

SITE INFORMATION

Report Type: Work Plan

(Partial print)

General Site Information:

Site:	Santa Elena 19 Federal #001H			
Company:	COG Operating LLC			
Section, Township and Range	Unit E	Sec 19	T16S	R30E
Lease Number:	(API#) 30-015-40567			
County:	Eddy County			
GPS:	32.91029° N		104.01885° W	
Surface Owner:	Federal			
Mineral Owner:				
Directions:	From Loco Hills travel north on CR 217 for approx. 3.73 miles. Turn left traveling west 2.9 miles and turn right (north). Continue traveling north 5.2 miles and turn back to the east. Travel 1.4 miles to the location on the left.			

Release Data:

Date Released:	2/21/2013
Type Release:	Produced Water
Source of Contamination:	Water Tank Valve
Fluid Released:	40 bbls
Fluids Recovered:	30 bbls

Official Communication:

Name:	Pat Ellis	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	1910 N. Big Spring
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavaréz@tetratech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	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
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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

June 10, 2013

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

**Re: Work Plan for the COG Operating LLC., Santa Elena 19 Federal #001H,
Unit E, Section 19, Township 16 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 Santa Elena 19 Federal #001H located in Unit E, Section 19, Township 16 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.91029°, W 104.01885°. 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 February 21, 2013, and released approximately forty (40) barrels of produced water from a storage tank valve. Thirty (30) barrels of produced water were recovered. The leak was caused by a trucking company not closing the tank valve. The spill affected an area of approximately 20' x 30' on the pad and 20' x 60' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 19. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 250' below surface. The groundwater data is shown in Figure 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 March 20, 2013, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1 through AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Selected 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, all of the auger hole samples were below the RRAL for TPH and BTEX. Auger hole (AH-1) did not show a chloride impact to the area. A shallow chloride impact was detected in the areas of AH-2 and AH-3, which showed elevated chloride concentrations in the shallow soils and declined significantly at 5-5.5' and 4-4.5' of 68.3 mg/kg and <20.0 mg/kg, respectively.

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The areas of AH-2 and AH-3 will be excavated to a depth of approximately 3.0' to 4.0' below surface to remove the elevated chlorides. The excavated areas will be backfilled with clean backfilled material to grade. The excavated material will be transported to proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, Tetra Tech will excavate the impacted soils to the maximum extent practicable. The remaining impact will be deferred until the abandonment of the facility.



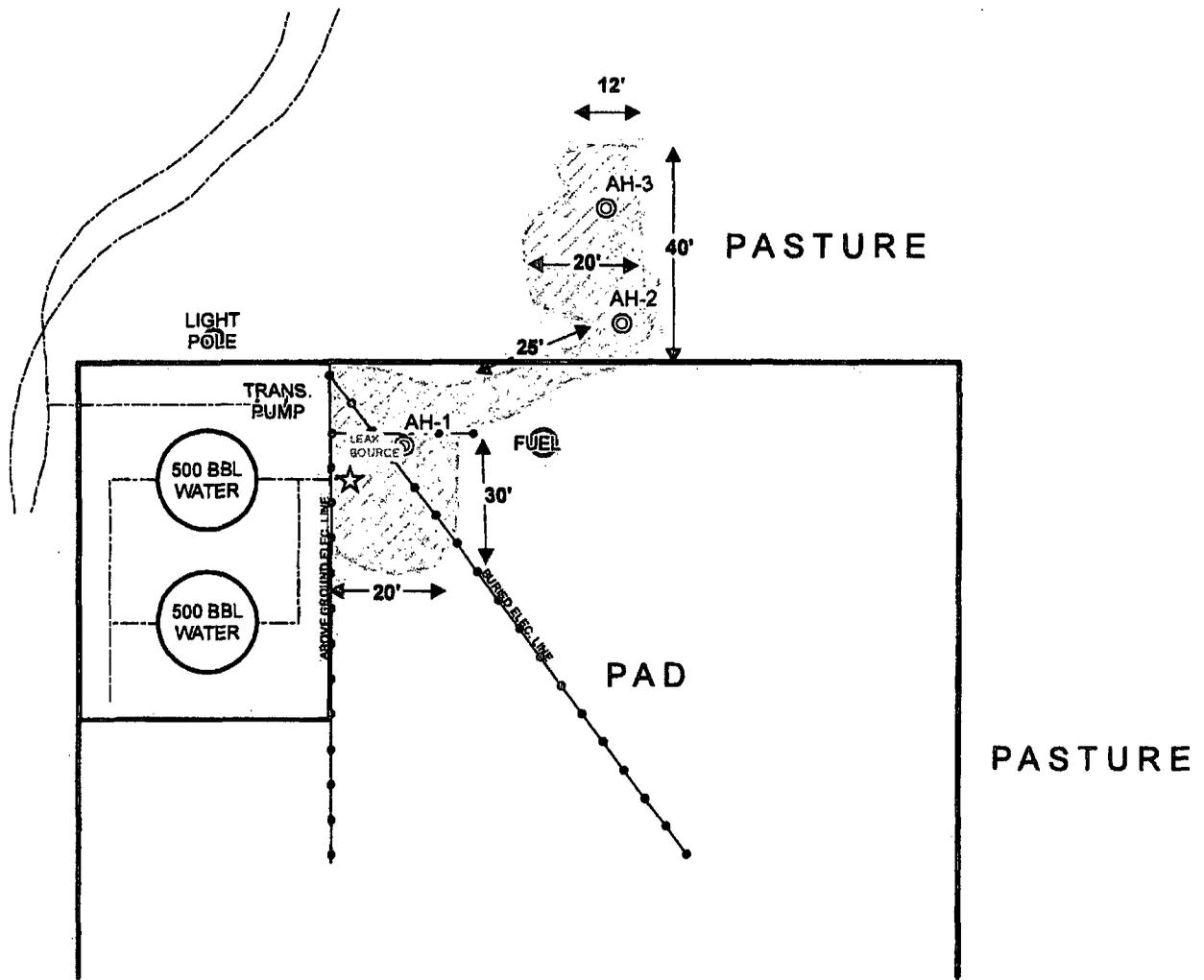
TETRA TECH

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

Respectfully submitted,
TETRA TECH

Ike Tavaréz, PG
Senior Project Manager

cc: Pat Ellis - COG
Jim Amos - BLM



EXPLANATION	
⊙	AUGER HOLE SAMPLE LOCATIONS
★	LEAK SOURCE
▨	SPILL AREA

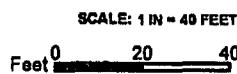
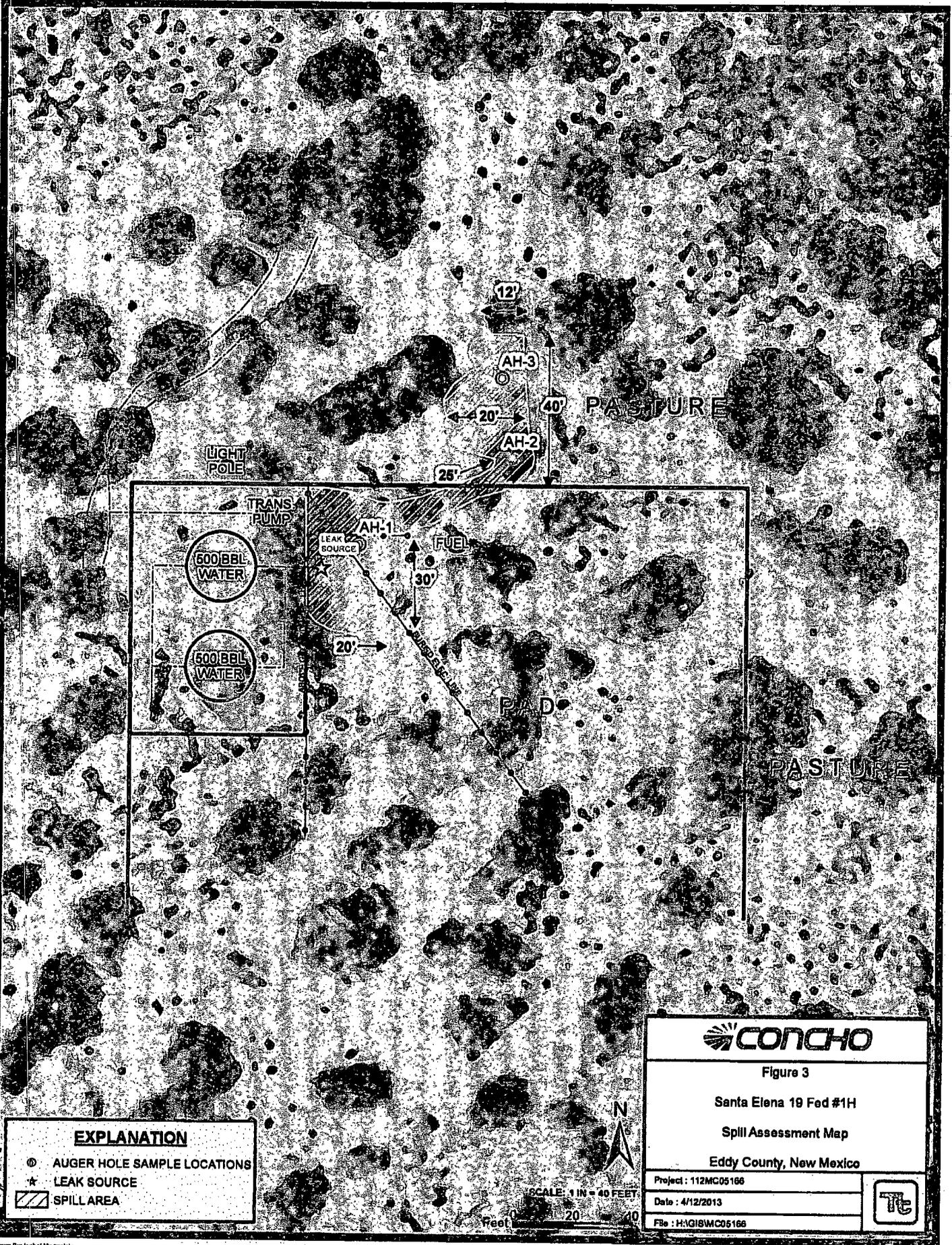


Figure 3	
Santa Elena 19 Fed #1H	
Spill Assessment Map	
Eddy County, New Mexico	
Project : 112MC05168	
Date : 4/12/2013	
File : H:\GIS\MC05168	



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA

CONCHO

Figure 3

Santa Elena 19 Fed #1H

Spill Assessment Map

Eddy County, New Mexico

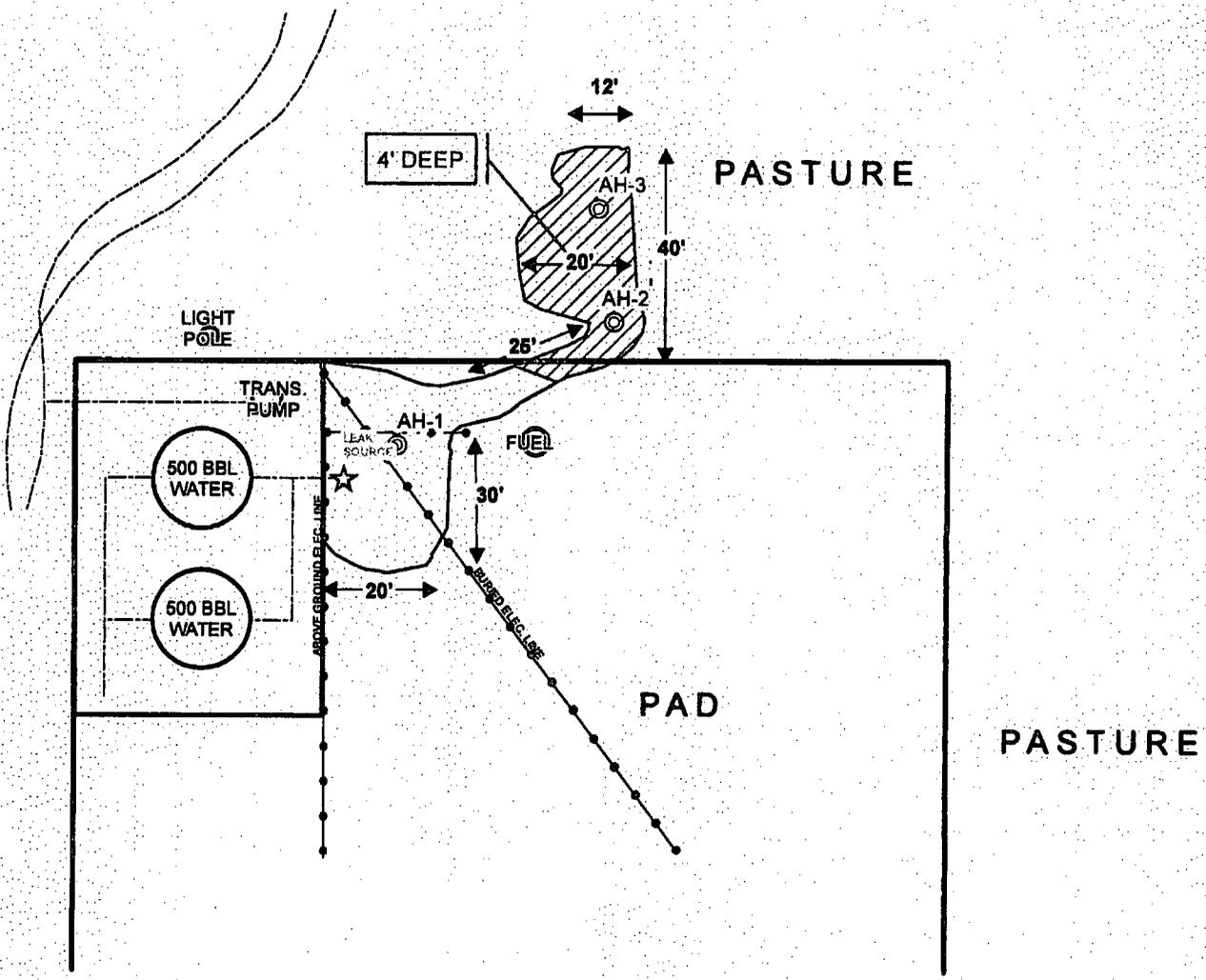
Project : 112MC05166

Date : 4/12/2013

File : H:\GIS\MC05166

TC

Drawn By: Isabel Merino



EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ PROPOSED EXCAVATION AREA



SCALE: 1 IN = 40 FEET

Feet 0 20 40

Figure 4	
Santa Elena 19 Fed #1H	
Proposed Excavation Area & Depth Map	
Eddy County, New Mexico	
Project : 112MCD5188	
Date : 4/12/2013	
File : H3GISMCD5188	

Table 1
COG Operating LLC.
Santa Elena 19 Federal #14
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	4/5/2013	0-1	0	X		4.04	<50.0	4.04	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	82.9
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<20.0
AH-2	4/5/2013	0-1	0.5	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,920
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	7,320
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	12,400
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	18,200
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	1,100
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	68.3
AH-3	4/5/2013	0-1	0.5	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,010
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	12,800
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	12,300
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	4,000
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	193

(-) Not Analyzed

(BEB) Below Excavation Bottom

 Proposed Excavation Depths