

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

HOBBS OCD PJXK 16000454390

JUL 01 2011

Form C-141
Revised October 10, 2003

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

RECEIVED

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG Operating, LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100 Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	FEE MA B #4 Tank Battery	Facility Type	Tank Battery
Surface Owner	Private	Mineral Owner	
		Lease No. (API #)	30-025-36494

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	31	17S	32E	1650	NORTH	900	EAST	LEA

Latitude 32.793333 Longitude 103.696712

NATURE OF RELEASE

Type of Release	Produced Water	Volume of Release	24 bbls	Volume Recovered	0 bbls
Source of Release	Faulty water transfer pump hose	Date and Hour of Occurrence	01/23/2010 8:00 a.m.	Date and Hour of Discovery	01/23/2010 1:00 p.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required				
By Whom?	If YES, To Whom?				
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If YES, Volume Impacting the Watercourse.					

If a Watercourse was Impacted, Describe Fully.*

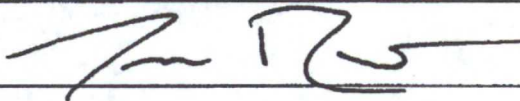
Describe Cause of Problem and Remedial Action Taken.*

A defective hose from a water transfer pump caused water to leak out onto the location. The hose that caused the spill was repaired.

Describe Area Affected and Cleanup Action Taken.*

The water was localized off of the South East corner of the pad. One-call protocol will be made by dirt contractor who will then remove saturated soils prior to soil sampling by Tetra Tech. Tetra Tech will then sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM for your approval prior to any significant remediation work.

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

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Josh Russo	Approved by District Supervisor:		
Title: HSE Coordinator - COG Operating, LLC	Approval Date:	Expiration Date:	
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 01/26/2010 Phone: 432-212-2399			

* Attach Additional Sheets If Necessary

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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) 230-0077
Facility Name	FEE MA B #4 Tank Battery	Facility Type	Tank Battery

Surface Owner: Private	Mineral Owner	Lease No. 30-025-36494
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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
H	31	17S	32E	1650	North	900	East	LEA

Latitude N ° Longitude W °

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 24 bbls	Volume Recovered 0 bbls
Source of Release Faulty water transfer pump hose	Date and Hour of Occurrence 1/23/10	Date and Hour of Discovery 1/23/10 1:00 p.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.*

A defective hose from the water transfer pump caused water to leak out onto the location. The hose that caused the spill was repaired.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded the RRAL was removed and hauled away for proper disposal. Site was then backfilled to 4' and a 40 mil liner installed. The site was then backfilled and brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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

Signature: <i>Patrick L. Ellis</i>	OIL CONSERVATION DIVISION		
Printed Name: Patrick L. Ellis	Approved by District Supervisor:		
Title: Environmental and Safety Supervisor	Approval Date:	Expiration Date:	
E-mail Address: pellis@conchoresources.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 6-2-11	Phone: (432) 686-3023		

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

RECEIVED

General Site Information:

Site:	FEE MA B #4 Tank Battery	OCT 27 2010
Company:	COG Operating LLC	
Section, Township and Range	Unit H - Sec 31 - T17S - R32E	HOBBSCOED
Lease Number:	API-30-025-36494	
County:	Lea County	
GPS:	32.793333° N	103.696712° W
Surface Owner:	Private	
Mineral Owner:		
Directions:	From CR-126 and 529, travel east 4.6 miles, turn left (north) Dog Lake Road 0.5 miles, turn left 0.6 miles, turn left 0.2 miles to location	

Release Data:

Date Released:	1/23/2010
Type Release:	Produced Water
Source of Contamination:	Faulty water transfer pump hose
Fluid Released:	24 bbls
Fluids Recovered:	0 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:		0

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



TETRA TECH

RECEIVED

OCT 27 2010
HOBBSOCD

October 15, 2010

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., FEE MA B #4 Tank Battery, Unit H, Section 31, 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 FEE MA B #4 Tank Battery, Unit H, Section 31, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.793333°, W 103.696712°. 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 January 23, 2010, and released approximately twenty four (24) barrels of produced water due to a faulty water transfer pump hose. To alleviate the problem, COG personnel repaired the hose. Zero (0) barrels of standing fluids were recovered. The spill was contained in a native low-lying pasture area south of the tank battery and impacted an area approximately 60' x 80'. 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 31. However, the USGS Well Report did list two wells in Section 11 with reported depths of 70' and 105' below ground surface (bgs). To establish depth to groundwater, Tetra Tech previously

Tetra Tech

1310 North Big Spring, Midland, TX 79705

Tel 432.682.4553 Fax 432.682.3946 www.tetratech.com



installed a temporary monitor well (TMW) in Section 30 to a depth of 180' bgs and did not encounter groundwater. 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 March 30, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of four (4) auger holes (AH-1 through AH-4) 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all the submitted samples were below the RRAL for both BTEX and TPH. Elevated chloride concentrations were detected for each of the auger holes. Deeper samples were obtained due to a dense caliche formation. The bottom auger hole samples showed chloride concentrations at AH-1 (2-2.5') of 3,180 mg/kg, AH-2 (4-4.5') of 9,110 mg/kg, AH-3 (1-1.5') of 1,390 mg/kg, and AH-4 (0-1') of 913 mg/kg.

To delineate the chloride impact, Tetra Tech supervised the installation of three (3) soil boreholes (SB-1 through SB-3) utilizing an air rotary drilling rig on May 10, 2010. SB-1 and SB-2 were installed in the vicinity of AH-1 and AH-2, respectively. SB-3 was installed between AH-3 and AH-4. Soil samples were collected to a total depth of 80', where the upper sand sequences started slumping in not allowing deeper penetration or samples. The soil boring results are summarized in Table 1. The soil boring locations are shown on Figure 3.



TETRA TECH

Referring to Table 1, the assessment data showed a deep chloride impact to the subsurface soils. However, the chloride concentrations had a significant decline at a depth of 70' for each of the three soil borings.

Work Plan

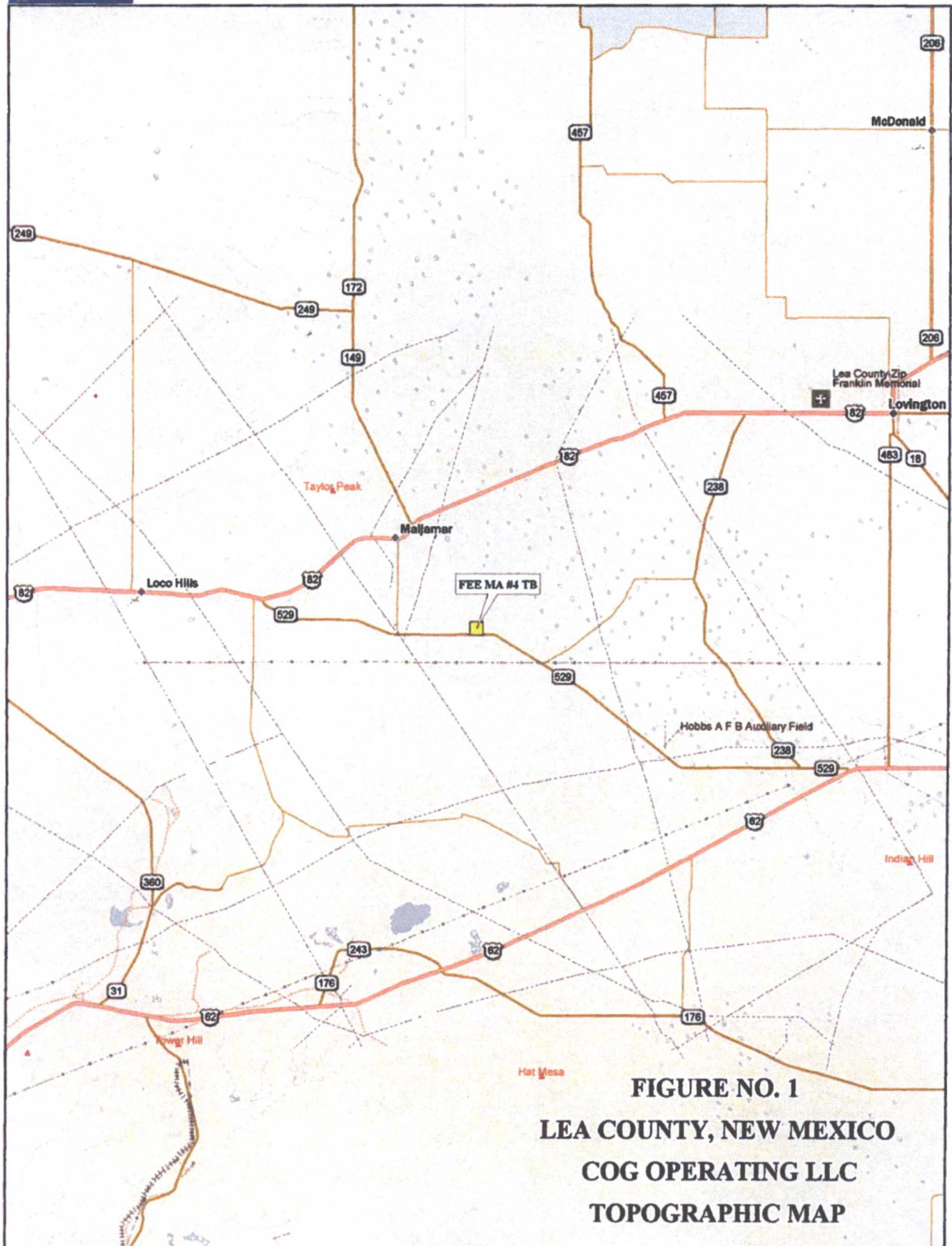
COG proposes to excavate the impacted soils to a depth of 15' to 20' below surface. The excavation depths are shown in Table 1. Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil. The liner will be installed at a depth of 4' to 5' below surface.

Since the impacted area is in the native sand dunes, the proposed excavation depths may not be reached due to wall cave ins, safety concerns for lines, equipment operators as well, as other onsite personnel. As such, Tetra Tech will excavate the soils to the maximum extent practicable and capped with liner.

Respectfully submitted,
TETRA TECH

Kim Dorey
Staff Geologist

cc: Pat Ellis - COG



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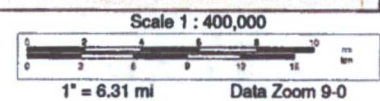




FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

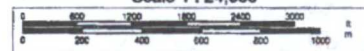
Data use subject to license.

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Scale 1 : 24,000



Data Zoom 13-0

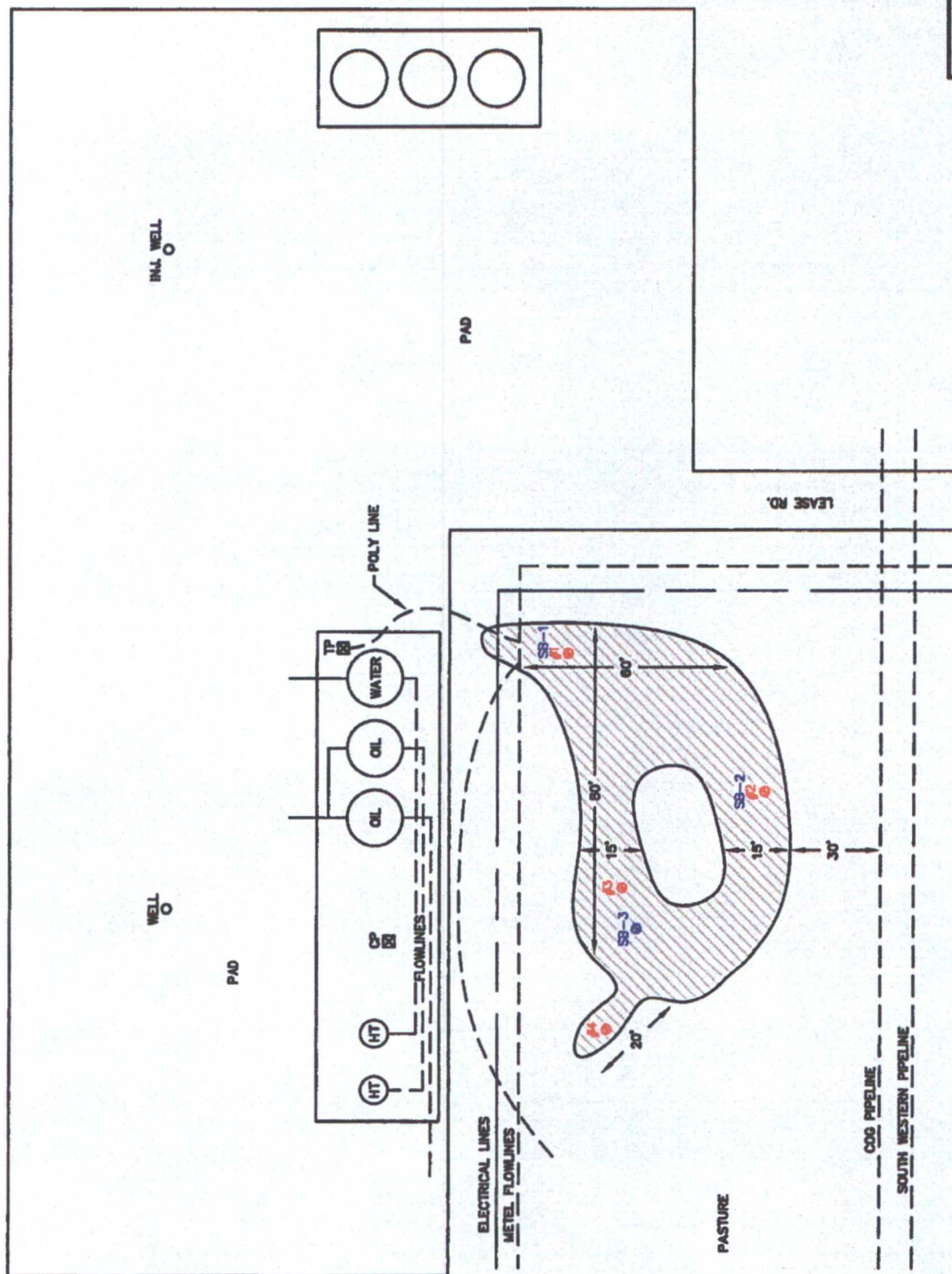


FIGURE NO. 3

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

FEE MA #4 TB

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:
3/4/10

BY:
JJ

FILE:
FEE MA #4 TB

NOT TO SCALE

- SPILL AREA
- SAMPLE LOCATIONS
- SOIL BORING LOCATIONS

Table 1

COG Operating LLC.

FEE MA B #4 Tank Battery

LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	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	3/30/2010	0-1'	N/A	X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
		1-1.5'	N/A	X		-	-	-	-	-	-	-	298
		2-2.5'	N/A	X		-	-	-	-	-	-	-	3,180
SB-1	5/10/2010	1'	N/A	X		-	-	-	-	-	-	-	736
		2'	N/A	X		-	-	-	-	-	-	-	2,600
		3'	N/A	X		-	-	-	-	-	-	-	2,010
		5'	N/A	X		-	-	-	-	-	-	-	2,750
		7'	N/A	X		-	-	-	-	-	-	-	3,790
		10'	N/A	X		-	-	-	-	-	-	-	5,830
		15'	N/A	X		-	-	-	-	-	-	-	8,570
		20'	N/A	X		-	-	-	-	-	-	-	11,500
		30'	N/A	X		-	-	-	-	-	-	-	6,870
		40'	N/A	X		-	-	-	-	-	-	-	5,040
		50'	N/A	X		-	-	-	-	-	-	-	8,480
		60'	N/A	X		-	-	-	-	-	-	-	3,790
		70'	N/A	X		-	-	-	-	-	-	-	356
		80'	N/A	X		-	-	-	-	-	-	-	341

Table 1
COG Operating LLC.
FEE MA B #4 Tank Battery
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	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-3	3/30/2010	0-1'	N/A	X		1.62	112	113.62	<0.0100	<0.0100	<0.0100	<0.0100	374
		1-1.5'	N/A	X									1,390
SB-3	5/10/2010	1'	N/A	X		-	-	-	-	-	-	-	604
		2'	N/A	X		-	-	-	-	-	-	-	1,320
		3'	N/A	X		-	-	-	-	-	-	-	3,260
		5'	N/A	X		-	-	-	-	-	-	-	767
		7'	N/A	X		-	-	-	-	-	-	-	1,500
		10'	N/A	X		-	-	-	-	-	-	-	7,590
		15'	N/A	X		-	-	-	-	-	-	-	7,120
		20'	N/A	X		-	-	-	-	-	-	-	8,360
		30'	N/A	X		-	-	-	-	-	-	-	5,830
		40'	N/A	X		-	-	-	-	-	-	-	11,000
		50'	N/A	X		-	-	-	-	-	-	-	6,750
		60'	N/A	X		-	-	-	-	-	-	-	2,640
		70'	N/A	X		-	-	-	-	-	-	-	362
		80'	N/A	X		-	-	-	-	-	-	-	333
AH-4	3/30/2010	0-1'	N/A	X		<1.00	66.20	66.20	<0.0100	<0.0100	<0.0100	<0.0100	913

Proposed Liner

BEB Below Excavation Bottom

(--) Not Analyzed

Proposed excavated material

Water Well Data
Average Depth to Groundwater (ft)
COG - FEE MA B #4 Tank Battery
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		SITE

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	29	28	27	26	25
31	32	33	34	35	36

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

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

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

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

- 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

TEMPORARY WELL CONSTRUCTION LOG

EXISTING GRADE

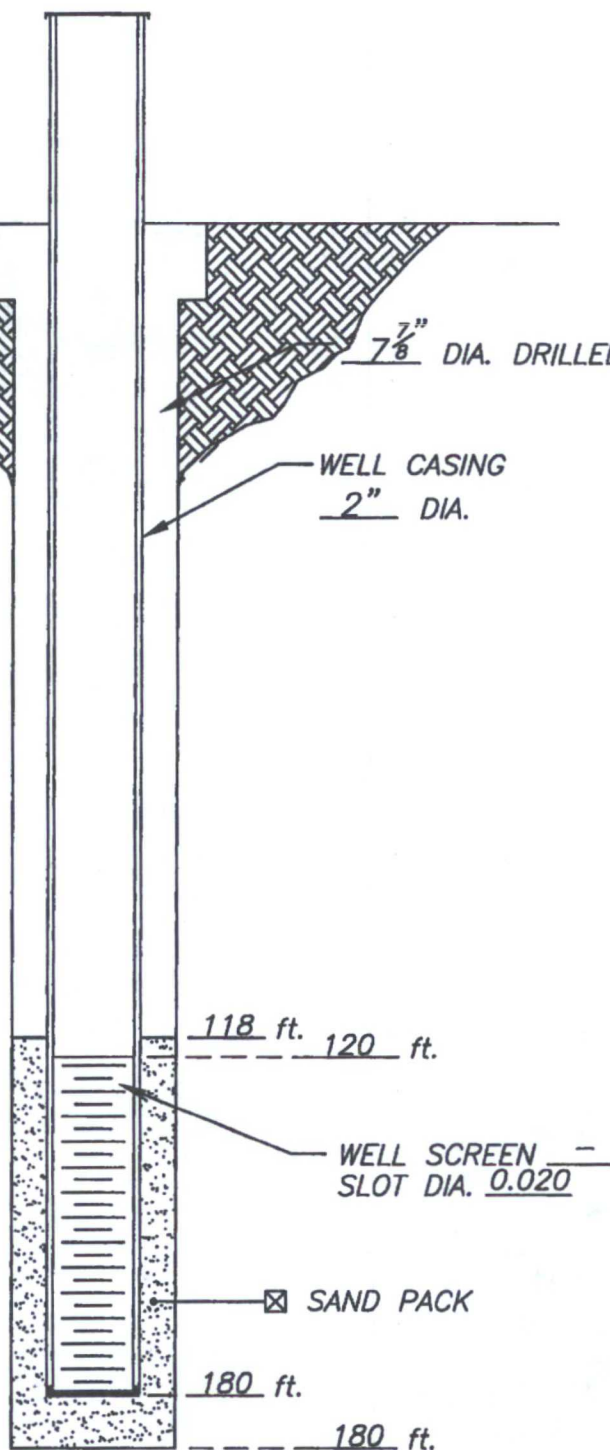
$7\frac{7}{8}$ " DIA. DRILLED HOLE

WELL CASING
2" DIA.

Installation Date(s) JULY 14, 2009
Drilling Method AIR ROTARY
Drilling Contractor SCARBOROUGH DRILLING
Development Technique(s) and Date(s) PUMP

Water Removed During Development 0 gals.
Static Depth to Water DRY ft. below
Ground Level
Well Purpose TEMPORARY MONITOR WELL

Remarks _____



DATE: JULY 14, 2009

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: COG OPERATING LLC

PROJECT: PRONGHORN 30 (114-6400224)

LOCATION: LEA COUNTY, NEW MEXICO

WELL NO.

TMW-1

SAMPLE LOG

Boring/Well: TMW-1
 Project Number: 114-6400224
 Client: COG
 Site Location: Pronghorn Section 30
 Location: Lea County, New Mexico
 Total Depth: 180
 Date Installed: 07/14/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Brown fine grain sand
10-11	--	Buff limestone
15-16	--	Tan to buff calcareous sand with chert intermixed.
20-21	--	Tan calcareous sand
25-26	--	Tan fine grain sand
30-31	--	Tan to yellow sandy clay
35-36	--	Reddish clayey sand with gravel
40-41	--	Red gravelly fine grain sand
45-46	--	Red to buff gravelly calcareous sand
50-51	--	Red fine grain sand
55-56	--	Red sandy silt
60-61	--	Red silty clay (dry)
65-66	--	Red coarse grain clayey sand
70-71	--	Red fine grain sand
75-76	--	Red fine grain sand
80-81	--	Red gravelly sand
85-86	--	Red fine grain silty clay with some sand intermixed
90-91	--	Red fine grain silty clay with some sand intermixed
95-96	--	Red fine grain silty clay with some sand intermixed
100-101	--	Red fine grain silty clay with some sand intermixed
105-106	--	Tan red fine grain sand
110-111	--	Tan fine grain sand
115-116	--	Tan fine grain sand
120-121	--	Tan to red fine grain sand
130-131	--	Red clay of high plasticity (Red bed)
140-141	--	Red clay of high plasticity (Red bed)
150-151	--	Red clay of high plasticity (Red bed) intermixed with gravel
160-161	--	Red clay of high plasticity (Red bed) intermixed with gravel
170-171	--	Red clay of high plasticity (Red bed) intermixed with gravel
180-181	--	Red clay of high plasticity (Red bed)

Total Depth is 181 feet

Groundwater was not encountered

Summary Report

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

Report Date: April 9, 2010

Work Order: 10033102



Project Location: Lea County, NM
Project Name: COG/Fee MH #4 TB
Project Number: 114-6400437

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
227110	AH-1 0-1'	soil	2010-03-30	00:00	2010-03-30
227111	AH-1 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227112	AH-1 2-2.5'	soil	2010-03-30	00:00	2010-03-30
227113	AH-2 0-1'	soil	2010-03-30	00:00	2010-03-30
227114	AH-2 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227115	AH-2 2-2.5'	soil	2010-03-30	00:00	2010-03-30
227116	AH-2 3-3.5'	soil	2010-03-30	00:00	2010-03-30
227117	AH-2 4-4.5'	soil	2010-03-30	00:00	2010-03-30
227118	AH-3 0-1'	soil	2010-03-30	00:00	2010-03-30
227119	AH-3 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227120	AH-4 0-1'	soil	2010-03-30	00:00	2010-03-30

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)
227110 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227113 - AH-2 0-1'	<0.100	0.348	0.645	2.60	4330	240
227114 - AH-2 1-1.5'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227118 - AH-3 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	112	1.62
227120 - AH-4 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	66.2	<1.00

Sample: 227110 - AH-1 0-1'

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

Sample: 227111 - AH-1 1-1.5'

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

Param	Flag	Result	Units	RL
Chloride		298	mg/Kg	4.00

Sample: 227112 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 227113 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		1120	mg/Kg	4.00

Sample: 227114 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		888	mg/Kg	4.00

Sample: 227115 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2060	mg/Kg	4.00

Sample: 227116 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		6040	mg/Kg	4.00

Sample: 227117 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		9110	mg/Kg	4.00

Sample: 227118 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		374	mg/Kg	4.00

Sample: 227119 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1390	mg/Kg	4.00

Sample: 227120 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		913	mg/Kg	4.00

Summary Report

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

Report Date: May 20, 2010

Work Order: 10051212



Project Name: COG/Fee MA B #4
Project Number: 114-6400437

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231280	SB-1 1'	soil	2010-05-10	00:00	2010-05-11
231281	SB-1 2'	soil	2010-05-10	00:00	2010-05-11
231282	SB-1 3'	soil	2010-05-10	00:00	2010-05-11
231283	SB-1 5'	soil	2010-05-10	00:00	2010-05-11
231284	SB-1 7'	soil	2010-05-10	00:00	2010-05-11
231285	SB-1 10'	soil	2010-05-10	00:00	2010-05-11
231286	SB-1 15'	soil	2010-05-10	00:00	2010-05-11
231287	SB-1 20'	soil	2010-05-10	00:00	2010-05-11
231288	SB-1 30'	soil	2010-05-10	00:00	2010-05-11
231289	SB-1 40'	soil	2010-05-10	00:00	2010-05-11
231290	SB-1 50'	soil	2010-05-10	00:00	2010-05-11
231291	SB-1 60'	soil	2010-05-10	00:00	2010-05-11
231292	SB-1 70'	soil	2010-05-10	00:00	2010-05-11
231293	SB-1 80'	soil	2010-05-10	00:00	2010-05-11
231294	SB-2 2'	soil	2010-05-10	00:00	2010-05-11
231295	SB-2 3'	soil	2010-05-10	00:00	2010-05-11
231296	SB-2 5'	soil	2010-05-10	00:00	2010-05-11
231297	SB-2 7'	soil	2010-05-10	00:00	2010-05-11
231298	SB-2 10'	soil	2010-05-10	00:00	2010-05-11
231299	SB-2 15'	soil	2010-05-10	00:00	2010-05-11
231300	SB-2 20'	soil	2010-05-10	00:00	2010-05-11
231301	SB-2 30'	soil	2010-05-10	00:00	2010-05-11
231302	SB-2 40'	soil	2010-05-10	00:00	2010-05-11
231303	SB-2 50'	soil	2010-05-10	00:00	2010-05-11
231304	SB-2 60'	soil	2010-05-10	00:00	2010-05-11
231305	SB-2 70'	soil	2010-05-10	00:00	2010-05-11
231306	SB-2 80'	soil	2010-05-10	00:00	2010-05-11
231307	SB-3 1'	soil	2010-05-10	00:00	2010-05-11
231308	SB-3 2'	soil	2010-05-10	00:00	2010-05-11
231309	SB-3 3'	soil	2010-05-10	00:00	2010-05-11
231310	SB-3 5'	soil	2010-05-10	00:00	2010-05-11

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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
231311	SB-3 7'	soil	2010-05-10	00:00	2010-05-11
231312	SB-3 10'	soil	2010-05-10	00:00	2010-05-11
231313	SB-3 15'	soil	2010-05-10	00:00	2010-05-11
231314	SB-3 20'	soil	2010-05-10	00:00	2010-05-11
231315	SB-3 30'	soil	2010-05-10	00:00	2010-05-11
231316	SB-3 40'	soil	2010-05-10	00:00	2010-05-11
231317	SB-3 50'	soil	2010-05-10	00:00	2010-05-11
231318	SB-3 60'	soil	2010-05-10	00:00	2010-05-11
231319	SB-3 70'	soil	2010-05-10	00:00	2010-05-11
231320	SB-3 80'	soil	2010-05-10	00:00	2010-05-11

Sample: 231280 - SB-1 1'

Param	Flag	Result	Units	RL
Chloride		736	mg/Kg	4.00

Sample: 231281 - SB-1 2'

Param	Flag	Result	Units	RL
Chloride		2600	mg/Kg	4.00

Sample: 231282 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		2010	mg/Kg	4.00

Sample: 231283 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		2750	mg/Kg	4.00

Sample: 231284 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		3790	mg/Kg	4.00

Sample: 231285 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		5830	mg/Kg	4.00

Sample: 231286 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		8570	mg/Kg	4.00

Sample: 231287 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		11500	mg/Kg	4.00

Sample: 231288 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		6870	mg/Kg	4.00

Sample: 231289 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		5040	mg/Kg	4.00

Sample: 231290 - SB-1 50'

Param	Flag	Result	Units	RL
Chloride		8480	mg/Kg	4.00

Sample: 231291 - SB-1 60'

Param	Flag	Result	Units	RL
Chloride		3790	mg/Kg	4.00

Sample: 231292 - SB-1 70'

Param	Flag	Result	Units	RL
Chloride		356	mg/Kg	4.00

Sample: 231293 - SB-1 80'

Param	Flag	Result	Units	RL
Chloride		341	mg/Kg	4.00

Sample: 231294 - SB-2 2'

Param	Flag	Result	Units	RL
Chloride		906	mg/Kg	4.00

Sample: 231295 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		9860	mg/Kg	4.00

Sample: 231296 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		5290	mg/Kg	4.00

Sample: 231297 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		5000	mg/Kg	4.00

Sample: 231298 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		1670	mg/Kg	4.00

Sample: 231299 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		13000	mg/Kg	4.00

Sample: 231300 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		14900	mg/Kg	4.00

Sample: 231301 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		6630	mg/Kg	4.00

Sample: 231302 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		7890	mg/Kg	4.00

Sample: 231303 - SB-2 50'

Param	Flag	Result	Units	RL
Chloride		9240	mg/Kg	4.00

Sample: 231304 - SB-2 60'

Param	Flag	Result	Units	RL
Chloride		2380	mg/Kg	4.00

Sample: 231305 - SB-2 70'

Param	Flag	Result	Units	RL
Chloride		407	mg/Kg	4.00

Sample: 231306 - SB-2 80'

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

Sample: 231307 - SB-3 1'

Param	Flag	Result	Units	RL
Chloride		604	mg/Kg	4.00

Sample: 231308 - SB-3 2'

Param	Flag	Result	Units	RL
Chloride		1320	mg/Kg	4.00

Sample: 231309 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		3260	mg/Kg	4.00

Sample: 231310 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		767	mg/Kg	4.00

Sample: 231311 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		1500	mg/Kg	4.00

Sample: 231312 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		7590	mg/Kg	4.00

Sample: 231313 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		7120	mg/Kg	4.00

Sample: 231314 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		8360	mg/Kg	4.00

Sample: 231315 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		5830	mg/Kg	4.00

Sample: 231316 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		11000	mg/Kg	4.00

Sample: 231317 - SB-3 50'

Param	Flag	Result	Units	RL
Chloride		6750	mg/Kg	4.00

Sample: 231318 - SB-3 60'

Param	Flag	Result	Units	RL
Chloride		2640	mg/Kg	4.00

Sample: 231319 - SB-3 70'

Param	Flag	Result	Units	RL
Chloride		362	mg/Kg	4.00

Sample: 231320 - SB-3 80'

Param	Flag	Result	Units	RL
Chloride		333	mg/Kg	4.00

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	FEE MA B #4 Tank Battery	
Company:	COG Operating LLC	
Section, Township and Range	Unit H - Sec 31 - T17S - R32E	
Lease Number:	API-30-025-36494	
County:	Lea County	
GPS:	32.793333° N	103.696712° W
Surface Owner:	Private	
Mineral Owner:		
Directions:	From CR-126 and 529, travel east 4.6 miles, turn left (north) Dog Lake Road 0.5 miles, turn left 0.6 miles, turn left 0.2 miles to location	

Release Data:

Date Released:	1/23/2010
Type Release:	Produced Water
Source of Contamination:	Faulty water transfer pump hose
Fluid Released:	24 bbls
Fluids Recovered:	0 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:		0

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

HOBBS OCD

JUL 01 2011

RECEIVED



TETRA TECH

April 12, 2011

HOBBS OCD

JUL 01 2011

RECEIVED

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., FEE MA B #4 Tank Battery, Unit H, Section 31, 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 FEE MA B #4 Tank Battery, Unit H, Section 31, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.793333°, W 103.696712°. 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 January 23, 2010, and released approximately twenty four (24) barrels of produced water due to a faulty water transfer pump hose. To alleviate the problem, COG personnel repaired the hose. Zero (0) barrels of standing fluids were recovered. The spill was contained in a native low-lying pasture area south of the tank battery and impacted an area approximately 60' x 80'. The initial and final C-141 forms are enclosed in Appendix C.

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 31. However, the USGS Well Report did list two wells in Section 11 with reported depths of 70' and 105' below ground surface (bgs). To establish depth to groundwater, Tetra Tech previously

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com



installed a temporary monitor well (TMW) in Section 30 to a depth of 180' bgs and did not encounter groundwater. 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 March 30, 2010, Tetra Tech personnel inspected and sampled the spill area. A total of four (4) auger holes (AH-1 through AH-4) 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all the submitted samples were below the RRAL for both BTEX and TPH. Elevated chloride concentrations were detected for each of the auger holes. Deeper samples were obtained due to a dense caliche formation. The bottom auger hole samples showed chloride concentrations at AH-1 (2-2.5') of 3,180 mg/kg, AH-2 (4-4.5') of 9,110 mg/kg, AH-3 (1-1.5') of 1,390 mg/kg, and AH-4 (0-1') of 913 mg/kg.

To delineate the chloride impact, Tetra Tech supervised the installation of three (3) soil boreholes (SB-1 through SB-3) utilizing an air rotary drilling rig on May 10, 2010. SB-1 and SB-2 were installed in the vicinity of AH-1 and AH-2, respectively. SB-3 was installed between AH-3 and AH-4. Soil samples were collected to a total depth of 80', where the upper sand sequences started slumping in not allowing deeper penetration or samples. The soil boring results are summarized in Table 1. The soil boring locations are shown on Figure 3.



Referring to Table 1, the assessment data showed a deep chloride impact to the subsurface soils. However, the chloride concentrations had a significant decline at a depth of 70' for each of the three soil borings.

Remedial Work and Closure Request

Tetra Tech personnel supervised the excavation of the site from February 23, 2011 through March 8, 2011. As approved by the NMOCD, the excavation measured approximately 30' x 80', with a depth of approximately 20' below ground surface. The excavation depth are highlighted in Table 1 and shown on Figure 4.

Approximately 4596 yards³ were removed and hauled to CRI Waste of Hobbs, NM. Once excavated to the appropriate depths, the excavation was backfilled with clean soil. Prior to backfilling to grade, a 40 mil liner was installed at 4.0' below surface. Photos of the excavation are attached. A copy of the C-141 (Final) is included in Appendix A. Based on the work performed at this site, COG request closure of this site.

If you require any additional information or have any questions or comments concerning this report, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Kim Dorey
Staff II Geologist

cc: Pat Ellis – COG

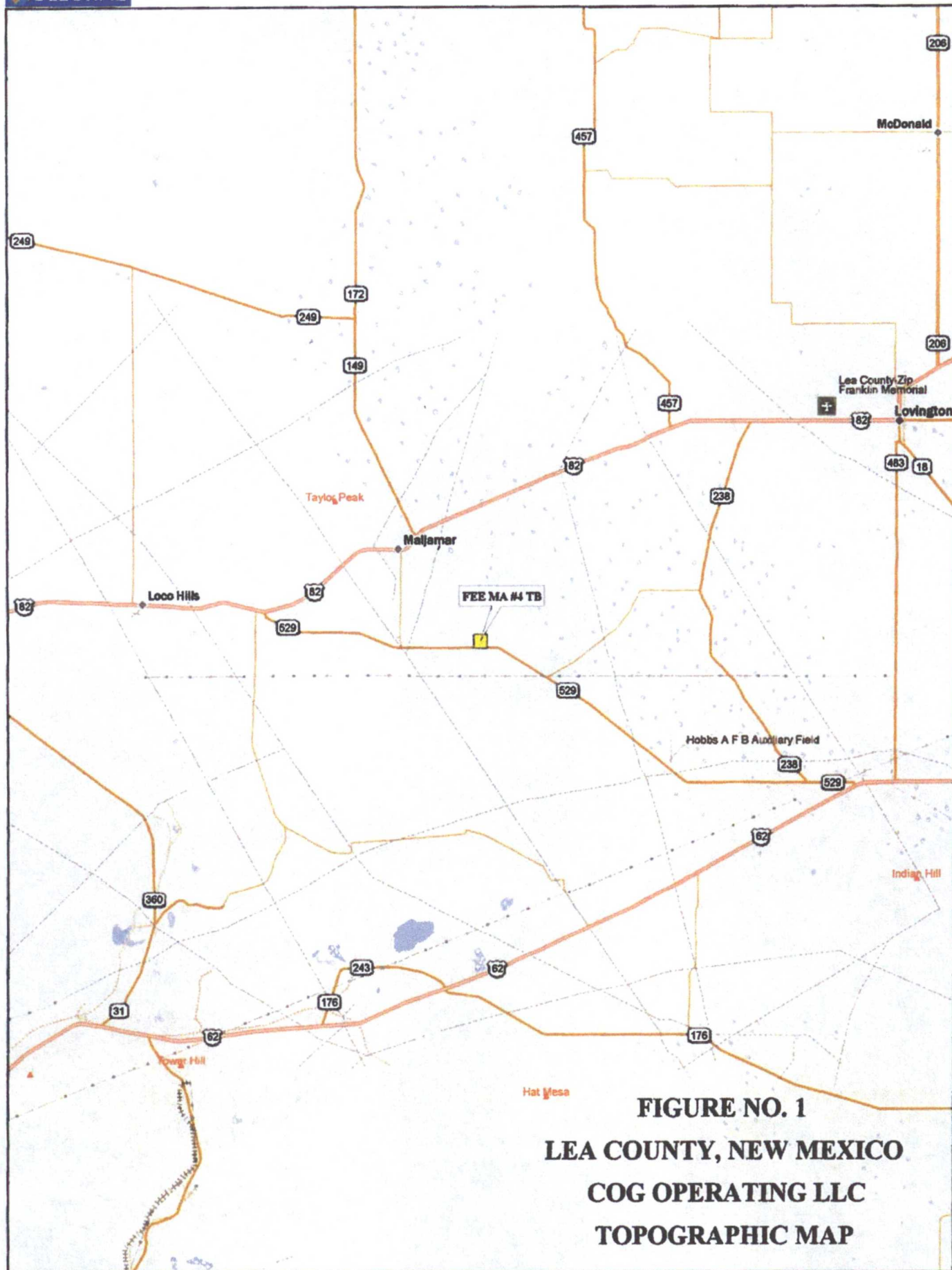


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP



www.delorme.com

$$1'' = 2,000.0 \text{ ft}$$

Data Zoom 13-0

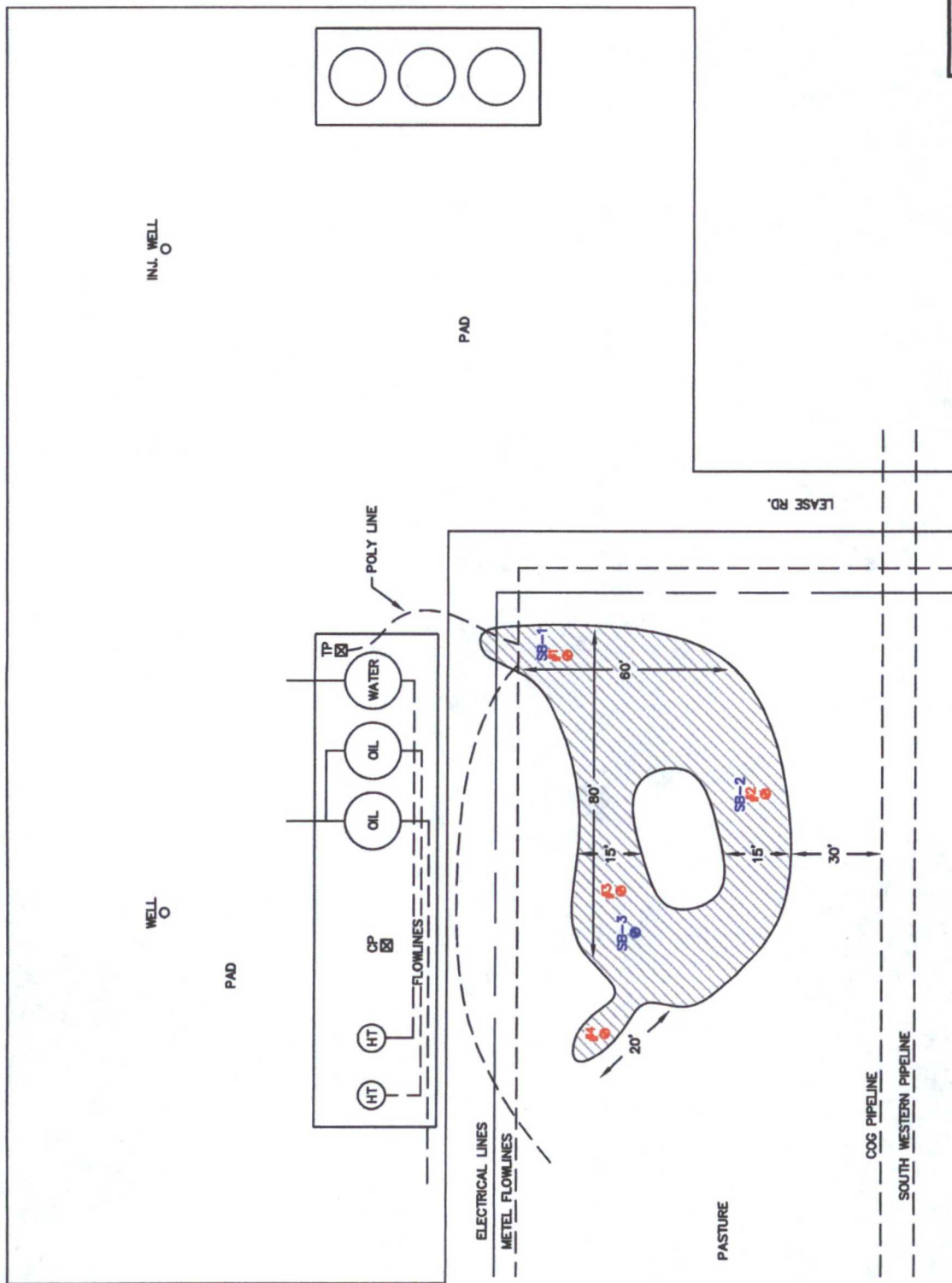


FIGURE NO. 3

LEA COUNTY, NEW MEXICO

COG OPERATING LLC

FEE MA #4 TB

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:
3/4/10

DRAWN BY:
JJ

FILE:
H:\COG\440037
FEE MA #4 TB

NOT TO SCALE



INJ. WELL
O

WELL
O

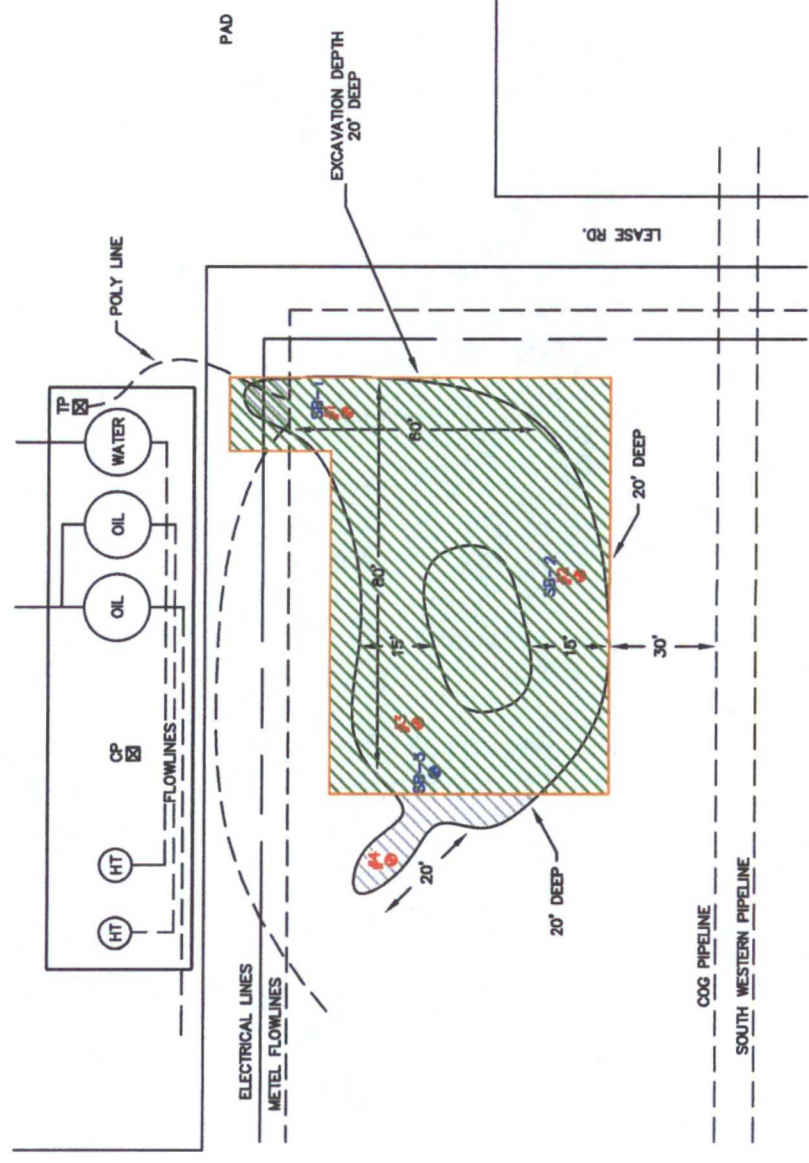
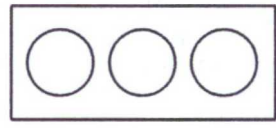


FIGURE NO. 4

LEA COUNTY, NEW MEXICO
COG OPERATING LLC
FEE MA #4 TB
TETRA TECH, INC. MIDLAND, TEXAS

DATE: 04/12/2011
DWN. BY: JJ
FILE: HAYCOCK440437
FEE MA #4 TB

NOT TO SCALE



SPILL AREA
EXCAVATED AREA
SAMPLE LOCATIONS
SOIL BORING LOCATIONS
LINER INSTALLATION

Table 1
COG Operating LLC.
FEE MA B #4 Tank Battery
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	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	3/30/2010	0-1'	N/A		X	<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
		1-1.5'	N/A		X	-	-	-	-	-	-	-	298
		2-2.5'	N/A		X	-	-	-	-	-	-	-	3,180
SB-1	5/10/2010	1'	N/A		X	-	-	-	-	-	-	-	736
		2'	N/A		X	-	-	-	-	-	-	-	2,600
		3'	N/A		X	-	-	-	-	-	-	-	2,010
		5'	N/A		X	-	-	-	-	-	-	-	2,750
		7'	N/A		X	-	-	-	-	-	-	-	3,790
		10'	N/A		X	-	-	-	-	-	-	-	5,830
		15'	N/A		X	-	-	-	-	-	-	-	8,570
		20'	N/A		X	-	-	-	-	-	-	-	11,500
		30'	N/A	X		-	-	-	-	-	-	-	6,870
		40'	N/A	X		-	-	-	-	-	-	-	5,040
		50'	N/A	X		-	-	-	-	-	-	-	8,480
		60'	N/A	X		-	-	-	-	-	-	-	3,790
		70'	N/A	X		-	-	-	-	-	-	-	356
		80'	N/A	X		-	-	-	-	-	-	-	341

Table 1
COG Operating LLC.
FEE MA B #4 Tank Battery
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	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-3	3/30/2010	0-1'	N/A		X	1.62	112	113.62	<0.0100	<0.0100	<0.0100	<0.0100	374
		1-1.5'	N/A		X								1,390
SB-3	5/10/2010	1'	N/A		X	-	-	-	-	-	-	-	604
		2'	N/A		X	-	-	-	-	-	-	-	1,320
		3'	N/A		X	-	-	-	-	-	-	-	3,260
		5'	N/A		X	-	-	-	-	-	-	-	767
		7'	N/A		X	-	-	-	-	-	-	-	1,500
		10'	N/A		X	-	-	-	-	-	-	-	7,590
		15'	N/A		X	-	-	-	-	-	-	-	7,120
		20'	N/A	X		-	-	-	-	-	-	-	8,360
		30'	N/A	X		-	-	-	-	-	-	-	5,830
		40'	N/A	X		-	-	-	-	-	-	-	11,000
		50'	N/A	X		-	-	-	-	-	-	-	6,750
		60'	N/A	X		-	-	-	-	-	-	-	2,640
		70'	N/A	X		-	-	-	-	-	-	-	362
		80'	N/A	X		-	-	-	-	-	-	-	333
AH-4	3/30/2010	0-1'	N/A	X		<1.00	66.20	66.20	<0.0100	<0.0100	<0.0100	<0.0100	913

BEB Below Excavation Bottom
 (--) Not Analyzed
 Excavated material
 Liner Depth



Excavated area near SB-2



Excavation pit near SB-3 and SB-2

COG Operating LLC
FEE MA #4 Tank Battery
Lea County, New Mexico



TETRA TECH



Final excavation depth ~20' BGS



Backfilling with clean material



Installation of liner after excavation is backfilled to 4'



After liner was installed and clean material backfilled to surface grade

Water Well Data
Average Depth to Groundwater (ft)
COG - FEE MA B #4 Tank Battery
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		SITE

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
				281	

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	29	28	27	26	25
31	32	33	34	35	36

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

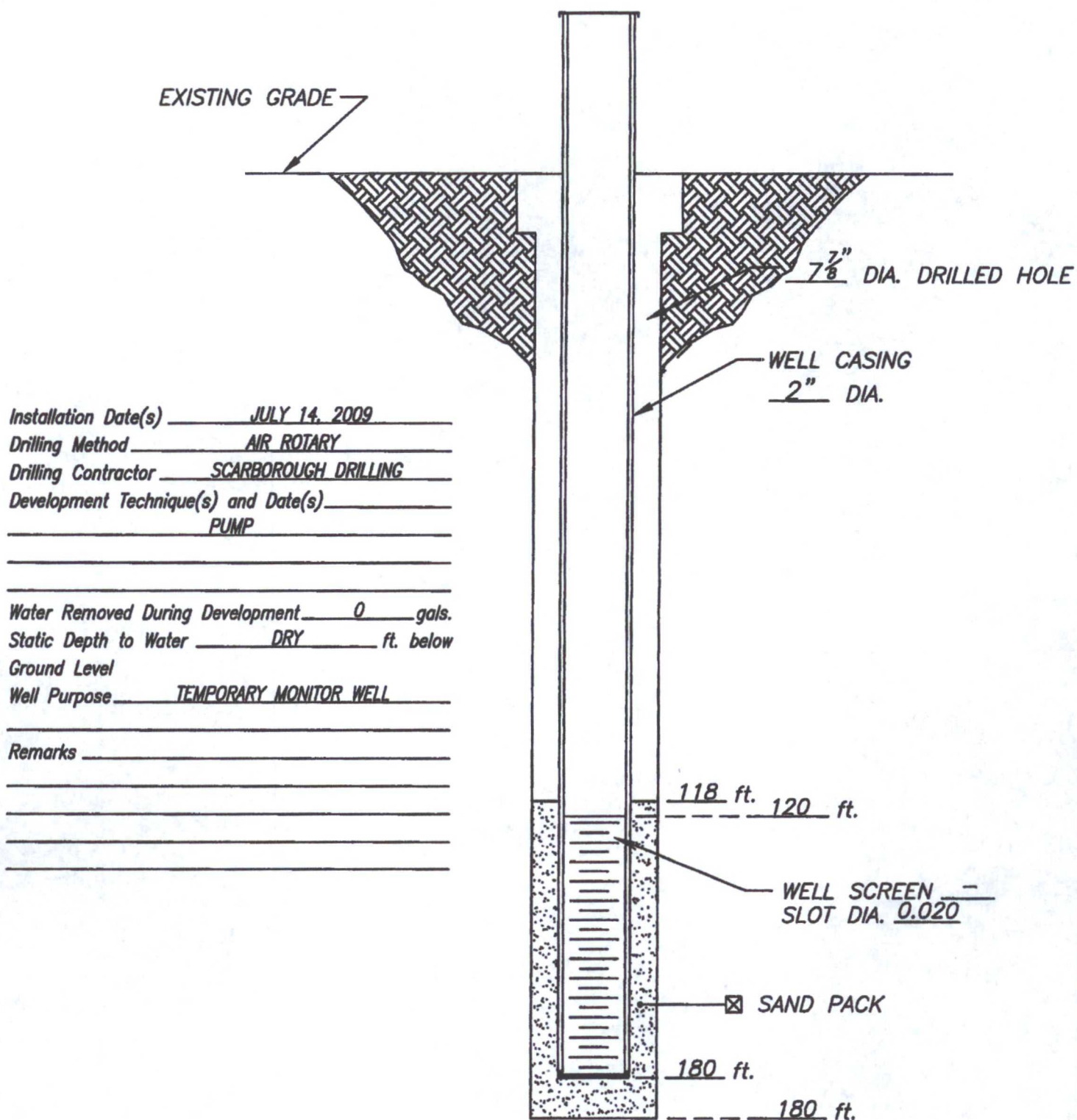
16 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

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

- 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
- Temporary monitor well - 180' Dry

TEMPORARY WELL CONSTRUCTION LOG



DATE: JULY 14, 2009

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: COG OPERATING LLC

PROJECT: PRONGHORN 30 (114-6400224)

LOCATION: LEA COUNTY, NEW MEXICO

WELL NO.

TMW-1

SAMPLE LOG

Boring/Well: TMW-1
 Project Number: 114-6400224
 Client: COG
 Site Location: Pronghorn Section 30
 Location: Lea County, New Mexico
 Total Depth: 180
 Date Installed: 07/14/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Brown fine grain sand
10-11	--	Buff limestone
15-16	--	Tan to buff calcareous sand with chert intermixed.
20-21	--	Tan calcareous sand
25-26	--	Tan fine grain sand
30-31	--	Tan to yellow sandy clay
35-36	--	Reddish clayey sand with gravel
40-41	--	Red gravelly fine grain sand
45-46	--	Red to buff gravelly calcareous sand
50-51	--	Red fine grain sand
55-56	--	Red sandy silt
60-61	--	Red silty clay (dry)
65-66	--	Red coarse grain clayey sand
70-71	--	Red fine grain sand
75-76	--	Red fine grain sand
80-81	--	Red gravelly sand
85-86	--	Red fine grain silty clay with some sand intermixed
90-91	--	Red fine grain silty clay with some sand intermixed
95-96	--	Red fine grain silty clay with some sand intermixed
100-101	--	Red fine grain silty clay with some sand intermixed
105-106	--	Tan red fine grain sand
110-111	--	Tan fine grain sand
115-116	--	Tan fine grain sand
120-121	--	Tan to red fine grain sand
130-131	--	Red clay of high plasticity (Red bed)
140-141	--	Red clay of high plasticity (Red bed)
150-151	--	Red clay of high plasticity (Red bed) intermixed with gravel
160-161	--	Red clay of high plasticity (Red bed) intermixed with gravel
170-171	--	Red clay of high plasticity (Red bed) intermixed with gravel
180-181	--	Red clay of high plasticity (Red bed)

Total Depth is 181 feet

Groundwater was not encountered

Summary Report

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

Report Date: April 9, 2010

Work Order: 10033102



Project Location: Lea County, NM
Project Name: COG/Fee MH #4 TB
Project Number: 114-6400437

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
227110	AH-1 0-1'	soil	2010-03-30	00:00	2010-03-30
227111	AH-1 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227112	AH-1 2-2.5'	soil	2010-03-30	00:00	2010-03-30
227113	AH-2 0-1'	soil	2010-03-30	00:00	2010-03-30
227114	AH-2 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227115	AH-2 2-2.5'	soil	2010-03-30	00:00	2010-03-30
227116	AH-2 3-3.5'	soil	2010-03-30	00:00	2010-03-30
227117	AH-2 4-4.5'	soil	2010-03-30	00:00	2010-03-30
227118	AH-3 0-1'	soil	2010-03-30	00:00	2010-03-30
227119	AH-3 1-1.5'	soil	2010-03-30	00:00	2010-03-30
227120	AH-4 0-1'	soil	2010-03-30	00:00	2010-03-30

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)
227110 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
227113 - AH-2 0-1'	<0.100	0.348	0.645	2.60	4330	240
227114 - AH-2 1-1.5'					<50.0	<1.00
227118 - AH-3 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	112	1.62
227120 - AH-4 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	66.2	<1.00

Sample: 227110 - AH-1 0-1'

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

Sample: 227111 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		298	mg/Kg	4.00

Sample: 227112 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		3180	mg/Kg	4.00

Sample: 227113 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		1120	mg/Kg	4.00

Sample: 227114 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		888	mg/Kg	4.00

Sample: 227115 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2060	mg/Kg	4.00

Sample: 227116 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		6040	mg/Kg	4.00

Sample: 227117 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		9110	mg/Kg	4.00

Sample: 227118 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		374	mg/Kg	4.00

Sample: 227119 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1390	mg/Kg	4.00

Sample: 227120 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		913	mg/Kg	4.00

Summary Report

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

Report Date: May 20, 2010

Work Order: 10051212



Project Name: COG/Fee MA B #4
Project Number: 114-6400437

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231280	SB-1 1'	soil	2010-05-10	00:00	2010-05-11
231281	SB-1 2'	soil	2010-05-10	00:00	2010-05-11
231282	SB-1 3'	soil	2010-05-10	00:00	2010-05-11
231283	SB-1 5'	soil	2010-05-10	00:00	2010-05-11
231284	SB-1 7'	soil	2010-05-10	00:00	2010-05-11
231285	SB-1 10'	soil	2010-05-10	00:00	2010-05-11
231286	SB-1 15'	soil	2010-05-10	00:00	2010-05-11
231287	SB-1 20'	soil	2010-05-10	00:00	2010-05-11
231288	SB-1 30'	soil	2010-05-10	00:00	2010-05-11
231289	SB-1 40'	soil	2010-05-10	00:00	2010-05-11
231290	SB-1 50'	soil	2010-05-10	00:00	2010-05-11
231291	SB-1 60'	soil	2010-05-10	00:00	2010-05-11
231292	SB-1 70'	soil	2010-05-10	00:00	2010-05-11
231293	SB-1 80'	soil	2010-05-10	00:00	2010-05-11
231294	SB-2 2'	soil	2010-05-10	00:00	2010-05-11
231295	SB-2 3'	soil	2010-05-10	00:00	2010-05-11
231296	SB-2 5'	soil	2010-05-10	00:00	2010-05-11
231297	SB-2 7'	soil	2010-05-10	00:00	2010-05-11
231298	SB-2 10'	soil	2010-05-10	00:00	2010-05-11
231299	SB-2 15'	soil	2010-05-10	00:00	2010-05-11
231300	SB-2 20'	soil	2010-05-10	00:00	2010-05-11
231301	SB-2 30'	soil	2010-05-10	00:00	2010-05-11
231302	SB-2 40'	soil	2010-05-10	00:00	2010-05-11
231303	SB-2 50'	soil	2010-05-10	00:00	2010-05-11
231304	SB-2 60'	soil	2010-05-10	00:00	2010-05-11
231305	SB-2 70'	soil	2010-05-10	00:00	2010-05-11
231306	SB-2 80'	soil	2010-05-10	00:00	2010-05-11
231307	SB-3 1'	soil	2010-05-10	00:00	2010-05-11
231308	SB-3 2'	soil	2010-05-10	00:00	2010-05-11
231309	SB-3 3'	soil	2010-05-10	00:00	2010-05-11
231310	SB-3 5'	soil	2010-05-10	00:00	2010-05-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231311	SB-3 7'	soil	2010-05-10	00:00	2010-05-11
231312	SB-3 10'	soil	2010-05-10	00:00	2010-05-11
231313	SB-3 15'	soil	2010-05-10	00:00	2010-05-11
231314	SB-3 20'	soil	2010-05-10	00:00	2010-05-11
231315	SB-3 30'	soil	2010-05-10	00:00	2010-05-11
231316	SB-3 40'	soil	2010-05-10	00:00	2010-05-11
231317	SB-3 50'	soil	2010-05-10	00:00	2010-05-11
231318	SB-3 60'	soil	2010-05-10	00:00	2010-05-11
231319	SB-3 70'	soil	2010-05-10	00:00	2010-05-11
231320	SB-3 80'	soil	2010-05-10	00:00	2010-05-11

Sample: 231280 - SB-1 1'

Param	Flag	Result	Units	RL
Chloride		736	mg/Kg	4.00

Sample: 231281 - SB-1 2'

Param	Flag	Result	Units	RL
Chloride		2600	mg/Kg	4.00

Sample: 231282 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		2010	mg/Kg	4.00

Sample: 231283 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		2750	mg/Kg	4.00

Sample: 231284 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		3790	mg/Kg	4.00

Sample: 231285 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		5830	mg/Kg	4.00

Sample: 231286 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		8570	mg/Kg	4.00

Sample: 231287 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		11500	mg/Kg	4.00

Sample: 231288 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		6870	mg/Kg	4.00

Sample: 231289 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		5040	mg/Kg	4.00

Sample: 231290 - SB-1 50'

Param	Flag	Result	Units	RL
Chloride		8480	mg/Kg	4.00

Sample: 231291 - SB-1 60'

Param	Flag	Result	Units	RL
Chloride		3790	mg/Kg	4.00

Sample: 231292 - SB-1 70'

Param	Flag	Result	Units	RL
Chloride		356	mg/Kg	4.00

Sample: 231293 - SB-1 80'

Param	Flag	Result	Units	RL
Chloride		341	mg/Kg	4.00

Sample: 231294 - SB-2 2'

Param	Flag	Result	Units	RL
Chloride		906	mg/Kg	4.00

Sample: 231295 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		9860	mg/Kg	4.00

Sample: 231296 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		5290	mg/Kg	4.00

Sample: 231297 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		5000	mg/Kg	4.00

Sample: 231298 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		1670	mg/Kg	4.00

Sample: 231299 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		13000	mg/Kg	4.00

Sample: 231300 - SB-2 20'

Param	Flag	Result	Units	RL
Chloride		14900	mg/Kg	4.00

Sample: 231301 - SB-2 30'

Param	Flag	Result	Units	RL
Chloride		6630	mg/Kg	4.00

Sample: 231302 - SB-2 40'

Param	Flag	Result	Units	RL
Chloride		7890	mg/Kg	4.00

Sample: 231303 - SB-2 50'

Param	Flag	Result	Units	RL
Chloride		9240	mg/Kg	4.00

Sample: 231304 - SB-2 60'

Param	Flag	Result	Units	RL
Chloride		2380	mg/Kg	4.00

Sample: 231305 - SB-2 70'

Param	Flag	Result	Units	RL
Chloride		407	mg/Kg	4.00

Sample: 231306 - SB-2 80'

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

Sample: 231307 - SB-3 1'

Param	Flag	Result	Units	RL
Chloride		604	mg/Kg	4.00

Sample: 231308 - SB-3 2'

Param	Flag	Result	Units	RL
Chloride		1320	mg/Kg	4.00

Sample: 231309 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		3260	mg/Kg	4.00

Sample: 231310 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		767	mg/Kg	4.00

Sample: 231311 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		1500	mg/Kg	4.00

Sample: 231312 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		7590	mg/Kg	4.00

Sample: 231313 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		7120	mg/Kg	4.00

Sample: 231314 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		8360	mg/Kg	4.00

Sample: 231315 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		5830	mg/Kg	4.00

Sample: 231316 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		11000	mg/Kg	4.00

Sample: 231317 - SB-3 50'

Param	Flag	Result	Units	RL
Chloride		6750	mg/Kg	4.00

Sample: 231318 - SB-3 60'

Param	Flag	Result	Units	RL
Chloride		2640	mg/Kg	4.00

Sample: 231319 - SB-3 70'

Param	Flag	Result	Units	RL
Chloride		362	mg/Kg	4.00

Sample: 231320 - SB-3 80'

Param	Flag	Result	Units	RL
Chloride		333	mg/Kg	4.00