

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 1300 Midland, Texas 79701	Telephone No.	(432) 685-4332
Facility Name	Federal BI SWD	Facility Type	SWD

Surface Owner:	Federal	Mineral Owner		Lease No.	API 30-025-27068
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	28	17S	32E	480'	South	1980'	West	Lea

Latitude N 32 47.973° Longitude W 103 46.404°

NATURE OF RELEASE

Type of Release: Produced Fluids	Volume of Release 460 bbls	Volume Recovered 448 bbls
Source of Release: 8" PVC 45	Date and Hour of Occurrence 9/1/10	Date and Hour of Discovery 9/1/10
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson and Geoffrey Leking	
By Whom? Josh Russo	Date and Hour 9/2/10	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

As a result of an earlier release along the Pronghorn line and a closed valve, the added pressure ruptured the PVC 45 at the Federal BI

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to assess and define spills extent. The impacted soil with elevated chlorides were removed and hauled to proper disposal. Once excavated the appropriate depths, the excavation was backfilled with clean soil and brought up to surface grade. Based on the remedial activities performed, Tetra Tech prepared and submitted a closure report to the NMOCD and BLM for review.

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

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:		
Title: Project Manager	Approval Date:	Expiration Date:	
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:		Attached ☐
Date: 3-13-12	Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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PJXK15 3553734
4847 Form C-141
Revised October 10, 2003

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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	FEDERAL BI SWD	Facility Type	SWD

Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-025-27068
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	28	17S	32E	480'	SOUTH	1980'	WEST	Lea

Latitude 32 47.973 Longitude 103 46.404

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	460bbbls	Volume Recovered	448bbbls
Source of Release	8 inch PVC 45	Date and Hour of Occurrence	09/01/2010	Date and Hour of Discovery	09/01/2010 10:00 p.m.
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES. To Whom?	Larry Johnson—OCD Geoffrey Leking—OCD		
By Whom?	Josh Russo	Date and Hour	09/02/2010 10:28 a.m.		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES. Volume Impacting the Watercourse.			

If a Watercourse was Impacted. Describe Fully.*

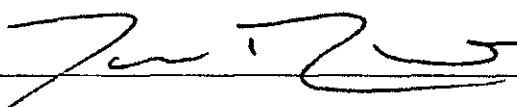
Describe Cause of Problem and Remedial Action Taken.*

Due to the added pressure from the Pronghorn valve being closed because of the Pronghorn release earlier in the day, the PVC 45 cracked at the Federal BI SWD. The 8" PVC has been repaired and put back into service.

Describe Area Affected and Cleanup Action Taken.*

Initially 460bbbls was released from the cracked PVC at the SWD location and we were able to recover 448bbbls with vacuum trucks. 400bbbls was released and contained inside the dike walls and we were able to recover 398bbbls. 60bbbls was released in the pasture area and we were able to recover 50bbbls. The dimensions of the spill area outside the dike walls measured 30 yards x 20 yards. The chloride content of the produced water from this release is roughly 135,000 mg/l. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCDBLM 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 NMOCDBLM 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 NMOCDBLM 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, NMOCDBLM acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: Josh Russo		Approved by District Supervisor:	
Title: HSE Coordinator		Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com		Conditions of Approval:	
Date: 09/13/2010 Phone: 432-212-2399		Attached ☐	

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Federal BI SWD	
Company:	COG Operating LLC	
Section, Township and Range	Unit N - Sec 28 - T17S - R32E	
Lease Number:	30-025-27068	
County:	Lea County	
GPS:	32.79927° N	103.77322° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Hwy 529 and CR 126 travel north 0.5 miles, turn left 0.2 miles to location.	

Release Data:

Date Released:	9/1/2010
Type Release:	Produced water
Source of Contamination:	PVC line failure
Fluid Released:	460 bbls
Fluids Recovered:	448 bbls

Official Communication:

Name:	Pat Ellis	Kim Dorey
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 631-0348
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	kim.dorey@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:		10

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

March 30, 2011

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

**Re: Work Plan for the COG Operating LLC., Federal BI SWD , Unit N,
Section 28, Township 17 South, Range 32 East, Lea County,
New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Federal BI SWD, Unit N, Section 28, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.79927°, W 103.77322°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on September 1, 2010 and released approximately four hundred sixty (460) barrels of produced water, due to 8" PVC line failure. The majority of the fluids (approximately 400 barrels) were contained inside the lined facility. However, the remaining fluids (approximately 60 barrels) were released south of the facility into the pasture. Approximately four hundred forty eight (448) barrels of standing fluids were recovered. The spill migrated approximately 425' south-southeast of the tank battery in the pasture, with a width ranging from 60' to 170'. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 28. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well (TMW) in Section 30 to a depth of 180' and did not encounter groundwater. According to the

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com



NMOCD groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The groundwater data is shown in Appendix A.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On October 5, 2010, Tetra Tech personnel inspected and sampled the spill area. Nine (9) auger holes (AH-1 through AH-9) 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected in AH-1 through AH-9, with majority of the auger holes not vertically defined.

In order to delineate the chloride impact, soil borings were installed utilizing an air rotary drilling rig. On November 15, 2010, Tetra Tech personnel supervised the installation of soil borings (SB-1 through SB-9). Due to access issues, a soil boring was not installed in the area AH-1. The soil boring results are summarized in Table 1. The soil boring locations are shown on Figure 3.

Referring to Table 1, chloride concentrations decreased with depth in all the soil borings and were vertically defined. The deepest chloride impact was detected in the area of SB-6, with depths of 10.0' to 15.0' below



surface. The areas of SB-1, SB-2, SB-3, SB-4 and SB-5 also showed elevated chloride concentrations to depths of 5.0' to 10.0' below surface. The remaining soil borings (SB-7, SB-8 and SB-9) showed a shallow impact (1.0' to 2.0') to the soils.

Work Plan

The goal of the remediation is to establish surface growth and to reduce the environmental liabilities for the protection of the groundwater. COG proposes the removal of impacted material as highlighted (green) in Table 1 and shown on Figure 5. Tetra Tech will run field chloride analysis for confirmation.

Based on subsurface geology, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the target depths are not reached, a 40 mil liner will be installed at depth of 4.0' to 5.0' below surface to cap the impacted area.

Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil. Upon completion a final report will be submitted to the NMOCD and BLM.

If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Sr. Project Manager

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



Figure 1

Federal BI SWD
Topo Map 1:100,000

Lea County, New Mexico

Project : 114-6400669

Date : 11-4-2010

File : H:\GIS\6400669



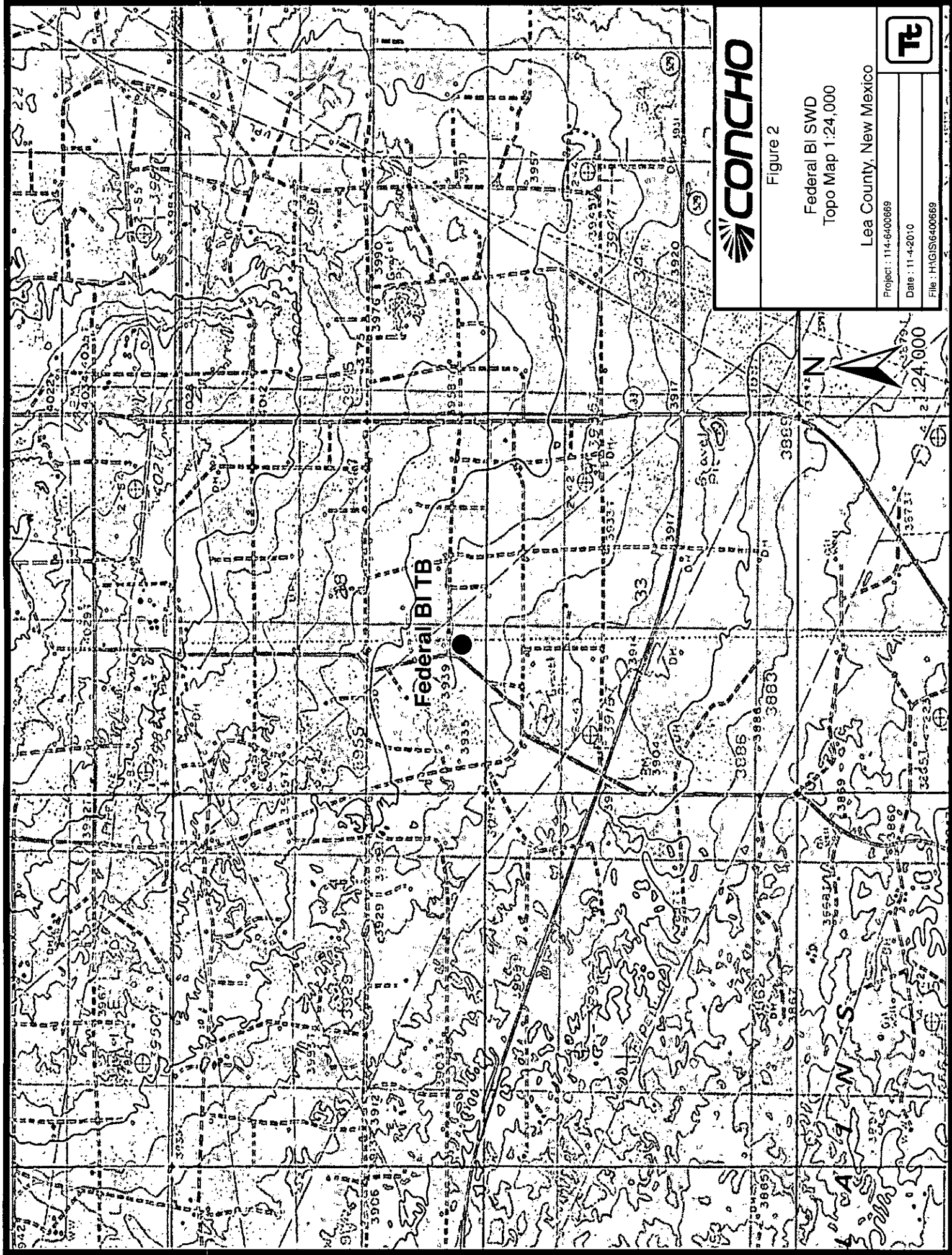


Figure 2

Federal BI SWD
Topo Map 1:24,000

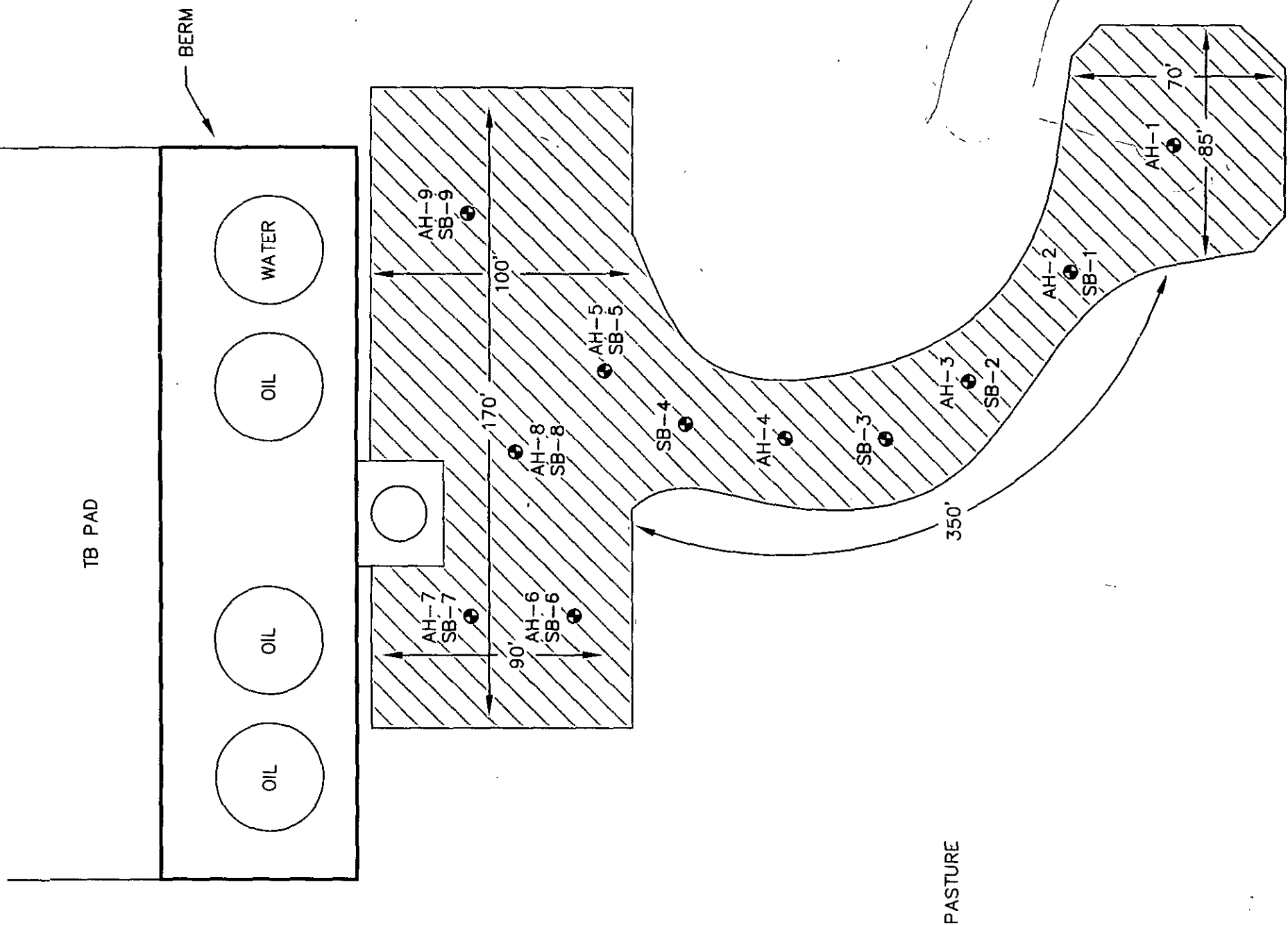
Lea County, New Mexico

Project : 114-6400689

Date : 11-4-2010

File : HGIS6400689



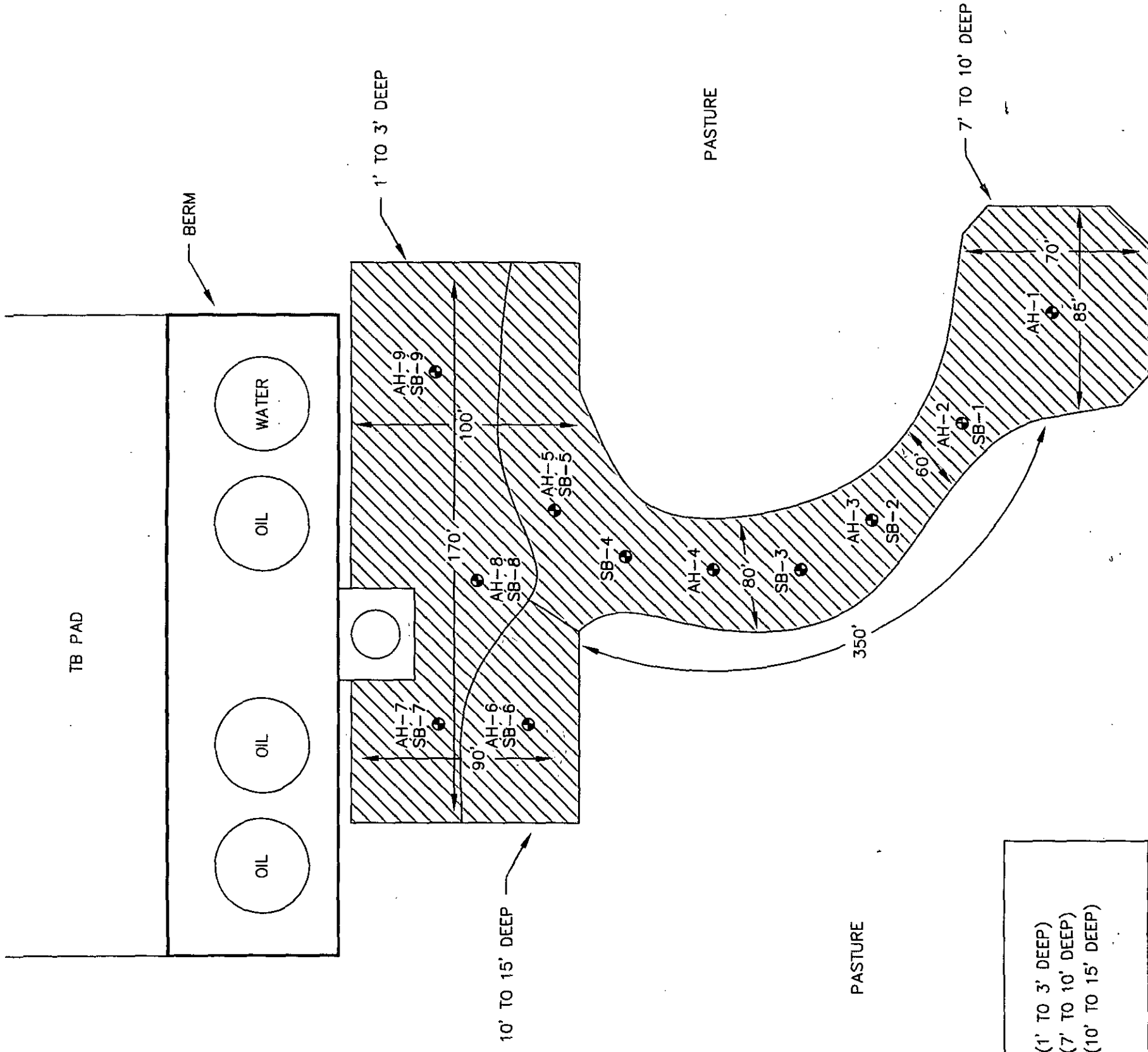


- SPILL AREA
- SAMPLE LOCATIONS
- SOIL BORE LOCATIONS

FIGURE NO. 3

LEA COUNTY, NEW MEXICO	
COG OPERATING LLC	
FEDERAL BI SWD SITE PLAN	

DATE:	10/5/10
DWN. BY:	



- SPILL AREA
- PROPOSED EXCAVATION DEPTH (1' TO 3' DEEP)
- PROPOSED EXCAVATION DEPTH (7' TO 10' DEEP)
- PROPOSED EXCAVATION DEPTH (10' TO 15' DEEP)
- SAMPLE LOCATIONS
- SOIL BORING LOCATIONS

FIGURE NO. 4

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
FEDERAL BI SWD
PROPOSED EXCAVATION DEPTHS

DATE: 10/5/10
DWN. BY: [signature]

Table 1

[illegible]

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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	10/5/2010	0-1'	X		<1.00	<50.0	<50.0	-	-	-	-	268
	"	1-1.5'	X		-	-	-	-	-	-	-	3,180
	"	2-2.5'	X		-	-	-	-	-	-	-	5,730
	"	3-3.5'	X		-	-	-	-	-	-	-	5,870
	"	4-4.5'	X		-	-	-	-	-	-	-	5,820
	"	5-5.5'	X		-	-	-	-	-	-	-	6,080
	"	6-6.5'	X		-	-	-	-	-	-	-	5,980
	"	7-7.5'	X		-	-	-	-	-	-	-	12,300
SB-1	11/15/2010	0-1'	X		-	-	-	-	-	-	-	547
	"	3'	X		-	-	-	-	-	-	-	5,670
	"	5'	X		-	-	-	-	-	-	-	9,630
	"	7'	X		-	-	-	-	-	-	-	1,080
	"	10'	X		-	-	-	-	-	-	-	307
	"	15'	X		-	-	-	-	-	-	-	<200
	"	20'	X		-	-	-	-	-	-	-	288

Table 1

[illegible]

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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-4	10/5/2010	0-1'	X		<1.00	<50.0	<50.0	-	-	-	-	402
	"	1-1.5'	X		-	-	-	-	-	-	-	442
	"	2-2.5'	X		-	-	-	-	-	-	-	<200
	"	3-3.5'	X		-	-	-	-	-	-	-	598

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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					
SB-3	11/15/2010	0-1'	X		-	-	-	-	-	-	-	<200
	"	3'	X		-	-	-	-	-	-	-	<200
	"	5'	X		-	-	-	-	-	-	-	15,700
	"	7'	X		-	-	-	-	-	-	-	6,330
	"	10'	X		-	-	-	-	-	-	-	464
		15	X		-	-	-	-	-	-	-	556
	"	20'	X		-	-	-	-	-	-	-	353
	"	25'	X		-	-	-	-	-	-	-	284
	"	30'	X		-	-	-	-	-	-	-	265
	"	40'	X		-	-	-	-	-	-	-	231

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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					
SB-4	11/16/2010	0-1'	X		-	-	-	-	-	-	-	<200
	"	3'	X		-	-	-	-	-	-	-	<200
	"	5'	X		-	-	-	-	-	-	-	15,500
	"	7'	X		-	-	-	-	-	-	-	8,190
	"	10'	X		-	-	-	-	-	-	-	<200
	"	15'	X		-	-	-	-	-	-	-	666
	"	20'	X		-	-	-	-	-	-	-	280
	"	25'	X		-	-	-	-	-	-	-	386
	"	30'	X		-	-	-	-	-	-	-	362
	"	40'	X		-	-	-	-	-	-	-	382
	"	50'	X		-	-	-	-	-	-	-	<200
	"	60'	X		-	-	-	-	-	-	-	440

Table 1

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA COUNTY, NEW MEXICO

[illegible]

Table 1

[illegible]

Table 1
COG Operating LLC.
FEDERAL BISWD
LEA 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					
AH-8	10/5/2010	0-1'	X		<1.00	60.1	60.1	-	-	-	-	3,380
	"	1-1.5'	X		-	-	-	-	-	-	-	<200
	"	2-2.5'	X		-	-	-	-	-	-	-	<200
	"	3-3.5'	X		-	-	-	-	-	-	-	213
	"	4-4.5'	X		-	-	-	-	-	-	-	599
SB-8	11/16/2010	0-1'	X		-	-	-	-	-	-	-	6,100
	"	3'	X		-	-	-	-	-	-	-	2,780
	"	5'	X		-	-	-	-	-	-	-	765
	"	7'	X		-	-	-	-	-	-	-	402
	"	10'	X		-	-	-	-	-	-	-	206
	"	15'	X		-	-	-	-	-	-	-	<200
	"	20'	X		-	-	-	-	-	-	-	<200
	"	25'	X		-	-	-	-	-	-	-	210
	"	30'	X		-	-	-	-	-	-	-	306
	"	40'	X		-	-	-	-	-	-	-	229

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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					
AH-9	10/5/2010	0-1'	X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
	"	1-1.5'	X		-	-	-	-	-	-	-	4,770
	"	2-2.5'	X		-	-	-	-	-	-	-	638
	"	3-3.5'	X		-	-	-	-	-	-	-	633
SB-9	11/16/2010	0-1'	X		-	-	-	-	-	-	-	305
	"	3'	X		-	-	-	-	-	-	-	310
	"	5'	X		-	-	-	-	-	-	-	215
	"	7'	X		-	-	-	-	-	-	-	496
	"	10'	X		-	-	-	-	-	-	-	<200
	"	15'	X		-	-	-	-	-	-	-	931
	"	20'	X		-	-	-	-	-	-	-	465
	"	25'	X		-	-	-	-	-	-	-	375
	"	30'	X		-	-	-	-	-	-	-	1,450
	"	40'	X		-	-	-	-	-	-	-	1,160
	"	50'	X		-	-	-	-	-	-	-	201
	"	60'	X		-	-	-	-	-	-	-	268

BEB Below Excavation Bottom
 (-) Not Analyzed
☐ Proposed Excavation Depth

Water Well Data
Average Depth to Groundwater (ft)
COG - Federal BI SWD
Lea County, New Mexico

16 South 31 East						16 South 32 East						16 South 33 East					
6	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
18	17	16	15	14	13	18	17	16	15	14	13	18	17	16	15	14	13
19	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	24
30	29	28	27	26	25	30	29	28	27	26	25	30	29	28	27	26	25
31	32	33	34	35	36	31	32	33	34	35	36	31	32	33	34	35	36
290												190	168				

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

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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System
-  Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: October 22, 2010

Work Order: 10100722



Project Location: Lea Co, NM
Project Name: COG/Federal BI SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
246981	AH-1 0-1'	soil	2010-10-05	00:00	2010-10-07
246982	AH-1 1-1.5'	soil	2010-10-05	00:00	2010-10-07
246983	AH-1 2-2.5'	soil	2010-10-05	00:00	2010-10-07
246984	AH-1 3-3.5'	soil	2010-10-05	00:00	2010-10-07
246985	AH-1 4-4.5'	soil	2010-10-05	00:00	2010-10-07
246986	AH-1 5-5.5'	soil	2010-10-05	00:00	2010-10-07
246987	AH-1 6-6.5'	soil	2010-10-05	00:00	2010-10-07
246988	AH-1 7-7.5'	soil	2010-10-05	00:00	2010-10-07
246989	AH-1 8-8.5'	soil	2010-10-05	00:00	2010-10-07
246990	AH-1 9-9.5'	soil	2010-10-05	00:00	2010-10-07
246991	AH-2 0-1'	soil	2010-10-05	00:00	2010-10-07
246992	AH-2 1-1.5'	soil	2010-10-05	00:00	2010-10-07
246993	AH-2 2-2.5'	soil	2010-10-05	00:00	2010-10-07
246994	AH-2 3-3.5'	soil	2010-10-05	00:00	2010-10-07
246995	AH-2 4-4.5'	soil	2010-10-05	00:00	2010-10-07
246996	AH-2 5-5.5'	soil	2010-10-05	00:00	2010-10-07
246997	AH-2 6-6.5'	soil	2010-10-05	00:00	2010-10-07
246998	AH-2 7-7.5'	soil	2010-10-05	00:00	2010-10-07
246999	AH-3 0-1'	soil	2010-10-05	00:00	2010-10-07
247000	AH-3 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247001	AH-3 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247002	AH-3 2.5-3'	soil	2010-10-05	00:00	2010-10-07
247003	AH-4 0-1'	soil	2010-10-05	00:00	2010-10-07
247004	AH-4 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247005	AH-4 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247006	AH-4 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247007	AH-5 0-1'	soil	2010-10-05	00:00	2010-10-07
247008	AH-5 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247009	AH-5 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247010	AH-5 3-3.5'	soil	2010-10-05	00:00	2010-10-07

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
247011	AH-5 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247012	AH-6 0-1'	soil	2010-10-05	00:00	2010-10-07
247013	AH-6 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247014	AH-6 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247015	AH-6 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247016	AH-6 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247017	AH-6 5-5.5'	soil	2010-10-05	00:00	2010-10-07
247018	AH-7 0-1'	soil	2010-10-05	00:00	2010-10-07
247019	AH-7 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247020	AH-7 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247021	AH-7 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247022	AH-7 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247023	AH-8 0-1'	soil	2010-10-05	00:00	2010-10-07
247024	AH-8 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247025	AH-8 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247026	AH-8 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247027	AH-8 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247028	AH-9 0-1'	soil	2010-10-05	00:00	2010-10-07
247029	AH-9 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247030	AH-9 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247031	AH-9 3-3.5'	soil	2010-10-05	00:00	2010-10-07

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)
246981 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
246991 - AH-2 0-1'					<50.0	<1.00
246999 - AH-3 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247003 - AH-4 0-1'					<50.0	<1.00
247007 - AH-5 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247012 - AH-6 0-1'					<50.0	<1.00
247018 - AH-7 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247023 - AH-8 0-1'					60.1	<1.00
247028 - AH-9 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00

Sample: 246981 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2780	mg/Kg	4.00

Sample: 246982 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1200	mg/Kg	4.00

Sample: 246983 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		401	mg/Kg	4.00

Sample: 246984 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		921	mg/Kg	4.00

Sample: 246985 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		2730	mg/Kg	4.00

Sample: 246986 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7200	mg/Kg	4.00

Sample: 246987 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		7870	mg/Kg	4.00

Sample: 246988 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		7370	mg/Kg	4.00

Sample: 246989 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		6890	mg/Kg	4.00

Sample: 246990 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		7010	mg/Kg	4.00

Sample: 246991 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4.00

Sample: 246992 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 246993 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5730	mg/Kg	4.00

Sample: 246994 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		5870	mg/Kg	4.00

Sample: 246995 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		5820	mg/Kg	4.00

Sample: 246996 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		6080	mg/Kg	4.00

Sample: 246997 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		5980	mg/Kg	4.00

Sample: 246998 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		12300	mg/Kg	4.00

Sample: 246999 - AH-3 0-1'

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

Sample: 247000 - AH-3 1-1.5'

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

Sample: 247001 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		9070	mg/Kg	4.00

Sample: 247002 - AH-3 2.5-3'

Param	Flag	Result	Units	RL
Chloride		11900	mg/Kg	4.00

Sample: 247003 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		402	mg/Kg	4.00

Sample: 247004 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		442	mg/Kg	4.00

Sample: 247005 - AH-4 2-2.5'

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

Sample: 247006 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		598	mg/Kg	4.00

Sample: 247007 - AH-5 0-1'

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

Sample: 247008 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		387	mg/Kg	4.00

Sample: 247009 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 247010 - AH-5 3-3.5'

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

Sample: 247011 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		617	mg/Kg	4.00

Sample: 247012 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		577	mg/Kg	4.00

Sample: 247013 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4.00

Sample: 247014 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		662	mg/Kg	4.00

Sample: 247015 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		7610	mg/Kg	4.00

Sample: 247016 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4.00

Sample: 247017 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		15500	mg/Kg	4.00

Sample: 247018 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 247019 - AH-7 1-1.5'

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

Sample: 247020 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		366	mg/Kg	4.00

Sample: 247021 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4.00

Sample: 247022 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		950	mg/Kg	4.00

Sample: 247023 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		3380	mg/Kg	4.00

Sample: 247024 - AH-8 1-1.5'

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

Sample: 247025 - AH-8 2-2.5'

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

Sample: 247026 - AH-8 3-3.5'

Param	Flag	Result	Units	RL
Chloride		213	mg/Kg	4.00

Sample: 247027 - AH-8 4-4.5'

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4.00

Sample: 247028 - AH-9 0-1'

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

Sample: 247029 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4770	mg/Kg	4.00

Sample: 247030 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		638	mg/Kg	4.00

Sample: 247031 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		633	mg/Kg	4.00

Summary Report

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

Report Date: December 2, 2010

Work Order: 10112224



Project Location: Lea Co., NM
Project Name: COG/Federal BI SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251196	SB-9 0-1'	soil	2010-11-15	00:00	2010-11-19
251197	SB-9 3'	soil	2010-11-15	00:00	2010-11-19
251198	SB-9 5'	soil	2010-11-15	00:00	2010-11-19
251199	SB-9 7'	soil	2010-11-15	00:00	2010-11-19
251200	SB-9 10'	soil	2010-11-15	00:00	2010-11-19
251201	SB-9 15'	soil	2010-11-15	00:00	2010-11-19
251202	SB-9 20'	soil	2010-11-15	00:00	2010-11-19
251203	SB-9 25'	soil	2010-11-15	00:00	2010-11-19
251204	SB-9 30'	soil	2010-11-15	00:00	2010-11-19
251205	SB-9 40'	soil	2010-11-15	00:00	2010-11-19
251206	SB-9 50'	soil	2010-11-15	00:00	2010-11-19
251207	SB-9 60'	soil	2010-11-15	00:00	2010-11-19
251208	SB-8 0-1'	soil	2010-11-15	00:00	2010-11-19
251209	SB-8 3'	soil	2010-11-15	00:00	2010-11-19
251210	SB-8 5'	soil	2010-11-15	00:00	2010-11-19
251211	SB-8 7'	soil	2010-11-15	00:00	2010-11-19
251212	SB-8 10'	soil	2010-11-15	00:00	2010-11-19
251213	SB-8 15'	soil	2010-11-15	00:00	2010-11-19
251214	SB-8 20'	soil	2010-11-15	00:00	2010-11-19
251215	SB-8 25'	soil	2010-11-15	00:00	2010-11-19
251216	SB-8 30'	soil	2010-11-15	00:00	2010-11-19
251217	SB-8 40'	soil	2010-11-15	00:00	2010-11-19
251218	SB-7 0-1'	soil	2010-11-15	00:00	2010-11-19
251219	SB-7 3'	soil	2010-11-15	00:00	2010-11-19
251220	SB-7 5'	soil	2010-11-15	00:00	2010-11-19
251221	SB-7 10'	soil	2010-11-15	00:00	2010-11-19
251222	SB-7 15'	soil	2010-11-15	00:00	2010-11-19
251223	SB-7 20'	soil	2010-11-15	00:00	2010-11-19
251224	SB-7 25'	soil	2010-11-15	00:00	2010-11-19
251225	SB-6 0-1'	soil	2010-11-15	00:00	2010-11-19

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

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251226	SB-6 3'	soil	2010-11-15	00:00	2010-11-19
251227	SB-6 5'	soil	2010-11-15	00:00	2010-11-19
251228	SB-6 7'	soil	2010-11-15	00:00	2010-11-19
251229	SB-6 10'	soil	2010-11-15	00:00	2010-11-19
251230	SB-6 15'	soil	2010-11-15	00:00	2010-11-19
251231	SB-6 20'	soil	2010-11-15	00:00	2010-11-19
251232	SB-6 25'	soil	2010-11-15	00:00	2010-11-19
251233	SB-5 0-1'	soil	2010-11-15	00:00	2010-11-19
251234	SB-5 3'	soil	2010-11-15	00:00	2010-11-19
251235	SB-5 5'	soil	2010-11-15	00:00	2010-11-19
251236	SB-5 7'	soil	2010-11-15	00:00	2010-11-19
251237	SB-5 10'	soil	2010-11-15	00:00	2010-11-19
251238	SB-5 15'	soil	2010-11-15	00:00	2010-11-19
251239	SB-5 20'	soil	2010-11-15	00:00	2010-11-19
251240	SB-5 25'	soil	2010-11-15	00:00	2010-11-19
251241	SB-5 30'	soil	2010-11-15	00:00	2010-11-19
251242	SB-5 40'	soil	2010-11-15	00:00	2010-11-19
251243	SB-5 50'	soil	2010-11-15	00:00	2010-11-19
251244	SB-5 60'	soil	2010-11-15	00:00	2010-11-19
251245	SB-4 0-1'	soil	2010-11-16	00:00	2010-11-19
251246	SB-4 3'	soil	2010-11-16	00:00	2010-11-19
251247	SB-4 5'	soil	2010-11-16	00:00	2010-11-19
251248	SB-4 7'	soil	2010-11-16	00:00	2010-11-19
251249	SB-4 10'	soil	2010-11-16	00:00	2010-11-19
251250	SB-4 15'	soil	2010-11-16	00:00	2010-11-19
251251	SB-4 20'	soil	2010-11-16	00:00	2010-11-19
251252	SB-4 25'	soil	2010-11-16	00:00	2010-11-19
251253	SB-4 30'	soil	2010-11-16	00:00	2010-11-19
251254	SB-4 40'	soil	2010-11-16	00:00	2010-11-19
251255	SB-4 50'	soil	2010-11-16	00:00	2010-11-19
251256	SB-4 60'	soil	2010-11-16	00:00	2010-11-19
251257	SB-3 0-1'	soil	2010-11-16	00:00	2010-11-19
251258	SB-3 3'	soil	2010-11-16	00:00	2010-11-19
251259	SB-3 5'	soil	2010-11-16	00:00	2010-11-19
251260	SB-3 7'	soil	2010-11-16	00:00	2010-11-19
251261	SB-3 10'	soil	2010-11-16	00:00	2010-11-19
251262	SB-3 15'	soil	2010-11-16	00:00	2010-11-19
251263	SB-3 20'	soil	2010-11-16	00:00	2010-11-19
251264	SB-3 25'	soil	2010-11-16	00:00	2010-11-19
251265	SB-3 30'	soil	2010-11-16	00:00	2010-11-19
251266	SB-3 40'	soil	2010-11-16	00:00	2010-11-19
251267	SB-2 0-1'	soil	2010-11-16	00:00	2010-11-19
251268	SB-2 3'	soil	2010-11-16	00:00	2010-11-19
251269	SB-2 5'	soil	2010-11-16	00:00	2010-11-19
251270	SB-2 7'	soil	2010-11-16	00:00	2010-11-19
251271	SB-2 10'	soil	2010-11-16	00:00	2010-11-19
251272	SB-2 15'	soil	2010-11-16	00:00	2010-11-19
251273	SB-2 20'	soil	2010-11-16	00:00	2010-11-19
251274	SB-2 25'	soil	2010-11-16	00:00	2010-11-19

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251275	SB-1 0-1'	soil	2010-11-16	00:00	2010-11-19
251276	SB-1 3'	soil	2010-11-16	00:00	2010-11-19
251277	SB-1 5'	soil	2010-11-16	00:00	2010-11-19
251278	SB-1 7'	soil	2010-11-16	00:00	2010-11-19
251279	SB-1 10'	soil	2010-11-16	00:00	2010-11-19
251280	SB-1 15'	soil	2010-11-16	00:00	2010-11-19
251281	SB-1 20'	soil	2010-11-16	00:00	2010-11-19
251282	SB-7 7'	soil	2010-11-16	00:00	2010-11-19

Sample: 251196 - SB-9 0-1'

Param	Flag	Result	Units	RL
Chloride		305	mg/Kg	4.00

Sample: 251197 - SB-9 3'

Param	Flag	Result	Units	RL
Chloride		310	mg/Kg	4.00

Sample: 251198 - SB-9 5'

Param	Flag	Result	Units	RL
Chloride		215	mg/Kg	4.00

Sample: 251199 - SB-9 7'

Param	Flag	Result	Units	RL
Chloride		496	mg/Kg	4.00

Sample: 251200 - SB-9 10'

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

Sample: 251201 - SB-9 15'

Param	Flag	Result	Units	RL
Chloride		931	mg/Kg	4.00

Sample: 251202 - SB-9 20'

Param	Flag	Result	Units	RL
Chloride		465	mg/Kg	4.00

Sample: 251203 - SB-9 25'

Param	Flag	Result	Units	RL
Chloride		375	mg/Kg	4.00

Sample: 251204 - SB-9 30'

Param	Flag	Result	Units	RL
Chloride		1450	mg/Kg	4.00

Sample: 251205 - SB-9 40'

Param	Flag	Result	Units	RL
Chloride		1160	mg/Kg	4.00

Sample: 251206 - SB-9 50'

Param	Flag	Result	Units	RL
Chloride		201	mg/Kg	4.00

Sample: 251207 - SB-9 60'

Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4.00

Sample: 251208 - SB-8 0-1'

Param	Flag	Result	Units	RL
Chloride		6100	mg/Kg	4.00

Sample: 251209 - SB-8 3'

Param	Flag	Result	Units	RL
Chloride		2780	mg/Kg	4.00

Sample: 251210 - SB-8 5'

Param	Flag	Result	Units	RL
Chloride		765	mg/Kg	4.00

Sample: 251211 - SB-8 7'

Param	Flag	Result	Units	RL
Chloride		402	mg/Kg	4.00

Sample: 251212 - SB-8 10'

Param	Flag	Result	Units	RL
Chloride		206	mg/Kg	4.00

Sample: 251213 - SB-8 15'

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

Sample: 251214 - SB-8 20'

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

Sample: 251215 - SB-8 25'

Param	Flag	Result	Units	RL
Chloride		210	mg/Kg	4.00

Sample: 251216 - SB-8 30'

Param	Flag	Result	Units	RL
Chloride		306	mg/Kg	4.00

Sample: 251217 - SB-8 40'

Param	Flag	Result	Units	RL
Chloride		229	mg/Kg	4.00

Sample: 251218 - SB-7 0-1'

Param	Flag	Result	Units	RL
Chloride		4030	mg/Kg	4.00

Sample: 251219 - SB-7 3'

Param	Flag	Result	Units	RL
Chloride		1240	mg/Kg	4.00

Sample: 251220 - SB-7 5'

Param	Flag	Result	Units	RL
Chloride		492	mg/Kg	4.00

Sample: 251221 - SB-7 10'

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

Sample: 251222 - SB-7 15'

Param	Flag	Result	Units	RL
Chloride		907	mg/Kg	4.00

Sample: 251223 - SB-7 20'

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

Sample: 251224 - SB-7 25'

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

Sample: 251225 - SB-6 0-1'

Param	Flag	Result	Units	RL
Chloride		368	mg/Kg	4.00

Sample: 251226 - SB-6 3'

Param	Flag	Result	Units	RL
Chloride		250	mg/Kg	4.00

Sample: 251227 - SB-6 5'

Param	Flag	Result	Units	RL
Chloride		9420	mg/Kg	4.00

Sample: 251228 - SB-6 7'

Param	Flag	Result	Units	RL
Chloride		9970	mg/Kg	4.00

Sample: 251229 - SB-6 10'

Param	Flag	Result	Units	RL
Chloride		3690	mg/Kg	4.00

Sample: 251230 - SB-6 15'

Param	Flag	Result	Units	RL
Chloride		1020	mg/Kg	4.00

Sample: 251231 - SB-6 20'

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

Sample: 251232 - SB-6 25'

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

Sample: 251233 - SB-5 0-1'

Param	Flag	Result	Units	RL
Chloride		736	mg/Kg	4.00

Sample: 251234 - SB-5 3'

Param	Flag	Result	Units	RL
Chloride		1040	mg/Kg	4.00

Sample: 251235 - SB-5 5'

Param	Flag	Result	Units	RL
Chloride		11400	mg/Kg	4.00

Sample: 251236 - SB-5 7'

Param	Flag	Result	Units	RL
Chloride		5390	mg/Kg	4.00

Sample: 251237 - SB-5 10'

Param	Flag	Result	Units	RL
Chloride		548	mg/Kg	4.00

Sample: 251238 - SB-5 15'

Param	Flag	Result	Units	RL
Chloride		761	mg/Kg	4.00

Sample: 251239 - SB-5 20'

Param	Flag	Result	Units	RL
Chloride		831	mg/Kg	4.00

Sample: 251240 - SB-5 25'

Param	Flag	Result	Units	RL
Chloride		1620	mg/Kg	4.00

Sample: 251241 - SB-5 30'

Param	Flag	Result	Units	RL
Chloride		1320	mg/Kg	4.00

Sample: 251242 - SB-5 40'

Param	Flag	Result	Units	RL
Chloride		1060	mg/Kg	4.00

Sample: 251243 - SB-5 50'

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

Sample: 251244 - SB-5 60'

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

Sample: 251245 - SB-4 0-1'

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

Sample: 251246 - SB-4 3'

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

Sample: 251247 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		15500	mg/Kg	4.00

Sample: 251248 - SB-4 7'

Param	Flag	Result	Units	RL
Chloride		8190	mg/Kg	4.00

Sample: 251249 - SB-4 10'

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

Sample: 251250 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		666	mg/Kg	4.00

Sample: 251251 - SB-4 20'

Param	Flag	Result	Units	RL
Chloride		280	mg/Kg	4.00

Sample: 251252 - SB-4 25'

Param	Flag	Result	Units	RL
Chloride		386	mg/Kg	4.00

Sample: 251253 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		362	mg/Kg	4.00

Sample: 251254 - SB-4 40'

Param	Flag	Result	Units	RL
Chloride		382	mg/Kg	4.00

Sample: 251255 - SB-4 50'

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

Sample: 251256 - SB-4 60'

Param	Flag	Result	Units	RL
Chloride		440	mg/Kg	4.00

Sample: 251257 - SB-3 0-1'

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

Sample: 251258 - SB-3 3'

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

Sample: 251259 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		15700	mg/Kg	4.00

Sample: 251260 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		6330	mg/Kg	4.00

Sample: 251261 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		464	mg/Kg	4.00

Sample: 251262 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		556	mg/Kg	4.00

Sample: 251263 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		353	mg/Kg	4.00

Sample: 251264 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		284	mg/Kg	4.00

Sample: 251265 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		265	mg/Kg	4.00

Sample: 251266 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		231	mg/Kg	4.00

Sample: 251267 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		222	mg/Kg	4.00

Sample: 251268 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		207	mg/Kg	4.00

Sample: 251269 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		18000	mg/Kg	4.00

Sample: 251270 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		366	mg/Kg	4.00

Sample: 251271 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		323	mg/Kg	4.00

Sample: 251272 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		424	mg/Kg	4.00

Sample: 251273 - SB-2 20'

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

Sample: 251274 - SB-2 25'

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

Sample: 251275 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		547	mg/Kg	4.00

Sample: 251276 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		5670	mg/Kg	4.00

Sample: 251277 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		9630	mg/Kg	4.00

Sample: 251278 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4.00

Sample: 251279 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		307	mg/Kg	4.00

Sample: 251280 - SB-1 15'

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

Sample: 251281 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		288	mg/Kg	4.00

Sample: 251282 - SB-7 7'

Param	Flag	Result	Units	RL
Chloride		503	mg/Kg	4.00

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Federal BI SWD	
Company:	COG Operating LLC	
Section, Township and Range	Unit N - Sec 28 - T17S - R32E	
Lease Number:	30-025-27068	
County:	Lea County	
GPS:	32.79927° N	103.77322° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Hwy 529 and CR 126 travel north 0.5 miles, turn left 0.2 miles to location.	

Release Data:

Date Released:	9/1/2010
Type Release:	Produced water
Source of Contamination:	PVC line failure
Fluid Released:	460 bbls
Fluids Recovered:	448 bbls

Official Communication:

Name:	Pat Ellis	Kim Dorey
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 631-0348
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	kim.dorey@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:		10

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

March 13, 2012

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

**Re: Closure Report for the COG Operating LLC., Federal BI SWD ,
Unit N, Section 28, Township 17 South, Range 32 East, Lea
County, New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Federal BI SWD, Unit N, Section 28, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.79927°, W 103.77322°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on September 1, 2010 and released approximately four hundred sixty (460) barrels of produced water, due to 8" PVC line failure. The majority of the fluids (approximately 400 barrels) were contained inside the lined facility. However, the remaining fluids (approximately 60 barrels) were released south of the facility into the pasture. Approximately four hundred forty eight (448) barrels of standing fluids were recovered. The spill migrated approximately 425' south-southeast of the tank battery in the pasture, with a width ranging from 60' to 170'. The initial C-141 form is enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 28. To establish depth to groundwater, Tetra Tech previously installed a temporary monitor well (TMW) in Section 30 to a depth of 180' and did not encounter groundwater. According to the

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



NMOCD groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The groundwater data is shown in Appendix A.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On October 5, 2010, Tetra Tech personnel inspected and sampled the spill area. Nine (9) auger holes (AH-1 through AH-9) 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the submitted samples were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected in AH-1 through AH-9, with majority of the auger holes not vertically defined.

In order to delineate the chloride impact, soil borings were installed utilizing an air rotary drilling rig. On November 15, 2010, Tetra Tech personnel supervised the installation of soil borings (SB-1 through SB-9). Due to access issues, a soil boring was not installed in the area AH-1. The soil boring results are summarized in Table 1. The soil boring locations are shown on Figure 3.

Referring to Table 1, chloride concentrations decreased with depth in all the soil borings and were vertically defined. The deepest chloride impact was detected in the area of SB-6, with depths of 10.0' to 15.0' below



surface. The areas of SB-1, SB-2, SB-3, SB-4 and SB-5 also showed elevated chloride concentrations to depths of 5.0' to 10.0' below surface. The remaining soil borings (SB-7, SB-8 and SB-9) showed a shallow impact (1.0' to 2.0') to the soils.

Remediation Work Performed

From May 11-20, 2011, Tetra Tech personnel supervised the excavation of impacted material. The proposed excavated areas were excavated to the depths as outlined in the approved work plan and shown in Table 1.

As requested by the BLM, random confirmation samples were collected from the excavation sidewalls. A total of seven (7) confirmation sample (CS-1 through CS-7) were collected and shown in Table 2. In addition, the area of AH-1 was trenched to define the chloride extents. Once excavated to a depth of 10.0' below surface, a trench was installed in the bottom and showed a declining chloride concentration of 626 mg/kg at 20.0' below excavation bottom. The sampling results are shown on Table 1. Based on the results, the area of AH-1 was lined with a 40 mil liner at 4.0' below surface.

Approximately 9,360 yards³ were removed and hauled to Controlled Recovery, Inc. of Hobbs, New Mexico. The entire excavated area was then backfilled and brought up to surface grade with clean soil. Photos of the excavation, final depths, liner, and clean backfill are enclosed.

Based upon the investigation and remediation performed at this site, COG requests closure of this site. The final C-141 is enclosed in Appendix C. If you require any additional information or have any questions or comments concerning report, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH



Ike Tavarez, PG
Sr. Project Manager

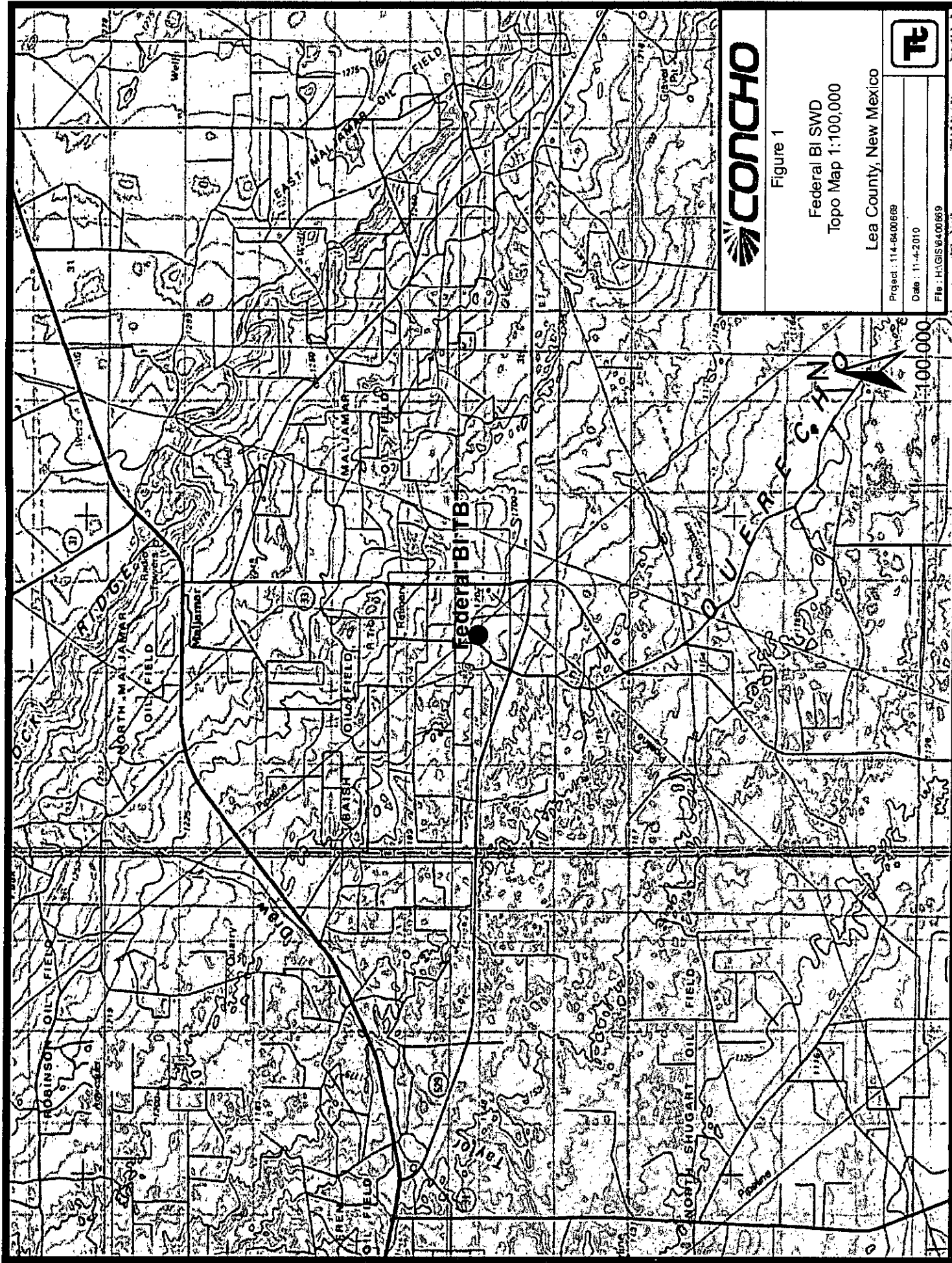


Figure 1

Federal BI SWD
Topo Map 1:100,000

Lea County, New Mexico

Project : 114-040069

Date : 11-4-2010

File : H:\GIS\640069



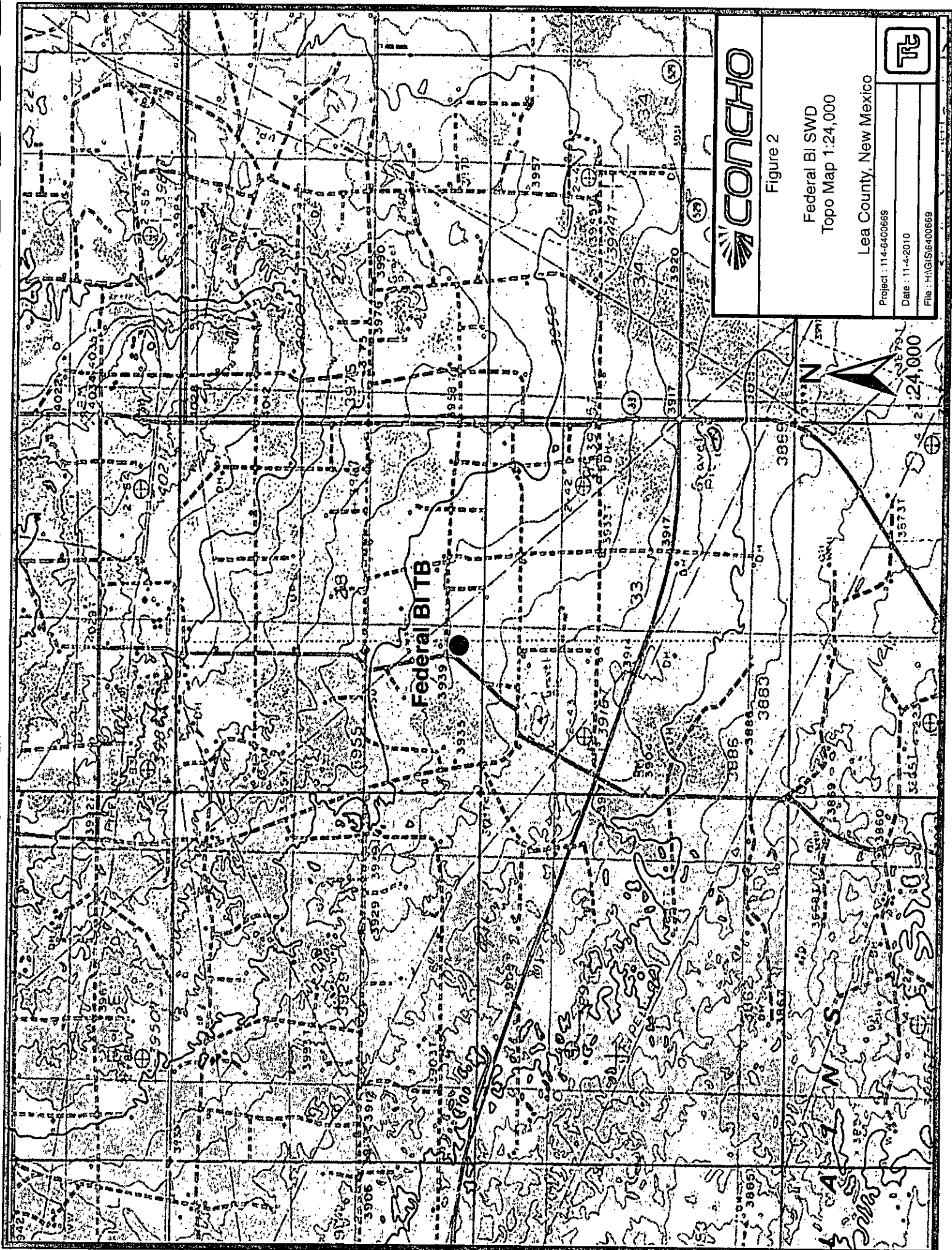


Figure 2

Federal BI SWD
Topo Map 1:24,000

Lea County, New Mexico

Project : 114-6400669

Date : 11-4-2010

File : H:\GIS\6400669



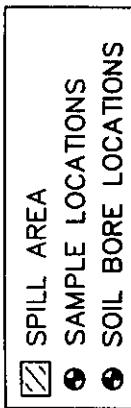
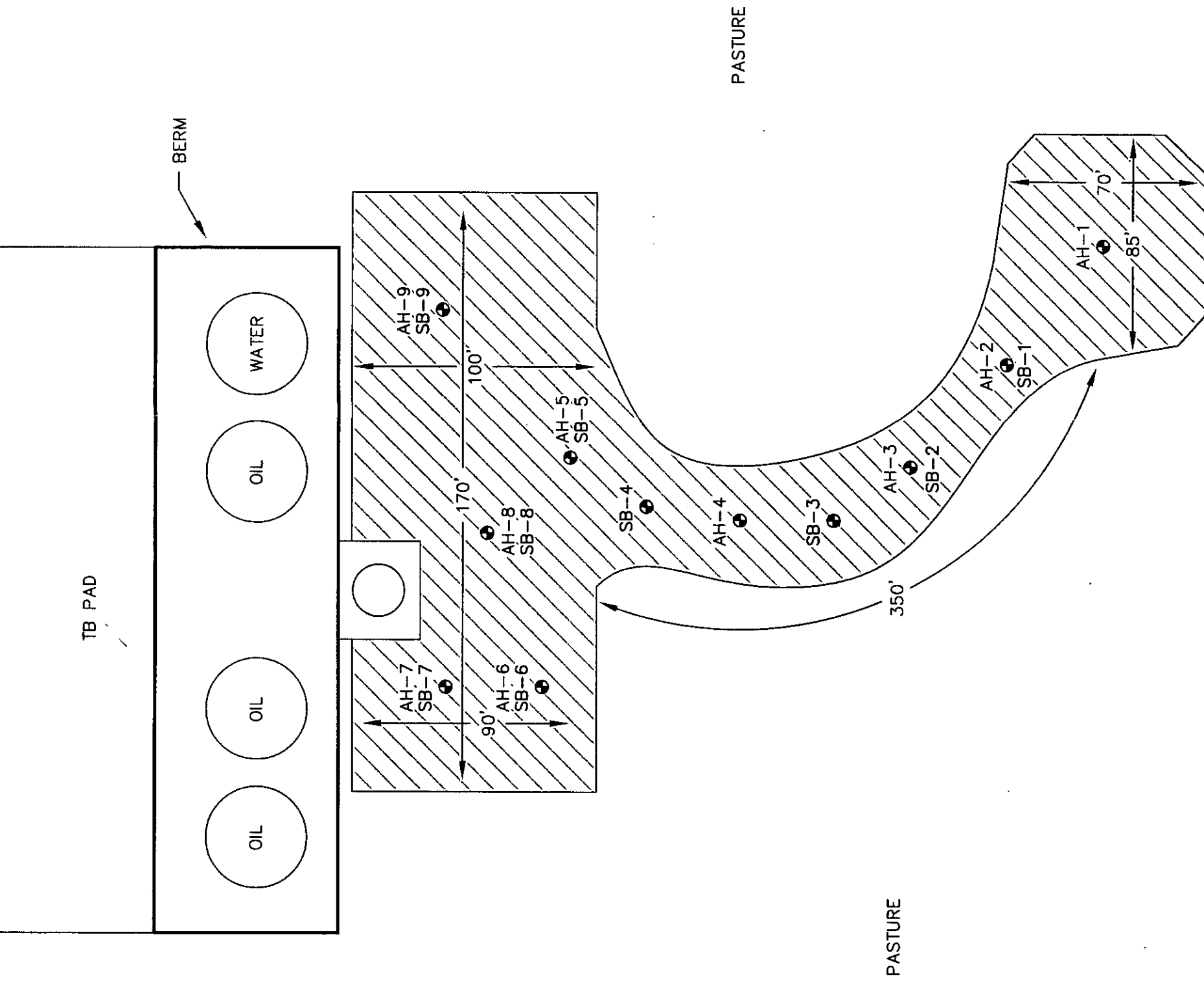


FIGURE NO. 3

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
FEDERAL BI SWD SITE PLAN

DATE: 10/5/10
DWN. BY:

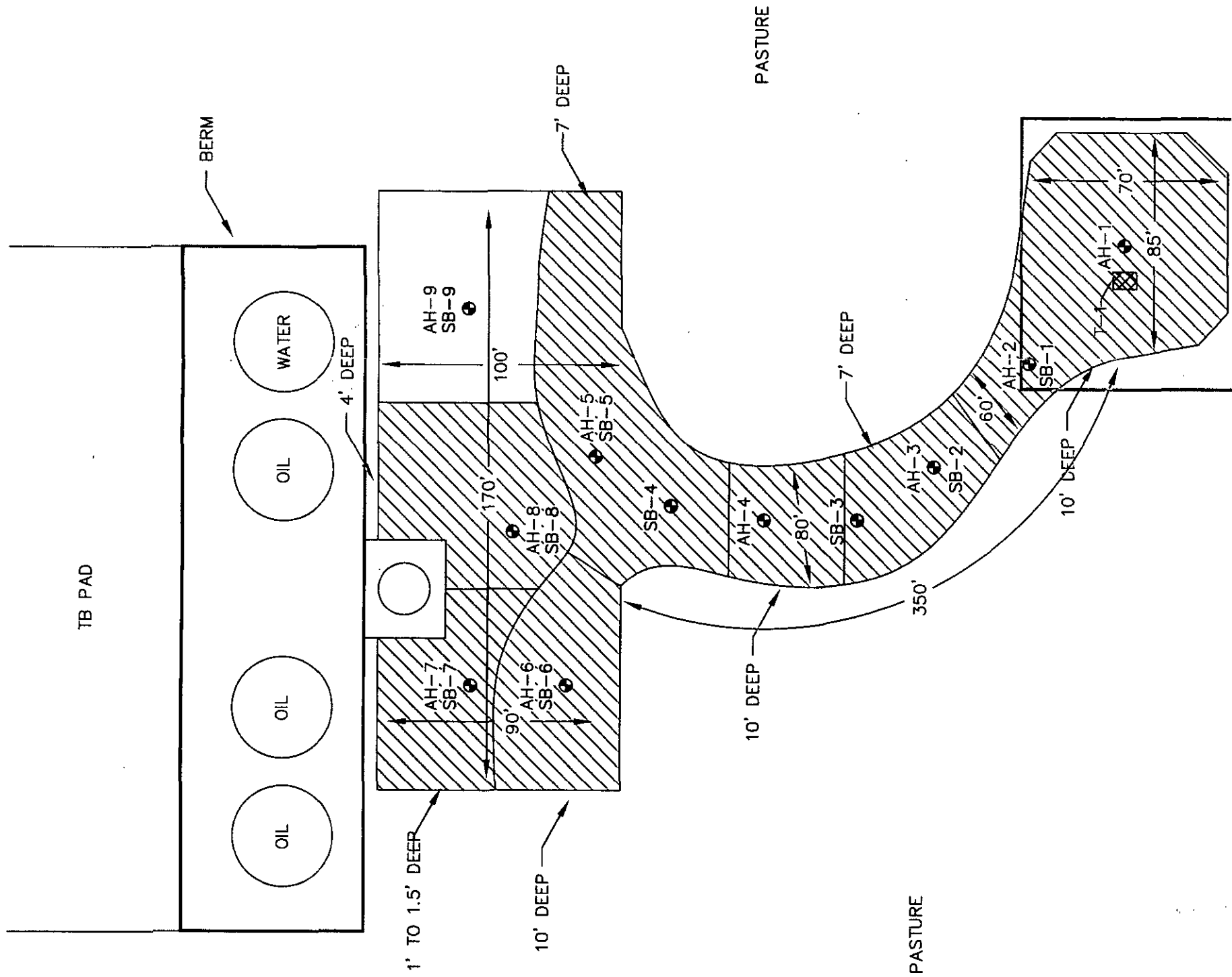


FIGURE NO. 4

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

FEDERAL BI SWD
EXCAVATED DEPTHS

DATE: 8/30/2011
DWN. BY: [Signature]

Table 1

**COG Operating LLC.
FEDERAL BI SWD
LEA 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					
AH-1	10/5/2010	0-1'		X	<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	2,780
	"	1-1.5'		X	-	-	-	-	-	-	-	1,200
	"	2-2.5'		X	-	-	-	-	-	-	-	401
	"	3-3.5'		X	-	-	-	-	-	-	-	921
	"	4-4.5'		X	-	-	-	-	-	-	-	2,730
	"	5-5.5'		X	-	-	-	-	-	-	-	7,200
	"	6-6.5'		X	-	-	-	-	-	-	-	7,870
	"	7-7.5'		X	-	-	-	-	-	-	-	7,370
	"	8-8.5'		X	-	-	-	-	-	-	-	6,890
	"	9-9.5'		X	-	-	-	-	-	-	-	7,010
T-1	5/13/2011	12'	X		-	-	-	-	-	-	-	6,810
		14'	X		-	-	-	-	-	-	-	6,220
		16'	X		-	-	-	-	-	-	-	2,360
		18'	X		-	-	-	-	-	-	-	3,780
		20'	X		-	-	-	-	-	-	-	626

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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					
AH-2	10/5/2010	0-1'		X	<1.00	<50.0	<50.0	-	-	-	-	268
	"	1-1.5'		X	-	-	-	-	-	-	-	3,180
	"	2-2.5'		X	-	-	-	-	-	-	-	5,730
	"	3-3.5'		X	-	-	-	-	-	-	-	5,870
	"	4-4.5'		X	-	-	-	-	-	-	-	5,820
	"	5-5.5'		X	-	-	-	-	-	-	-	6,080
	"	6-6.5'		X	-	-	-	-	-	-	-	5,980
	"	7-7.5'		X	-	-	-	-	-	-	-	12,300
SB-1	11/15/2010	0-1'		X	-	-	-	-	-	-	-	547
	"	3'		X	-	-	-	-	-	-	-	5,670
	"	5'		X	-	-	-	-	-	-	-	9,630
	"	7'	X		-	-	-	-	-	-	-	1,080
	"	10'	X		-	-	-	-	-	-	-	307
	"	15'	X		-	-	-	-	-	-	-	<200
	"	20'	X		-	-	-	-	-	-	-	288

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA COUNTY, NEW MEXICO

[illegible]

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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-4	10/5/2010	0-1'	X		<1.00	<50.0	<50.0	-	-	-	-	402
	"	1-1.5'	X		-	-	-	-	-	-	-	442
	"	2-2.5'	X		-	-	-	-	-	-	-	<200
	"	3-3.5'	X		-	-	-	-	-	-	-	598

Table 1

COG Operating LLC.

FEDERAL BI SWD

LEA 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					
SB-3	11/15/2010	0-1'		X	-	-	-	-	-	-	-	<200
	"	3'		X	-	-	-	-	-	-	-	<200
	"	5'		X	-	-	-	-	-	-	-	15,700
	"	7'		X	-	-	-	-	-	-	-	6,330
	"	10'	X		-	-	-	-	-	-	-	464
		15'	X		-	-	-	-	-	-	-	556
	"	20'	X		-	-	-	-	-	-	-	353
	"	25'	X		-	-	-	-	-	-	-	284
	"	30'	X		-	-	-	-	-	-	-	265
	"	40'	X		-	-	-	-	-	-	-	231

Table 1

COG Operating LLC.

FEDERAL BISWD

LEA 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					
SB-4	11/16/2010	0-1'		X	-	-	-	-	-	-	-	<200
	"	3'		X	-	-	-	-	-	-	-	<200
	"	5'		X	-	-	-	-	-	-	-	15,500
	"	7'		X	-	-	-	-	-	-	-	8,190
	"	10'	X		-	-	-	-	-	-	-	<200
	"	15'	X		-	-	-	-	-	-	-	666
	"	20'	X		-	-	-	-	-	-	-	280
	"	25'	X		-	-	-	-	-	-	-	386
	"	30'	X		-	-	-	-	-	-	-	362
	"	40'	X		-	-	-	-	-	-	-	382
	"	50'	X		-	-	-	-	-	-	-	<200
	"	60'	X		-	-	-	-	-	-	-	440

Table 1

[illegible]

Table 1

[illegible]

Table 1

**COG Operating LLC.
FEDERAL BI SWD
LEA 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					
AH-8	10/5/2010	0-1'		X	<1.00	60.1	60.1	-	-	-	-	3,380
	"	1-1.5'		X	-	-	-	-	-	-	-	<200
	"	2-2.5'		X	-	-	-	-	-	-	-	<200
	"	3-3.5'		X	-	-	-	-	-	-	-	213
	"	4-4.5'	X		-	-	-	-	-	-	-	599
SB-8	11/16/2010	0-1'		X	-	-	-	-	-	-	-	6,100
	"	3'		X	-	-	-	-	-	-	-	2,780
	"	5'	X		-	-	-	-	-	-	-	765
	"	7'	X		-	-	-	-	-	-	-	402
	"	10'	X		-	-	-	-	-	-	-	206
	"	15'	X		-	-	-	-	-	-	-	<200
	"	20'	X		-	-	-	-	-	-	-	<200
	"	25'	X		-	-	-	-	-	-	-	210
	"	30'	X		-	-	-	-	-	-	-	306
	"	40'	X		-	-	-	-	-	-	-	229

Table 1
COG Operating LLC.
FEDERAL BI SWD
LEA 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					
AH-9	10/5/2010	0-1'		X	<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
	"	1-1.5'		X	-	-	-	-	-	-	-	4,770
	"	2-2.5'	X		-	-	-	-	-	-	-	638
	"	3-3.5'	X		-	-	-	-	-	-	-	633
SB-9	11/16/2010	0-1'		X	-	-	-	-	-	-	-	305
	"	3'	X		-	-	-	-	-	-	-	310
	"	5'	X		-	-	-	-	-	-	-	215
	"	7'	X		-	-	-	-	-	-	-	496
	"	10'	X		-	-	-	-	-	-	-	<200
		15'	X		-	-	-	-	-	-	-	931
	"	20'	X		-	-	-	-	-	-	-	465
	"	25'	X		-	-	-	-	-	-	-	375
	"	30'	X		-	-	-	-	-	-	-	1,450
	"	40'	X		-	-	-	-	-	-	-	1,160
	"	50'	X		-	-	-	-	-	-	-	201
	"	60'	X		-	-	-	-	-	-	-	268

40 mil liner installed

(-) Not Analyzed

Excavation Depths

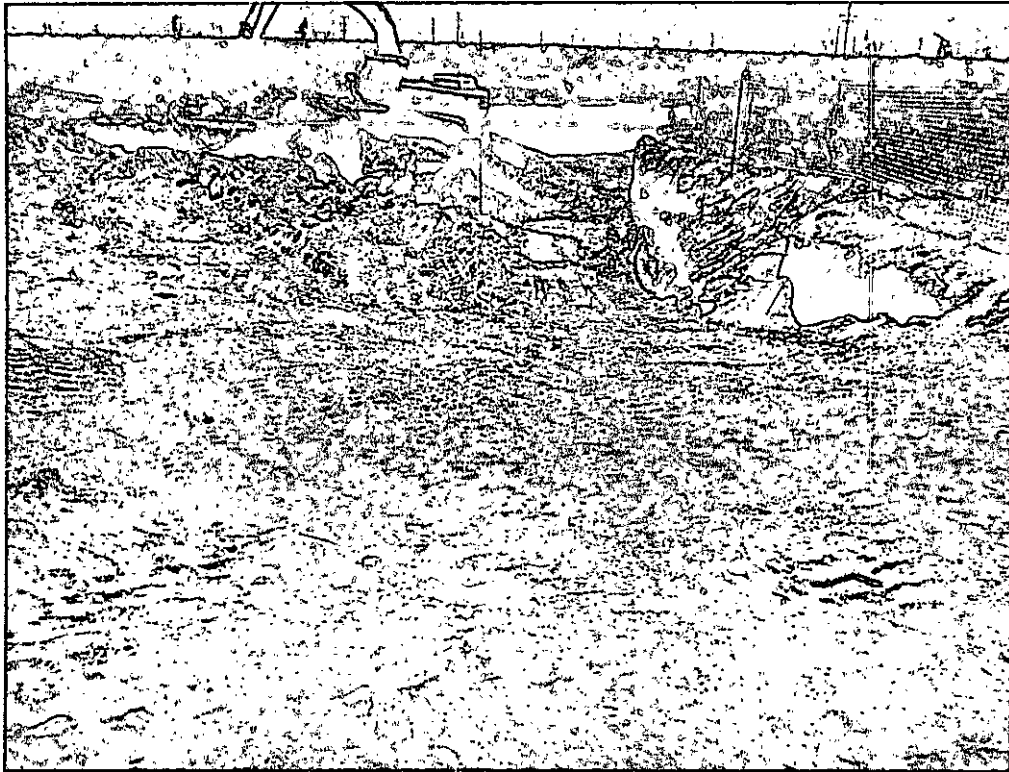
Table 2
COG Operating LLC.
FEDERAL BI SWD
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Description	Soil Status		Chloride (mg/kg)
			In-Situ	Removed	
CS-1	5/20/2011	Sidewall End	X		<200
CS-2	5/20/2011	East Sidewall	X		<200
CS-4	5/20/2011	East Sidewall	X		<200
CS-6	5/20/2011	East Sidewall	X		251
CS-8	5/20/2011	East Sidewall	X		<200
CS-3	5/20/2011	West Sidewall	X		<200
CS-5	5/20/2011	West Sidewall	X		<200
CS-7	5/20/2011	North Sidewall	X		<200

(-) Not Analyzed



TETRA TECH



Near AH-9 view towards AH-1

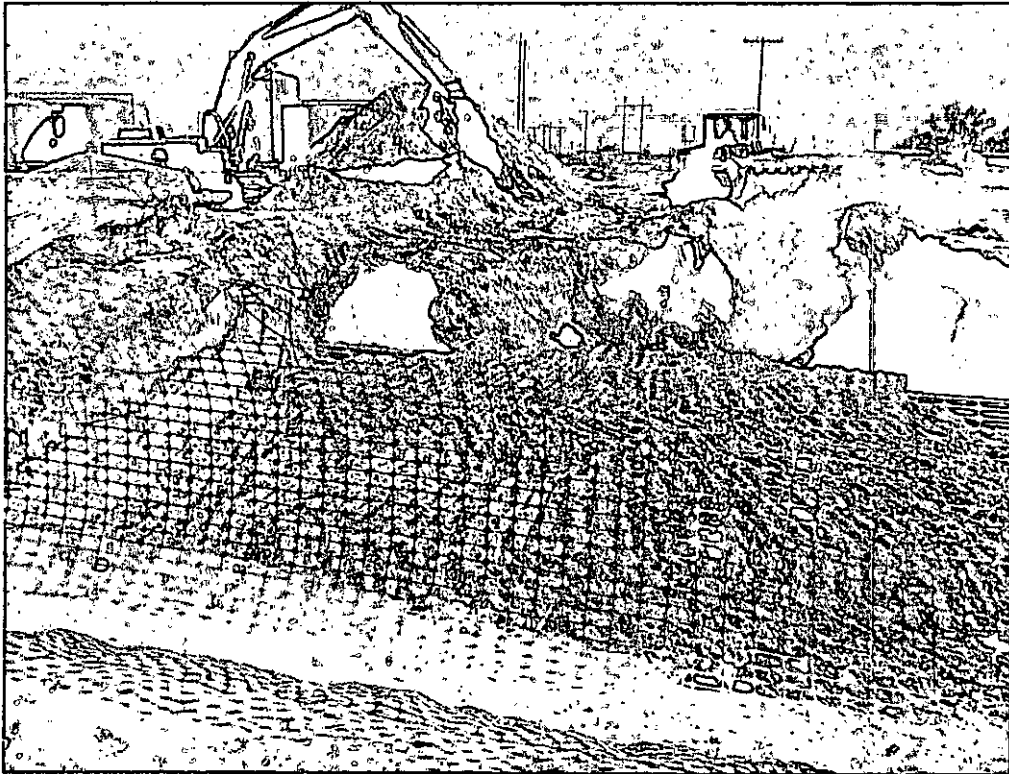


Final depth near AH-8 of 2-3' bgs

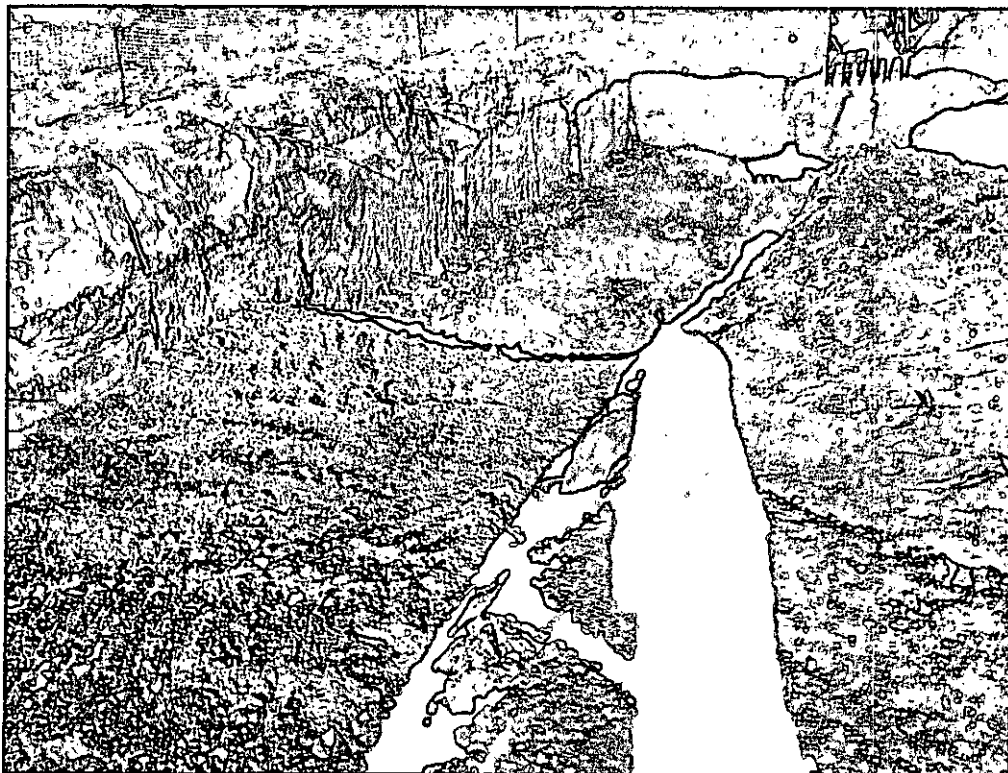
COG Operating LLC
Federal BI Swd
Lea County, New Mexico
Site Excavation: May 11-20, 2010



TETRA TECH



Excavation of BI site



Final depths near AH-1 of 10' bgs

COG Operating LLC
Federal BI Swd
Lea County, New Mexico
Site Excavation: May 11-20, 2010



TETRA TECH



Liner installed



Backfilling with clean material

Water Well Data
Average Depth to Groundwater (ft)
COG - Federal BI SWD
Lea County, New Mexico

16 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
290					

17 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
			271		

18 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
				261	

16 South 32 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
				260	

17 South 32 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	180	29	28	27	26
31	32	33	34	35	36
			SITE		

18 South 32 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
			117		

16 South 33 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
190	188		180		

17 South 33 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
				155	

18 South 33 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
			177		

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System
-  Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: October 22, 2010

Work Order: 10100722



Project Location: Lea Co, NM
Project Name: COG/Federal BI SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
246981	AH-1 0-1'	soil	2010-10-05	00:00	2010-10-07
246982	AH-1 1-1.5'	soil	2010-10-05	00:00	2010-10-07
246983	AH-1 2-2.5'	soil	2010-10-05	00:00	2010-10-07
246984	AH-1 3-3.5'	soil	2010-10-05	00:00	2010-10-07
246985	AH-1 4-4.5'	soil	2010-10-05	00:00	2010-10-07
246986	AH-1 5-5.5'	soil	2010-10-05	00:00	2010-10-07
246987	AH-1 6-6.5'	soil	2010-10-05	00:00	2010-10-07
246988	AH-1 7-7.5'	soil	2010-10-05	00:00	2010-10-07
246989	AH-1 8-8.5'	soil	2010-10-05	00:00	2010-10-07
246990	AH-1 9-9.5'	soil	2010-10-05	00:00	2010-10-07
246991	AH-2 0-1'	soil	2010-10-05	00:00	2010-10-07
246992	AH-2 1-1.5'	soil	2010-10-05	00:00	2010-10-07
246993	AH-2 2-2.5'	soil	2010-10-05	00:00	2010-10-07
246994	AH-2 3-3.5'	soil	2010-10-05	00:00	2010-10-07
246995	AH-2 4-4.5'	soil	2010-10-05	00:00	2010-10-07
246996	AH-2 5-5.5'	soil	2010-10-05	00:00	2010-10-07
246997	AH-2 6-6.5'	soil	2010-10-05	00:00	2010-10-07
246998	AH-2 7-7.5'	soil	2010-10-05	00:00	2010-10-07
246999	AH-3 0-1'	soil	2010-10-05	00:00	2010-10-07
247000	AH-3 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247001	AH-3 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247002	AH-3 2.5-3'	soil	2010-10-05	00:00	2010-10-07
247003	AH-4 0-1'	soil	2010-10-05	00:00	2010-10-07
247004	AH-4 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247005	AH-4 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247006	AH-4 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247007	AH-5 0-1'	soil	2010-10-05	00:00	2010-10-07
247008	AH-5 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247009	AH-5 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247010	AH-5 3-3.5'	soil	2010-10-05	00:00	2010-10-07

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
247011	AH-5 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247012	AH-6 0-1'	soil	2010-10-05	00:00	2010-10-07
247013	AH-6 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247014	AH-6 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247015	AH-6 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247016	AH-6 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247017	AH-6 5-5.5'	soil	2010-10-05	00:00	2010-10-07
247018	AH-7 0-1'	soil	2010-10-05	00:00	2010-10-07
247019	AH-7 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247020	AH-7 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247021	AH-7 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247022	AH-7 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247023	AH-8 0-1'	soil	2010-10-05	00:00	2010-10-07
247024	AH-8 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247025	AH-8 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247026	AH-8 3-3.5'	soil	2010-10-05	00:00	2010-10-07
247027	AH-8 4-4.5'	soil	2010-10-05	00:00	2010-10-07
247028	AH-9 0-1'	soil	2010-10-05	00:00	2010-10-07
247029	AH-9 1-1.5'	soil	2010-10-05	00:00	2010-10-07
247030	AH-9 2-2.5'	soil	2010-10-05	00:00	2010-10-07
247031	AH-9 3-3.5'	soil	2010-10-05	00:00	2010-10-07

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)
246981 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
246991 - AH-2 0-1'					<50.0	<1.00
246999 - AH-3 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247003 - AH-4 0-1'					<50.0	<1.00
247007 - AH-5 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247012 - AH-6 0-1'					<50.0	<1.00
247018 - AH-7 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
247023 - AH-8 0-1'					60.1	<1.00
247028 - AH-9 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00

Sample: 246981 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		2780	mg/Kg	4.00

Sample: 246982 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1200	mg/Kg	4.00

Sample: 246983 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		401	mg/Kg	4.00

Sample: 246984 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		921	mg/Kg	4.00

Sample: 246985 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		2730	mg/Kg	4.00

Sample: 246986 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		7200	mg/Kg	4.00

Sample: 246987 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		7870	mg/Kg	4.00

Sample: 246988 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		7370	mg/Kg	4.00

Sample: 246989 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		6890	mg/Kg	4.00

Sample: 246990 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		7010	mg/Kg	4.00

Sample: 246991 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4.00

Sample: 246992 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 246993 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5730	mg/Kg	4.00

Sample: 246994 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		5870	mg/Kg	4.00

Sample: 246995 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		5820	mg/Kg	4.00

Sample: 246996 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		6080	mg/Kg	4.00

Sample: 246997 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		5980	mg/Kg	4.00

Sample: 246998 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		12300	mg/Kg	4.00

Sample: 246999 - AH-3 0-1'

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

Sample: 247000 - AH-3 1-1.5'

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

Sample: 247001 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		9070	mg/Kg	4.00

Sample: 247002 - AH-3 2.5-3'

Param	Flag	Result	Units	RL
Chloride		11900	mg/Kg	4.00

Sample: 247003 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		402	mg/Kg	4.00

Sample: 247004 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		442	mg/Kg	4.00

Sample: 247005 - AH-4 2-2.5'

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

Sample: 247006 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		598	mg/Kg	4.00

Sample: 247007 - AH-5 0-1'

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

Sample: 247008 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		387	mg/Kg	4.00

Sample: 247009 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1300	mg/Kg	4.00

Sample: 247010 - AH-5 3-3.5'

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

Sample: 247011 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		617	mg/Kg	4.00

Sample: 247012 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		577	mg/Kg	4.00

Sample: 247013 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4.00

Sample: 247014 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		662	mg/Kg	4.00

Sample: 247015 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		7610	mg/Kg	4.00

Sample: 247016 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4.00

Sample: 247017 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		15500	mg/Kg	4.00

Sample: 247018 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 247019 - AH-7 1-1.5'

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

Sample: 247020 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		366	mg/Kg	4.00

Sample: 247021 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4.00

Sample: 247022 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		950	mg/Kg	4.00

Sample: 247023 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		3380	mg/Kg	4.00

Sample: 247024 - AH-8 1-1.5'

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

Sample: 247025 - AH-8 2-2.5'

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

Sample: 247026 - AH-8 3-3.5'

Param	Flag	Result	Units	RL
Chloride		213	mg/Kg	4.00

Sample: 247027 - AH-8 4-4.5'

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4.00

Sample: 247028 - AH-9 0-1'

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

Sample: 247029 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4770	mg/Kg	4.00

Sample: 247030 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		638	mg/Kg	4.00

Sample: 247031 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		633	mg/Kg	4.00

Summary Report

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

Report Date: December 2, 2010

Work Order: 10112224



Project Location: Lea Co., NM
Project Name: COG/Federal BI SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251196	SB-9 0-1'	soil	2010-11-15	00:00	2010-11-19
251197	SB-9 3'	soil	2010-11-15	00:00	2010-11-19
251198	SB-9 5'	soil	2010-11-15	00:00	2010-11-19
251199	SB-9 7'	soil	2010-11-15	00:00	2010-11-19
251200	SB-9 10'	soil	2010-11-15	00:00	2010-11-19
251201	SB-9 15'	soil	2010-11-15	00:00	2010-11-19
251202	SB-9 20'	soil	2010-11-15	00:00	2010-11-19
251203	SB-9 25'	soil	2010-11-15	00:00	2010-11-19
251204	SB-9 30'	soil	2010-11-15	00:00	2010-11-19
251205	SB-9 40'	soil	2010-11-15	00:00	2010-11-19
251206	SB-9 50'	soil	2010-11-15	00:00	2010-11-19
251207	SB-9 60'	soil	2010-11-15	00:00	2010-11-19
251208	SB-8 0-1'	soil	2010-11-15	00:00	2010-11-19
251209	SB-8 3'	soil	2010-11-15	00:00	2010-11-19
251210	SB-8 5'	soil	2010-11-15	00:00	2010-11-19
251211	SB-8 7'	soil	2010-11-15	00:00	2010-11-19
251212	SB-8 10'	soil	2010-11-15	00:00	2010-11-19
251213	SB-8 15'	soil	2010-11-15	00:00	2010-11-19
251214	SB-8 20'	soil	2010-11-15	00:00	2010-11-19
251215	SB-8 25'	soil	2010-11-15	00:00	2010-11-19
251216	SB-8 30'	soil	2010-11-15	00:00	2010-11-19
251217	SB-8 40'	soil	2010-11-15	00:00	2010-11-19
251218	SB-7 0-1'	soil	2010-11-15	00:00	2010-11-19
251219	SB-7 3'	soil	2010-11-15	00:00	2010-11-19
251220	SB-7 5'	soil	2010-11-15	00:00	2010-11-19
251221	SB-7 10'	soil	2010-11-15	00:00	2010-11-19
251222	SB-7 15'	soil	2010-11-15	00:00	2010-11-19
251223	SB-7 20'	soil	2010-11-15	00:00	2010-11-19
251224	SB-7 25'	soil	2010-11-15	00:00	2010-11-19
251225	SB-6 0-1'	soil	2010-11-15	00:00	2010-11-19

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251226	SB-6 3'	soil	2010-11-15	00:00	2010-11-19
251227	SB-6 5'	soil	2010-11-15	00:00	2010-11-19
251228	SB-6 7'	soil	2010-11-15	00:00	2010-11-19
251229	SB-6 10'	soil	2010-11-15	00:00	2010-11-19
251230	SB-6 15'	soil	2010-11-15	00:00	2010-11-19
251231	SB-6 20'	soil	2010-11-15	00:00	2010-11-19
251232	SB-6 25'	soil	2010-11-15	00:00	2010-11-19
251233	SB-5 0-1'	soil	2010-11-15	00:00	2010-11-19
251234	SB-5 3'	soil	2010-11-15	00:00	2010-11-19
251235	SB-5 5'	soil	2010-11-15	00:00	2010-11-19
251236	SB-5 7'	soil	2010-11-15	00:00	2010-11-19
251237	SB-5 10'	soil	2010-11-15	00:00	2010-11-19
251238	SB-5 15'	soil	2010-11-15	00:00	2010-11-19
251239	SB-5 20'	soil	2010-11-15	00:00	2010-11-19
251240	SB-5 25'	soil	2010-11-15	00:00	2010-11-19
251241	SB-5 30'	soil	2010-11-15	00:00	2010-11-19
251242	SB-5 40'	soil	2010-11-15	00:00	2010-11-19
251243	SB-5 50'	soil	2010-11-15	00:00	2010-11-19
251244	SB-5 60'	soil	2010-11-15	00:00	2010-11-19
251245	SB-4 0-1'	soil	2010-11-16	00:00	2010-11-19
251246	SB-4 3'	soil	2010-11-16	00:00	2010-11-19
251247	SB-4 5'	soil	2010-11-16	00:00	2010-11-19
251248	SB-4 7'	soil	2010-11-16	00:00	2010-11-19
251249	SB-4 10'	soil	2010-11-16	00:00	2010-11-19
251250	SB-4 15'	soil	2010-11-16	00:00	2010-11-19
251251	SB-4 20'	soil	2010-11-16	00:00	2010-11-19
251252	SB-4 25'	soil	2010-11-16	00:00	2010-11-19
251253	SB-4 30'	soil	2010-11-16	00:00	2010-11-19
251254	SB-4 40'	soil	2010-11-16	00:00	2010-11-19
251255	SB-4 50'	soil	2010-11-16	00:00	2010-11-19
251256	SB-4 60'	soil	2010-11-16	00:00	2010-11-19
251257	SB-3 0-1'	soil	2010-11-16	00:00	2010-11-19
251258	SB-3 3'	soil	2010-11-16	00:00	2010-11-19
251259	SB-3 5'	soil	2010-11-16	00:00	2010-11-19
251260	SB-3 7'	soil	2010-11-16	00:00	2010-11-19
251261	SB-3 10'	soil	2010-11-16	00:00	2010-11-19
251262	SB-3 15'	soil	2010-11-16	00:00	2010-11-19
251263	SB-3 20'	soil	2010-11-16	00:00	2010-11-19
251264	SB-3 25'	soil	2010-11-16	00:00	2010-11-19
251265	SB-3 30'	soil	2010-11-16	00:00	2010-11-19
251266	SB-3 40'	soil	2010-11-16	00:00	2010-11-19
251267	SB-2 0-1'	soil	2010-11-16	00:00	2010-11-19
251268	SB-2 3'	soil	2010-11-16	00:00	2010-11-19
251269	SB-2 5'	soil	2010-11-16	00:00	2010-11-19
251270	SB-2 7'	soil	2010-11-16	00:00	2010-11-19
251271	SB-2 10'	soil	2010-11-16	00:00	2010-11-19
251272	SB-2 15'	soil	2010-11-16	00:00	2010-11-19
251273	SB-2 20'	soil	2010-11-16	00:00	2010-11-19
251274	SB-2 25'	soil	2010-11-16	00:00	2010-11-19

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251275	SB-1 0-1'	soil	2010-11-16	00:00	2010-11-19
251276	SB-1 3'	soil	2010-11-16	00:00	2010-11-19
251277	SB-1 5'	soil	2010-11-16	00:00	2010-11-19
251278	SB-1 7'	soil	2010-11-16	00:00	2010-11-19
251279	SB-1 10'	soil	2010-11-16	00:00	2010-11-19
251280	SB-1 15'	soil	2010-11-16	00:00	2010-11-19
251281	SB-1 20'	soil	2010-11-16	00:00	2010-11-19
251282	SB-7 7'	soil	2010-11-16	00:00	2010-11-19

Sample: 251196 - SB-9 0-1'

Param	Flag	Result	Units	RL
Chloride		305	mg/Kg	4.00

Sample: 251197 - SB-9 3'

Param	Flag	Result	Units	RL
Chloride		310	mg/Kg	4.00

Sample: 251198 - SB-9 5'

Param	Flag	Result	Units	RL
Chloride		215	mg/Kg	4.00

Sample: 251199 - SB-9 7'

Param	Flag	Result	Units	RL
Chloride		496	mg/Kg	4.00

Sample: 251200 - SB-9 10'

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

Sample: 251201 - SB-9 15'

Param	Flag	Result	Units	RL
Chloride		931	mg/Kg	4.00

Sample: 251202 - SB-9 20'

Param	Flag	Result	Units	RL
Chloride		465	mg/Kg	4.00

Sample: 251203 - SB-9 25'

Param	Flag	Result	Units	RL
Chloride		375	mg/Kg	4.00

Sample: 251204 - SB-9 30'

Param	Flag	Result	Units	RL
Chloride		1450	mg/Kg	4.00

Sample: 251205 - SB-9 40'

Param	Flag	Result	Units	RL
Chloride		1160	mg/Kg	4.00

Sample: 251206 - SB-9 50'

Param	Flag	Result	Units	RL
Chloride		201	mg/Kg	4.00

Sample: 251207 - SB-9 60'

Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4.00

Sample: 251208 - SB-8 0-1'

Param	Flag	Result	Units	RL
Chloride		6100	mg/Kg	4.00

Sample: 251209 - SB-8 3'

Param	Flag	Result	Units	RL
Chloride		2780	mg/Kg	4.00

Sample: 251210 - SB-8 5'

Param	Flag	Result	Units	RL
Chloride		765	mg/Kg	4.00

Sample: 251211 - SB-8 7'

Param	Flag	Result	Units	RL
Chloride		402	mg/Kg	4.00

Sample: 251212 - SB-8 10'

Param	Flag	Result	Units	RL
Chloride		206	mg/Kg	4.00

Sample: 251213 - SB-8 15'

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

Sample: 251214 - SB-8 20'

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

Sample: 251215 - SB-8 25'

Param	Flag	Result	Units	RL
Chloride		210	mg/Kg	4.00

Sample: 251216 - SB-8 30'

Param	Flag	Result	Units	RL
Chloride		306	mg/Kg	4.00

Sample: 251217 - SB-8 40'

Param	Flag	Result	Units	RL
Chloride		229	mg/Kg	4.00

Sample: 251218 - SB-7 0-1'

Param	Flag	Result	Units	RL
Chloride		4030	mg/Kg	4.00

Sample: 251219 - SB-7 3'

Param	Flag	Result	Units	RL
Chloride		1240	mg/Kg	4.00

Sample: 251220 - SB-7 5'

Param	Flag	Result	Units	RL
Chloride		492	mg/Kg	4.00

Sample: 251221 - SB-7 10'

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

Sample: 251222 - SB-7 15'

Param	Flag	Result	Units	RL
Chloride		907	mg/Kg	4.00

Sample: 251223 - SB-7 20'

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

Sample: 251224 - SB-7 25'

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

Sample: 251225 - SB-6 0-1'

Param	Flag	Result	Units	RL
Chloride		368	mg/Kg	4.00

Sample: 251226 - SB-6 3'

Param	Flag	Result	Units	RL
Chloride		250	mg/Kg	4.00

Sample: 251227 - SB-6 5'

Param	Flag	Result	Units	RL
Chloride		9420	mg/Kg	4.00

Sample: 251228 - SB-6 7'

Param	Flag	Result	Units	RL
Chloride		9970	mg/Kg	4.00

Sample: 251229 - SB-6 10'

Param	Flag	Result	Units	RL
Chloride		3690	mg/Kg	4.00

Sample: 251230 - SB-6 15'

Param	Flag	Result	Units	RL
Chloride		1020	mg/Kg	4.00

Sample: 251231 - SB-6 20'

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

Sample: 251232 - SB-6 25'

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

Sample: 251233 - SB-5 0-1'

Param	Flag	Result	Units	RL
Chloride		736	mg/Kg	4.00

Sample: 251234 - SB-5 3'

Param	Flag	Result	Units	RL
Chloride		1040	mg/Kg	4.00

Sample: 251235 - SB-5 5'

Param	Flag	Result	Units	RL
Chloride		11400	mg/Kg	4.00

Sample: 251236 - SB-5 7'

Param	Flag	Result	Units	RL
Chloride		5390	mg/Kg	4.00

Sample: 251237 - SB-5 10'

Param	Flag	Result	Units	RL
Chloride		548	mg/Kg	4.00

Sample: 251238 - SB-5 15'

Param	Flag	Result	Units	RL
Chloride		761	mg/Kg	4.00

Sample: 251239 - SB-5 20'

Param	Flag	Result	Units	RL
Chloride		831	mg/Kg	4.00

Sample: 251240 - SB-5 25'

Param	Flag	Result	Units	RL
Chloride		1620	mg/Kg	4.00

Sample: 251241 - SB-5 30'

Param	Flag	Result	Units	RL
Chloride		1320	mg/Kg	4.00

Sample: 251242 - SB-5 40'

Param	Flag	Result	Units	RL
Chloride		1060	mg/Kg	4.00

Sample: 251243 - SB-5 50'

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

Sample: 251244 - SB-5 60'

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

Sample: 251245 - SB-4 0-1'

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

Sample: 251246 - SB-4 3'

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

Sample: 251247 - SB-4 5'

Param	Flag	Result	Units	RL
Chloride		15500	mg/Kg	4.00

Sample: 251248 - SB-4 7'

Param	Flag	Result	Units	RL
Chloride		8190	mg/Kg	4.00

Sample: 251249 - SB-4 10'

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

Sample: 251250 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		666	mg/Kg	4.00

Sample: 251251 - SB-4 20'

Param	Flag	Result	Units	RL
Chloride		280	mg/Kg	4.00

Sample: 251252 - SB-4 25'

Param	Flag	Result	Units	RL
Chloride		386	mg/Kg	4.00

Sample: 251253 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		362	mg/Kg	4.00

Sample: 251254 - SB-4 40'

Param	Flag	Result	Units	RL
Chloride		382	mg/Kg	4.00

Sample: 251255 - SB-4 50'

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

Sample: 251256 - SB-4 60'

Param	Flag	Result	Units	RL
Chloride		440	mg/Kg	4.00

Sample: 251257 - SB-3 0-1'

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

Sample: 251258 - SB-3 3'

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

Sample: 251259 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		15700	mg/Kg	4.00

Sample: 251260 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		6330	mg/Kg	4.00

Sample: 251261 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		464	mg/Kg	4.00

Sample: 251262 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		556	mg/Kg	4.00

Sample: 251263 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		353	mg/Kg	4.00

Sample: 251264 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		284	mg/Kg	4.00

Sample: 251265 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		265	mg/Kg	4.00

Sample: 251266 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		231	mg/Kg	4.00

Sample: 251267 - SB-2 0-1'

Param	Flag	Result	Units	RL
Chloride		222	mg/Kg	4.00

Sample: 251268 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		207	mg/Kg	4.00

Sample: 251269 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		18000	mg/Kg	4.00

Sample: 251270 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		366	mg/Kg	4.00

Sample: 251271 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		323	mg/Kg	4.00

Sample: 251272 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		424	mg/Kg	4.00

Sample: 251273 - SB-2 20'

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

Sample: 251274 - SB-2 25'

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

Sample: 251275 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		547	mg/Kg	4.00

Sample: 251276 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		5670	mg/Kg	4.00

Sample: 251277 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		9630	mg/Kg	4.00

Sample: 251278 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4.00

Sample: 251279 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		307	mg/Kg	4.00

Sample: 251280 - SB-1 15'

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

Sample: 251281 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		288	mg/Kg	4.00

Sample: 251282 - SB-7 7'

Param	Flag	Result	Units	RL
Chloride		503	mg/Kg	4.00

Summary Report

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

Report Date: June 1, 2011

Work Order: 11052330

Project Location: Lea Co., NM
Project Name: COG/Federal BI-SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267085	CS-1 Sidewall End	soil	2011-05-20	00:00	2011-05-23
267086	CS-2 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267087	CS-3 West Sidewall	soil	2011-05-20	00:00	2011-05-23
267088	CS-4 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267089	CS-5 West Sidewall	soil	2011-05-20	00:00	2011-05-23
267090	CS-6 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267091	CS-7 North Sidewall	soil	2011-05-20	00:00	2011-05-23
267092	CS-8 East Sidewall	soil	2011-05-20	00:00	2011-05-23

Sample: 267085 - CS-1 Sidewall End

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

Sample: 267086 - CS-2 East Sidewall

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

Sample: 267087 - CS-3 West Sidewall

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

Sample: 267088 - CS-4 East Sidewall

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

Sample: 267089 - CS-5 West Sidewall

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

Sample: 267090 - CS-6 East Sidewall

Param	Flag	Result	Units	RL
Chloride		251	mg/Kg	4

Sample: 267091 - CS-7 North Sidewall

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

Sample: 267092 - CS-8 East Sidewall

Param	Flag	Result	Units	RL
Chloride		<200	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•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 Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: June 1, 2011

Work Order: 11052330



Project Location: Lea Co., NM
Project Name: COG/Federal BI-SWD
Project Number: 114-6400669

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
267085	CS-1 Sidewall End	soil	2011-05-20	00:00	2011-05-23
267086	CS-2 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267087	CS-3 West Sidewall	soil	2011-05-20	00:00	2011-05-23
267088	CS-4 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267089	CS-5 West Sidewall	soil	2011-05-20	00:00	2011-05-23
267090	CS-6 East Sidewall	soil	2011-05-20	00:00	2011-05-23
267091	CS-7 North Sidewall	soil	2011-05-20	00:00	2011-05-23
267092	CS-8 East Sidewall	soil	2011-05-20	00:00	2011-05-23

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.



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

Case Narrative

Samples for project COG/Federal BI-SWD were received by TraceAnalysis, Inc. on 2011-05-23 and assigned to work order 11052330. Samples for work order 11052330 were received intact at a temperature of 4.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	69419	2011-05-31 at 09:25	81790	2011-06-01 at 12:21

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 11052330 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 5 of 11
Lea Co., NM

Analytical Report

Sample: 267085 - CS-1 Sidewall End

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-01	Analyzed By:	AR
QC Batch:	81790	Sample Preparation:	2011-05-31	Prepared By:	AR
Prep Batch:	69419				

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

Sample: 267086 - CS-2 East Sidewall

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-01	Analyzed By:	AR
QC Batch:	81790	Sample Preparation:	2011-05-31	Prepared By:	AR
Prep Batch:	69419				

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

Sample: 267087 - CS-3 West Sidewall

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-01	Analyzed By:	AR
QC Batch:	81790	Sample Preparation:	2011-05-31	Prepared By:	AR
Prep Batch:	69419				

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

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 6 of 11
Lea Co., NM

Sample: 267088 - CS-4 East Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81790 Date Analyzed: 2011-06-01 Analyzed By: AR
Prep Batch: 69419 Sample Preparation: 2011-05-31 Prepared By: AR

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

Sample: 267089 - CS-5 West Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81790 Date Analyzed: 2011-06-01 Analyzed By: AR
Prep Batch: 69419 Sample Preparation: 2011-05-31 Prepared By: AR

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

Sample: 267090 - CS-6 East Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81790 Date Analyzed: 2011-06-01 Analyzed By: AR
Prep Batch: 69419 Sample Preparation: 2011-05-31 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			251	mg/Kg	50	4.00

Sample: 267091 - CS-7 North Sidewall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81790 Date Analyzed: 2011-06-01 Analyzed By: AR
Prep Batch: 69419 Sample Preparation: 2011-05-31 Prepared By: AR

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 7 of 11
Lea Co., NM

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

Sample: 267092 - CS-8 East Sidewall

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-01	Analyzed By:	AR
QC Batch:	81790	Sample Preparation:	2011-05-31	Prepared By:	AR
Prep Batch:	69419				

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

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 8 of 11
Lea Co., NM

Method Blanks

Method Blank (1) QC Batch: 81790

QC Batch: 81790
Prep Batch: 69419

Date Analyzed: 2011-06-01
QC Preparation: 2011-05-31

Analyzed By: AR
Prepared By: AR

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

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 9 of 11
Lea Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 81790
Prep Batch: 69419

Date Analyzed: 2011-06-01
QC Preparation: 2011-05-31

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.2	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	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	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: 267093

QC Batch: 81790
Prep Batch: 69419

Date Analyzed: 2011-06-01
QC Preparation: 2011-05-31

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12400	mg/Kg	100	10000	2030	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			12800	mg/Kg	100	10000	2030	108	80 - 120	3	20

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

Report Date: June 1, 2011
114-6400669

Work Order: 11052330
COG/Federal BI-SWD

Page Number: 10 of 11
Lea Co., NM

Calibration Standards

Standard (ICV-1)

QC Batch: 81790

Date Analyzed: 2011-06-01

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	2011-06-01

Standard (CCV-1)

QC Batch: 81790

Date Analyzed: 2011-06-01

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	2011-06-01

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

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.

Summary Report

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

Report Date: June 8, 2011

Work Order: 11052703



Project Location: Lea Co., NM
Project Name: COG/Federal BI-SWD
Project Number: 114-6400669

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
267513	Trench-1 12'	soil	2011-05-13	00:00	2011-05-26
267514	Trench-1 14'	soil	2011-05-13	00:00	2011-05-26
267515	Trench-1 16'	soil	2011-05-13	00:00	2011-05-26
267516	Trench-1 18'	soil	2011-05-13	00:00	2011-05-26
267517	Trench-1 20'	soil	2011-05-13	00:00	2011-05-26

Sample: 267513 - Trench-1 12'

Param	Flag	Result	Units	RL
Chloride		6810	mg/Kg	4

Sample: 267514 - Trench-1 14'

Param	Flag	Result	Units	RL
Chloride		6220	mg/Kg	4

Sample: 267515 - Trench-1 16'

Param	Flag	Result	Units	RL
Chloride		2360	mg/Kg	4

Sample: 267516 - Trench-1 18'

Report Date: June 8, 2011

Work Order: 11052703

Page Number: 2 of 2

Param	Flag	Result	Units	RL
Chloride		3780	mg/Kg	4

Sample: 267517 - Trench-1 20'

Param	Flag	Result	Units	RL
Chloride		626	mg/Kg	4



6701 Amerleen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 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: June 8, 2011

Work Order: 11052703



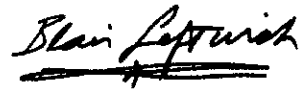
Project Location: Lea Co., NM
Project Name: COG/Federal BI-SWD
Project Number: 114-6400669

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
267513	Trench-1 12'	soil	2011-05-13	00:00	2011-05-26
267514	Trench-1 14'	soil	2011-05-13	00:00	2011-05-26
267515	Trench-1 16'	soil	2011-05-13	00:00	2011-05-26
267516	Trench-1 18'	soil	2011-05-13	00:00	2011-05-26
267517	Trench-1 20'	soil	2011-05-13	00:00	2011-05-26

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.



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

Report Contents

Case Narrative	4
Analytical Report	5
Sample 267513 (Trench-1 12')	5
Sample 267514 (Trench-1 14')	5
Sample 267515 (Trench-1 16')	5
Sample 267516 (Trench-1 18')	5
Sample 267517 (Trench-1 20')	6
Method Blanks	7
QC Batch 81924 - Method Blank (1)	7
QC Batch 81925 - Method Blank (1)	7
Laboratory Control Spikes	8
QC Batch 81924 - LCS (1)	8
QC Batch 81925 - LCS (1)	8
QC Batch 81924 - MS (1)	8
QC Batch 81925 - MS (1)	9
Calibration Standards	10
QC Batch 81924 - ICV (1)	10
QC Batch 81924 - CCV (1)	10
QC Batch 81925 - ICV (1)	10
QC Batch 81925 - CCV (1)	10
Appendix	11
Laboratory Certifications	11
Standard Flags	11
Attachments	11

Case Narrative

Samples for project COG/Federal BI-SWD were received by TraceAnalysis, Inc. on 2011-05-26 and assigned to work order 11052703. Samples for work order 11052703 were received intact at a temperature of 11.6 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	69500	2011-06-02 at 10:45	81924	2011-06-03 at 10:59
Chloride (Titration)	SM 4500-Cl B	69500	2011-06-02 at 10:45	81925	2011-06-06 at 11:01

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11052703 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 5 of 11
Lea Co., NM

Analytical Report

Sample: 267513 - Trench-1 12'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-03	Analyzed By:	AR
QC Batch:	81924	Sample Preparation:	2011-06-02	Prepared By:	AR
Prep Batch:	69500				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6810	mg/Kg	100	4.00

Sample: 267514 - Trench-1 14'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-03	Analyzed By:	AR
QC Batch:	81924	Sample Preparation:	2011-06-02	Prepared By:	AR
Prep Batch:	69500				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			6220	mg/Kg	100	4.00

Sample: 267515 - Trench-1 16'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-06	Analyzed By:	AR
QC Batch:	81925	Sample Preparation:	2011-06-02	Prepared By:	AR
Prep Batch:	69500				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2360	mg/Kg	100	4.00

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 6 of 11
Lea Co., NM

Sample: 267516 - Trench-1 18'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-06	Analyzed By:	AR
QC Batch:	81925	Sample Preparation:	2011-06-02	Prepared By:	AR
Prep Batch:	69500				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3780	mg/Kg	100	4.00

Sample: 267517 - Trench-1 20'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-06-06	Analyzed By:	AR
QC Batch:	81925	Sample Preparation:	2011-06-02	Prepared By:	AR
Prep Batch:	69500				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			626	mg/Kg	100	4.00

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 7 of 11
Lea Co., NM

Method Blanks

Method Blank (1) QC Batch: 81924

QC Batch: 81924
Prep Batch: 69500

Date Analyzed: 2011-06-03
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 81925

QC Batch: 81925
Prep Batch: 69500

Date Analyzed: 2011-06-06
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

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

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 8 of 11
Lea Co., NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 81924
Prep Batch: 69500

Date Analyzed: 2011-06-03
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.8	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			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.

Laboratory Control Spike (LCS-1)

QC Batch: 81925
Prep Batch: 69500

Date Analyzed: 2011-06-06
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			96.3	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			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.

Matrix Spike (MS-1) Spiked Sample: 267514

QC Batch: 81924
Prep Batch: 69500

Date Analyzed: 2011-06-03
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 9 of 11
Lea Co., NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			16100	mg/Kg	100	10000	6220	99	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			16700	mg/Kg	100	10000	6220	105	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: 267522

QC Batch: 81925
Prep Batch: 69500

Date Analyzed: 2011-06-06
QC Preparation: 2011-06-02

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11700	mg/Kg	100	10000	1670	100	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			11900	mg/Kg	100	10000	1670	102	80 - 120	2	20

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

Report Date: June 8, 2011
114-6400669

Work Order: 11052703
COG/Federal BI-SWD

Page Number: 10 of 11
Lea Co., NM

Calibration Standards

Standard (ICV-1)

QC Batch: 81924

Date Analyzed: 2011-06-03

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	96.8	97	85 - 115	2011-06-03

Standard (CCV-1)

QC Batch: 81924

Date Analyzed: 2011-06-03

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	103	103	85 - 115	2011-06-03

Standard (ICV-1)

QC Batch: 81925

Date Analyzed: 2011-06-06

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	100	100	85 - 115	2011-06-06

Standard (CCV-1)

QC Batch: 81925

Date Analyzed: 2011-06-06

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2011-06-06

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

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Please note, each attachment may consist of more than one page.

