**

RECEIVED BY: (Signature) DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: **11.9°C intact**

REMARKS:



XUW0 #: 11051002

# Analysis Request of Chain of Custody Record

PAGE: 4 OF: 4



**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 Tavares**

PROJECT NO.:  
**114640**

PROJECT NAME:  
**COG / Burch Keely Unit #197**

LAB I.D. NUMBER DATE TIME MATRIX COMP GRAB **Edaly Co., NM**  
SAMPLE IDENTIFICATION

NUMBER	2011	MAT	CON	GRA		NUM	FILT	HCL	HNO	ICE	NON	BTE	TPH	PAH	RCR	TCL	TCL	TCL	RCI	GC	GC	PCB	Pest	Chlor	Alph	PLM	Major
265986	5/6	S	X		SB-3 25'	1				X														X			
987					30'	1				X														X			
988					40'	1				X														X			
989					50'	1				X														X			

RELINQUISHED BY: (Signature) **[Signature]** Date: **5/9/11** Time: **1645**

RECEIVED BY: (Signature) **[Signature]** Date: **5/10/11** Time: **1645**

SAMPLED BY: (Print & Initial) **Kim** Date: **5/10/11**

RELINQUISHED BY: (Signature) **[Signature]** Date: **5/9/11** Time: **1645**

RECEIVED BY: (Signature) **[Signature]** Date: **5/10/11** Time: **1645**

SAMPLE SHIPPED BY: (Circle) **FEDEX** **BUS** AIRBILL #: **1190**

RELINQUISHED BY: (Signature) **[Signature]** Date: **5/9/11** Time: **1645**

RECEIVED BY: (Signature) **[Signature]** Date: **5/10/11** Time: **1645**

TETRA TECH CONTACT PERSON: **Ike Tavares** Results by: **Yes** **No**

RECEIVING LABORATORY: **TRACE** ADDRESS: **MIDLAND** CITY: **MIDLAND** STATE: **TX** ZIP: **79705** PHONE: **(432) 682-4559**

RECEIVED BY: (Signature) **[Signature]** DATE: **5/10/11** TIME: **1645**

SAMPLE CONDITION WHEN RECEIVED: **11.9°C intact**

REMARKS:

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

## Summary Report

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

Report Date: October 6, 2011

Work Order: 11092630



Project Location: Eddy Co., NM  
Project Name: COG/Burch Keely Unit #197  
Project Number: 114-6400827

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
278361	BH-3 40'	soil	2011-09-22	00:00	2011-09-26
278362	BH-3 50'	soil	2011-09-22	00:00	2011-09-26
278363	BH-3 60'	soil	2011-09-22	00:00	2011-09-26
278364	BH-3 70'	soil	2011-09-22	00:00	2011-09-26
278365	BH-3 80'	soil	2011-09-22	00:00	2011-09-26
278366	BH-3 90'	soil	2011-09-22	00:00	2011-09-26

**Sample: 278361 - BH-3 40'**

Param	Flag	Result	Units	RL
Chloride		1890	mg/Kg	4

**Sample: 278362 - BH-3 50'**

Param	Flag	Result	Units	RL
Chloride		2510	mg/Kg	4

**Sample: 278363 - BH-3 60'**

Param	Flag	Result	Units	RL
Chloride		1190	mg/Kg	4

**Sample: 278364 - BH-3 70'**

Param	Flag	Result	Units	RL
Chloride		465	mg/Kg	4

**Sample: 278365 - BH-3 80'**

Param	Flag	Result	Units	RL
Chloride		201	mg/Kg	4

**Sample: 278366 - BH-3 90'**

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4



6701 Alvardeen Avenue, Suite D Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298  
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313  
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: lab@traceanalysis.com

## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

## Analytical and Quality Control Report

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

Report Date: October 6, 2011

Work Order: 11092630



Project Location: Eddy Co., NM  
Project Name: COG/Burch Keely Unit #197  
Project Number: 114-6400827

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
278361	BH-3 40'	soil	2011-09-22	00:00	2011-09-26
278362	BH-3 50'	soil	2011-09-22	00:00	2011-09-26
278363	BH-3 60'	soil	2011-09-22	00:00	2011-09-26
278364	BH-3 70'	soil	2011-09-22	00:00	2011-09-26
278365	BH-3 80'	soil	2011-09-22	00:00	2011-09-26
278366	BH-3 90'	soil	2011-09-22	00:00	2011-09-26

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 11 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



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## Case Narrative

Samples for project COG/Burch Keely Unit #197 were received by TraceAnalysis, Inc. on 2011-09-26 and assigned to work order 11092630. Samples for work order 11092630 were received intact at a temperature of 1.3 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	72370	2011-10-03 at 09:30	85271	2011-10-04 at 16:24
Chloride (Titration)	SM 4500-Cl B	72370	2011-10-03 at 09:30	85272	2011-10-04 at 16:25

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 11092630 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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114-6400827

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COG/Burch Keely Unit #197

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## Analytical Report

### Sample: 278361 - BH-3 40'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85271	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1890	mg/Kg	100	4.00

### Sample: 278362 - BH-3 50'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85271	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2510	mg/Kg	100	4.00

### Sample: 278363 - BH-3 60'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85272	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1190	mg/Kg	100	4.00

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**Sample: 278364 - BH-3 70'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85272	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			465	mg/Kg	50	4.00

**Sample: 278365 - BH-3 80'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85272	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			201	mg/Kg	50	4.00

**Sample: 278366 - BH-3 90'**

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-10-04	Analyzed By:	AR
QC Batch:	85272	Sample Preparation:	2011-10-03	Prepared By:	AR
Prep Batch:	72370				

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

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## Method Blanks

Method Blank (1)      QC Batch: 85271

QC Batch: 85271      Date Analyzed: 2011-10-04      Analyzed By: AR  
Prep Batch: 72370      QC Preparation: 2011-10-03      Prepared By: AR

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

Method Blank (1)      QC Batch: 85272

QC Batch: 85272      Date Analyzed: 2011-10-04      Analyzed By: AR  
Prep Batch: 72370      QC Preparation: 2011-10-03      Prepared By: AR

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

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## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 85271  
Prep Batch: 72370

Date Analyzed: 2011-10-04  
QC Preparation: 2011-10-03

Analyzed By: AR  
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.6	mg/Kg	1	100	<3.85	96	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			106	mg/Kg	1	100	<3.85	106	85 - 115	10	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: 85272  
Prep Batch: 72370

Date Analyzed: 2011-10-04  
QC Preparation: 2011-10-03

Analyzed By: AR  
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.1	mg/Kg	1	100	<3.85	95	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			103	mg/Kg	1	100	<3.85	103	85 - 115	8	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: 278362

QC Batch: 85271  
Prep Batch: 72370

Date Analyzed: 2011-10-04  
QC Preparation: 2011-10-03

Analyzed By: AR  
Prepared By: AR

Report Date: October 6, 2011  
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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12100	mg/Kg	100	10000	2510	96	79.4 - 120.6

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			12800	mg/Kg	100	10000	2510	103	79.4 - 120.6	6	20

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

**Matrix Spike (MS-1)** Spiked Sample: 278372

QC Batch: 85272  
Prep Batch: 72370

Date Analyzed: 2011-10-04  
QC Preparation: 2011-10-03

Analyzed By: AR  
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12800	mg/Kg	100	10000	2780	100	79.4 - 120.6

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			13500	mg/Kg	100	10000	2780	107	79.4 - 120.6	5	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: 85271

Date Analyzed: 2011-10-04

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.3	98	85 - 115	2011-10-04

### Standard (CCV-1)

QC Batch: 85271

Date Analyzed: 2011-10-04

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	102	102	85 - 115	2011-10-04

### Standard (ICV-1)

QC Batch: 85272

Date Analyzed: 2011-10-04

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-10-04

### Standard (CCV-1)

QC Batch: 85272

Date Analyzed: 2011-10-04

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	98.6	99	85 - 115	2011-10-04



## Appendix

### 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.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

### Attachments

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

WO #: 11092630

# Analysis Request of Chain of Custody Record



**TETRA TECH**

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

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OF: 1

ANALYSIS REQUEST  
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

1146400827

PROJECT NAME:

Burch Keely Unit #197

LAB I.D.  
NUMBER

DATE  
2011

TIME

MATRIX

COMP.

GRAB

Eddy Co., NM  
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

ROHA 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. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date: 9/26/11  
Time: 1400

RECEIVED BY: (Signature)

Date: 9/26/11  
Time: 1530

SAMPLED BY: (Print & Initial)

Kim

Date: 9/26/11  
Time:

RELINQUISHED BY: (Signature)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

RECEIVED BY: (Signature)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

SAMPLE SHIPPED BY: (Circle)

FEDEX ☒ BUS  
HAND DELIVERED ☐ UPS

AIRBILL #: \_\_\_\_\_

OTHER: \_\_\_\_\_

RELINQUISHED BY: (Signature)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

RECEIVED BY: (Signature)

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

TETRA TECH CONTACT PERSON:

Ike Tavaraz

Results by:

RUSH Charges  
Authorized:

Yes No

RECEIVING LABORATORY:

TRACE

ADDRESS:

CITY: MIDLAND

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

1.3' c intact

REMARKS:

x all tests - Midland

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