BLYMYER
ENGINEERS, INC.

July 28, 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 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 determine the potential source and on-site extent of detected petroleum hydrocarbon contamination in soil and groundwater at the above referenced site. Blymyer Engineers completed a *Preliminary Site Assessment Phase I Subsurface Investigation* report, dated July 28, 1994 and a *Subsurface Investigation Status Report*, dated April 29, 1994. The completed investigations consisted of the installation of groundwater monitoring wells, soil sample collection from the soil bores prior to well installation, collection of groundwater samples from the monitoring wells and the on-site irrigation well, and a thorough research of regulatory files relating to unauthorized releases of petroleum hydrocarbons in the vicinity of the site.

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. The UST was reported 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 and analyzed for Total Petroleum Hydrocarbons (TPH) as diesel. The soil sample collected from the southeastern wall of the excavation, contained 5,000 milligrams per kilogram (mg/kg) TPH as diesel. The composite soil sample 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 and forwarded to the Alameda County Health Care Services Agency (ACHCSA) by Mr. Tom Kawahara. In a letter dated January 27, 1993, the ACHCSA requested that a Preliminary Subsurface Investigation be 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 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 stockpiled 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.

In March 1994, Blymyer Engineers conducted a phased groundwater investigation at the site. The initial phases of the investigation included the review of records at the ACHCSA and the Regional Water Quality Control Board to determine if any toxic chemical or fuel leaks reported within ¼-mile radius may have impacted the site; the review of historical aerial photographs; and the review of all available information regarding the construction and pumping rates of the on-site irrigation well to determine the radius of influence of the well on the local groundwater flow.

Depth to groundwater measurements were collected from each of the monitoring wells prior to the disengagement of the irrigation well pump. After the pump had been disengaged for approximately 48 hours, depth to groundwater measurements were again collected from the wells to determine the influence of the pumping system on the shallow water bearing zone. Following the disengagement of the irrigation well pump, the groundwater elevation decreased less than 0.2 inch in each of the monitoring wells. Blymyer Engineers reactivated the well and collected groundwater samples from each of the three monitoring wells and the irrigation well on March 28, 1994. No detectable concentrations of petroleum hydrocarbons were detected in the groundwater samples collected from the irrigation well or monitoring wells M-1 and MW-2. The analytical results of the groundwater sample collected from monitoring well MW-3 indicated 23,000 µg/L of TPH as diesel, 94,000 µg/L of TPH as gasoline, 4,800 µg/L of benzene, 6,500 µg/L of toluene, 3,000 µg/L of ethylbenzene, and 15,000 µg/L of total xylenes.

On March 28, 1994, Blymyer Engineers collected one discrete soil sample from the stockpiled soil on the site. The soil sample contained 51 mg/kg of TPH as diesel.

A review of the local regulatory agency records indicated that a Army National Guard facility located approximately 300 feet downgradient of the site has reported an unauthorized release of gasoline into the groundwater. However, the lateral extent of the reported release has not yet been determined. The construction log of the on site irrigation well indicated that the well is screened from approximately 45 to 60 feet below grade surface. Based on the depth of the irrigation well screened interval and the unmeasurable change in depth to groundwater during pump operation and after pump disengagement, it was determined that the irrigation well pump does not influence the shallow, impacted water bearing zone.

Scope of Work

During the second phase of the proposed investigation at the site Blymyer Engineers will complete the following scope of work:

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

  A health and safety plan outlining the potentially hazardous work conditions and contingencies for an emergency will be prepared for the site.

- **Conduct a soil gas survey**

  A soil gas survey will be conducted at the site using up to 10 sampling points. Soil gas samples will be collected from each sampling point at a depth of approximately 12 feet below grade surface (bgs). The collected soil gas samples will be analyzed by an on-site California-certified mobile laboratory for concentrations of Total Volatile Hydrocarbons and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Each of the sample points will be backfilled with grout slurry and the surface concrete or asphalt will be replaced following sample collection.

- **Obtain permits**

  Permits will be obtained to install groundwater monitoring wells.

- **Drill three soil bores to a depth of approximately 18 feet**

  Three soil bores will be drilled using a hollow-stem auger drill rig at locations determined following the evaluation of the soil gas survey results. The soil bores will be drilled to approximately 18 feet bgs.

- **Drill one soil bore to a depth of approximately 13 feet bgs**

  One soil bore will be drilled within 10 feet to the east of the underground storage tank (UST) excavation to delineate the extent of petroleum hydrocarbons detected in a soil sample collected from the east wall of the excavation.

- **Field screen soil samples**

  Soil samples will be collected from each soil bore, at encountered changes in soil lithology or at a minimum of 5-foot intervals, for field screening using a photoionization detector (PID) and lithologic description.

- **Collect soil samples from the soil bores for laboratory analysis**

  Two soil samples will be collected from each soil bore for laboratory analysis. Samples will be analyzed from the zone directly above the soil/groundwater interface and from the interval displaying the highest field PID reading. The soil samples will be submitted to a California-certified laboratory for analysis of Total Petroleum Hydrocarbons (TPH) as gasoline and TPH as diesel by modified EPA Method 8015, and BTEX by EPA Method 8020. how about for TPH? Have detected in soil in past

- **Install groundwater monitoring wells**

  The three 18-foot soil bores will be converted to 2-inch diameter groundwater monitoring wells and the completed wells will be properly developed.

- **Collect groundwater samples for laboratory analysis**

  Following development and purging one groundwater sample will be collected from each of the six on-site monitoring wells. The groundwater samples will be submitted to a California-certified laboratory for analysis of TPH as diesel and TPH as gasoline by modified EPA Method 8015, and BTEX by EPA Method 8020.

- **Dispose of stockpile soil**

  Approximately 20 cubic yards of soil presently stockpiled on the site and the soil cuttings generated during this investigation, will be transported and disposed of at the Vasco Road, Browning Ferris Landfill, a Class III landfill. Prior to transportation and disposal, one profile soil sample will be collected from the soil and analyzed for Toxicity Characteristic Leaching Procedures (TCLP) BTEX, Soluable Threshold Limit Concentrations (STLC) lead, and reactivity, ignitability, and corrosivity.

- **Prepare a final report**

  A final letter report will be prepared which will document all work performed, including summaries of the data, with conclusions and recommendations.

- **Drum decontamination, well development, and purge water**

  All decontamination water, and monitoring well development and purge water will be stored on-site in Department of Transportation-approved, 55-gallon drums for later disposal by the owner. Blymyer Engineers estimates that approximately three 55-gallon drums of water will be generated during this phase of the investigation.

Proposed Work Schedule

The proposed soil gas survey will be completed within 30 days of the ACHCSA's approval of this letter workplan. The proposed monitoring wells will be installed within 45 days of workplan approval and a final report detailing both phases of the investigation will be submitted to the ACHCSA within 90 days following workplan approval.

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: _____
John Morrison, RG 5773
Registered Geologist

REGISTERED GEOLOGIST
JOHN C. MORRISON
No. 5773
Exp. 2/20/95
STATE OF CALIFORNIA

cc: Mr. Sam Kawahara, Kawahara Nursery

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