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March 10, 1994
BEI Job No. 94015

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

Subject: Subsurface Investigation Letter Revised Workplan
Kawahara Nursery
16550 Ashland Avenue
San Lorenzo, CA

Dear Ms. Shin:

Blymyer Engineers, Inc., on behalf of Kawahara Nursery, is pleased to present this letter workplan to help assess the extent of petroleum hydrocarbon contamination in soil and groundwater at the above referenced site. Petroleum hydrocarbon contamination was discovered in the soil and groundwater at the site following the removal of a gasoline/diesel fuel underground storage tank (UST). The proposed investigation addresses the concerns presented by the Alameda County Health Care Services Agency in a letter to Mr. Sam Kawahara, dated August 27, 1993 and following a review of the *Preliminary Site Assessment Phase I Subsurface Investigation* report, dated July 28, 1993, completed by Blymyer Engineers.

**Background**

On December 1, 1992, one steel 5,000-gallon diesel underground storage tank (UST) was removed from the property owned by Kawahara Nursery, located at 16550 Ashland Avenue, San Lorenzo, California, by tank Protect Engineering of Northern California. Ms. Pamela Evans of the Alameda County Health Care Services Agency (ACHCSA) was on site during the excavation of the UST. Ms. Evans indicated on the *Hazardous Materials Inspection Form* for the site that the UST appeared to be in good condition with no visible evidence of holes at the time of removal. The Excavated soil was stockpiled at the site in two distinct piles and a composite soil sample was collected from each pile. Verification soil samples were collected from the southeastern wall beneath the former UST fill port (sample identification: SE) and the southwestern wall (sample identification: SW) of the excavation. No water was observed in the excavation during the removal of the UST.

The soil samples were analyzed by Trace Analysis Laboratory, Inc., a California-certified laboratory, for Total Petroleum Hydrocarbons (TPH) as diesel. Soil sample SE, collected from the southeastern wall of the excavation, contained 5,000 milligrams per kilogram (mg/kg) TPH

as diesel. The composite soil sample SP-1 collected from the soil excavated from the southeastern portion of the excavation contained 210 mg/kg TPH as diesel.

The results of the UST closure were described in the *Underground Storage Tank Closure Report*, completed by Tank Protect Engineering. It is our understanding that a copy of this report was forwarded to the ACHCSA by Mr. Tom Kawahara. Following a review of the UST closure assessment results, the ACHCSA, in a letter dated January 27, 1993, requested that a Preliminary subsurface Investigation by completed at the site to ascertain the extent of soil and groundwater petroleum hydrocarbon contamination.

On June 10, 1993, Blymyer Engineers supervised the installation of three groundwater monitoring wells (MW-1, MW-2, and MW-3) at the site in the locations depicted on the enclosed Site Plan. Minor concentrations of petroleum hydrocarbons (1.9 ppm TPH as diesel in MW-2 at 5 feet bgs and 6.6 ppm BTEX in MW-3 at 15 feet bgs) were detected in the soil samples collected during the installation of soil bores. The groundwater sample collected from monitoring well MW-3, installed adjacent to an on-site groundwater well contained 120,000 micrograms per liter (µg/L) of TPH as gasoline, 170,000 µg/L of ethylbenzene, and 27,000 µg/L of total xylenes.

Blymyer Engineers also collected four discrete soil samples from the stockpile soil removed from the southeastern portion of the excavation and composited them into one sample. The results of the analysis of the composite soil sample did not indicate detectable concentrations of TPH as diesel.

## Scope of Work

Blymyer Engineers recommends a phased approach to the groundwater investigation at the site. Following the completion of each phase, a more accurate assessment of additional investigative activities such as the necessity and placement of additional on and off site monitoring well can be evaluated.

The following proposed scope of work constitutes the initial phase of the investigation. This scope of work will provide the groundwater information necessary for the possible design of a more detailed subsurface investigation at the site. This scope of work will also provide information on the surrounding properties and, therefore, reveal possible off-site sources for the petroleum hydrocarbons detected in monitoring well MW-3.

**1.0 Conduct an agency record search**

- Available records pertaining to the site and vicinity will be reviewed to ascertain the presence of underground storage tanks (USTs) and reported leaking USTs or spills at or near the site that may have impacted the site. Historical aerial photographs of the site and vicinity will also be reviewed to determine the former uses of the site and vicinity and possible petroleum hydrocarbon sources.

**2.0 Research well construction information**

- Available information regarding the construction and pumping rates and history of pumping of the on-site irrigation well will be located and reviewed to determine the radius of influence of the well on the local groundwater flow, and to insure that the well construction does not allow the well to act as a conduit for the migration of petroleum hydrocarbons. The radius of influence of the irrigation well pump will be estimated by collecting depth to groundwater measurements in the on-site monitoring wells prior to the disengagement of the pump and then collecting additional depth to water measurements after the pump has been disengaged for at least 24 hours. This procedure will help determine the influence of pumping on the groundwater flow direction and gradient at the site.

**3.0 Prepare a site-specific health and safety plan**

- A site-specific health and safety plan will be prepared by Blymyer Engineers prior to the implementation of investigative activities at the site. The plan will address personnel and their responsibilities relative to health and safety, chemical and physical hazards, risk evaluation and management, personal protective equipment, and emergency procedures.

**4.0 Disengage the on-site water well pump**

- The on-site irrigation water well pump will be disengaged for approximately 48 hours prior to sampling of the wells.

**5.0 Collect groundwater samples**

- A groundwater sample will be collected from the irrigation water well prior to disengaging the pump. After the water well pump has been disengaged for at least 48 hours, the water level in each of the three site monitoring wells will be measured to determine the natural groundwater flow direction and gradient. A groundwater sample will be collected from each of the three monitoring wells.

At least three well casing volumes will be removed from each well prior to sampling. The physiological parameters of temperature, pH, and conductivity will be measured from each well initially and after the removal of each well volume. Each well will be sampled when these measurements are all within 15% of each other for three consecutive well volumes. The groundwater samples will be collected using a Teflon® bailer and placed in 40 ml septum sealed vials and 1 liter amber glass jars. The groundwater samples will be placed on ice and shipped to a California-certified laboratory for analysis of Total Petroleum Hydrocarbons (TPH) as diesel and TPH as gasoline by modified EPA Method 8015 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020. A duplicate sample will be collected and submitted as a quality assurance/quality control check.

**6.0 Collect samples from the stockpiled soil**

- One discrete soil sample will be collected from soil stockpile SP-1 presently stored in the storage shed at the site. The soil sample will be collected by driving a 6-inch long brass sampling sleeve into the approximate center of the soil pile. The sample will be prepared for shipment by placing a Teflon® film over each end of the brass sleeve and sealing the ends with plastic end caps and silicon adhesiveless tape. The soil sample will be placed on ice for shipment to Sequoia Analytical Laboratory, a California-certified laboratory, for analysis of TPH as gasoline and TPH as diesel by modified EPA Method 8015 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020.

**7.0 Prepare a letter report**

- A letter report will be prepared for submission to the ACHCSA which will document all work performed, including summaries of the data, with conclusion and recommendations for further work.

**Proposed Work Schedule**

Following the completion of the proposed scope of work the information obtained will be evaluated and a determination of the necessity, and placement, of additional monitoring wells will be made. If additional investigative work is deemed necessary at the site, a second workplan will be prepared and submitted to the ACHCSA for approval within 45 days of the completion of the initial investigation. The installation of additional monitoring wells deemed necessary to fully delineate and characterize the petroleum-hydrocarbon-contaminated groundwater at the site will be completed within 30 days of the ACHCSA's approval of the submitted workplan.

Please call Laurie Buckman at (510) 521-3773 with any questions or comments regarding this project.

Sincerely,

Blymyer Engineers, Inc.

By: _____
Laurie A. Buckman
Project Geologist

And: _____
Mark Detterman, C.E.G. 1788
Senior Geologist

Enclosure

cc: Mr. Sam Kawahara, Kawahara Nursery

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