GW - 125

WORKPLANS

2010

Griswold, Jim, EMNRD

From: Griswold, Jim, EMNRD
Sent: Monday, June 14, 2010 8:59 AM
To: 'jknowlton@yatespetroleum.com'
Cc: 'ballen@sesi-nm.com'; Bratcher, Mike, EMNRD

Ms. Knowlton,

I have reviewed SESI's *Penasco Compressor Station Work Plan* dated 6/3/10 with respect to further investigation of soil contamination associated with sumps #2 and #23 along with the tank battery on behalf of Agave Energy at your Penasco CS (GW-125) south of Artesia. The workplan is approved. Please notify myself and Mike Bratcher in our District 2 office (575.748.1283 x108) at least 72 hours before beginning fieldwork. Retain this email in your files as no hardcopy approval letter will be sent. Thank you.

Jim Griswold
Senior Hydrologist
Environmental Bureau
ENMRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
direct: 505.476.3465
email: jim.griswold@state.nm.us

Agave Energy Company

Penasco Compressor Station Work Plan

Section 26, Township 18S, Range 25E
Eddy County, New Mexico

June 3, 2010

Prepared for:

Agave Energy
105 South 4th Street
Artesia, New Mexico 88210

Prepared by:

Safety & Environmental Solutions, Inc.
703 East Clinton Street
Hobbs, New Mexico 88240

TABLE OF CONTENTS

I. Contacts

Representative	Company	Telephone	E-mail
Jennifer Knowlton	Agave Energy Company	(575) 748-4471	jknowlton@yatespetroleum.com
Bob Allen	SESI	(575) 397-0510	ballen@sesi-nm.com

II. Background

Safety & Environmental Solutions, Inc. (SESI) was contracted by Agave Energy Company to propose a workplan for the remediation of three areas located within the Penasco Compressor Station. The site is located in E/2 SE/4 of Section 26, Township 18 South, Range 25 East, Eddy County, New Mexico.

Two areas originally contained sumps that were removed and contamination was found in the soil beneath the sumps. The third area originally contained above ground tanks and contamination was found after the tanks were removed. After sumps #2 and #23 were removed the most highly contaminated soils were removed to a depth of 20' and 13' respectively. On February 10, 2010 and February 12, 2010, the bottoms and sidewalls of the existing excavations were sampled and found to still contain hydrocarbons (TPH) in concentrations ranging from 1460 ppm and 711 ppm in sump #2 to 7000 ppm and 12,600 ppm in sump # 23. BTEX analysis of these samples showed no Benzene and small amounts of Toluene, Ethyl-benzenes and Xylenes. Vertical and horizontal extents of contamination have not yet been determined in either excavation. Chloride concentrations in these samples are less than 50 ppm.

The bermed area left from the removal of the tanks was sampled on December 10, 2009 and found to also contain hydrocarbons (TPH) in concentrations ranging from 593 ppm to 881 ppm with small amounts of BTEX. The vertical and horizontal extent of contamination has not been determined to date. Chloride concentrations in these samples are less than 120 ppm.

III. Surface and Groundwater

The closest surface water is the Pecos River approximately 7 miles east from the subject site.

According to information obtained from the New Mexico State Engineer online database, the closet groundwater of record in the area is located 285 feet northeast of the subject site at a depth of 200 feet dated May 1967 permit number RA05344 Yates Petroleum Corporation.

There are 33 water wells of record within a 5 mile radius of the subject site. The depth of water in these wells range from 58 feet at the extreme east close to New Mexico Highway 285 to 270 feet less than 1 mile from the subject site. The water wells closer to the Pecos River have the more shallow water levels as would be expected. There is approximately 100 feet of surface elevation change that correlates with the difference in the depth to water. The 5 wells located within 1.4 miles from the subject site all have depths to water in excess of 100 feet.

It is the opinion of Agave Energy and SESI that this information is an adequate indication of the depth to water in the immediate vicinity of the subject site and no further investigation into the depth of the water is necessary.

IV. Soils

The surface soils in the area are classified by the USDA Soil Conservation Service as part of the Reagan-Upton complex (Soil Survey, Eddy County). These soils are well drained, moderately dark colored, calcareous loams that are shallow to moderately deep.

V. Characterization

The cleanup level reached by the application of the **"Guidelines for Remediation of Leaks, Spills and Releases"** *New Mexico Oil Conservation Division* – August 13, 1993 (Guidelines) to this site are 10 mg/Kg benzene, 50 mg/Kg total BTEX and 100 ppm TPH. Application of the NMOCD's ranking criteria for contaminated soils at this site is presented below.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	*Less than 50 feet*	*20 points*	
	50 feet to 99 feet	*10 points*	
	>100 feet	*0 points*	***X***
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	*Yes*	*20 points*	***X***
	No	*0 points*	
Distance to Surface Water:			
(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	*Less than 200 feet*	*20 points*	
	200 feet to 1000 feet	*10 points*	
	>1000 feet	*0 points*	***X***
	RANKING SCORE (TOTAL POINTS)		***20***

VI. Action Plan

SESI recommends a minimum of 5 boreholes be installed to determine vertical and horizontal extent for each area. Each of the sump excavations will be backfilled to allow the installation of a borehole in approximately the center of each existing excavation. The borehole will be advanced to the depth where TPH concentrations are at or below 100 ppm. Then the borehole will be advanced another 5 feet and sampled again to insure that the vertical extent has been determined. The bore holes will be installed using a hollow stem auger with a 5 feet core barrel. Samples will be collected in five (5) ft. intervals sufficient to determine the vertical extent of contamination beneath the site.

The area will then be delineated horizontally in 20 ft. radius from the midpoint of each area or as buried lines allow, until TPH concentrations are at or below <100 ppm. Samples will be submitted under Chain of Custody to Cardinal Laboratories, Hobbs, New Mexico, for TPH EPA Method 418.1, TPH EPA Method 8015, and BTEX EPA Method 8260 analyses. Upon completion of sampling, all boreholes will be sealed from total depth to surface with a bentonite/cement grout.

The plan to delineate the bermed area left from the tank removal will be the same plan described above with the exception of the bermed area will then be delineated horizontally within a 10 ft radius from the midpoint of the berm area. The depth of the boreholes will be determined by the concentrations of contamination encountered but will stop where the TPH concentrations are at or below 100 ppm.

Upon analysis and confirmation that the vertical and horizontal extent of contamination has been determined, an appropriate final closure plan proposal will be submitted to the New Mexico Oil Conservation Division for approval.

VII. Figures & Appendices

Figure 1- Vicinity Map
Figure 2- Site Plan
Table 1- Office of State Engineer Well Information
Table 2- Analytical Table Summary
Appendix A-Analytical Results
Appendix B- Site Photographs

Figure 1- Vicinity Map

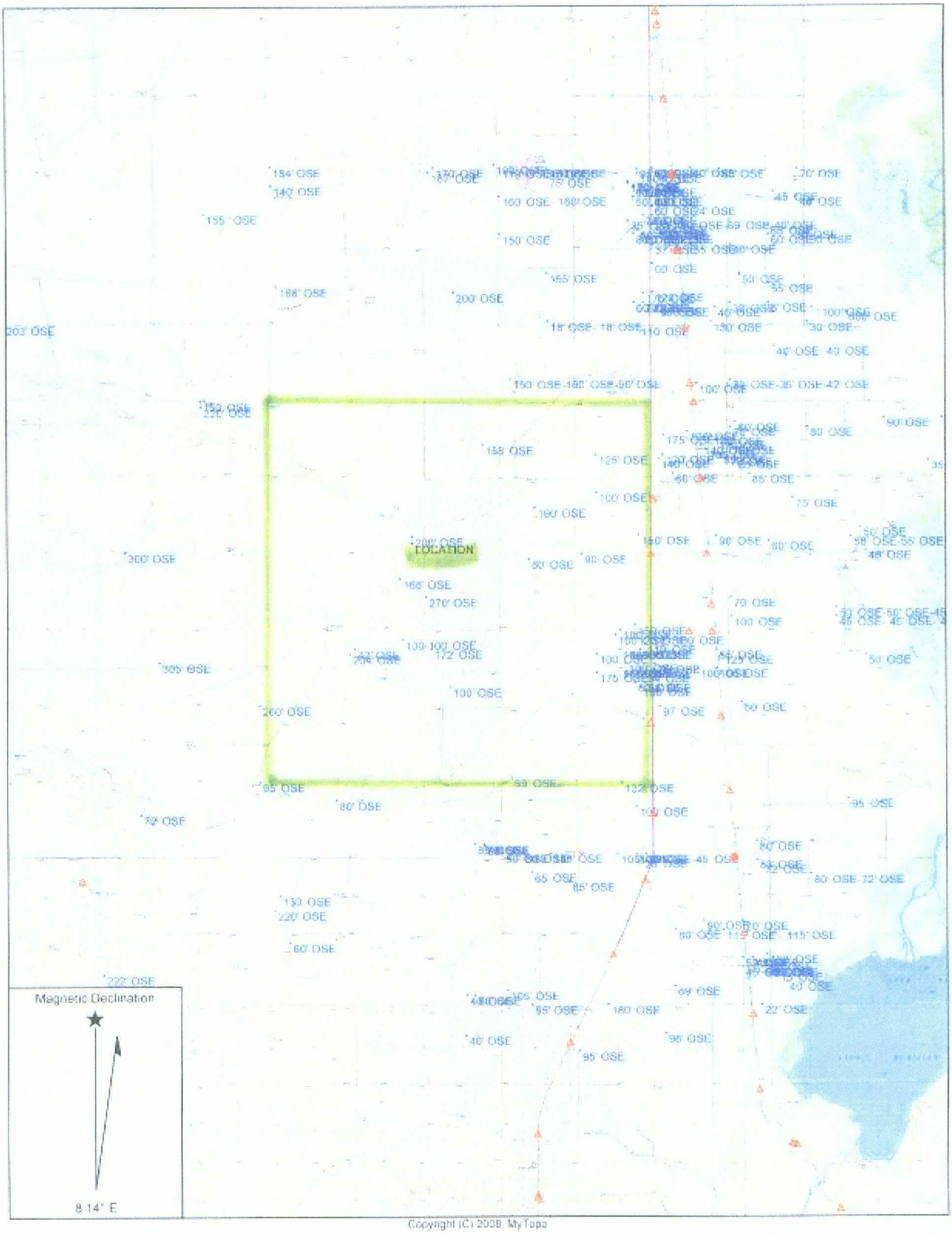


Figure 2- Site Plan


FLARE
ELECTRIC PANEL
MEP #25
T-9
T-10
T-11
SUMP
18'X27'4"X1'18" CONTAINMENT
NO UNIT
CAT #22
AIR COMPRESSOR
SUMP 23 13'6" DEEP
SUMP
OLD FLARE
T-6
T-7
T-8
16'2"X18'4"X2' CONTAINMENT
CAT #23
UNIT #5
SUMP
NO UNIT
UNIT #3
SUMP 02 20' DEEP
SUMP
SEPARATORS
UNIT #2
OFFICE
STORAGE
UNIT #1
SEPARATOR
81'X51'6"X6" CONTAINMENT
T-3
T-4
T-5
TANK BATT 7' DEEP
N
AGAVE ENERGY COMPANY
105 South Fourth Street, Artesia, New Mexico 88210
PENASCO YARD
STATE: NEW MEXICO
COUNTY: EDDY
SECTION: 28
TOWNSHIP: 18S
RANGE: 25E
ERIC JR
DRAFTING: WP
APPROVED: JK
SURVEY: ANSI A
PRINTED: 2/10/10
DATE: 2/01/10
DATE: 2/01/10
DATE: 2/01/10
SCALE: NA
SHEET 1 OF 1
REV 0

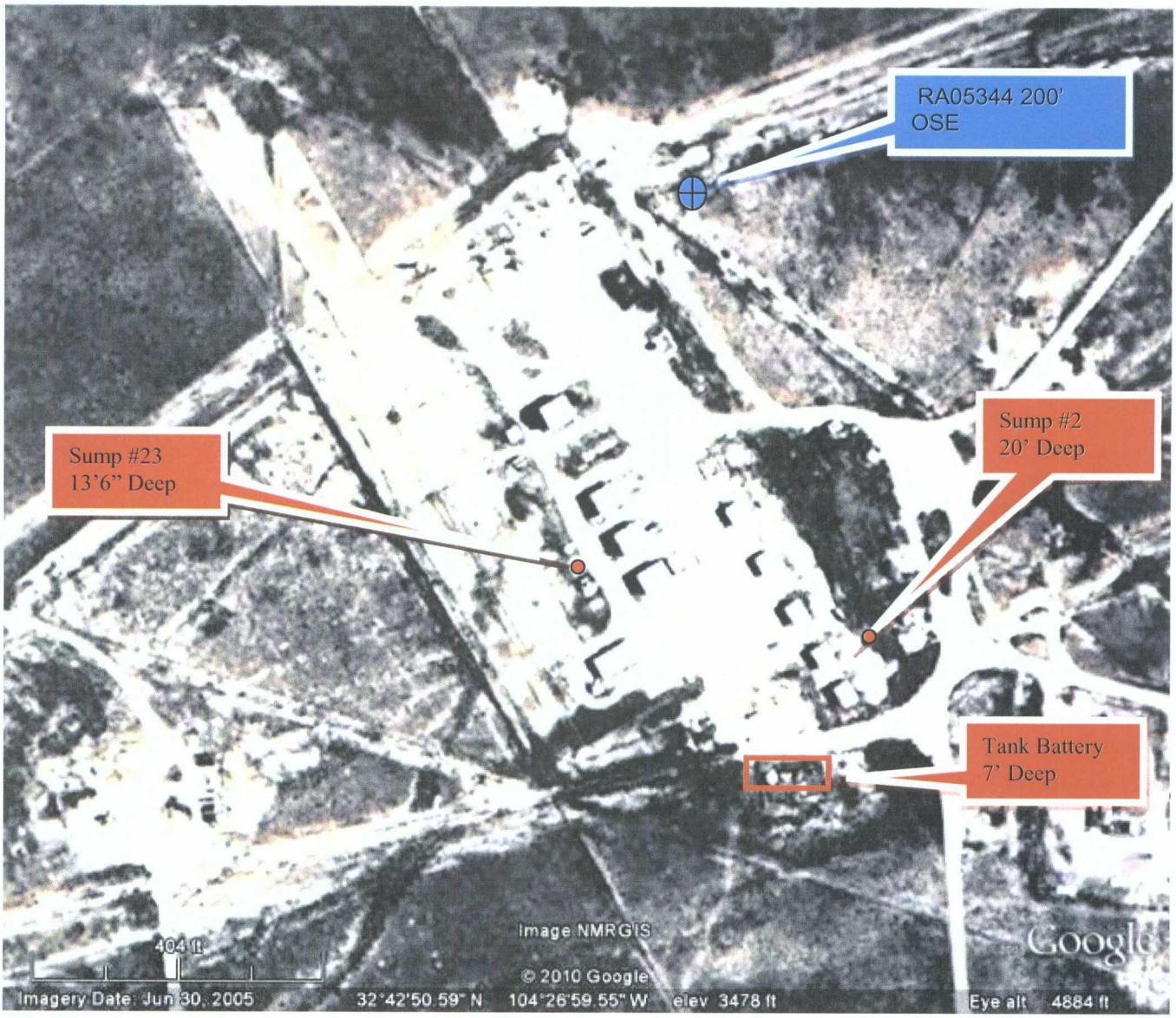

RA05344 200' OSE
Sump #23 13'6" Deep
Sump #2 20' Deep
Tank Battery 7' Deep
Image NMRGIS
© 2010 Google
404 ft
Imagery Date: Jun 30, 2005
32°42'50.59" N 104°26'59.55" W elev 3478 ft
Eye alt 4884 ft
Google

Table 1- Office of State Engineer Well Information

Office of State Engineer Water Well Information			
Well #	Depth of Water	Distance	Direction
RA 05344	200	0.054 miles	NE
RA 04068	168	0.452 miles	SW
RA 03975	270	0.728 miles	SE
RA 04128	100	1.249 miles	S
RA 07639	172	1.393 miles	SE
RA 04722	42	1.521 miles	SW
RA 05620	158	1.602 miles	NE
RA 04236	204	1.625 miles	SW
RA 04784	190	1.697 miles	NE
RA 03983	100	1.943 miles	SE
RA 04136	90	2.216 miles	E
RA 04160	100	2.502 miles	NE
RA 04283	125	2.694 miles	NE
RA 07066	100	2.806 miles	SE
RA 05333	260	2.929 miles	SW
RA 07260	100	2.947 miles	SE
RA 08812 REPAR	150	2.989 miles	E
RA 07954	175	2.989 miles	SE
RA 10133	138	3.038 miles	SE
RA 08875	150	3.101 miles	SE
RA 08097	120	3.143 miles	SE
RA 08557	100	3.173 miles	SE
RA 06986	165	3.191 miles	SE
RA 11036 POD 1	110	3.298 miles	SE
RA 09276 POD2	100	3.312 miles	SE
RA 07124	94	3.396 miles	SE
RA 06129	190	3.436 miles	SE
RA 04272	58	3.465 miles	SE
RA 03168	70	3.550 miles	SE
RA 06813	97	3.866 miles	SE
RA 08999	80	4.554 miles	E
RA 08098 RA08315	100	5.230 miles	SE

Table 2- Analytical Table Summary

Sump Unit #23 Certificate of Analysis Summary 352340								
Sample ID	**Cl- (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl- benzene (mg/kg)**	**Total Xylenes (mg/kg)**	**GRO C6-C10 (mg/kg)**	**DRO C10-C28 (mg/kg)**	**Total TPH (mg/kg)**
352340-001 GS/Comp-#4 Bottom 13-13 ft. SOIL Nov-12-09	15.5	ND	0.6254	0.5829	0.8593	121	208	329
352340-002 GS/Comp-#4 Sidewall/10' 10-10 ft. SOIL Nov-12-09	9.98	0.3304	3.043	3.765	23.95	873	1500	2373
352340-003 GS/Comp-#4/12' 12-12ft. SOIL Nov-12-09	10.6	0.0606	1.771	1.147	6.740	278	388	666

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by SW 8015B

Sump Unit #23 Certificate of Analysis Summary 362274						
Sample ID	**Cl- (mg/kg)**	**Total TPH (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl- benzene (mg/kg)**	**Total Xylenes (mg/kg)**
362274-001 GS/Comp-Bottom 13-13 ft. SOIL Feb-12-10	21.6	7000	ND	0.0063	0.0030	0.0292
362274-002 GS/Comp-Sidewall 12-12 ft. SOIL Feb-12-10	25.9	12600	ND	0.0447	0.0471	0.3041

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by EPA 418.1

Tank Battery Certificate of Analysis Summary 355624								
Sample ID	**Cl- (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl-benzene (mg/kg)**	**Total Xylenes (mg/kg)**	**GRO C6-C10 (mg/kg)**	**DRO C10-C28 (mg/kg)**	**Total TPH (mg/kg)**
355624-001 GS/Comp-Surface NW 4-4 In SOIL Dec-10-09	119	0.0075	0.2035	0.1651	1.0373	280	325	605
355624-002 GS/Comp-001 NW 1-1 ft. SOIL Dec-10-09	97.3	BRL	0.1979	0.4970	5.143	374	507	881
355624-003 GS/Comp-Surface NE 4-4 In. SOIL Dec-10-09	103	BRL	BRL	0.0085	0.0923	219	572	791
355624-004 GS/Comp-001 NE 1-1 ft. SOIL Dec-10-09	103	BRL	0.0124	0.0394	0.4068	360	411	771
355624-005 G/S Comp-001 SW 4-4 In. SOIL Dec-10-09	118	BRL	0.3387	0.6881	4.559	331	431	762
355624-006 GS/Comp-001 SW 1-1 ft. SOIL Dec-10-09	53.4	BRL	0.1405	0.3408	4.632	336	257	593

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by SW 8015B

South Tank Battery Certificate of Analysis Summary 362277						
Sample ID	**Cl- (mg/kg)**	**Total TPH (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl- benzene (mg/kg)**	**Total Xylenes (mg/kg)**
362277-001 GS/Comp-Bottom 6-6 ft. SOIL Feb-12-10	6.73	1960	ND	ND	0.0116	0.0042
362277-002 GS/Comp-Sidewall 5-5 ft. SOIL Feb-12-10	176	628	ND	ND	ND	ND

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by Spectrophoto Ir

Sump Unit #2 Certificate of Analysis Summary 356167								
Sample ID	**Cl- (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl-benzene (mg/kg)**	**Total Xylenes (mg/kg)**	**GRO C6-C10 (mg/kg)**	**DRO C10-C28 (mg/kg)**	**Total TPH (mg/kg)**
356167-001 GS/Unit #2 Bottom 20-20 ft. SOIL Dec-17-09	76.8	BRL	BRL	BRL	0.0082	31.0	163	194
356167-002 GS/Unit #2 Sidewall 15-15 ft. SOIL Dec-17-09	103	BRL	BRL	BRL	BRL	BRL	21.0	21.0
356167-003 GS/Unit #23 Bottom 15-15 ft. SOIL Dec-17-09	BRL	0.1865	5.368	2.397	15.40	422	1060	1482
356167-004 GS/Unit #23-010 Sidewall 10-10 ft. SOIL Dec-17-09	22.4	BRL	BRL	BRL	0.0184	BRL	51.2	51.2
356167-005 GS/Unit #23-012 Sidewall 12-12 ft. SOIL Dec-17-09	11.2	BRL	0.6911	0.4949	8.705	703	1530	2233

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by SW 8015B

Below Grade Tank (Unit #2) Certificate of Analysis Summary 362844						
Sample ID	**Cl- (mg/kg)**	**Total TPH (mg/kg)**	**Benzene (mg/kg)**	**Toluene (mg/kg)**	**Ethyl-benzene (mg/kg)**	**Total Xylenes (mg/kg)**
362844-001 GS/Comp-Bottom 20-20 ft. SOIL Feb-17-10	13.3	1460	ND	ND	0.0128	0.2105
362844-002 GS/Comp-Sidewall 15-15 ft. SOIL Feb-17-10	45.3	711	ND	ND	ND	ND

*Chloride EPA 300.0
*BTEX-EPA 8021
*TPH by EPA 418.1

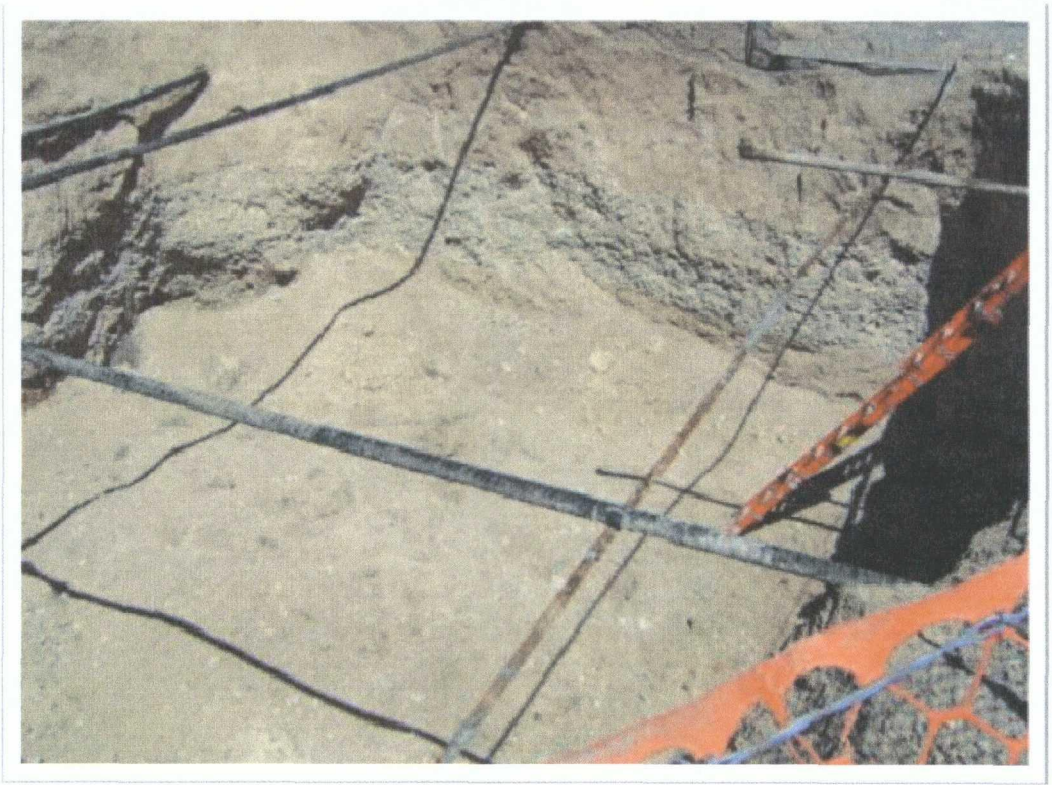
Appendix A-Analytical Results

Appendix B- Site Photographs

Sump #23

Sump #23

Sump #23



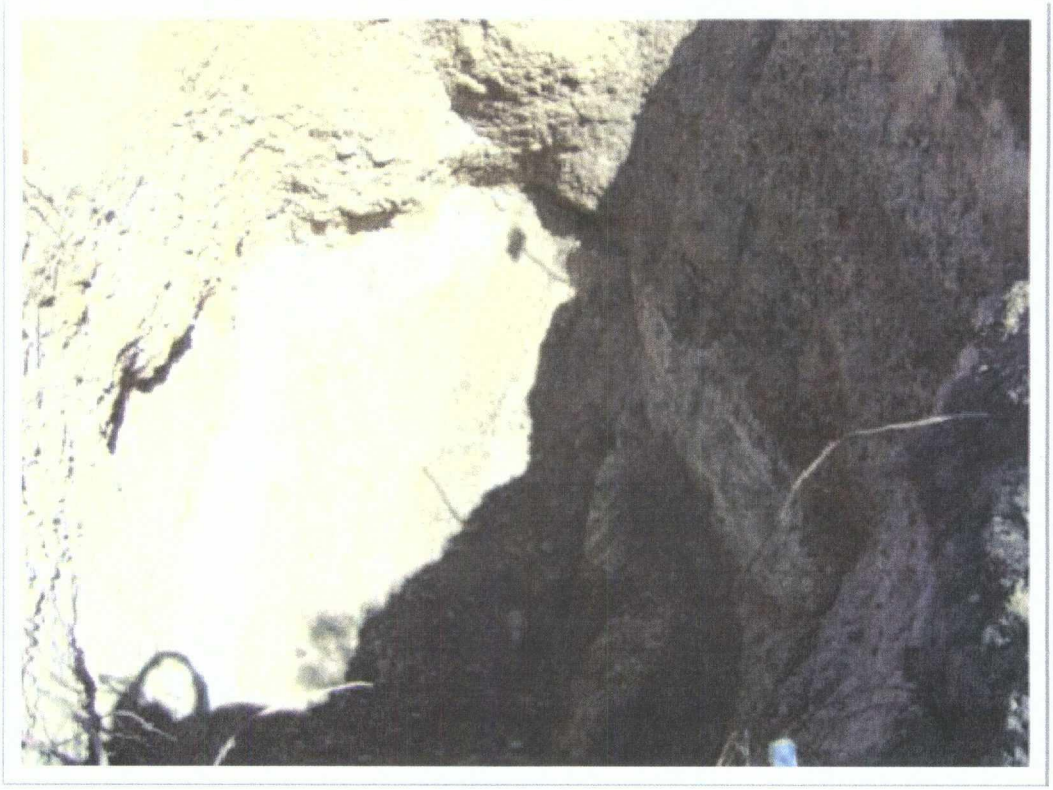
Sump #23

Tank Battery

Tank Battery

Tank Battery

Tank Battery



Sump #2