

From: Tavarez, Ike [Ike.Tavarez@tetrattech.com]
Sent: Monday, August 08, 2011 10:32 AM
To: Bratcher, Mike, EMNRD
Cc: Pat Ellis; Joshua Russo
Subject: COG Operating - Harper State #5 Tank Battery - Work Plan Approval Request
Attachments: COG - Harper State #5 Work Plan .pdf; COG - Harper State #5 Figures .pdf

Mike,

Please find the enclosed Work Plan for the Harper State #5 Tank Battery located in Eddy County, New Mexico. The work plan includes the soil assessments (2 spills) and recommendations for the remediation for the site. I will mail you a hard copy of the work plan for your files. Once approved, Tetra Tech will schedule the soil remediation and notify you before we start. Please let me know if you need additional information or call me if you have any questions, thanks

Ike Tavarez, PG | Senior Project Manager

Main 432 682 4559 | Fax 432 682 3946 | Cell 432 425 3878

Ike.Tavarez@tetrattech.com

Tetra Tech | Complex World, Clear Solutions™

1910 North Big Spring | Midland, TX 79705 | www.tetrattech.com

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SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Harper State #5
Company:	COG Operating LLC
Section, Township and Range	Sec 16 T17S R30E
Lease Number:	B-936
County:	Eddy County
GPS:	32.82856° N 103.96909° W
Surface Owner:	State
Mineral Owner:	
Directions:	In Loco Hills, from the intersection of Goat Ropper Rd and Hwy 82, turn right on Goat Ropper Rd and travel 0.7 miles, turn right and travel 0.5 miles, turn right and travel 0.2 miles to site.

Release Data:

Date Released:	Spill 1 5/6/2010	Spill 2 8/16/2010
Type Release:	Produced Fluid	Produced Fluid
Source of Contamination:	Tank	Flowline
Fluid Released:	450 bbls	24 bbls
Fluids Recovered:	450 bbls	15 bbls

Official Communication:

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

August 8, 2011

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

Re: Work Plan for the COG Operating LLC., Harper State #5 Tank Battery, Unit P, Section 16, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Harper State #5 Tank Battery located in Unit P, Section 16, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82856°, W 103.96909°. The site location is shown on Figures 1 and 2.

Background

Spill #1

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 6, 2010, and released approximately four hundred fifty (450) barrels of produced fluid from a water tank, due to an alarm recognition error. Four hundred fifty (450) barrels of standing fluids were recovered. The spill initiated on the southeast end of the pad and flowed west into the pasture affecting an area 200' long by 10' wide. The spill then migrated south top of a Chevron pipeline, affecting an area 80' x 170'. The initial C-141 form is enclosed in Appendix A.

Spill #2

On August 16, 2010, a second spill occurred and released approximately twenty four (24) barrels of produced fluid from a flow line near the tank battery. To alleviate the problem, COG personnel repaired the flow line and fifteen (15) barrels of standing fluids were recovered. The spill

Tetra Tech

Tetra Tech, Inc. 10000 E. 1st Avenue, Suite 100, Denver, CO 80231



TETRA TECH

initiated on the east end of the tank battery pad affecting an area of approximately 15' x 60' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 16. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 275' below surface. The groundwater information is shown in Appendix B.

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 May 17, 2010, Tetra Tech personnel inspected and sampled the spill area. Ten (10) auger holes (AH-1 through AH-10) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the areas of AH-1 and AH-9 did show TPH concentrations above the RRAL. Auger hole (AH-1) did decline below the RRAL at 1-1.5' below surface and AH-9 was not vertically defined. In addition, the total BTEX was not vertically defined in the area of AH-9.



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A shallow chloride impact was detected in the areas of AH-1, AH-2, AH-3, AH-4, AH-6, AH-8 and AH-10. The remaining auger holes (AH-5, AH-7 and AH-9) showed a deeper chloride impact with significant decline at 6.0' to 8.0' below surface.

On August 16, 2010, the second spill occurred at the site. The spill area encompassed the areas of AH-4 and AH-5 (Figure 3). On September 15, 2010, backhoe trenches were installed in the areas of AH-3, AH-9 and AH-10 to define the extents of the chloride impact and the BTEX impact in the area of AH-9. Auger holes (AH-4 and AH-5) were re-assessed due to the second spill footprint. The trench locations are shown on Figure 3.

Referring to Table 1, the chlorides were not defined in T-3 (AH-5), T-4 (AH-7) and T-5 (AH-9). The chloride concentrations in the remaining areas T-1 (AH-3) and T-2 (AH-4) were defined at 14.0' below surface. In addition, the area of T-5 (AH-9) did show a total BTEX declining below the RRAL at 8.0' below surface.

In order to delineate the chloride concentration impact, soil borings were installed utilizing an air rotary drilling rig. On April 7, 2011, Tetra Tech personnel supervised the installation of soil bores (SB-1 through SB-4). Soil samples were collected to a depth of 60'. Referring to Table 1, chloride concentrations from all soil borings were vertically defined. The soil boring locations are shown on Figure 3.

Work Plan

During the time of the assessment, Holly Energy installed a new line which ran through the south spill area, near the areas of AH-7 and AH-8. The location of the new line is shown in Figure 3.

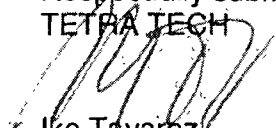
COG proposes to remove impacted material as highlighted (green) in Table 1 and Figure 4. In addition, the areas of AH-3, AH-4, AH-5, AH-7 and AH-9 will be excavated and capped with a 40 mil liner. Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil. The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around lines (Chevron and Holly), equipment and vessels 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 proposed depths are not reached, a 40 mil liner will be installed at depth of 4' to 5' below surface to cap the impacted area.



TETRA TECH

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

Respectfully submitted,
TETRA TECH


Ike Tavaréz
Project Manager

cc: Pat Ellis – COG

Tables

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-1	5/17/2010	0-1'		X		4,290	1,190	5,480	<0.500	9.34	14.9	24.3	1,320
	"	1-1.5'		X		<50.0	<1.00	<50.0	-	-	-	-	578
	"	2-2.5'		X		-	-	-	-	-	-	-	<200
	"	3-3.5'		X		-	-	-	-	-	-	-	<200
	"	4-4.5'		X		-	-	-	-	-	-	-	<200
	"	5-5.5'		X		-	-	-	-	-	-	-	<200
AH-2	5/17/2010	0-1'		X		678	14.6	693	-	-	-	-	4,890
	"	1-1.5'		X		-	-	-	-	-	-	-	1,750
	"	2-2.5'		X		-	-	-	-	-	-	-	793
	"	3-3.5'		X		-	-	-	-	-	-	-	682
	"	4-4.5'		X		-	-	-	-	-	-	-	490
	"	5-5.5'		X		-	-	-	-	-	-	-	466

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-3	5/17/2010	0-1'		X		1,400	296	1,696	<0.100	<0.100	<0.100	0.438	1,830
	"	1-1.5'		X		-	-	-	-	-	-	-	661
	"	2-2.5'		X		-	-	-	-	-	-	-	1,010
	"	3-3.5'		X		-	-	-	-	-	-	-	1,340
	"	4-4.5'		X		-	-	-	-	-	-	-	802
	"	5-5.5'		X		-	-	-	-	-	-	-	641
T-1	9/15/2010	6'		X		-	-	-	-	-	-	-	2,570
	"	8'		X		-	-	-	-	-	-	-	7,910
	"	10'		X		-	-	-	-	-	-	-	1,010
	"	12'		X		-	-	-	-	-	-	-	926
	"	14'		X		-	-	-	-	-	-	-	304

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-4	5/17/2010	0-1		X		1,780	691	2,471	<0.200	<0.200	<0.200	1.00	7,940
	"	1-1.5		X									1,250
	"	2-2.5		X									592
	"	3-3.5		X									519
	"	4-4.5		X									398
	"	5-5.5		X									447
T-2	9/15/2010	2'		X									13,200
	"	4'		X									7,040
	"	6'		X		-	-	-	-	-	-	-	2,890
	"	8'		X		-	-	-	-	-	-	-	6,020
	"	10'		X		-	-	-	-	-	-	-	3,970
	"	12'		X		-	-	-	-	-	-	-	2,950
	"	14'		X		-	-	-	-	-	-	-	245

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-5	5/17/2010	0-1'		X		877	409	1,286	<0.100	<0.100	<0.100	0.638	6,930
	"	1-1.5'		X		-	-	-	-	-	-	-	4,950
	"	2-2.5'		X		-	-	-	-	-	-	-	2,900
	"	3-3.5'		X		-	-	-	-	-	-	-	985
	"	4-4.5'		X		-	-	-	-	-	-	-	11,500
	"	5-5.5'		X		-	-	-	-	-	-	-	10,100
	"	6-6.5'		X		-	-	-	-	-	-	-	3,770
	"	7-7.5'		X		-	-	-	-	-	-	-	1,920
	"	8-8.5'		X		-	-	-	-	-	-	-	2,120
	"	9-9.5'		X		-	-	-	-	-	-	-	268
T-3	9/15/2010	2'		X		-	-	-	-	-	-	-	3,690
	"	4'		X		-	-	-	-	-	-	-	2,580
	"	6'		X		-	-	-	-	-	-	-	1,950
	"	8'		X		-	-	-	-	-	-	-	5,860
	"	10'		X		-	-	-	-	-	-	-	3,060
	"	12'		X		-	-	-	-	-	-	-	6,440
	"	14'		X		-	-	-	-	-	-	-	4,200
SB-1	4/7/2011	10'		X		-	-	-	-	-	-	-	2,880
		15'		X		-	-	-	-	-	-	-	2,680
		20'		X		-	-	-	-	-	-	-	4,390
		25'		X		-	-	-	-	-	-	-	4,160
		30'		X		-	-	-	-	-	-	-	873
		40'		X		-	-	-	-	-	-	-	505
		50'		X		-	-	-	-	-	-	-	310

Table 1
COG Operating LLC.

[illegible]

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

[illegible]

EDDY COUNTY, NEW MEXICO

[illegible]

Table 1
COG Operating LLC.
Harper State #5
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	DRO	GRO	Total					
AH-10	5/17/2010	0-1'		X		334	697	1,031	0.478	4.46	5.08	9.48	1,340
	"	1-1.5'		X		-	-	-	-	-	-	-	599
	"	2-2.5'		X		-	-	-	-	-	-	-	<200
	"	3-3.5'		X		-	-	-	-	-	-	-	934
	"	4-4.5'		X		-	-	-	-	-	-	-	671
T-6	9/15/2010	6'		X		-	-	-	-	-	-	-	874
	"	8'		X		-	-	-	-	-	-	-	508
	"	10'		X		-	-	-	-	-	-	-	752
	"	12'		X		-	-	-	-	-	-	-	410
	"	14'		X		-	-	-	-	-	-	-	707

BEB Below Excavation Bottom

(--) Not Analyzed

 Proposed excavation depth (ft)

Figures

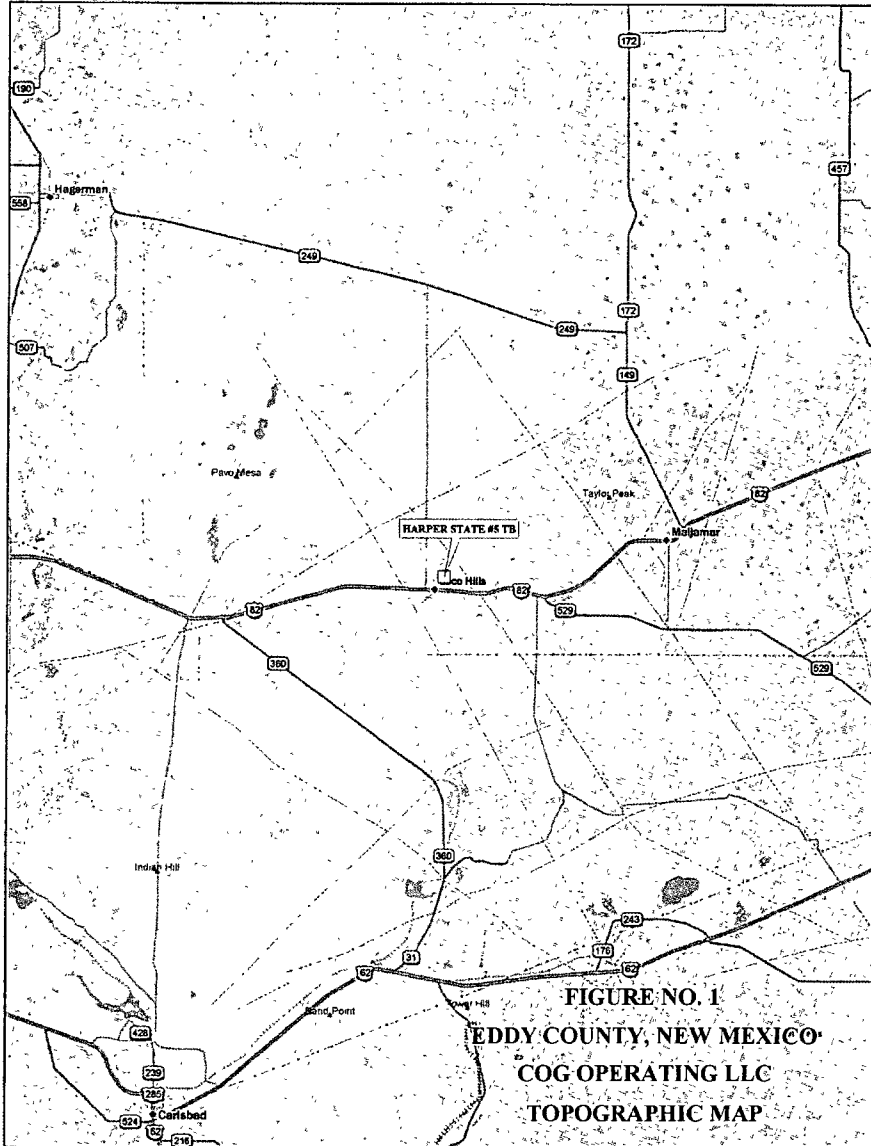


FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

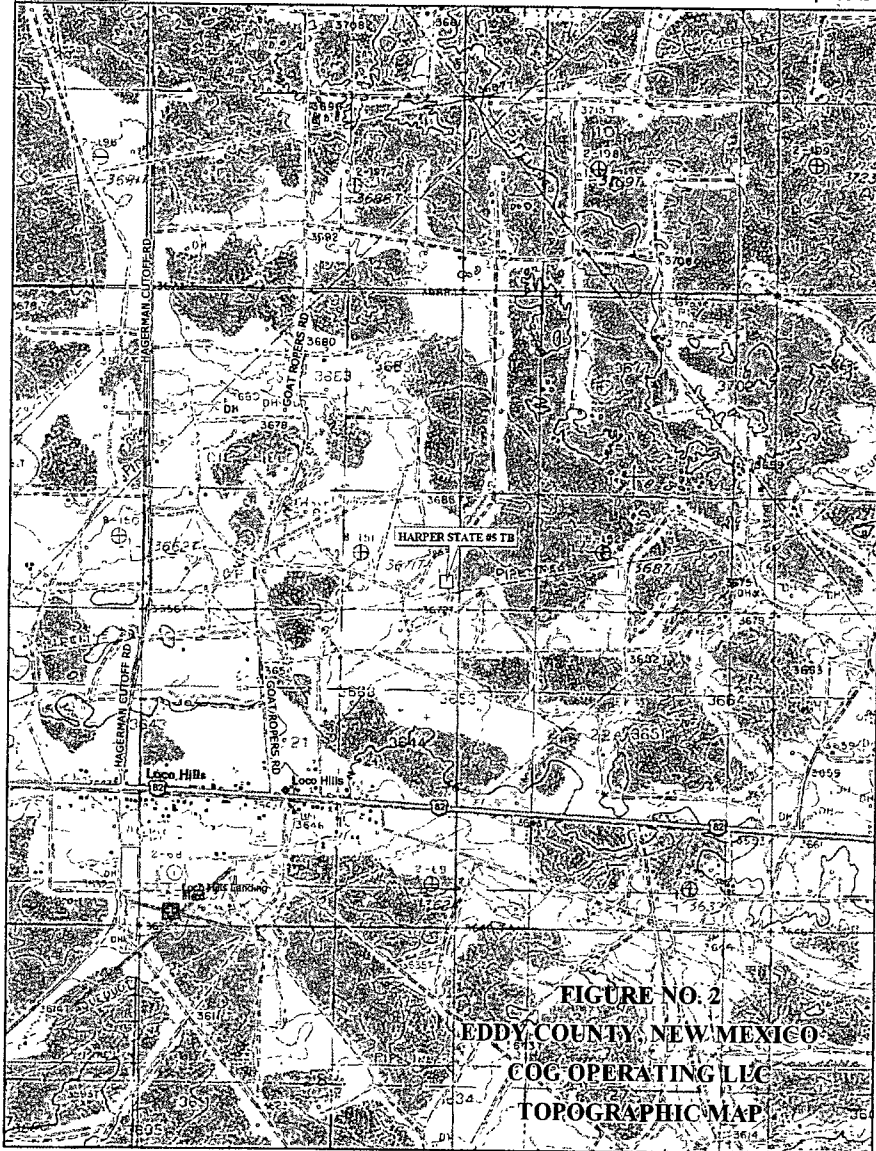
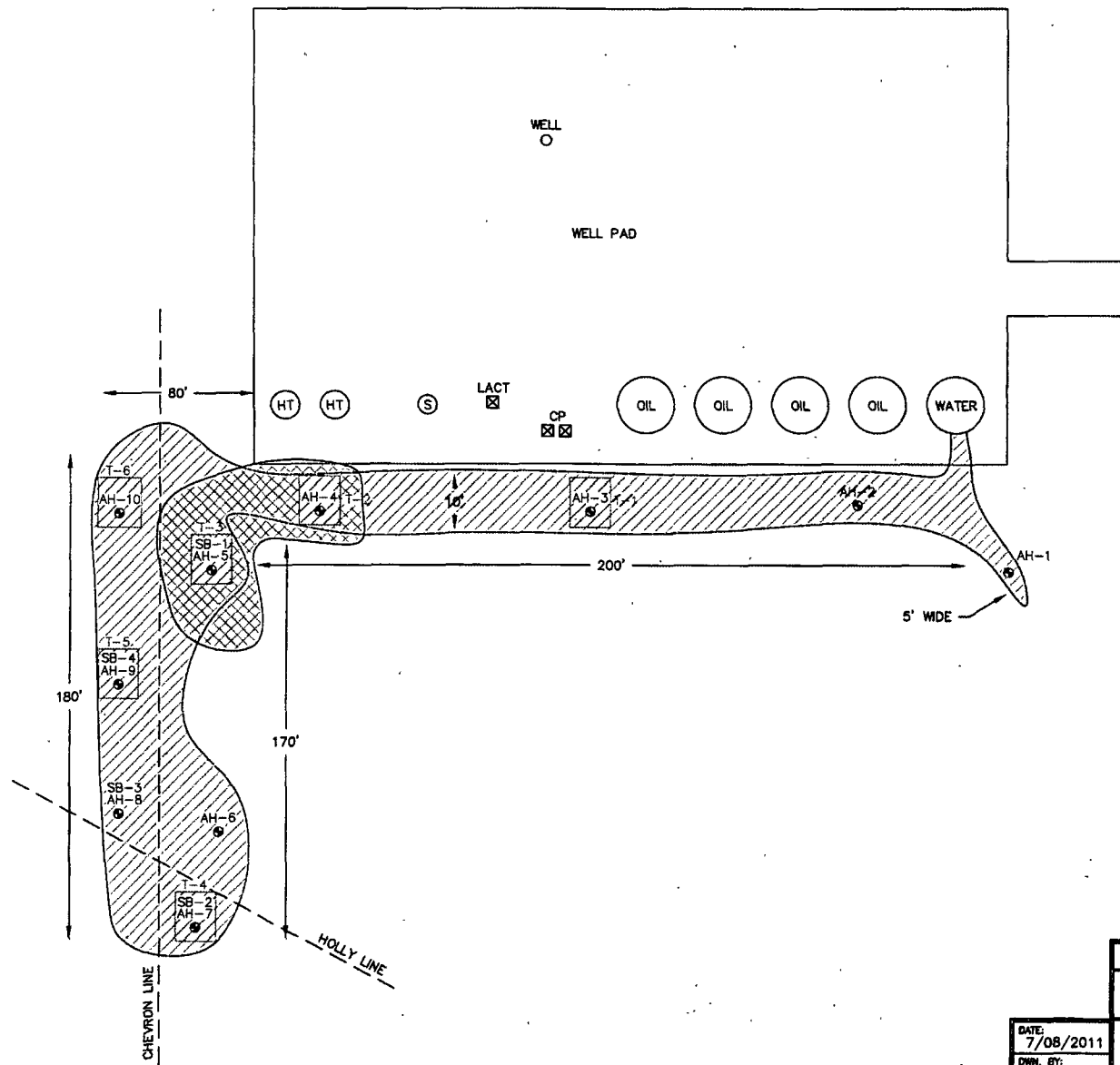


FIGURE NO. 2
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP



- SPILL AREA #1
- SPILL AREA #2
- SAMPLE TRENCH
- AUGER HOLE LOCATIONS
- SOIL BORING LOCATIONS

NOT TO SCALE

DATE:
7/08/2011
OWN. BY:
IM
FILE:
NO. 0000-000018
HARPER STATE #5

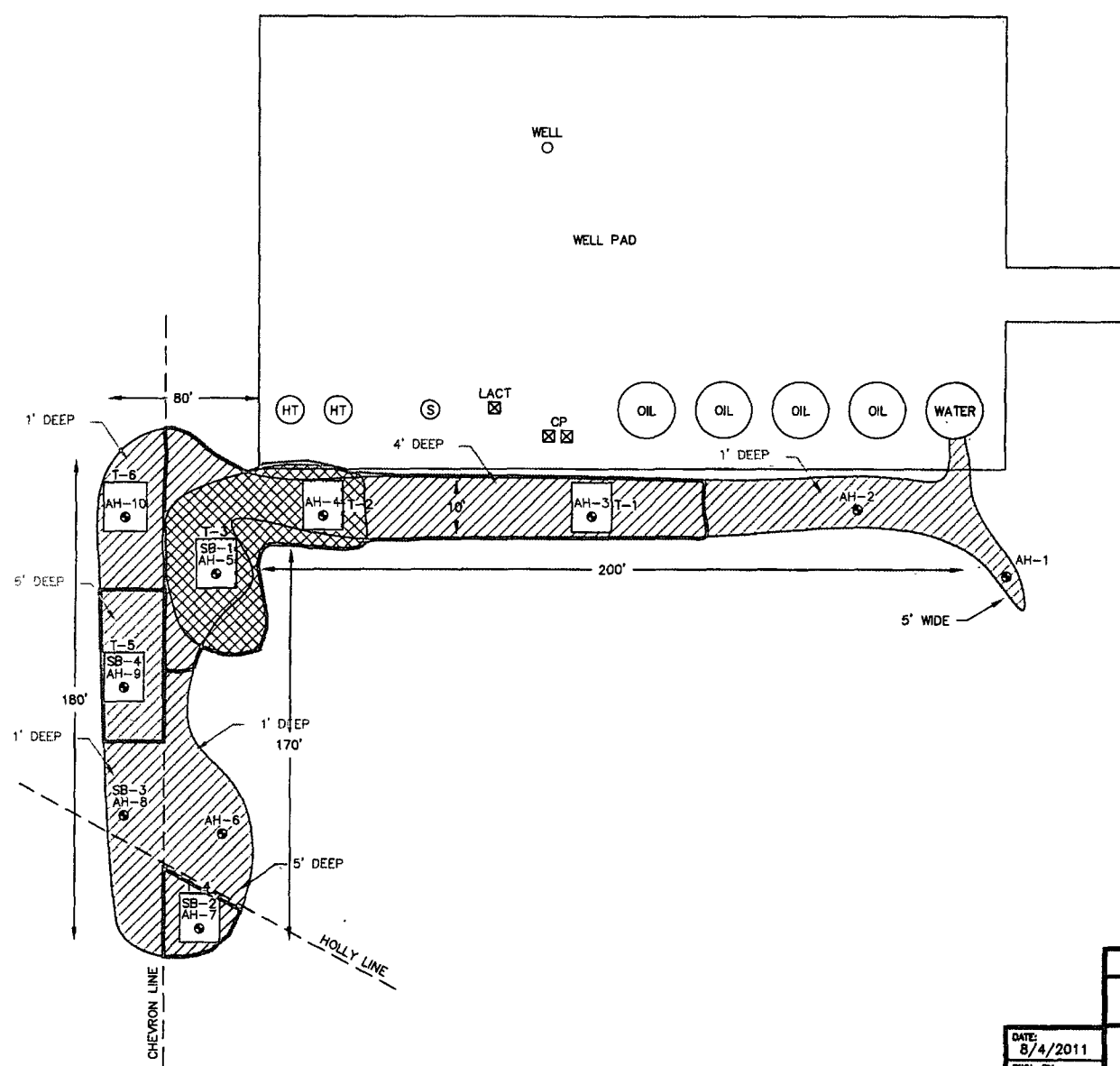
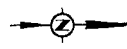
FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

HARPER STATE #5 TB

TETRA TECH, INC.
MIDLAND, TEXAS



- PROPOSED EXCAVATION DEPTHS
- PROPOSED LINER
- AUGER HOLE LOCATIONS
- SOIL BORING LOCATIONS

NOT TO SCALE

DATE:
8/4/2011
DRAWN BY:
IM
FILE:
H:\000\8400018
HARPER STATE #5

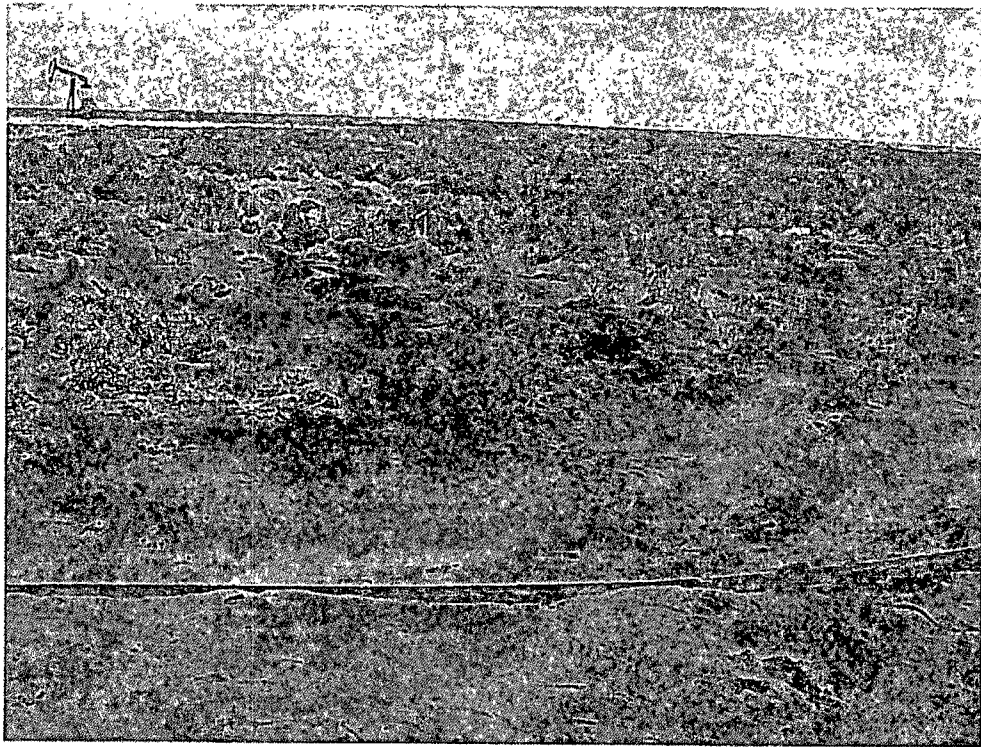
FIGURE NO. 4
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
HARPER STATE #5 TB
TETRA TECH, INC. MIDLAND, TEXAS

Photos

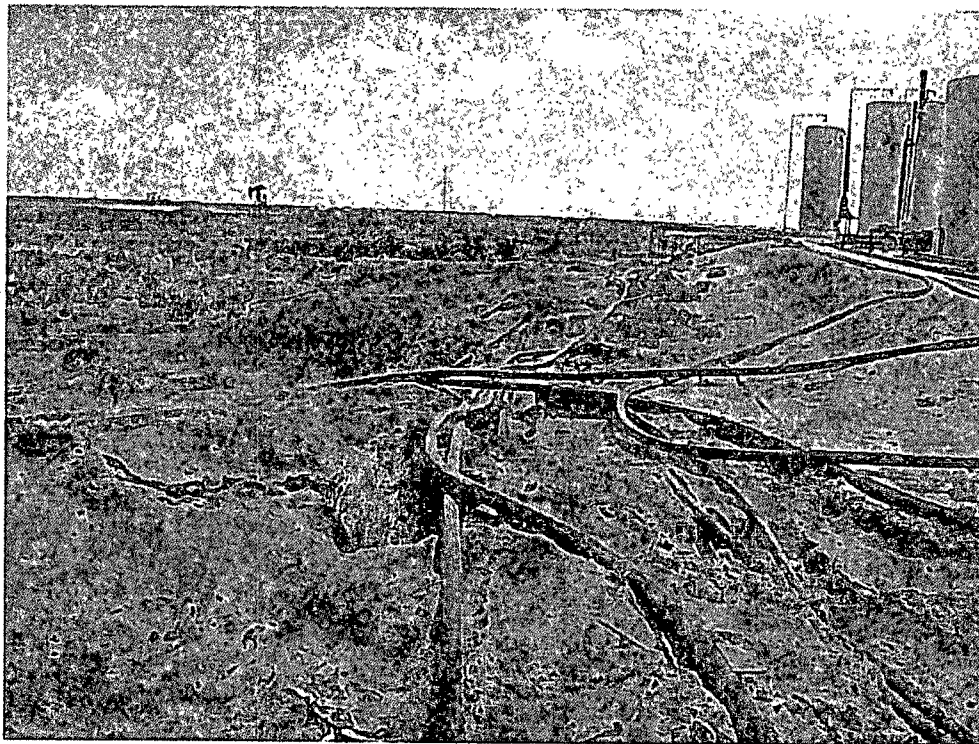
COG Operating LLC
Harper State #5
Eddy County, New Mexico



TETRA TECH



View South – AH-1



View West – AH-2, 3, 4

COG Operating LLC
Harper State #5
Eddy County, New Mexico



TETRA TECH



View West – AH-5, 10



View North – AH-8, 9, 10

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
10 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR		☒ Initial Report	☐ Final Report
Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	HARPER STATE #5	Facility Type	TANK BATTERY
Surface Owner	STATE	Mineral Owner	
		Lease No.	B-936

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	16	17S	30E					Eddy

Latitude 32 49.715 Longitude 103 58.145

NATURE OF RELEASE

Type of Release	Produced Water	Volume of Release	450bbbls	Volume Recovered	450bbbls
Source of Release	Water Tank	Date and Hour of Occurrence	05/06/2010	Date and Hour of Discovery	05/07/2010
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher - OCD		
By Whom?	Ronnie Tice	Date and Hour	05/07/2010	5:15 p.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.*

The release was caused due to an alarm recognition error.

Describe Area Affected and Cleanup Action Taken.*

450bbbls of produced water was initially released and 450bbbls was immediately recovered by a vacuum truck. The produced water ran off from the water tank covering an area 20' x 120', then pooled in an area with the dimensions of 75' x 200'. 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 NMOCD for approval before any significant remediation work.

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

OIL CONSERVATION DIVISION	
Signature: 	Approved by District Supervisor:
Printed Name: Josh Russo	
Title: HSE Coordinator	Approval Date: Expiration Date:
Email Address: jrusso@conchoresources.com	Conditions of Approval: Attached ☐
Date: 05/10/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

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
10 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Harper State #5	Facility Type	Flowline
Surface Owner	State	Mineral Owner	Lease No. (API#) 31-015-34571

LOCATION OF RELEASE

Unit Letter P	Section 16	Township 17S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude 32 49.693 Longitude 103 58.118

NATURE OF RELEASE

Type of Release	Produced fluid	Volume of Release	24bbls	Volume Recovered	15bbls
Source of Release	Flowline	Date and Hour of Occurrence	08/16/2010	Date and Hour of Discovery	08/16/2010 4:30 p.m.
Was Immediate Notice Given?	☐ Yes ☒ No ☒ Not Required	If YES, To Whom?			
By Whom?	Date and Hour				
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the Harper State #5 flowline. The defective section of pipe was completely removed and replaced with a new section

Describe Area Affected and Cleanup Action Taken.*

Initially 24bbls of produced fluid was released from the Harper State #5 flowline. We were able to recover 15bbls of produced fluid with a vacuum truck. The dimensions of the release were a 2' x 50' stream that followed the similar path of a previous release directly behind the Harper State #5 Tank Battery. The closest well location to the release is 50' west of the spill area and is the Harper State #1 well: 430' FSL 330' FEL, Sec. 16-T17S-R30E, Eddy Co., NM. B-936, API# 30-015-30831). Terra 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 NMOCD for approval prior to any significant remediation work.

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

OIL CONSERVATION DIVISION

Signature:

Printed Name:

Josh Russo

Approved by District Supervisor:

Title:

HSE Coordinator

Approval Date:

Expiration Date:

E-mail Address:

jrusso@conchoresources.com

Conditions of Approval:

Attached ☐

Date: 08/28/2010 Phone: 432-212-2399

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Harper State #5
Eddy County, New Mexico

16 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
110	30	29	28	27	26
31	32	33	34	35	36

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

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

17 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	210	28	27	26
31	32	208	33	34	35
					153

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

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

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

18 South			30 East		
6	5	4	3	2	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			31 East		
6	5	4	3	2	
7	8	9	10	11	
18	17	16	15	14	317
19	20	21	22	23	
30	29	28	27	26	
31	32	33	34	35	281

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

Appendix C

Summary Report

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

Report Date: June 1, 2010

Work Order: 10051909



Project Location: Eddy County, NM
Project Name: COG/Harper State #5
Project Number: 114-6400518

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
232203	AH-1 0-1'	soil	2010-05-17	00:00	2010-05-18
232204	AH-1 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232205	AH-1 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232206	AH-1 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232207	AH-1 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232208	AH-1 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232209	AH-2 0-1'	soil	2010-05-17	00:00	2010-05-18
232210	AH-2 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232211	AH-2 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232212	AH-2 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232213	AH-2 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232214	AH-2 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232215	AH-3 0-1'	soil	2010-05-17	00:00	2010-05-18
232216	AH-3 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232217	AH-3 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232218	AH-3 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232219	AH-3 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232220	AH-3 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232221	AH-4 0-1'	soil	2010-05-17	00:00	2010-05-18
232222	AH-4 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232223	AH-4 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232224	AH-4 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232225	AH-4 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232226	AH-4 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232227	AH-5 0-1'	soil	2010-05-17	00:00	2010-05-18
232228	AH-5 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232229	AH-5 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232230	AH-5 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232231	AH-5 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232232	AH-5 5-5.5'	soil	2010-05-17	00:00	2010-05-18

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
232233	AH-5 6-6.5'	soil	2010-05-17	00:00	2010-05-18
232234	AH-5 7-7.5'	soil	2010-05-17	00:00	2010-05-18
232235	AH-5 8-8.5'	soil	2010-05-17	00:00	2010-05-18
232236	AH-5 9-9.5'	soil	2010-05-17	00:00	2010-05-18
232237	AH-6 0-1'	soil	2010-05-17	00:00	2010-05-18
232238	AH-6 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232239	AH-6 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232240	AH-6 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232241	AH-6 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232242	AH-6 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232243	AH-7 0-1'	soil	2010-05-17	00:00	2010-05-18
232244	AH-7 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232245	AH-7 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232246	AH-7 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232247	AH-7 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232248	AH-7 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232249	AH-7 6-6.5'	soil	2010-05-17	00:00	2010-05-18
232250	AH-7 7-7.5'	soil	2010-05-17	00:00	2010-05-18
232251	AH-8 0-1'	soil	2010-05-17	00:00	2010-05-18
232252	AH-8 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232253	AH-8 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232254	AH-8 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232255	AH-8 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232256	AH-8 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232257	AH-8 6-6.5'	soil	2010-05-17	00:00	2010-05-18
232258	AH-9 0-1'	soil	2010-05-17	00:00	2010-05-18
232259	AH-9 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232260	AH-9 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232261	AH-9 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232262	AH-9 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232263	AH-9 5-5.5'	soil	2010-05-17	00:00	2010-05-18
232264	AH-9 6-6.5'	soil	2010-05-17	00:00	2010-05-18
232265	AH-10 0-1'	soil	2010-05-17	00:00	2010-05-18
232266	AH-10 1-1.5'	soil	2010-05-17	00:00	2010-05-18
232267	AH-10 2-2.5'	soil	2010-05-17	00:00	2010-05-18
232268	AH-10 3-3.5'	soil	2010-05-17	00:00	2010-05-18
232269	AH-10 4-4.5'	soil	2010-05-17	00:00	2010-05-18
232270	AH-7 7.5-8'	soil	2010-05-17	00:00	2010-05-18

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)
232203 - AH-1 0-1'	<0.500	9.34	14.9	24.3	4290	1190
232204 - AH-1 1-1.5'					<50.0	<1.00
232209 - AH-2 0-1'					678	14.6
232215 - AH-3 0-1'	<0.100	<0.100	<0.100	0.438	1400	296
232221 - AH-4 0-1'	<0.200	<0.200	<0.200	1.00	1780	691
232227 - AH-5 0-1'	<0.100	<0.100	<0.100	0.638	877	409

continued ...

... continued

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)
232237 - AH-6 0-1'					<50.0	<1.00
232243 - AH-7 0-1'					<50.0	<1.00
232251 - AH-8 0-1'					599	259
232258 - AH-9 0-1'	1.46	16.8	31.8	52.1	8460	3660
232259 - AH-9 1-1.5'	18.3	79.2	38.3	67.3	3080	2420
232260 - AH-9 2-2.5'	13.1	105	54.8	97.2	3320	3620
232261 - AH-9 3-3.5'	11.6	120	66.9	117	2770	4280
232262 - AH-9 4-4.5'	13.7	115	54.8	89.1	734	2790
232263 - AH-9 5-5.5'	0.416	34.0	35.8	53.1	1020	1780
232264 - AH-9 6-6.5'	3.80	64.8	47.3	63.4	1040	2350
232265 - AH-10 0-1'	0.478	4.46	5.08	9.48	334	697

Sample: 232203 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		1320	mg/Kg	4.00

Sample: 232204 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		578	mg/Kg	4.00

Sample: 232205 - AH-1 2-2.5'

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

Sample: 232206 - AH-1 3-3.5'

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

Sample: 232207 - AH-1 4-4.5'

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

Sample: 232208 - AH-1 5-5.5'

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

Sample: 232209 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		4890	mg/Kg	4.00

Sample: 232210 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1750	mg/Kg	4.00

Sample: 232211 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		793	mg/Kg	4.00

Sample: 232212 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		682	mg/Kg	4.00

Sample: 232213 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		490	mg/Kg	4.00

Sample: 232214 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		466	mg/Kg	4.00

Sample: 232215 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		1830	mg/Kg	4.00

Sample: 232216 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		661	mg/Kg	4.00

Sample: 232217 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		1010	mg/Kg	4.00

Sample: 232218 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1340	mg/Kg	4.00

Sample: 232219 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		802	mg/Kg	4.00

Sample: 232220 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		641	mg/Kg	4.00

Sample: 232221 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		7940	mg/Kg	4.00

Sample: 232222 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1250	mg/Kg	4.00

Sample: 232223 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		592	mg/Kg	4.00

Sample: 232224 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		519	mg/Kg	4.00

Sample: 232225 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		398	mg/Kg	4.00

Sample: 232226 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		447	mg/Kg	4.00

Sample: 232227 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		6930	mg/Kg	4.00

Sample: 232228 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4950	mg/Kg	4.00

Sample: 232229 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2900	mg/Kg	4.00

Sample: 232230 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		985	mg/Kg	4.00

Sample: 232231 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		11500	mg/Kg	4.00

Sample: 232232 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		10100	mg/Kg	4.00

Sample: 232233 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		3770	mg/Kg	4.00

Sample: 232234 - AH-5 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1920	mg/Kg	4.00

Sample: 232235 - AH-5 8-8.5'

Param	Flag	Result	Units	RL
Chloride		2120	mg/Kg	4.00

Sample: 232236 - AH-5 9-9.5'

Param	Flag	Result	Units	RL
Chloride		268	mg/Kg	4.00

Sample: 232237 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		6860	mg/Kg	4.00

Sample: 232238 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1430	mg/Kg	4.00

Sample: 232239 - AH-6 2-2.5'

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

Sample: 232240 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		239	mg/Kg	4.00

Sample: 232241 - AH-6 4-4.5'

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

Sample: 232242 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		225	mg/Kg	4.00

Sample: 232243 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		10100	mg/Kg	4.00

Sample: 232244 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		8640	mg/Kg	4.00

Sample: 232245 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		10100	mg/Kg	4.00

Sample: 232246 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4.00

Sample: 232247 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		10800	mg/Kg	4.00

Sample: 232248 - AH-7 5-5.5'

Param	Flag	Result	Units	RL
Chloride		16200	mg/Kg	4.00

Sample: 232249 - AH-7 6-6.5'

Param	Flag	Result	Units	RL
Chloride		5840	mg/Kg	4.00

Sample: 232250 - AH-7 7-7.5'

Param	Flag	Result	Units	RL
Chloride		1580	mg/Kg	4.00

Sample: 232251 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		2920	mg/Kg	4.00

Sample: 232252 - AH-8 1-1.5'

Param	Flag	Result	Units	RL
Chloride		306	mg/Kg	4.00

Sample: 232253 - AH-8 2-2.5'

Param	Flag	Result	Units	RL
Chloride		850	mg/Kg	4.00

Sample: 232254 - AH-8 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1520	mg/Kg	4.00

Sample: 232255 - AH-8 4-4.5'

Param	Flag	Result	Units	RL
Chloride		626	mg/Kg	4.00

Sample: 232256 - AH-8 5-5.5'

Param	Flag	Result	Units	RL
Chloride		220	mg/Kg	4.00

Sample: 232257 - AH-8 6-6.5'

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

Sample: 232258 - AH-9 0-1'

Param	Flag	Result	Units	RL
Chloride		2210	mg/Kg	4.00

Sample: 232259 - AH-9 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4480	mg/Kg	4.00

Sample: 232260 - AH-9 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4140	mg/Kg	4.00

Sample: 232261 - AH-9 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4460	mg/Kg	4.00

Sample: 232262 - AH-9 4-4.5'

Param	Flag	Result	Units	RL
Chloride		6080	mg/Kg	4.00

Sample: 232263 - AH-9 5-5.5'

Param	Flag	Result	Units	RL
Chloride		2360	mg/Kg	4.00

Sample: 232264 - AH-9 6-6.5'

Param	Flag	Result	Units	RL
Chloride		864	mg/Kg	4.00

Sample: 232265 - AH-10 0-1'

Param	Flag	Result	Units	RL
Chloride		1340	mg/Kg	4.00

Sample: 232266 - AH-10 1-1.5'

Param	Flag	Result	Units	RL
Chloride		599	mg/Kg	4.00

Sample: 232267 - AH-10 2-2.5'

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

Sample: 232268 - AH-10 3-3.5'

Param	Flag	Result	Units	RL
Chloride		934	mg/Kg	4.00

Sample: 232269 - AH-10 4-4.5'

Param	Flag	Result	Units	RL
Chloride		671	mg/Kg	4.00

Sample: 232270 - AH-7 7.5-8'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4.00

Summary Report

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

Report Date: October 4, 2010

Work Order: 10092008



Project Location: Eddy County, NM
Project Name: COG/Harper State #5
Project Number: 114-6400518

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
245155	T-1 6'	soil	2010-09-15	00:00	2010-09-17
245156	T-1 8'	soil	2010-09-15	00:00	2010-09-17
245157	T-1 10'	soil	2010-09-15	00:00	2010-09-17
245158	T-1 12'	soil	2010-09-15	00:00	2010-09-17
245159	T-1 14'	soil	2010-09-15	00:00	2010-09-17
245160	T-2 2'	soil	2010-09-15	00:00	2010-09-17
245161	T-2 4'	soil	2010-09-15	00:00	2010-09-17
245162	T-2 6'	soil	2010-09-15	00:00	2010-09-17
245163	T-2 8'	soil	2010-09-15	00:00	2010-09-17
245164	T-2 10'	soil	2010-09-15	00:00	2010-09-17
245165	T-2 12'	soil	2010-09-15	00:00	2010-09-17
245166	T-2 14'	soil	2010-09-15	00:00	2010-09-17
245168	T-3 2'	soil	2010-09-15	00:00	2010-09-17
245169	T-3 4'	soil	2010-09-15	00:00	2010-09-17
245170	T-3 6'	soil	2010-09-15	00:00	2010-09-17
245171	T-3 8'	soil	2010-09-15	00:00	2010-09-17
245172	T-3 10'	soil	2010-09-15	00:00	2010-09-17
245173	T-3 12'	soil	2010-09-15	00:00	2010-09-17
245174	T-3 14'	soil	2010-09-15	00:00	2010-09-17
245179	T-4 8'	soil	2010-09-15	00:00	2010-09-17
245180	T-4 10'	soil	2010-09-15	00:00	2010-09-17
245181	T-4 12'	soil	2010-09-15	00:00	2010-09-17
245182	T-4 14'	soil	2010-09-15	00:00	2010-09-17
245187	T-5 8'	soil	2010-09-15	00:00	2010-09-17
245188	T-5 10'	soil	2010-09-15	00:00	2010-09-17
245193	T-6 6'	soil	2010-09-15	00:00	2010-09-17
245194	T-6 8'	soil	2010-09-15	00:00	2010-09-17
245195	T-6 10'	soil	2010-09-15	00:00	2010-09-17
245196	T-6 12'	soil	2010-09-15	00:00	2010-09-17
245197	T-6 14'	soil	2010-09-15	00:00	2010-09-17

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 - 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)
245187 - T-5 8'	<0.0200	<0.0200	<0.0200	<0.0200	74.9	<2.00
245188 - T-5 10'	<0.0200	<0.0200	<0.0200	<0.0200	83.1	<2.00

Sample: 245155 - T-1 6'

Param	Flag	Result	Units	RL
Chloride		2570	mg/Kg	4.00

Sample: 245156 - T-1 8'

Param	Flag	Result	Units	RL
Chloride		7910	mg/Kg	4.00

Sample: 245157 - T-1 10'

Param	Flag	Result	Units	RL
Chloride		1010	mg/Kg	4.00

Sample: 245158 - T-1 12'

Param	Flag	Result	Units	RL
Chloride		926	mg/Kg	4.00

Sample: 245159 - T-1 14'

Param	Flag	Result	Units	RL
Chloride		304	mg/Kg	4.00

Sample: 245160 - T-2 2'

Param	Flag	Result	Units	RL
Chloride		13200	mg/Kg	4.00

Sample: 245161 - T-2 4'

Param	Flag	Result	Units	RL
Chloride		7040	mg/Kg	4.00

Sample: 245162 - T-2 6'

Param	Flag	Result	Units	RL
Chloride		2890	mg/Kg	4.00

Sample: 245163 - T-2 8'

Param	Flag	Result	Units	RL
Chloride		6020	mg/Kg	4.00

Sample: 245164 - T-2 10'

Param	Flag	Result	Units	RL
Chloride		3970	mg/Kg	4.00

Sample: 245165 - T-2 12'

Param	Flag	Result	Units	RL
Chloride		2950	mg/Kg	4.00

Sample: 245166 - T-2 14'

Param	Flag	Result	Units	RL
Chloride		245	mg/Kg	4.00

Sample: 245168 - T-3 2'

Param	Flag	Result	Units	RL
Chloride		3690	mg/Kg	4.00

Sample: 245169 - T-3 4'

Param	Flag	Result	Units	RL
Chloride		2580	mg/Kg	4.00

Sample: 245170 - T-3 6'

Param	Flag	Result	Units	RL
Chloride		1950	mg/Kg	4.00

Sample: 245171 - T-3 8'

Param	Flag	Result	Units	RL
Chloride		5860	mg/Kg	4.00

Sample: 245172 - T-3 10'

Param	Flag	Result	Units	RL
Chloride		3060	mg/Kg	4.00

Sample: 245173 - T-3 12'

Param	Flag	Result	Units	RL
Chloride		6440	mg/Kg	4.00

Sample: 245174 - T-3 14'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4.00

Sample: 245179 - T-4 8'

Param	Flag	Result	Units	RL
Chloride		473	mg/Kg	4.00

Sample: 245180 - T-4 10'

Param	Flag	Result	Units	RL
Chloride		7040	mg/Kg	4.00

Sample: 245181 - T-4 12'

Param	Flag	Result	Units	RL
Chloride		3960	mg/Kg	4.00

Sample: 245182 - T-4 14'

Param	Flag	Result	Units	RL
Chloride		4370	mg/Kg	4.00

Sample: 245187 - T-5 8'

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4.00

Sample: 245188 - T-5 10'

Param	Flag	Result	Units	RL
Chloride		3220	mg/Kg	4.00

Sample: 245193 - T-6 6'

Param	Flag	Result	Units	RL
Chloride		874	mg/Kg	4.00

Sample: 245194 - T-6 8'

Param	Flag	Result	Units	RL
Chloride		508	mg/Kg	4.00

Sample: 245195 - T-6 10'

Param	Flag	Result	Units	RL
Chloride		752	mg/Kg	4.00

Sample: 245196 - T-6 12'

Param	Flag	Result	Units	RL
Chloride		410	mg/Kg	4.00

Sample: 245197 - T-6 14'

Param	Flag	Result	Units	RL
Chloride		707	mg/Kg	4.00

Summary Report

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

Report Date: April 18, 2011

Work Order: 11040821

Project Location: Eddy Co., NM
Project Name: COG/Harper State #5
Project Number: 114-6400518

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
263073	SB-1 10'	soil	2011-04-07	00:00	2011-04-08
263074	SB-1 15'	soil	2011-04-07	00:00	2011-04-08
263075	SB-1 20'	soil	2011-04-07	00:00	2011-04-08
263076	SB-1 25'	soil	2011-04-07	00:00	2011-04-08
263077	SB-1 30'	soil	2011-04-07	00:00	2011-04-08
263078	SB-1 40'	soil	2011-04-07	00:00	2011-04-08
263079	SB-1 50'	soil	2011-04-07	00:00	2011-04-08
263080	SB-2 10'	soil	2011-04-07	00:00	2011-04-08
263081	SB-2 15'	soil	2011-04-07	00:00	2011-04-08
263082	SB-2 20'	soil	2011-04-07	00:00	2011-04-08
263083	SB-3 10'	soil	2011-04-07	00:00	2011-04-08
263084	SB-3 15'	soil	2011-04-07	00:00	2011-04-08
263085	SB-3 20'	soil	2011-04-07	00:00	2011-04-08
263086	SB-3 25'	soil	2011-04-07	00:00	2011-04-08
263087	SB-3 30'	soil	2011-04-07	00:00	2011-04-08
263088	SB-3 40'	soil	2011-04-07	00:00	2011-04-08
263089	SB-3 50'	soil	2011-04-07	00:00	2011-04-08
263090	SB-3 60'	soil	2011-04-07	00:00	2011-04-08
263091	SB-4 10'	soil	2011-04-07	00:00	2011-04-08
263092	SB-4 15'	soil	2011-04-07	00:00	2011-04-08
263093	SB-4 20'	soil	2011-04-07	00:00	2011-04-08
263094	SB-4 25'	soil	2011-04-07	00:00	2011-04-08
263095	SB-4 30'	soil	2011-04-07	00:00	2011-04-08
263096	SB-4 40'	soil	2011-04-07	00:00	2011-04-08
263097	SB-4 50'	soil	2011-04-07	00:00	2011-04-08

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)
263083 - SB-3 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
263091 - SB-4 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 263073 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		2880	mg/Kg	4.00

Sample: 263074 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		2680	mg/Kg	4.00

Sample: 263075 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		4390	mg/Kg	4.00

Sample: 263076 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		4160	mg/Kg	4.00

Sample: 263077 - SB-1 30'

Param	Flag	Result	Units	RL
Chloride		873	mg/Kg	4.00

Sample: 263078 - SB-1 40'

Param	Flag	Result	Units	RL
Chloride		505	mg/Kg	4.00

Sample: 263079 - SB-1 50'

Param	Flag	Result	Units	RL
Chloride		310	mg/Kg	4.00

Sample: 263080 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		208	mg/Kg	4.00

Sample: 263081 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		552	mg/Kg	4.00

Sample: 263082 - SB-2 20'

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

Sample: 263083 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		431	mg/Kg	4.00

Sample: 263084 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		373	mg/Kg	4.00

Sample: 263085 - SB-3 20'

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

Sample: 263086 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		1200	mg/Kg	4.00

Sample: 263087 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		712	mg/Kg	4.00

Sample: 263088 - SB-3 40'

Param	Flag	Result	Units	RL
Chloride		1130	mg/Kg	4.00

Sample: 263089 - SB-3 50'

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

Sample: 263090 - SB-3 60'

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

Sample: 263091 - SB-4 10'

Param	Flag	Result	Units	RL
Chloride		5970	mg/Kg	4.00

Sample: 263092 - SB-4 15'

Param	Flag	Result	Units	RL
Chloride		7400	mg/Kg	4.00

Sample: 263093 - SB-4 20'

Param	Flag	Result	Units	RL
Chloride		4210	mg/Kg	4.00

Sample: 263094 - SB-4 25'

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

Sample: 263095 - SB-4 30'

Param	Flag	Result	Units	RL
Chloride		862	mg/Kg	4.00

Sample: 263096 - SB-4 40'

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

Sample: 263097 - SB-4 50'

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