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September 7, 2000
Project H9042.Q

Mr Amir K. Gholami
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502 - 6577

Subject: Work Plan for Soil and Groundwater Sampling
Harbert Transportation
19984 Meekland Avenue, Hayward, California

Dear Mr. Gholami:

Per the August 8, 2000 request by the Alameda County Environmental Health Services and discussions with Environmental Health and San Francisco Bay Regional Water Quality Control Board staff, Weber, Hayes and Associates prepared this Work Plan for a soil and groundwater sampling at the Harbert Transportation leaking underground storage tank site at 19984 Meekland Avenue, Hayward, California. The purpose of the Work Plan is to describe the investigation plan we propose to delineate the extent of soil and groundwater impacted by petroleum hydrocarbons and volatile organic compounds released from the underground storage tanks at the site.

SITE DESCRIPTION AND BACKGROUND

19984 Meekland Avenue ("the site") is located at the corner of Meekland Avenue and Blossom Way in Alameda County California (Figure 1). The site is relatively flat, and is currently vacant.

The site was operated as a motor vehicle fueling station since the 1940's. Harbert Transportation used the site as a vehicle and fueling yard before selling the site to Durham Transportation in 1986.

In August 1989, four underground storage tanks (USTs) were removed from the site and properly disposed of. Soil and groundwater investigations at the site, conducted by Applied Geosystems, CTTS, and AGI Technologies, indicated that soil and groundwater at the site have been impacted by petroleum hydrocarbons (PHCs) and volatile organic compounds (VOCs). A list of reports documenting the soil and groundwater investigations is included in the Reference section. Ten groundwater monitoring wells currently exist at the site (Figure 2). Groundwater samples have not been collected from these wells since September 1996. Documentation indicates that excavated soil from the UST removals was returned to the (plastic-lined) excavations (CTTS, November 1, 1992).

Documentation also indicates that two USTs were removed from the site in the early 1950's, and that a sump located in the northern portion of the site contained PHCs (CTTS, November 27, 1990) (see Figure 2).

WORK PLAN FOR SOIL AND GROUNDWATER SAMPLING

We propose to collect soil and groundwater samples to define the current extent of PHC and VOC contamination in soil and groundwater at the site. We propose to collect soil samples from the unsaturated zone and groundwater samples from the ten existing monitoring wells and submit them to a state-certified laboratory for analyses of PHCs and VOCs. All field work will be conducted in accordance with site safety procedures defined in OSHA regulations 1910.120.

Soil Sampling

We propose to drill 9 soil borings, at the locations shown on Figure 2, to delineate the extent of PHCs and VOCs in soil at the site. The soil borings will be drilled with a vibratory-percussion, direct-push Geo-Probe drill rig. Soil samples will be collected according to our standard soil sampling methodology, which is described in Appendix A. Field work will be supervised by and experienced geologist or engineer. The field geologist/engineer will log the borings and screen soil samples for PHCs and VOCs with a Photoionization detector (PID). PID readings will be noted on the boring logs.

We propose to collect soil samples for possible laboratory analysis at 5-foot intervals in all of the borings. The four borings drilled at the locations of the former USTs and at the northwestern corner of the site will be continuously cored for lithologic information (see Figure 2).

We propose to analyze the soil samples for Total Petroleum Hydrocarbons as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Methods 8015M and 8020, and for VOCs by EPA Method 8260. The analyses will be conducted by a state-certified analytical laboratory.

Groundwater Sampling

We propose to collect groundwater samples from each of the ten existing monitoring wells at the site. The groundwater samples will be collected according to standard groundwater monitoring methodology, which is described in Appendix B.

We propose to analyze the groundwater samples for TPH-g and (BTEX) by EPA Methods 8015M and 8020, and for VOCs by EPA Method 8260. The analyses will be conducted by a state-certified analytical laboratory.

We will also measure the depth-to-groundwater to the closest 0.01 foot and calculate the relative groundwater elevation and flow direction at the site. We will arrange for a state-licensed surveyor

to survey the top-of-casing elevations to the nearest 0.01 foot and tie the measurements into mean sea level via a local bench mark.

Our standard methodology also includes measuring the groundwater physical parameters of pH, temperature, conductivity and dissolved oxygen. Dissolved oxygen measurements can be used as an indicator of biodegradation of PHCs in groundwater (Bushek and O'Reilly, March 1995).

Technical Report

We will prepare technical report(s) documenting the location of the soil borings and investigation methodology, and summarizing the soil sample analytical results in tabular form. The report will also contain geologic logs of each soil boring and stratigraphic cross-sections along and perpendicular to the groundwater flow direction, an interpretation of the data collected, and recommendations for additional work (if necessary), and copies of the laboratory's Certificates of Analysis.

Depending on the timing of approval of this Work Plan, pre-approval of costs from the Underground Storage Tank Cleanup Fund, and availability of subcontractors, we will prepare either a combined or separate technical report documenting groundwater monitoring and sampling activities, including a tabular summary of depth-to-groundwater, groundwater elevation, and laboratory analytical results in each monitoring well; a map showing groundwater elevations, gradient and contaminant concentrations; interpretation of the data collected; and copies of the laboratory's Certificates of Analysis.

LIMITATIONS

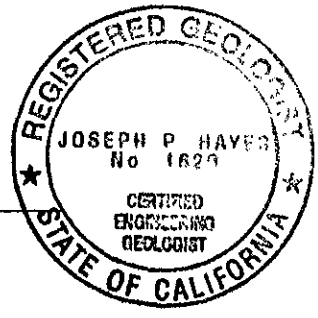
Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic principles and practices. This warranty is in lieu of all others, either expressed or implied. The analysis and proposals in this Work Plan are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modification of the opinions expressed herein.

Thank you for this opportunity to be of service. If you have any questions or comments regarding this project please contact us at (831) 722 - 3580.

Sincerely yours,

Weber, Hayes And Associates

By: _____
Craig Drizin, P.E.
Senior Engineer



And: _____
Joseph Hayes
Certified Hydrogeologist #373

Figure 1: Location Map
Figure 2: Site Plan with Monitoring Well and Proposed Boring Locations

Appendix A: Field Methodology for Soil Sampling at UST Release Sites
Appendix B: Field Methodology for Groundwater Monitoring

c: Mr. Jeffery Lawson
Mr. Jerry Harbert
Mr. Gregg Petersen
Mr. Chuck Headlee

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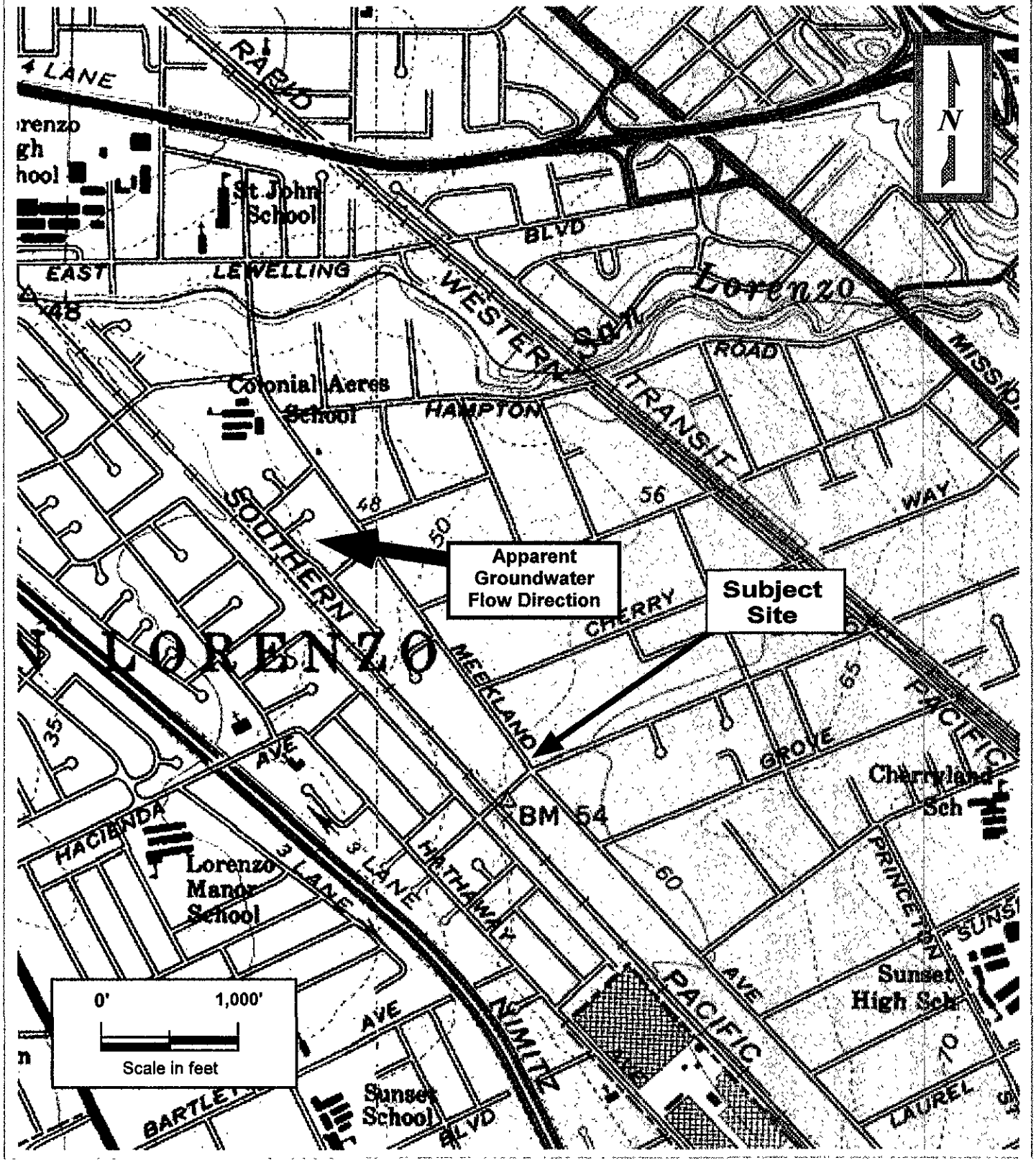

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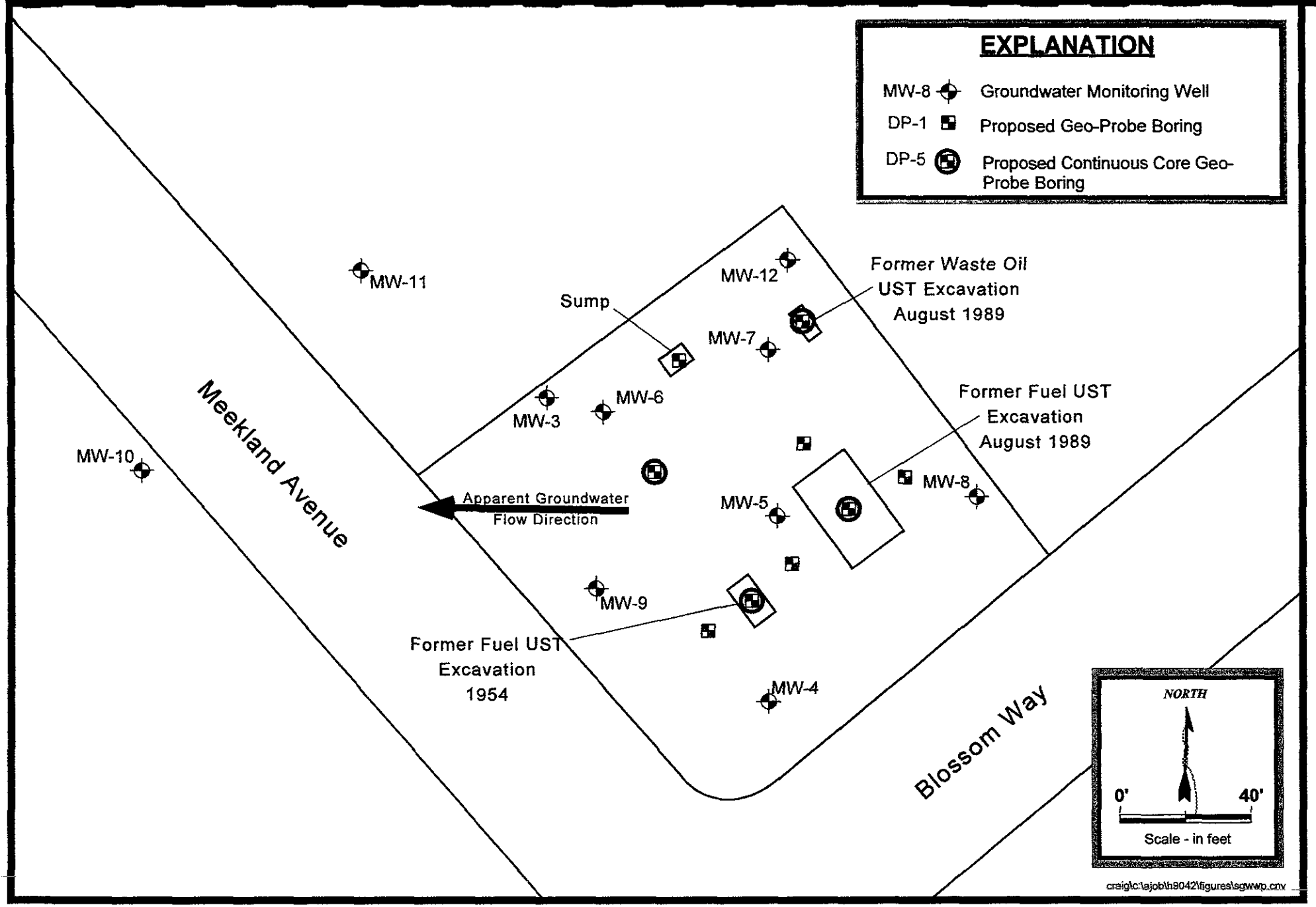
LOCATION MAP
Former Harbert Transportation Facility
19984 Meekland Avenue
Hayward, California

Figure 1
Project H9042.Q



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Site Plan with Monitoring Well and Proposed Boring Locations
Former Harbert Transportation Facility
19984 Meekland Avenue, Hayward, California

Figure 2 Project H9042

APPENDIX A

Field Methodology for Soil Sampling

Appendix A

Field Methodology for Soil Sampling

The exploratory borings will be vibrated/hydraulically driven using 4-foot long Geo-Probe nickel-plated sampling probes fitted with clear acetate liners. No drill cuttings are produced using the Geo-Probe system, since the unit is hydraulically pushed into the soil. This sampling device allows for either continuous or discrete sampling.

Soil samples will be obtained for lithologic logging purposes and possible laboratory analysis. The soil samples will be logged by an experienced geologist or engineer using the Unified Soil Classification System (USCS). An Organic Vapor Analyzer (Photoionization Detector - PID) will be used during drilling for site safety purposes and for field screening soil samples for the presence of volatile organic compounds. Vapor readings in parts per million (ppm) will be recorded on the boring logs.

For a discrete core sample, the sampler remains completely sealed by using a closed piston stop-pin while it is pushed or driven to the desired sampling depth. Once at the desired depth, the piston stop-pin at the top end of the sampler is removed by means of extension rods inserted down the inside diameter of the probe. The extension rods are manually controlled from the surface and enable the driller to open the piston. Once the piston is open and extension rods are removed, the piston retracts into the sample probe as the sample is driven. For continuous sampling the sampler remains open as it is driven into undisturbed soil for it's entire 4-foot length.

At this site both discrete and continuous samples will be collected with the Geo-probe sampler. Materials retrieved by the sampler will be logged by the field geologist, noting in particular, the lithology of the soils, moisture content, and any unusual odor or discoloration. After examination, the liner containing undisturbed soils was cut at the desired sample interval (based on odor, discoloration, and/or the approved sampling plan) with a decontaminated blade. The sample interval will be protected at both ends with Teflon tape, sealed with non-reactive caps, taped, and immediately stored in an insulated container cooled with blue ice. Selected samples will be transported under appropriate chain-of-custody documentation to a State certified laboratory for analysis.

The remaining portion of the sample will be stored in a sealed plastic bag for field screening of hydrocarbon odors and/or volatile organic compounds by the PID.

Upon completion of drilling, all exploratory boreholes will be grouted according to county regulations with a county inspector onsite.

All drilling equipment will be steam cleaned prior to arriving on site to prevent possible transfer of contamination from another site. The sampling probe and all other soil sampling equipment will be thoroughly cleaned between each sampling event by washing in a Liqui-Nox or Alconox solution followed by a double rinsing with distilled water to prevent the transfer of contamination.

All soil sampling and handling protocol will follow the guideline presented in the October 1989 revision of the State Water Resources Control Board *LUFT Field Manual.*

Appendix B

Field Methodology for Groundwater Monitoring

Appendix B

Field Methodology for Groundwater Monitoring

Weber, Hayes and Associates' groundwater monitoring field methodology is based on procedures specified in the *LUFT Field Manual*. The first step in groundwater monitoring will be for Weber, Hayes and Associates field personnel to measure the depth-to-groundwater to the nearest hundredth (0.01) of a foot with an electric sounder. If the well appears to be pressurized, or the groundwater level is fluctuating, measurements are made until the groundwater level stabilizes, and a final depth-to groundwater measurement will be taken and recorded. After the depth-to-groundwater is measured, the well is then checked for the presence of free product with a clear, disposable polyethylene bailer. If free product is present, the thickness of the layer will be recorded, and the product will be bailed to a sheen.

After measuring the depth-to-groundwater, a groundwater sample will be collected from each well that does not contain free product. The sampling order will be determined from the last sampling event - the cleanest well is sampled first, and the "dirtiest" last to minimize the chance for cross contamination. Sampling methodology calls for first purging approximately three to five well volumes of water from the well to obtain a representative sample. Purging will be accomplished either by hand bailing or with a low flow submersible electric pump. During purging the temperature, conductivity, and pH of the purge water are monitored with field instruments to insure that these parameters have stabilized (are each within 15 percent of the previous measurement) prior to sample collection (as an indicator that the sample is representative of groundwater conditions in the formation). Dissolved oxygen content of the groundwater from each well will also be measured with a field instrument (a YSI Model 57 field meter equipped with a membrane covered, Clark-type polarographic sensor probe, with built-in thermistors for temperature compensation). All field instruments are calibrated before use. Dissolved oxygen measurements are indicators of natural bioremediation of dissolved petroleum hydrocarbons in groundwater.

All field data (depth-to-groundwater, well purge method and volume, physical parameters, and sampling method) will be recorded on field data sheets.

All purge water will be stored in Department of Transportation (D.O.T.)-approved 55-gallon drums pending proper disposal by a state-licensed contractor. All bailed free product will be stored in D. O. T.-approved 55-gallon drums, doubly-contained within plastic overpack containers, pending proper disposal by a state-licensed contractor.

After purging the water level in the well will be allowed to recover to 80 percent of it's original depth before a sample is collected. After water level recovery, a groundwater sample will be collected from each well with a new, disposable bailer, and decanted into the appropriate laboratory-supplied

sample container. Bailer blanks are collected for quality assurance/quality control by pouring deionized water into the bailer and then into the appropriate container.

All field and sampling equipment will be decontaminated before, between, and after measurements or sampling by washing in an Liqui-Nox and tap water solution, rinsing with tap water, and rinsing with distilled water.

All groundwater samples are labeled in the field and transported in insulated containers cooled with blue ice to a State of California Department of Health Services (DHS) certified analytical laboratory.

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ENVIRONMENTAL PROTECTION

Letter of Transmittal

to Mr. Amir K. Gholami
Alameda County Environmental
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

from: Craig Drizin

re: Work Plan for Soil and Groundwater Sampling for Harbert Transportation.

date: October 31, 2000

Number of Copies	*Date of Documents*	*Description*
1	September 7, 2000	Work Plan for Soil and Groundwater Sampling for Harbert Transportation.

Reference #: Stid 1879
Additional Copy per your request.