SITE INFORMATION

Report Type: Work Plan

General Site Information:		
Site:	Skelly Unit 942 Tank Battery	
Company:	COG Operating LLC	
Section, Township and Range	Unit B Sec. 22 T-17S R-31E	
Lease Number:	API 30-015-43645 NM - 029419A	
County:	Eddy County	
GPS:	32.82443° N	103.85564° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of Hwy 82 and 529, travel east on 82 for 1.9 mi, left 1.5 mi, left 0.1 mi to location	

Release Data:	
Date Released:	3/20/2011
Type Release:	Oil
Source of Contamination:	Oil tank ran over
Fluid Released:	15 bbls
Fluids Recovered:	14 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@tetratech.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

June 10, 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., Skelly Unit 942, Unit B, Section 22, Township 17 South, Range 31 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 Skelly Unit 942 Tank Battery, Unit B, Section 22, Township 17 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.81730°, W 104.11283°. 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 March 20, 2011, and released approximately fifteen (15) barrels of oil from an oil tank running over as a result of rapid increase in production volume. Fourteen (14) barrels of fluid were recovered. To alleviate the problem, COG personnel returned the wells back into production at a slower rate after lease shut in. The entire spill was contained inside the facility berm and measured approximately 10' x 75'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 19. Based on the site location and NMOCD groundwater map, the average depth to groundwater in this area is greater than 100' below surface. The well report is shown in Appendix B.

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Regulatory

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

Soil Assessment and Analytical Results

On April 20, 2011, Tetra Tech personnel inspected and sampled the spill area. Two auger holes (AH-1 and AH-2) 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 results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger hole (AH-1) exceeded the RRAL for TPH and total BTEX at 0-1', but decline below the RRAL at 1.0' below surface. Auger hole (AH-2) did show a deeper impact to the soils. The TPH and benzene concentrations declined below the RRAL at 2.0' and 3.0', respectively. However, the total BTEX showed a concentration of 84.4 mg/kg at 3.0' below surface. The total BTEX area was not vertically defined.

Work Plan

COG proposes to removal of impacted material as highlighted (green) in Table 1 and Figure 4. Auger holes (AH-1) will be excavated 1.0' below surface. In the area of AH-2, the total BTEX exceeded the RRAL at 3.0' below surface and the impacted area will be excavated approximately 4.0' to 5.0' to removed the soil above the RRAL. Once excavated, a confirmation sample will be collected for BTEX analysis from the bottom of the excavation.

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

Based on the spill location, concerns exist regarding a excavation plan. The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths are not reached or if deeper impact is encountered, a 40 mil liner will be installed at a depth of 3.0' to 4.0' below surface to cap the impacted area.

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

Respectfully submitted,
TETRA TECH

Ike Tavarez
Project Manager

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

Figures

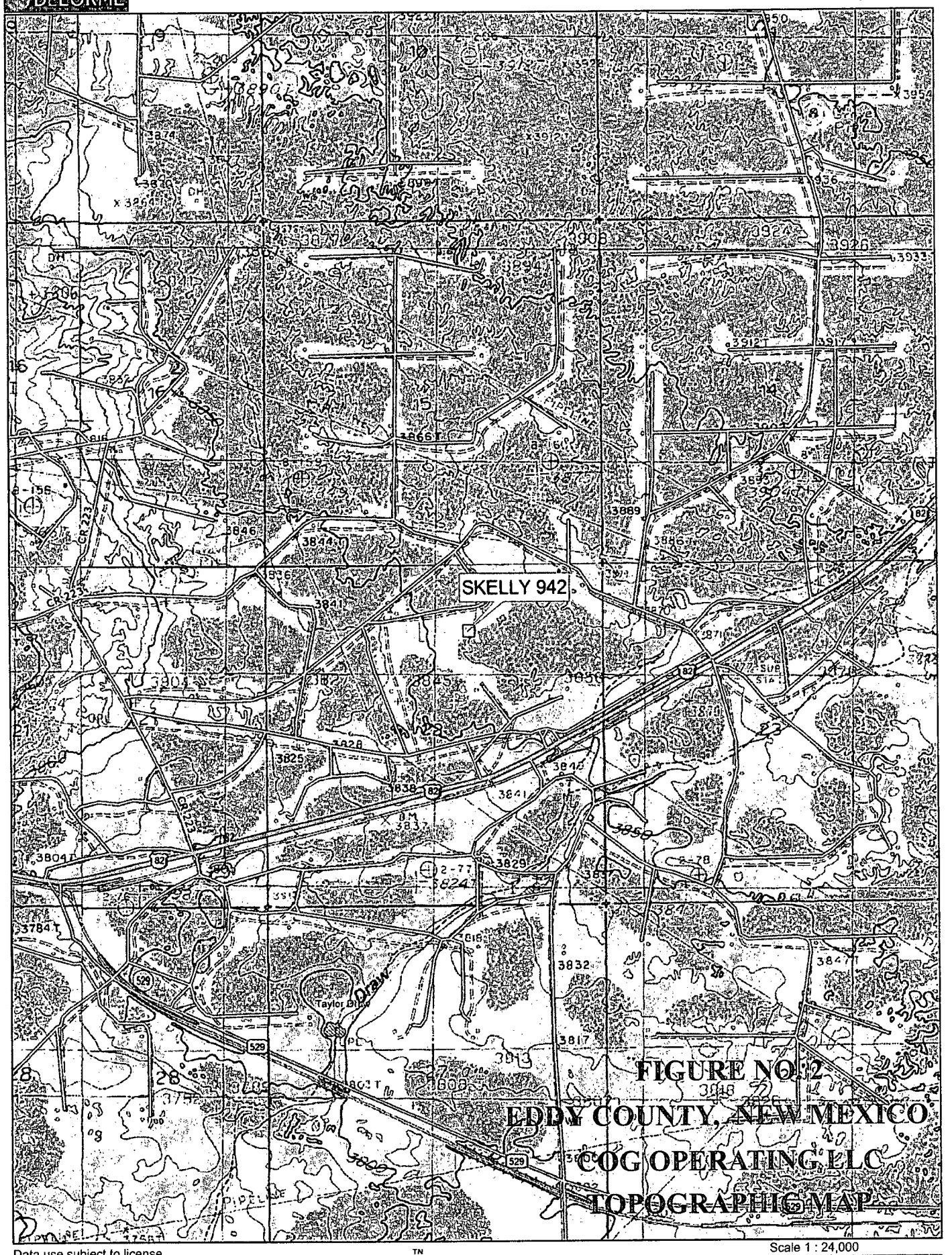


FIGURE NO. 2

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

TN

MN (7.8°E)

Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 13-1

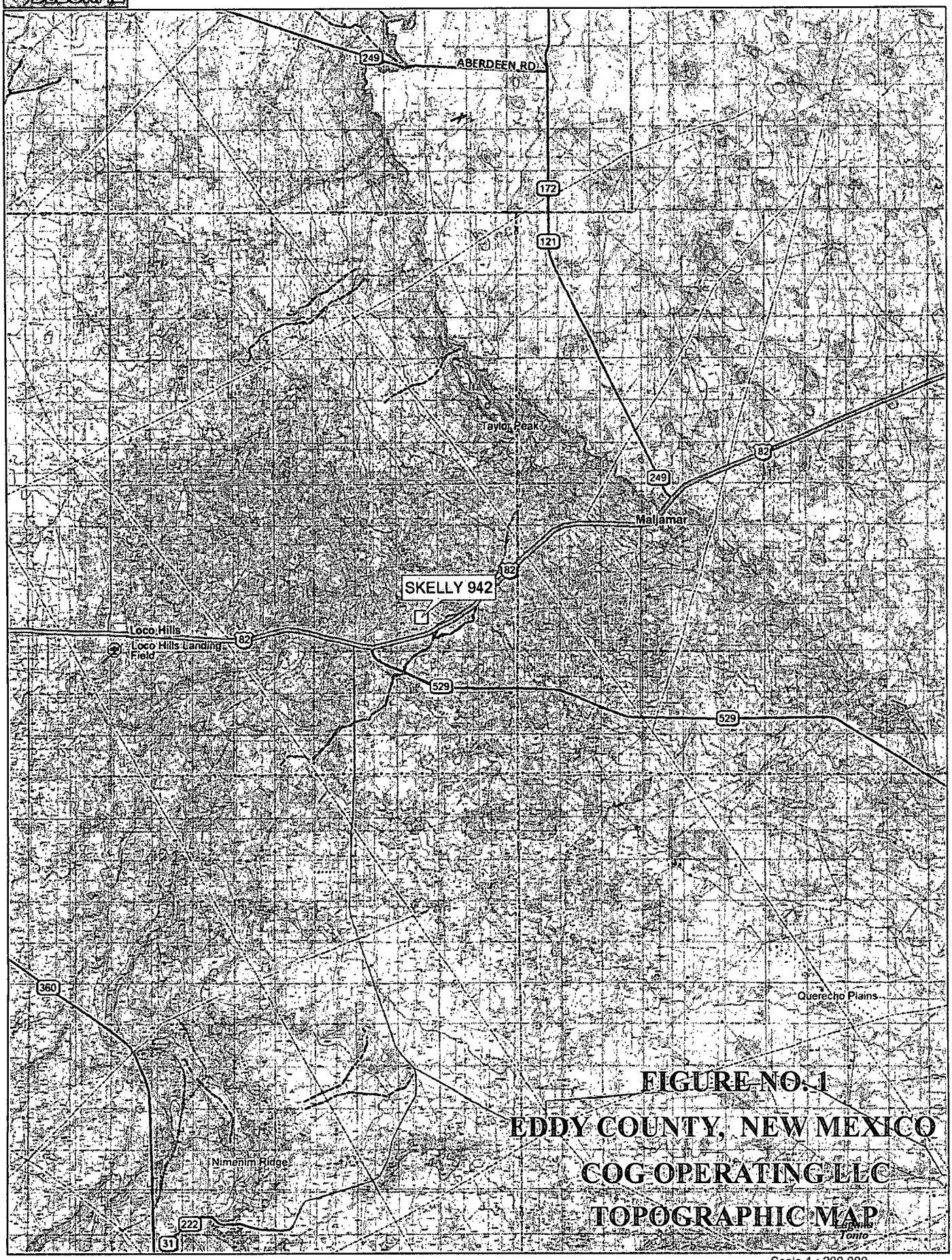


FIGURE NO. 1

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

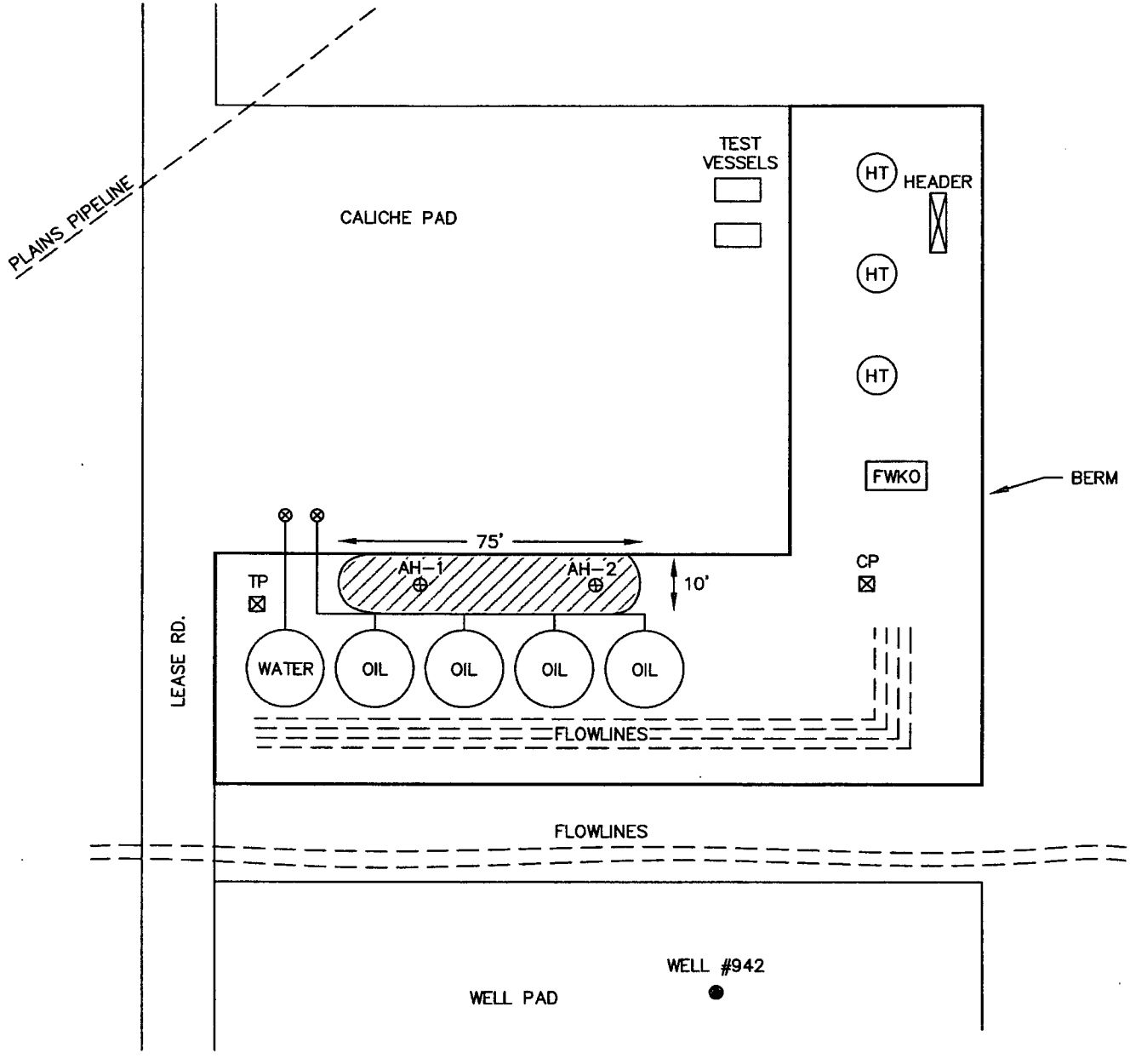
TN

MN (7.7°E)

Scale 1 : 200,000

1" = 3.16 mi

Data Zoom 10-0



SPILL AREA

⊕ AUGER HOLE SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 3

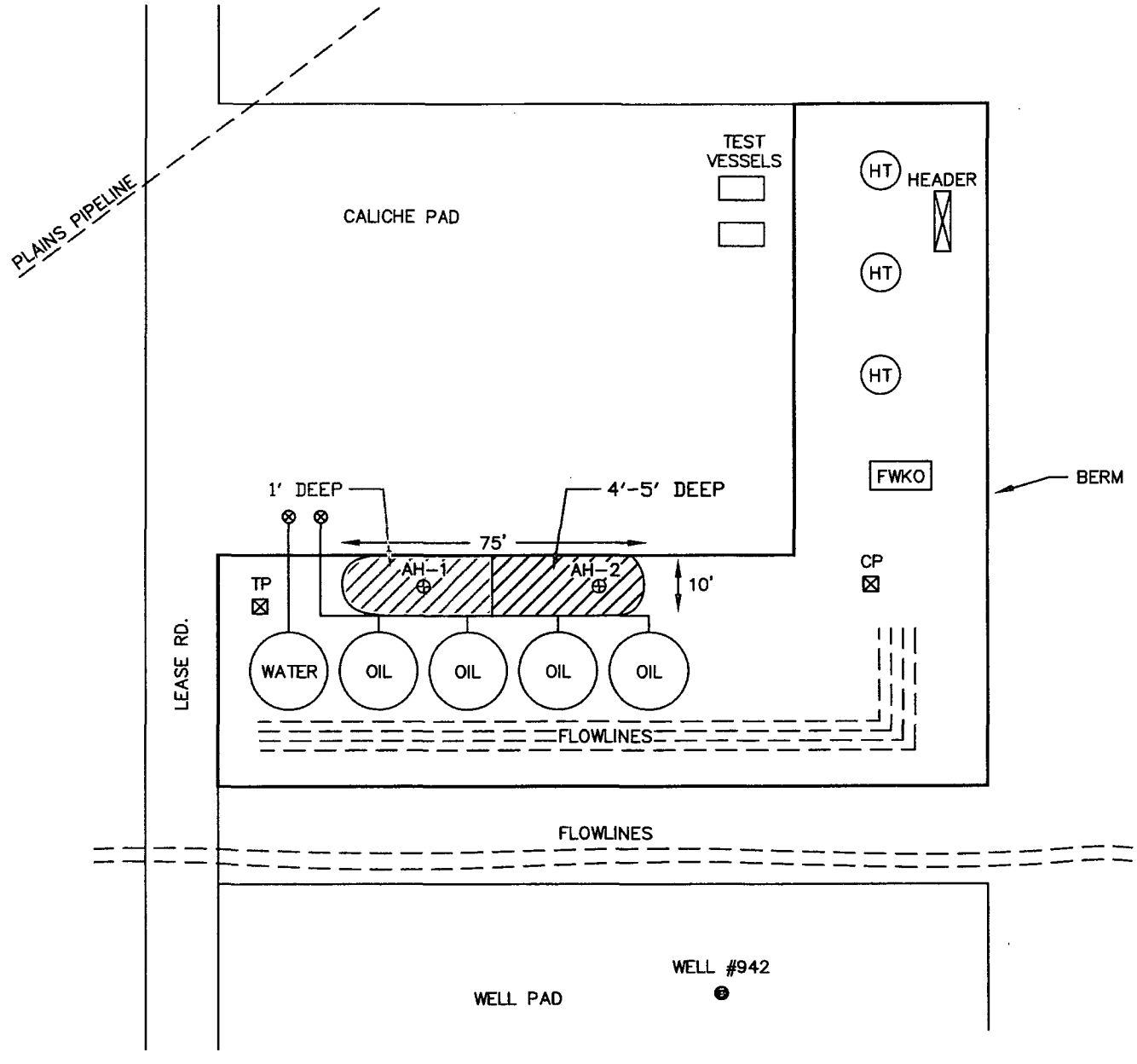
EDDY COUNTY, NEW MEXICO

COG OPERATING

SKELLY #942 TB

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 6/14/2011
DWN. BY: IM
FILE: H:\COG\6400872 SKELLY #942 TB



PROPOSED EXCAVATION DEPTHS

⊕ AUGER HOLE SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING

SKELLY #942 TB

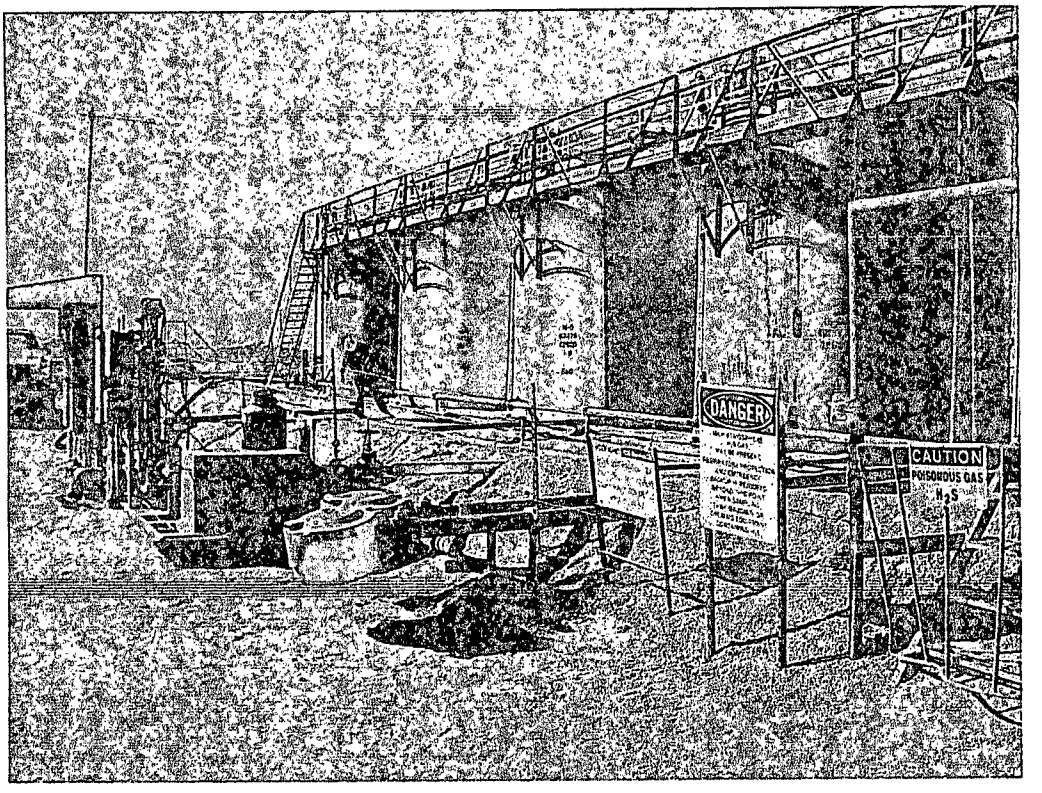
TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 6/14/2011
DWN. BY: IM
FILE: H:\COG\6400872 SKELLY #942 TB

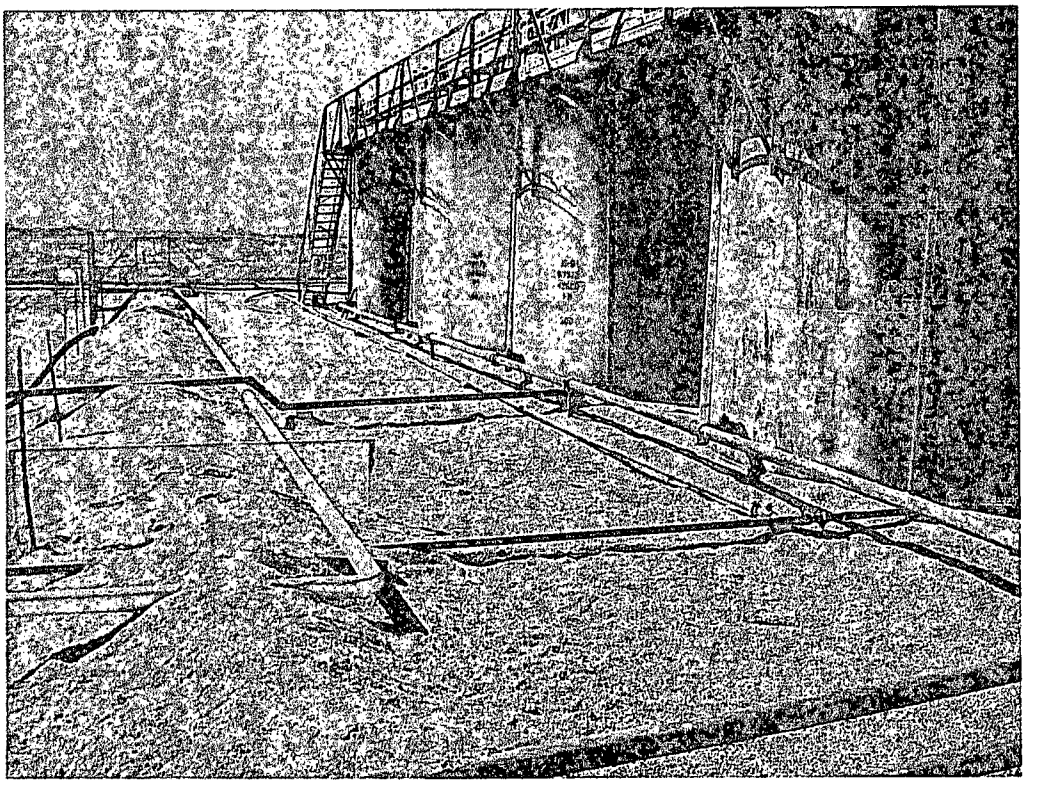
Photos

COG Operating LLC
Skelly 942
Eddy County, New Mexico

TETRA TECH



Skelly 942 Tank Battery



AH-1 and AH-2 (4/20/11)

Tables

Table 1
COG Operating LLC.
SKELLY 942
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	4/20/2011	0-1'	X		2,010	3,890	5,900	20.2	120	85.3	97.2	322.7	202
	"	1-1.5'	X		99.6	291	390.6	0.245	0.881	0.372	1.54	3.0	643
	"	2-2.5'	X		-	-	-	-	-	-	-		<200
	"	3-3.5'	X		-	-	-	-	-	-	-		343
AH-2	4/20/2011	0-1'	X		2,150	4,390	6,540	22.1	138	102	127	389.1	<200
	"	1-1.5'	X		3,580	1,940	5,520	48.5	171	110	128	457.5	<200
	"	2-2.5'	X		3,590	724	4,314	76.7	181	103	113	473.7	<200
	"	3-3.5'	X		903	279	1,182	0.789	25.4	28	30.2	84.4	507

BEB Below Excavation Bottom

(-) Not Analyzed

Proposed Excavated Depths

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Skelly Unit 942	Facility Type	Tank Battery

Surface Owner	Mineral Owner	Lease No.
Federal		(API#) 30-015-43645 NMNM – 029419A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	22	17S	31E					Eddy

Latitude 32 49.510 **Longitude** 103 51.384

NATURE OF RELEASE

Type of Release Oil	Volume of Release 15bbls	Volume Recovered 14bbls
Source of Release Oil Tank	Date and Hour of Occurrence 03/20/2011	Date and Hour of Discovery 03/20/2011 7:00 a.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.	

RECEIVED
JUL 05 2011
NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The oil tank ran over at the facility due to the lease being turned on after curtailment and rapidly increased production volumes. Return wells into production at a slower rate after a lease is shut in.

Describe Area Affected and Cleanup Action Taken.*

Initially 15bbls of oil was released from the oil tank and we were able to recover 14bbls with a vacuum truck. The spill was completely contained inside the berm walls of the facility. The dimensions of the spill area measured 20' x 20'next to the oil tank. 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 / BLM for approval prior to any significant remediation work.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 03/25/2011 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Skelly Unit #942
Eddy County, New Mexico

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	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

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	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **SITE**	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36

17 South 32 East

6	5	4 **82**	3 **175**	2 **60**	1 **225**
7	8	9	10	11 **70** **88**	12
18	17	16	15	14	13
19	20	21	22	23	24
30 180 dry	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	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460** **82**	8	9	10	11	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31	32	33	34 **117**	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
- SITE - Skelly Unit 942

Appendix C

Summary Report

Kim Dorey
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: May 5, 2011

Work Order: 11042205

Project Location: Eddy Co., NM
Project Name: COG/Skelly 942
Project Number: 114-6400872

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
264388	AH-1 0-1'	soil	2011-04-20	00:00	2011-04-21
264389	AH-1 1-1.5'	soil	2011-04-20	00:00	2011-04-21
264390	AH-1 2-2.5'	soil	2011-04-20	00:00	2011-04-21
264391	AH-1 3-3.5'	soil	2011-04-20	00:00	2011-04-21
264392	AH-2 0-1'	soil	2011-04-20	00:00	2011-04-21
264393	AH-2 1-1.5'	soil	2011-04-20	00:00	2011-04-21
264394	AH-2 2-2.5'	soil	2011-04-20	00:00	2011-04-21
264395	AH-2 3-3.5'	soil	2011-04-20	00:00	2011-04-21

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
264388 - AH-1 0-1'	**20.2**	**120**	**85.3**	**97.2**	**3890**	**2010**
264389 - AH-1 1-1.5'	**0.245**	**0.881**	**0.372**	**1.54**	**291**	**99.6**
264392 - AH-2 0-1'	**22.1**	**138**	**102**	**127**	**4390**	**2150**
264393 - AH-2 1-1.5'	**48.5**	**171**	**110**	**128**	**1940**	**3580**
264394 - AH-2 2-2.5'	**76.7**	**181**	**103**	**113**	**724**	**3590**
264395 - AH-2 3-3.5'	**0.789**	**25.4**	**28.0**	**30.2**	**279**	**903**

Sample: 264388 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**202**	mg/Kg	4

Sample: 264389 - AH-1 1-1.5'