RO-2573

GETTLER-RYAN INC.

December 2, 2003

Alameda County

DEC 04 2003

Environmental Health

Mr. Bob Snodgrass
Alameda County Fire Department
835 E 14th St
San Leandro, California 94577

Subject: **WORK PLAN FOR LIMITED SUBSURFACE INVESTIGATION**
Alameda County Fire Department-Station #4,
20336 San Miguel Avenue, Castro Valley, California

Mr. Snodgrass:

At your request, Gettler-Ryan Inc. (GR), has prepared this Work Plan for the installation of four Geoprobe soil borings at the subject site. The purpose of this work is an attempt to determine the vertical and horizontal extent of soil contamination and to determine if groundwater beneath the subject site has been impacted. This Work Plan was prepared in response to the Alameda County Environmental Health Services (ACEHS) letter dated October 24, 2003 and scope of work designated by Alameda County Fire Department (ACFD). The proposed work includes:

- preparing a site safety plan;
- obtaining the required drilling permit from the Alameda County Public Works Agency-Water Resources Section;
- installing four Geoprobe soil borings;
- collecting and submitting selected soil and grab groundwater samples for chemical analysis;
- and preparing a report presenting the observations and analytical data associated with the investigation.

The scope of work proposed in this Work Plan is intended to comply with the State of California Water Resources Control Board's *Leaking Underground Fuel Tanks (LUFT) Manual* and *California Underground Storage Tank Regulations,* the California Regional Water Quality Control Board (CRWQCB) *Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites,* and the ACEHS guidelines.

SITE DESCRIPTION

The subject site is a fire station located at 20366 San Miguel Avenue in Castro Valley, California (Figure 1). According to information provided by ACFD, one abandoned in place 1,000-gallon diesel underground storage tank is located to the east of the fire station building. Pertinent site features and the location of the abandoned UST are shown on Figures 2 and 3.

The site is situated at approximately 180 feet above mean sea level on relatively flat topography. The closest surface water is an unnamed creek, which is located 2640 feet east of the site. San Lorenzo Creek is located 6864 feet east of the site. Based on the topography, the regional groundwater flow direction is inferred to be to the southwest.

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PREVIOUS ENVIROMENTAL WORK

On February 13, 2003, Frye Environmental Inc. (Frye) advanced one soil boring near the 1,000-gallon diesel UST (Figure 3). One soil sample, labeled San Miguel, was collected from the soil boring and analyzed for Total Petroleum Hydrocarbon as gasoline (TPHg), Total Petroleum Hydrocarbon as diesel (TPHd), benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tert-butyl ether (MtBE), ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE), tert amyl methyl ether (TAME), and tert butyl alcohol (TBA). TPHg and TPHd were detected in the soil sample San Miguel at concentrations of 330 and 90 parts per million (ppm), respectively.

On May 9, 2003, Ecology Control Industries rinsed and pressure washed the UST in preparation for abandoning it in place. On May 19, 2003, R.L. Stevens Company abandoned the UST in place by filling it with a concrete slurry. The tank was filled to sub grade with slurry and the caps and tank fittings were removed. Concrete was placed over the excavated areas to finish to grade. The dispensers were removed and the concrete openings were filled with concrete to finish to grade. All tank vent risers were cut off flush with grade and concrete was placed to finish to grade.

PROPOSED SCOPE OF WORK

In an attempt to determine the vertical and horizontal extent of soil contamination and to determine if groundwater beneath the subject site has been impacted, GR proposes to install four soil borings at the location shown on Figure 3. All fieldwork will be conducted in accordance with GR's Field Methods and Procedures (Appendix A). To complete the proposed scope of work, GR proposes the following five tasks:

Task 1 Pre-Field Activities

GR will prepare a site-specific safety plan, and obtain the necessary drilling permit from the Alameda County Public Work Agency-Water Resources Section. The proposed Geoprobe boring locations will be marked and Underground Service Alert (USA) will be notified a minimum of 48 hours prior to drilling.

Task 2 Geoprobe Soil Boring

GR will drill four soil borings at the location shown on Figure 3. Drilling activities will be performed by a California licensed well driller. A GR geologist will monitor the drilling activities and prepare a log of each well boring. The soil borings will be advanced using 2-inch diameter Geoprobe direct push technology to approximately 15 feet below ground surface (bgs). Soil samples for description and possible chemical analysis will be obtained from the borings at five-foot intervals, as a minimum. Sample handling procedures are described in Appendix A. Although the actual number of samples submitted for chemical analysis will depend on site conditions and field screening data, we anticipate a minimum of two soil sample collected from the soil borings will be submitted for chemical analysis as described in Task 4

Soil from each sampled interval in the shallow soil borings will be screened in the field for the presence of volatile organic compounds using a photoionization detector (PID). These data will be collected for reconnaissance purposes only, and will not be used as verification of the presence or absence of petroleum hydrocarbons.

Borings will be hand-cleared to five feet bgs with a hand auger. Geoprobe technology does not generate drill cuttings. Upon completion, each boring will be backfilled to one-foot bgs with neat cement. Each borehole will be completed flush with ground surface with native material.

Task 3 Groundwater Sampling

A grab groundwater sample will be collected from the borings if groundwater is encountered prior to 15 feet bgs. Groundwater sampling will be performed using a hydropunch groundwater sampling tool or by installing a temporary 1-inch diameter PVC slotted casing into the boring. The grab groundwater sample will be collected using a stainless steel bailer and decanted into the appropriate laboratory supplied containers, as described in GR's Field Methods and Procedures (Appendix A). The groundwater sample will be analyzed as described in Task 4.

Task 4 Laboratory Analyses

All samples will be submitted to a California-certified Hazardous Materials Testing Laboratory. Soil and groundwater samples will be analyzed for TPHd by EPA Method 8015 Modified and TPHg, BTEX and MTBE by EPA Method 8260B.

Task 5 Reporting

Following receipt and analysis of all data, a report will be prepared which summarizes the procedures and the findings associated with this investigation. This report will be submitted to Alameda County Fire Department for their use and distribution.

PROJECT STAFF

Mr. Robert A. Lauritzen, a Registered Geologist in the State of California (R.G. No. 7504), will provide technical oversight and review of the work. Mr. Greg A. Gurss, Senior Project Manager, will supervise implementation of field and office operations. GR employs a staff of geologists, engineers, and technicians who will assist with the project.

SCHEDULE

Implementation of the proposed scope of work will commence upon receipt of regulatory approval.

If you should have any questions regarding this report, please feel free to our Rancho Cordova office at (916) 631-1300

Sincerely,
Gettler-Ryan Inc.

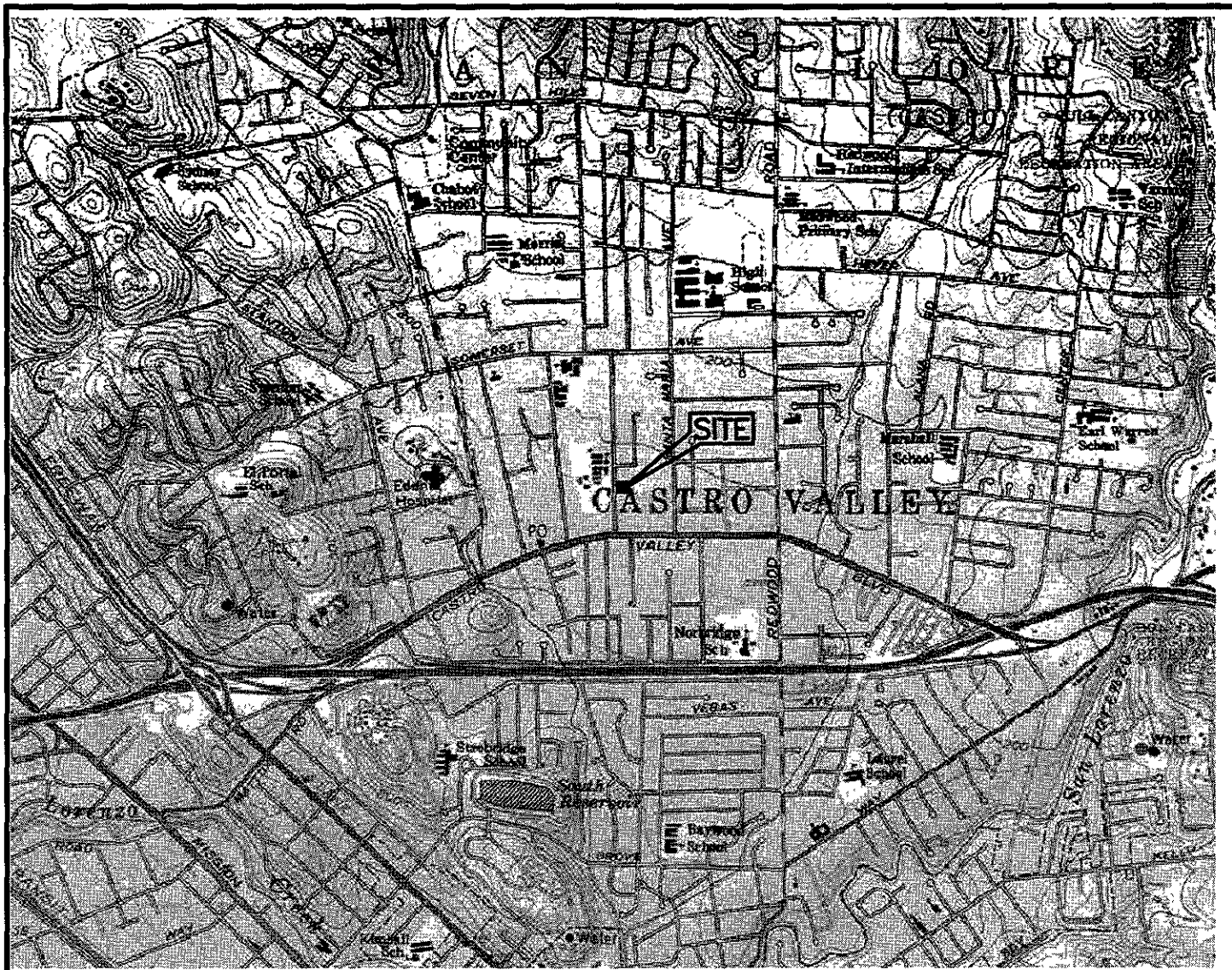
Geoffrey D. Risse
Project Geologist

Robert A. Lauritzen
Senior Geologist, R.G. 7504

Attachments: Figure 1 - Vicinity Map
Figure 2 - Extended Site Plan
Figure 3 - Proposed Boring – Detail Map
GR Field Methods and Procedures

CC: Ms. Eva Chu, Alameda County Health Care Services Agency-Environmental Health Department, 1131 Harbor Bay Parkway, Suite 250, Alameda, California 94502

FIGURES



Source: National Geographic California Seamless USGS Topographic Maps on CD-ROM.

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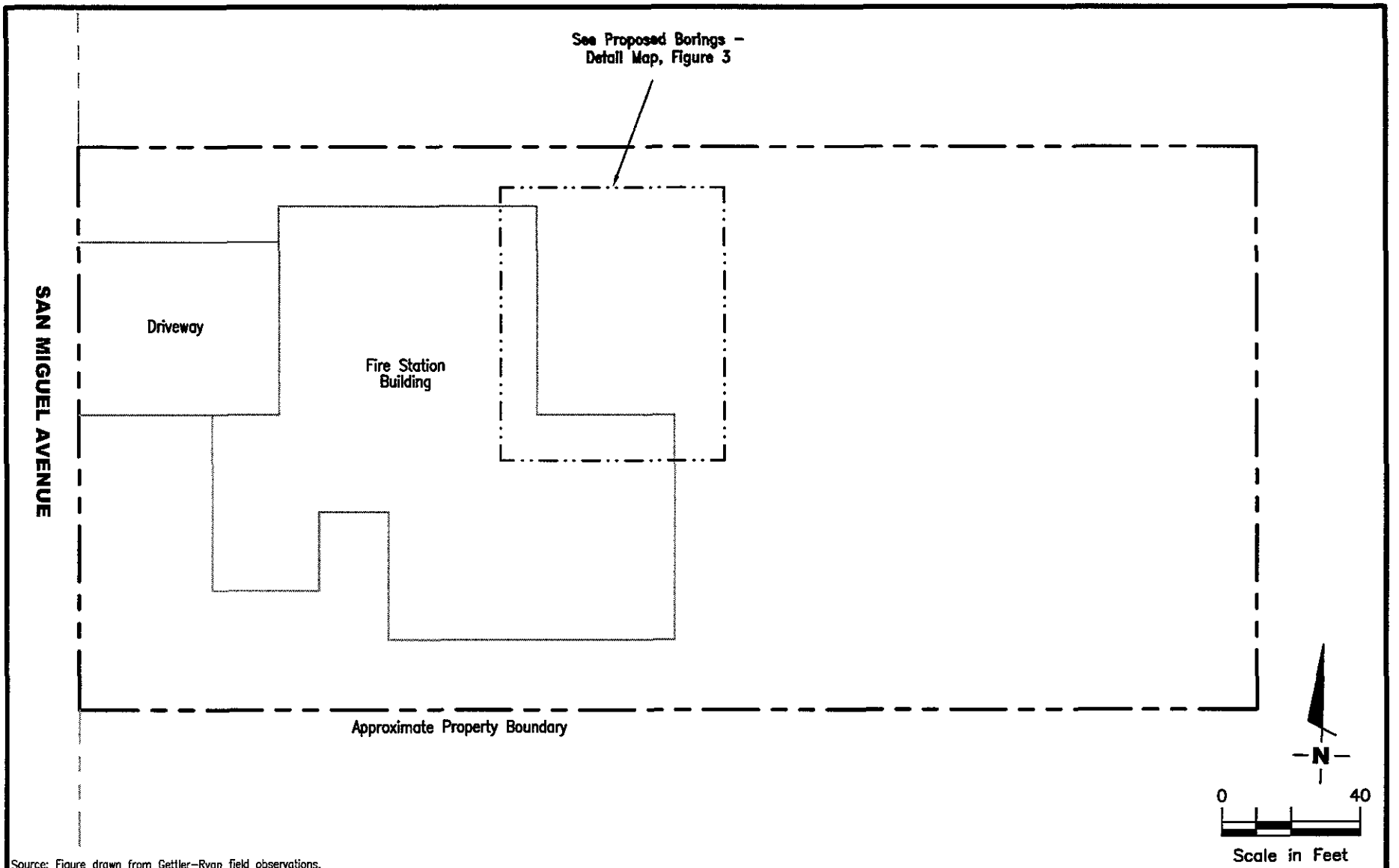
VICINITY MAP
Alameda County Fire Department – Station #4
20336 San Miquel Avenue
Castro Valley, California

FIGURE 1

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
948207		11/03	

FILE NAME: P:\ENVIRO\ALAMEDA\FIRE DEPT\STATION 4\VIC-4.DWG | Layout Tab: Vic Map



Source: Figure drawn from Gettler–Ryan field observations.

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EXTENDED SITE PLAN
Alameda County Fire Department – Station #4
20336 San Miquel Avenue
Castro Valley, California

FIGURE
2

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
948207.1		11/03	

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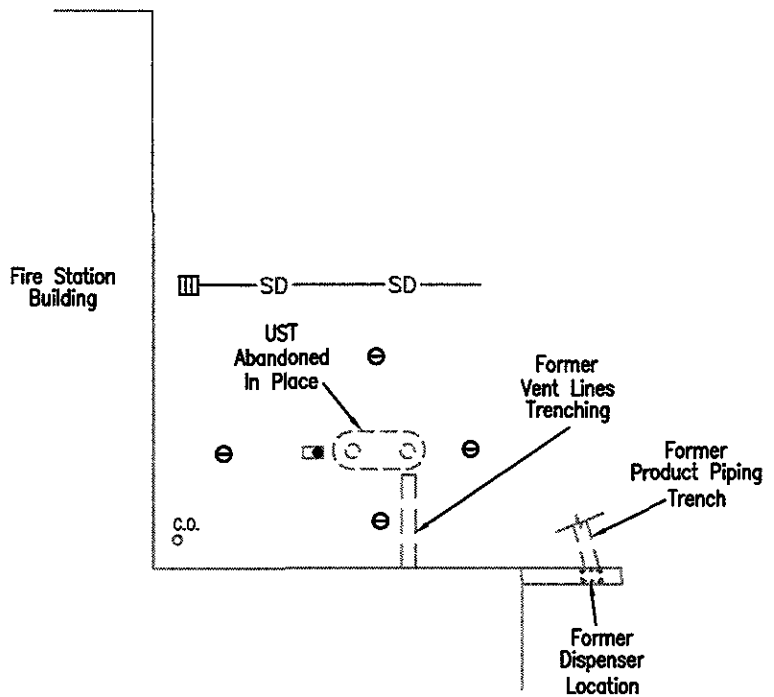

EXPLANATION

- Soil sample collected 2/13/03
- Storm drain
- C.O. Sanitary sewer cleanout
- Proposed geoprobe

UNDERGROUND UTILITIES

SD Storm drain

N

0 20

Scale in Feet

Source: Figure drawn from Gettler-Ryan field observations.

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PROPOSED BORINGS – DETAIL MAP
Alameda County Fire Department – Station #4
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Castro Valley, California

FIGURE 3

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
948207.1		11/03	

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APPENDIX A

GETTLER-RYAN INC.

FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples obtained with a Geoprobe® rig are collected from the soil boring with a split-barrel sampling device fitted with 1.5-inch-diameter, clean brass tubes. The Geoprobe® drives the sampling device approximately 24 inches, and the filled sampler is then retrieved from the boring. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart or GSA Rock Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting, capped, labeled, and place in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

a. depth relative to underground storage tanks and existing ground surface
b. depth relative to known or suspected groundwater
c. presence or absence of contaminant migration pathways
d. presence or absence of discoloration or staining
e. presence or absence of obvious gasoline hydrocarbon odors
f. presence or absence of organic vapors detected by headspace analysis

Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves placing a plastic cap over the end of the tube and allowing the sample to sit for several minutes. The PID probe is then inserted through a hole in the cap and the atmosphere within tested. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

Grab Groundwater Sampling

Grab samples of groundwater are collected from the boring using a parastaltic pump or micro-bailer. With the parastaltic pump, new Tygon® tubing is placed in the pump prior to collection of each sample. The tubing is

lowered into the boring through the GeoProbe equipment after groundwater has been allowed to collect. The parastaltic pump is used to evacuate water from the boring where it is discharged to laboratory-supplied containers appropriate for the anticipated analyses. With the micro-bailer, the cleaned bailer is lowered through the GeoProbe equipment into the groundwater. The bailer is allowed to fill, then is brought to the surface where the water is decanted into the sample container. The micro-bailer may also consist of a clean piece of tubing with a check valve at the bottom. The tubing is pumped up and down to bring the water sample to the surface and discharge the sample to the appropriate container.

Following collection of the groundwater sample, the sample bottles are then labeled and placed in chilled storage for transport to the analytical laboratory. A chain-of-custody form is initiated in the field and accompanies the groundwater samples to the analytical laboratory.

Soil Vapor Sampling

Soil vapor samples are collected by advancing the Geoprobe® to a discrete depth. Once the desired depth is attained, a 1/4-inch polyethylene tubing is threaded through the inside diameter of the drive rods and connected either to a tedlar bag or summa canister. The bottom portion of the drive rod is retracted and a vacuum is induced to purge a soil vapor sample. Used tubing is discarded after each sample.