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December 21, 1993
SCI 469.009

Ms. Juliet Shin
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

**Workplan
Supplemental Groundwater Investigation
College of Alameda
555 Atlantic Avenue
Alameda, California**

Dear Ms. Shin:

This letter presents a workplan prepared by Subsurface Consultants, Inc. (SCI) to conduct a supplemental groundwater investigation at the referenced site. SCI previously provided environmental engineering services during the removal of five underground storage tanks, conducted a groundwater investigation, and performed groundwater monitoring at the site. Results of tank removal and the groundwater investigation were presented in reports dated October 31, 1991 and April 3, 1992. Monitoring event letters were dated August 3, 1992, October 21, 1992 and January 22, 1993.

Three monitoring wells exist at the site, one situated near each tank area. Groundwater monitoring events have shown elevated levels of diesel and kerosene range hydrocarbons in two of the wells (MW-1 and MW-3). Groundwater elevation data indicates a groundwater gradient flowing to the east, placing the monitoring wells cross gradient of the former tank locations.

As required by your letter dated October 22, 1993, SCI has prepared the following work plan to address your request for further characterization of groundwater quality downgradient of the former tank locations.

Monitoring Well Installation, Development, and Level Survey

Soil and groundwater conditions will be evaluated by installing two monitoring wells located downgradient of the two former tank areas where groundwater contamination has previously been identified. Proposed well locations are presented on Plate 1.

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The wells will be installed in test borings drilled approximately 15 feet deep using 8-inch-diameter hollow-stem augers. Prior to drilling, a permit will be obtained from the Alameda County Flood Control and Water Conservation District (Zone 7). Drilling and sampling equipment will be steam cleaned prior to each use. Soil cuttings generated during drilling will be stored in sealed drums and left on-site for later disposal.

Our field engineer will observe drilling operations and prepare detailed logs of the soils encountered. Soil samples will be obtained at 3-to 5-foot intervals and screened in the field using an organic vapor meter. The samples will be retained in 2-inch-diameter brass liners. Sample liner ends will be covered with Teflon sheeting and plastic caps, prior to sealing them with tape.

The samples will be refrigerated until transmitted to the analytical laboratory. One soil sample from each boring will be analyzed for the following:

1. Total volatile hydrocarbons (TVH), sample preparation and analysis using EPA Methods 5030 (purge and trap) and 8015 (gas chromatograph coupled to a flame ionization detector),
2. Total extractable hydrocarbons (TEH), sample preparation and analysis using EPA Methods 3550 (sonication) and 8015 (modified gas chromatograph coupled to a flame ionization detector), and
3. Benzene, toluene, xylenes and ethylbenzene (BTXE), sample preparation and analysis using EPA Methods 5030 (purge and trap) and 8020 (gas chromatograph coupled to a flame ionization detector).

The samples will be accompanied by Chain-of-Custody Records.

Monitoring wells will be constructed in accordance with Regional Water Quality Control Board (RWQCB) guidelines. The wells will consist of 2-inch-diameter, PVC casing and machine-slotted screen. The well screen will be encased in a filter composed of washed sand. The filter sand will be placed by carefully pouring it through the annulus between the borehole and the well casing. The filter will extend from just below the bottom of the well to at least one foot above the top of the screened section. A one-foot thick bentonite pellet seal will be placed above the sand filter. The bentonite pellets will be hydrated using deionized water. The

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annulus above the seal will be backfilled with cement grout, consisting of Portland cement mixed with clean water. Wellheads will be secured with a locking cap and finished below grade in a traffic rated utility box.

Prior to development, the wells will be checked for free floating product using a steel tape and product sensitive paste. The wells will be developed by pumping and/or bailing until the water is relatively clear. Development water will be placed in sealed drums and left on-site for later disposal.

A level survey will be conducted to determine the elevation of the top of the well casings relative to the existing on-site wells.

Groundwater depths will be measured so that the groundwater flow direction and gradient can be evaluated.

Well Destruction

Well MW-3 has continued to be a poor producer of water, due to the presence of low permeability Bay Mud at the screened section of the well. As such, we judge that the monitoring and elevation data from the well are not representative of site conditions. We propose to destroy the well in accordance with applicable regulatory standards.

Prior to well destruction, a permit will be obtained from the Alameda County Flood Control and Water Conservation District (Zone 7). In general, the well will be over-drilled to its full depth and the resulting borehole will be backfilled with cement/bentonite grout. The grout will be placed using tremie methods.

Well Sampling

Groundwater from the existing and new wells will be sampled and analyzed. Initially, the depth to groundwater will be measured in each well to determine the gradient and flow direction. The wells will then be purged of at least three well volumes and allowed to recharge to 80 percent of their initial volume. Measurements of pH, temperature, and conductivity will be recorded intermittently during purging. Water purged from the wells will be placed in 55-gallon drums and left on-site for later disposal.

The wells will be sampled using a disposable bailer. The groundwater samples will be placed in appropriate containers and refrigerated until delivery to the analytical laboratory. Water

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samples will be analyzed individually for TVH-gasoline, TEH-diesel and BTEX.

Reporting

Based on the results of the investigation, we will develop conclusions and/or recommendations regarding:

1. Soil and groundwater conditions;
2. Groundwater gradient and flow direction;
3. The presence of the tested for contaminants in the samples analyzed;
4. The significance of contaminant levels with respect to state and local regulatory criteria; and
5. The scope of future monitoring or recommended remedial actions, if necessary.

The results of our study will be summarized in a written report complete with a site plan, boring logs, monitoring well details, analytical test data and Chain-of-Custody Records.

Quarterly Groundwater Monitoring

Quarterly groundwater monitoring will be implemented. In general, the existing and new wells will be sampled and analyzed on a quarterly basis for one year, following the procedures outlined in the well sampling section above. We will submit quarterly reports recording our observations, sampling procedures, water level data and the results of the analytical testing. The report will include a site plan showing groundwater surface contours, analytical test reports, and Chain-of-Custody records.

Drummed Soil and Groundwater Disposal

Soil and groundwater generated during well installation and sampling will be stored in 55-gallon steel drums until receipt of analytical test results. We propose to dispose of the drums of soil soon after receipt of the analytical results and will dispose of the groundwater after one year of quarterly monitoring. The following disposal procedures are based on previous analytical data obtained from the site.

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We have assumed that the soil can be disposed of as a nonhazardous material. As such, the drummed soil will be 1) profiled, 2) picked-up by a licensed waste hauler, 3) transported, and 4) disposed of at an appropriate landfill facility. SCI will coordinate the removal of the drummed soils and follow-up on disposal. Non-hazardous Waste Transport Forms will be presented in a letter report upon completion of disposal.

We have assumed that the drummed groundwater can be handled by a licensed waste hauler and transported to a licensed recycling facility in the Bay Area. SCI will provide a letter documenting groundwater disposal.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.









R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/96)

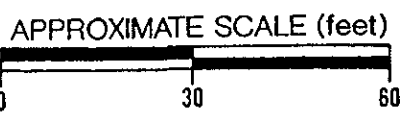
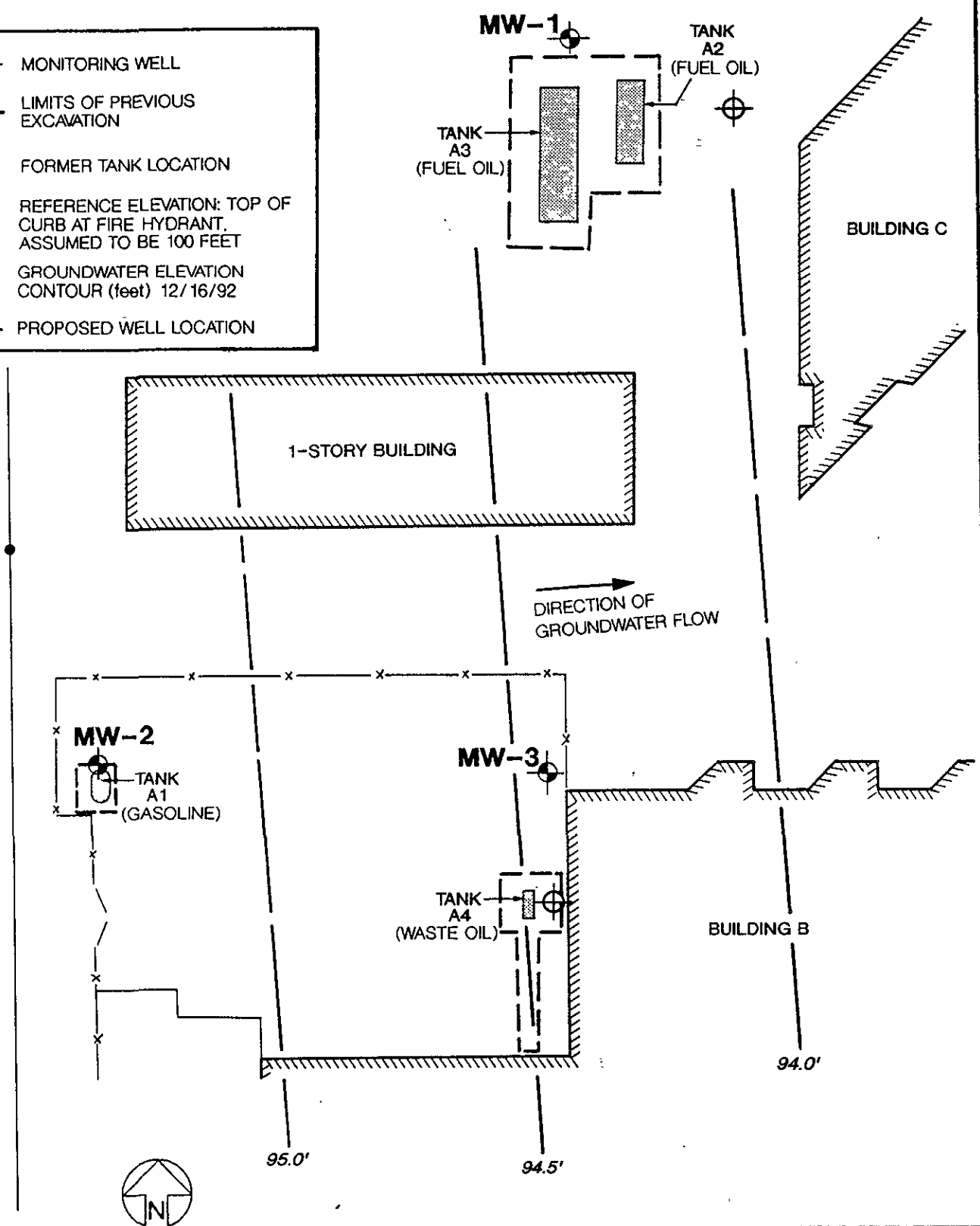
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2 copies submitted

Attachments: Plate 1 - Site Plan

cc: Mr. Robert Mibach
Director of Physical Plant
Peralta Community College District
333 East 8th Avenue
Oakland, California 94606

-  MONITORING WELL
-  LIMITS OF PREVIOUS EXCAVATION
-  FORMER TANK LOCATION
-  REFERENCE ELEVATION: TOP OF CURB AT FIRE HYDRANT, ASSUMED TO BE 100 FEET
-  GROUNDWATER ELEVATION CONTOUR (feet) 12/16/92
-  PROPOSED WELL LOCATION



STUDY AREA PLAN

Subsurface Consultants

COLLEGE OF ALAMEDA - ALAMEDA, CA		
JOB NUMBER 469.006	DATE 1/5/93	APPROVED MW

PLATE
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