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Environmental Health

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Alameda County Health Care Services
Attn: Barbara Jakub, P.G.
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Work Plan – Soil and Groundwater Investigation
RO#0002965
5315 San Pablo Avenue
Oakland, CA
AEI Project # 280800

Dear Ms. Jakub:

The following work plan has been prepared on behalf of Mr. Jasbinder Grewal and outlines a scope of work to take place over the next several weeks at the above referenced property. AEI Consultants (AEI) has been retained by Mr. Grewal to provide environmental engineering and consulting services to investigate the nature and extent of residual impact, if any, associated with fuel release. This work plan was originally requested by the Alameda County Health Care Services (ACHCS) in a letter dated June 26, 2008, in response to a fuel release during a tank removal project.

SITE DESCRIPTION AND BACKGROUND

The subject property is located on the west side of San Pablo Avenue in a mixed residential and commercial area in the City of Oakland. The property totals approximately 0.218 acres and is improved with a single-story building (approximately 1,426 square feet). The building is occupied by R&H Auto Repair. The property was developed with the current building in 1958. Based on a review of historical sources, the subject property was formerly part of a larger undeveloped parcel of land.

Shell Oil occupied the subject property since 1975. R&H Auto Repair became the current owners of the property in 1986, and in 2007 the client informed AEI that four abandoned USTs were still present on-site. A waste oil UST was located on the north side of the building, a diesel UST on the south side, a two gasoline USTs located on the southeast side. AEI was then contracted to remove the tanks.

Once the tanks were removed, a strong petroleum odor and visual staining were present. Following discussion with Oakland Fire Department (OFD), AEI over-excavated the impacted soils until just above the groundwater table and property boundaries. Confirmation samples were taken. Based on the analytical results, sample GSW1BC detected petroleum hydrocarbons as gasoline (TPHg) (EPA Method 8015) at 160 mg/Kg,

above regulatory limits. (Please refer to: Figure 2 – Site Plan). Please refer to AEI's UST removal report dated February 19, 2008 for further details of the UST removal project. Due to the limitations of the property, all impacted soil could not be reached from the north and south ends of the former UST excavation. Since a release occurred, the OFD referred the case to ACHCS for regulatory oversight.

SOIL AND GROUNDWATER INVESTIGATION

AEI proposes to advance four (4) soil borings at the subject property to determine if a release to groundwater has occurred at the subject site. Anticipated boring locations (labeled SB-1 through SB-4) are shown on Figure 2. The borings will be advanced to first encountered groundwater. The groundwater flow direction is unknown at the site, however based on local topography and the presence of the San Francisco Bay; it is probable that groundwater flows towards the west. The depth to groundwater is expected to be approximately 11 feet below ground surface (bgs). The borings will be continuously logged and soil samples will be collected approximately every 4 feet. Groundwater samples will also be collected from each boring.

Drilling

A soil boring permit will be obtained from the Alameda County Public Works Agency (ACPW), and the ACPW will be notified at least 3 working days prior to beginning work. Borings will be advanced with a truck mounted Geoprobe® direct-push drilling rig to an approximate depth of up to approximately 15 feet bgs. The selected drilling contractor will hold a California C57 driller's license. Following sample collection, each boring will be backfilled with cement grout in accordance with the permit conditions. Push rods and sampling equipment will be decontaminated between samples and between boreholes as appropriate to minimize the occurrence of cross-contamination.

Soil Sample Collection

Soil will be continuously collected in 1¾ inch diameter acrylic liners within the sampling barrel from which a 6 inch sample will be collected approximately every 4 feet at or if obvious contamination is present based on sensory perception or Photo-ionization detector readings (PID). Samples will be selected and cut from the liners. The sample will be sealed with Teflon tape and plastic end caps. A PID will be used to screen soil samples in the field, and PID readings for each sample will be included on boring logs.

Groundwater Sample Collection

When first groundwater is encountered, a ¾" diameter slotted PVC casing will be temporarily inserted into the borehole to facilitate groundwater collection. Groundwater samples will be collected using a peristaltic pump with disposable dedicated tubing and into 1-liter amber bottles and 40 ml volatile organic analysis (VOA) vials. The containers will be sealed so that no head-space or air bubbles are visible within the containers.

Sample Storage
All samples will be sealed and labeled immediately upon collection. Samples will be placed in a cooler with water ice. Chain of custody documentation will be initiated prior to leaving the site. All samples will be delivered to a state certified laboratory on the day of collection.

Sample Analyses
Appropriate soil and groundwater samples will be analyzed from each of the soil borings for Total Petroleum Hydrocarbons as gasoline (EPA Method 8015), Total Petroleum Hydrocarbons as diesel (EPA Method 8015), methyl-tert-butyl ether (MTBE) (EPA Method 602/8021), and benzene, toluene, ethyl-benzene, and xylenes (BTEX) (EPA Method 602/8021)

A summary of the proposed borings is presented below, along with an explanation of the purpose of each.

Exhibit 1: Proposed Soil Borings

Boring ID	*Location / Purpose*
SB-1	South of confirmation sample GSW1BC just before the sidewalk and property boundary area to assess soil and groundwater conditions around the former excavation.
SB-2	North of the former dispenser location on the south side of the property and to the west portion of the former gasoline tanks to assess soil and groundwater conditions around the area.
SB-3	Southeast corner of property to assess soil and groundwater conditions anticipated down-gradient direction.
SB-4	West of sample location DW, next to building walkway, to assess soil and groundwater conditions in anticipated down-gradient direction.

Waste Storage
Drill cuttings, equipment rinse, and other investigation-derived waste (IDW) will be stored onsite in sealed 55 gallon drums, pending the results of sample analyses. Upon receipt of necessary analytical results, the waste will be profiled for disposal and transported from the site under appropriate manifest to approved disposal or recycling facility(s).

SITE SAFETY

Prior to commencement of field activities, a site safety meeting will be held at a designated command post near the working area. Emergency procedures will be outlined at this meeting, including an explanation of the hazards of the known or suspected chemicals of interest. All site personnel will be in Level D personal protection equipment, which is the anticipated maximum amount of protection needed. A working area will be established with barricades and warning tape to delineate the zone where hard hats and steel-toed shoes must be worn, and where unauthorized personnel will not be allowed. A site safety plan conforming to Part 1910.120 (i) (2) of 29 CFR will be on site at all times during the project.

INVESTIGATION REPORTING

Once AEI has received all necessary data from the subsurface investigation, AEI will prepare a report documenting the methods, findings, and conclusions of the soil and groundwater investigation and recommendations depending on findings. The report will include figures, data tables, logs of borings, and interpretation of contaminant distributions. The entire project will be overseen by and all reports will be reviewed and stamped by a State of California Registered Geologist or Professional Civil Engineer.

ESTIMATED SCHEDULE

AEI anticipates scheduling field work upon the approval from ACHCS. Upon receipt of the drilling permit from the ACPW, AEI anticipates that field activities will commence within one week. Laboratory analytical results will be obtained within approximately one week of sample collection. A final report will be prepared and submitted to the client and the ACHCS within approximately 1 month of sample collection.

AEI requests your approval to proceed with this project. Please contact me at (925) 944-2899 if you have any questions or need any additional information.

Sincerely,
AEI Consultants

Kirby Fernando
Project Manager

Peter McIntyre, P.G., REA.
Senior Project Manager

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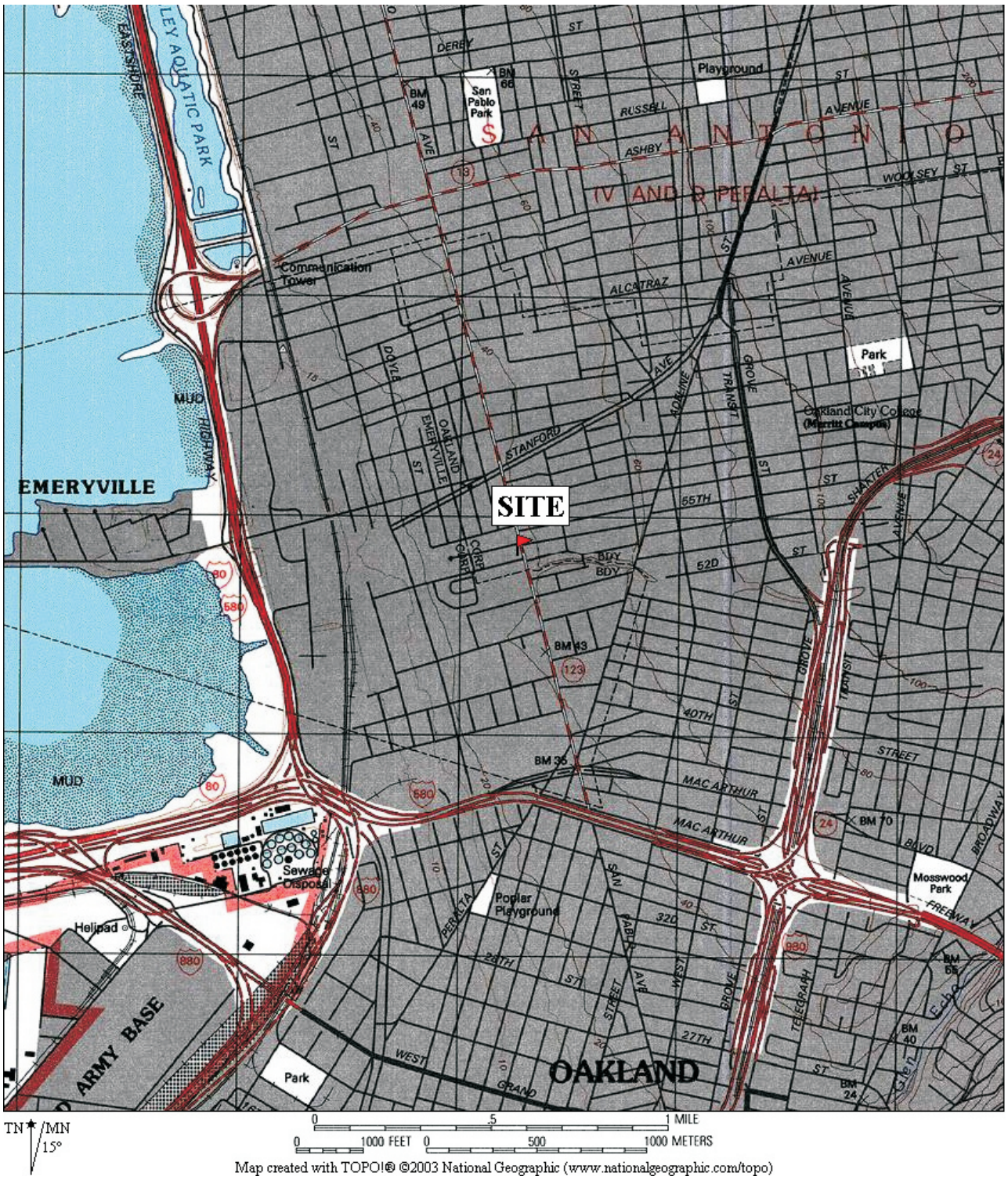
Distribution :

-Mr. Jasbinder Grewal, R&H Auto, 5315 San Pablo Ave, Oakland, CA. 945608
-Ms. Barbara Jacub, ACEH, 1131 Harbor Bay Parkway #250, Alameda, CA. 94502



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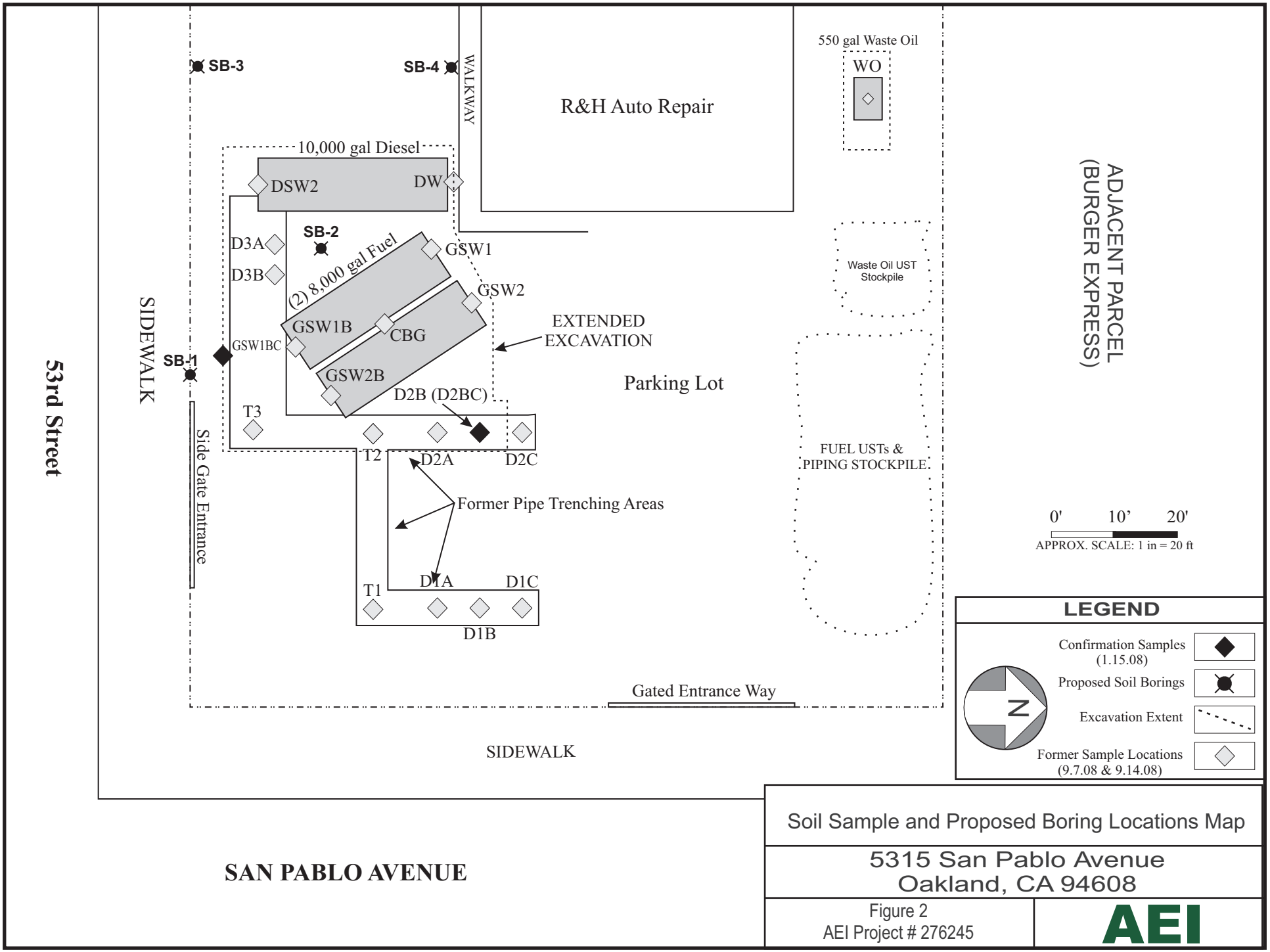
USGS TOPOGRAPHIC MAP
OAKLAND WEST QUADRANGLE
Created 1993 Revised 1997

SITE LOCATION MAP

5315 San Pablo Avenue
Oakland, California 94608

FIGURE 1
Job No: 280800

AEI



Soil Sample and Proposed Boring Locations Map

5315 San Pablo Avenue
Oakland, CA 94608

Figure 2
AEI Project # 276245

AEI

Table 1 - USTs and Piping
Petroleum Hydrocarbon Sample Data

Sample ID	Date	TPHg	TPHd	POG	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
		Method 8015		*Method 5520*			*Method 8021*		
WO	9/7/2007	<1.0	<1.0	<50.0	<0.05	<0.005	<0.005	<0.005	<0.005
WSTK 1,2,3,4	9/7/2007	<1.0	190	1200	<0.05	<0.005	<0.005	<0.005	<0.005
D1A	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005
D1B	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005
D1C	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005
D2A	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	0.0076	<0.005	0.014
D2B	9/7/2007	1500	350	-	<0.05	<0.005	36	26	180
D2C	9/7/2007	1.4	3.7	-	<0.05	<0.005	0.029	0.011	0.077
D3A	9/7/2007	<1.0	2.9	-	<0.05	<0.005	<0.005	<0.005	<0.005
D3B	9/7/2007	<1.0	3.3	-	<0.05	<0.005	<0.005	<0.005	<0.005
T1	9/7/2007	<1.0	1.8	-	<0.05	<0.005	<0.005	<0.005	<0.005
T2	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	0.0053	<0.005	0.017
T3	9/7/2007	<1.0	3.4	-	<0.05	<0.005	<0.005	<0.005	<0.005
TSTK 1,2,3,4	9/7/2007	3.8	8.8	-	<0.05	<0.005	0.063	0.033	0.24
STK 1,2,3,4	9/14/2007	210	230	-	<0.05	<0.005	<0.005	<0.005	0.77
STK 5,6,7,8	9/14/2007	85	38	-	<0.05	<0.005	<0.005	<0.005	<0.005
GSW1	9/14/2007	27	25	-	<0.05	0.008	0.043	0.051	0.33
GSW2	9/14/2007	2.9	1.2	-	<0.05	<0.005	<0.005	0.0072	0.046
CBG	9/14/2007	5.1	1.8	-	<0.05	<0.005	<0.005	0.0061	<0.005
GSW1B	9/14/2007	170	43	-	<0.05	<0.005	0.077	0.11	0.46
GSW2B	9/14/2007	61	7.3	-	<0.05	<0.005	<0.005	<0.005	<0.005
DSW1	9/14/2007	230	73	-	<0.05	<0.005	0.64	<0.005	1.1
DSW2	9/14/2007	6	12	-	<0.05	<0.005	<0.005	<0.005	<0.005
DW	1/15/2008	68	32	-	<0.05	<0.005	0.21	<0.005	0.16
D2BC	1/15/2008	19	-	-	<0.05	<0.005	<0.005	<0.005	0.06
GSW1BC	1/15/2008	160	-	-	<0.05	<0.005	0.42	<0.005	0.44

Sample ID	Date	All VOCs	All SVOCs
		Method 8240	
WO	9/7/2007	ND<MDL	ND<MDL
WSTK 1,2,3,4	9/7/2007	ND<MDL	ND<MDL
DETECTION LIMIT		Varies 0.005 - 0.02	Varies 0.33 - 1.6

VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
mg/Kg = milligrams per kilogram
TPHg= total petroleum hydrocarbons as gas
TPHd= total petroleum hydrocarbons as diesel
MTBE = Methyl-tert-butyl ether
POG = total petroleum oil & grease
< = below method detection limit
- = Not analyzed
MDL = method detection limit

Table 2 - USTs
LUFT 5 Metals Data

Sample ID	Date	Cadmium mg/Kg	Chromium mg/Kg	Lead mg/Kg *EPA Method 6010C*	Nickel mg/Kg	Zinc mg/Kg	STLC - Lead mg/Kg *EPA Method 6010*
WO	9/7/2007	<1.5	52	7.4	41	74	-
WSTK 1,2,3,4	9/7/2007	< 1.5	49	85	59	190	-
STK 1,2,3,4	9/14/2007	-	-	200	-	-	4.9
STK 5,6,7,8	9/14/2007	-	-	78	-	-	1.9
GSW1	9/14/2007	-	-	11	-	-	-
GSW2	9/14/2007	-	-	7.3	-	-	-
CBG	9/14/2007	-	-	8.9	-	-	-
GSW1B	9/14/2007	-	-	8.8	-	-	-
GSW2B	9/14/2007	-	-	11	-	-	-
DSW1	9/14/2007	-	-	8.4	-	-	-
DSW2	9/14/2007	-	-	7.3	-	-	-

mg/Kg = milligrams per kilogram (parts per million)
< = below method detection limit