FAST-TEK
Engineering Support Services
drilling • excavating • in-situ technologies
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ENVIRONMENTAL PROTECTION
97 SEP 25 PM 3:33

September 24, 1997

Ms. Susan Hugo
Alameda County Health Care Services Agency
Department of Environmental Health
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

RE: **Revised** Groundwater Monitoring Well Installation Workplan
Site: Former Standard Brands Paint Company Retail Store # 147
4343 San Pablo Avenue
Emeryville, California

Dear Ms. Hugo:

FAST-TEK Engineering Support Services (FAST-TEK) has been retained by Keeper Properties, LLC (Client) to install one groundwater monitoring well in the vicinity of an underground storage tank (UST) excavation at 4343 San Pablo Avenue, Emeryville, California (Site) (Figures 1 and 2).

BACKGROUND

Various investigations have been conducted at the site. In 1995, Environ recorded a magnetic anomaly in the northeast corner of the site. McLaren/ Hart subsequently probed the area of the anomaly and determined that an underground storage tank (UST) was present at that location. In June 1997, McLaren/ Hart submitted a report describing investigations and risk assessment findings of the remainder of the site; the report recommended that the UST be removed. The ACDEH granted no further action status to the site, and indicated site closure would be appropriate after completion of tank closure in accordance with Title 23 requirements and one year of quarterly monitoring of groundwater monitoring well MW-3.

In July 1997, FAST-TEK began removal of the UST and it was determined that contaminated soils were present at the site that would require remediation. Soils were excavated and later disposed at a class III landfill. During the excavation activities, three additional USTs were discovered and removed by FAST-TEK. As excavation activities progressed, it became necessary to destroy onsite groundwater monitoring well MW-1 so that excavation of contaminated soils could proceed where the well was located. It was determined by ACDEH that installation and monitoring of one groundwater monitoring well would be necessary to achieve closure of the USTs. The one additional well would be placed in a hydraulically down-gradient location from the former UST #1 and monitored for two quarters. Assuming that the groundwater had not been significantly impacted by the onsite release, tank closure would then be provided.

SCOPE OF PLANNED ACTIVITIES

FAST-TEK will drill one boring to approximately 15 feet below ground surface (bgs) with a hollow stem auger rig and complete the boring as a groundwater monitoring well. FAST-TEK proposes to install groundwater monitoring well MW-1A slightly within the boundary of the excavated area and hydraulically down-gradient from the former location of UST #1. Monitoring Well MW-1A would be installed within the former excavation down-gradient from a groundwater barrier which was installed before the excavation was backfilled. Placement of the well within the backfilled area is designed to determine whether groundwater has been impacted by the onsite release. The groundwater barrier is designed to ensure that potentially contaminated groundwater resulting from a suspected off-site release is not attributed to the on-site release. Well placement as described herein would ensure that the well is hydraulically separate from suspected off-site contamination and is also designed to sample groundwater that has been in contact with a maximum surface area of remediated soils. It is anticipated that due to the semi-confined nature of the water table and to a hydraulic head differential between backfill and surrounding soil, well placement outside the excavation would only result in collection of samples of groundwater that originated in the backfill as a result of the differential. Figure 2 shows the location of the proposed groundwater monitoring well and the 2 existing site monitoring wells (MW-2 and MW-3).

Depth to water measurements will be obtained from all three groundwater monitoring wells. Groundwater monitoring wells MW-1A and MW-3 will be sampled for different constituents to meet different sampling objectives. The wells will be purged of approximately 3 well volumes prior to being sampled following regulatory guidelines. Groundwater samples will be collected from the two wells for the first monitoring event. A report describing the well installation and first quarterly sampling results will be submitted to ACDEH.

PERMITTING

A groundwater monitoring well construction permit (number 97WR104) has been obtained from the Alameda County Public Works Agency. Underground utilities were located by Underground Service Alert (USA) prior recent field activities.

SITE SAFETY PLAN

A Site Safety Plan (SSP) for this work will be prepared and will be onsite during all field activities. All persons working in the exclusion zone and the contamination reduction zone will be familiar with the SSP and will be required to comply with its provisions.

FIELD ACTIVITIES

Groundwater Monitoring Well Installation

Field work will proceed following approval of the workplan by the ACDEH. FAST-TEK will supervise the drilling of one soil boring to approximately 15 feet bgs, the exact depth will be depend on field conditions. The drilling will be done by a California licensed driller. Logging of soils encountered will be performed by a geologist under the direct supervision of a California-Registered Geologist using the Unified Soils Classification System (USCS) ASTM-D2488. The geologist will supervise the drilling activities, collect soil samples and document field activities. Soil cuttings will be contained in 55 gallon DOT Drums pending laboratory analytical results.

The boring will be drilled to approximately 15 feet bgs before being converted into a monitoring well. The well materials will consist of 2-inch diameter, schedule 40 PVC screen and riser with a silica #2/12 sand pack and sealed with at least 1 foot of hydrated bentonite pellets above the sand pack. Neat cement grout will be placed above the bentonite seal and the well will be completed with a traffic-rated cover set in concrete. After allowing an appropriate waiting period to allow cement to cure, the well will be developed by surging, followed by purging with a down hole pump to remove turbidity. A licensed surveyor will survey the top of the well casing of the new well and two on-site wells. The well will be surveyed within 0.01 foot accuracy horizontally, and vertically relative to sea level to allow calculation of groundwater flow direction and gradient. A general well construction diagram is attached.

Groundwater Monitoring Well Sampling

Prior to groundwater sampling, each well will be purged by pumping a minimum of three well casing volumes of groundwater while taking measurements of pH, temperature, and electrical conductivity between each well casing volume. The wells will be considered stabilized and ready for sampling when two subsequent measurements of these three parameters are within 10% of each other. Groundwater samples will be collected using a 1.5-inch diameter disposable bailer and new nylon string, and decanted into labeled, laboratory supplied bottles.

In order to reduce the loss of volatile hydrocarbons, samples for TPH-g and BTEX analysis will be dispensed from the bailer into labeled 40-milliliter VOA vials. The VOA vials will be filled completely, leaving no head space. The samples will then be stored in a refrigerated environment and transported under chain-of-custody control to a California state certified laboratory. FAST-TEK's standard operating procedures for well sampling are attached.

LABORATORY ANALYSES

For the initial sampling event, one groundwater sample each will be collected from monitoring wells MW-1A and MW-3. The sample collected from MW-1A will be analyzed for TPH-g by EPA Method 8015, BTEX by EPA Method 8020, and for organic lead per CA Title 22, Chapter 11, Appendix XI. Groundwater monitoring

well MW-3 will be sampled for Total Petroleum Hydrocarbons as mineral spirits by EPA modified method 8015, Naphthalene by EPA method 8270, and for volatile organic compounds by EPA method 8010. All samples will be analyzed by a state certified laboratory.

REPORT

A written report documenting the description of field activities, groundwater monitoring well installation, and groundwater monitoring will be prepared following regulatory report preparation guidelines. The report will include a boring log, laboratory reports, tabulated contaminant and groundwater data, site and well location maps, chain-of-custody forms, and laboratory quality control documents. Recommendations, as appropriate, will be included in the report's cover letter.

For purposes of preliminary evaluation, no significant impact on groundwater at MW-1A will be demonstrated if measured concentrations of the BTEX constituents are below MCLs, organic lead concentrations are below 50 µg/l, and TPHg is less than 50 µg/l.

If you have any questions or concerns please do not hesitate to call at (510) 232-2723-230.

Sincerely,

Paul E. Jones
Project Geologist

attachments

cc: Mr. Lyman K. Lokken, Keeper Properties, LLC
Mr. Clifton Davenport, Davenport & Associates

Attachment A: Figures

FAST-TEK Engineering Support Services
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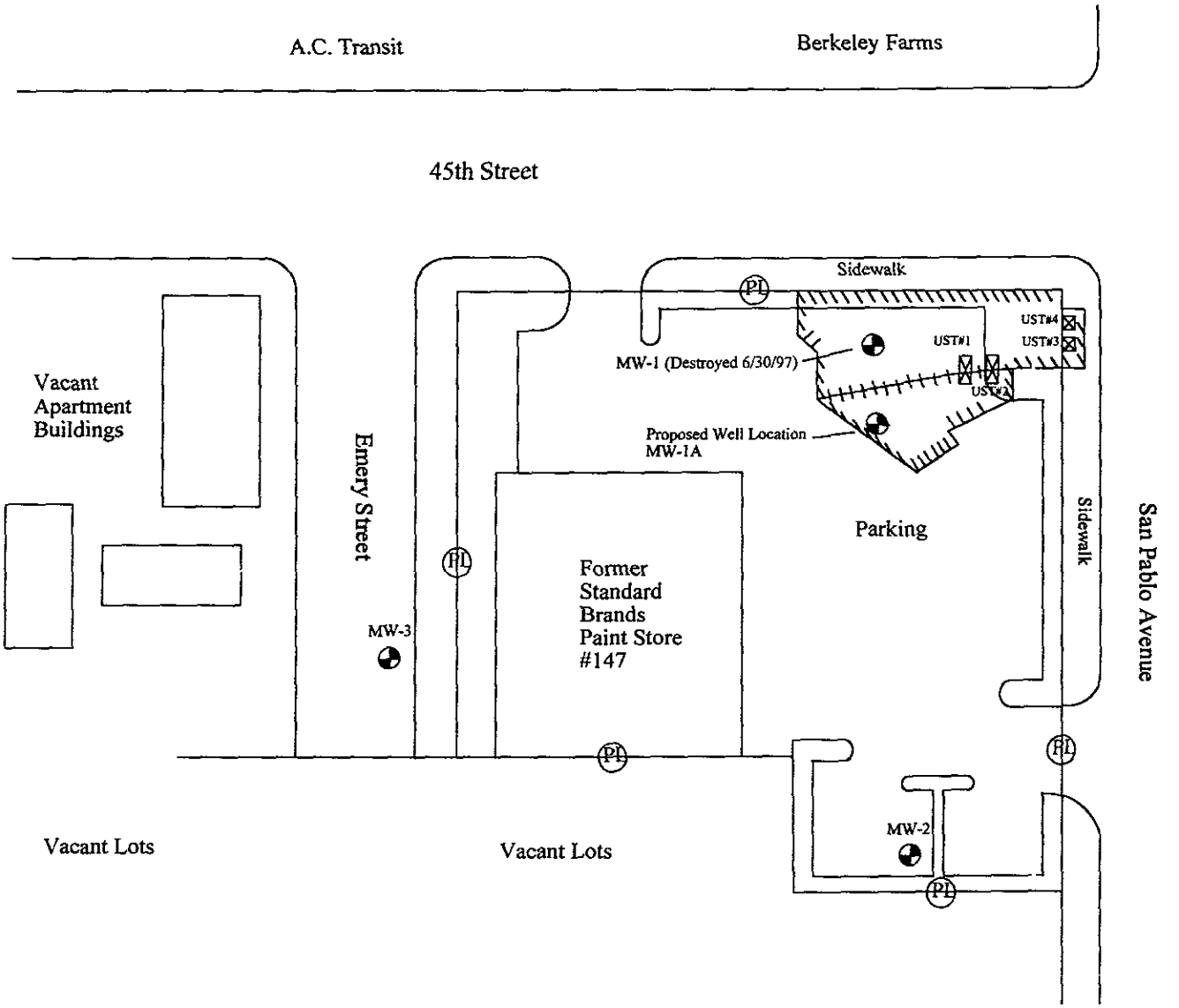
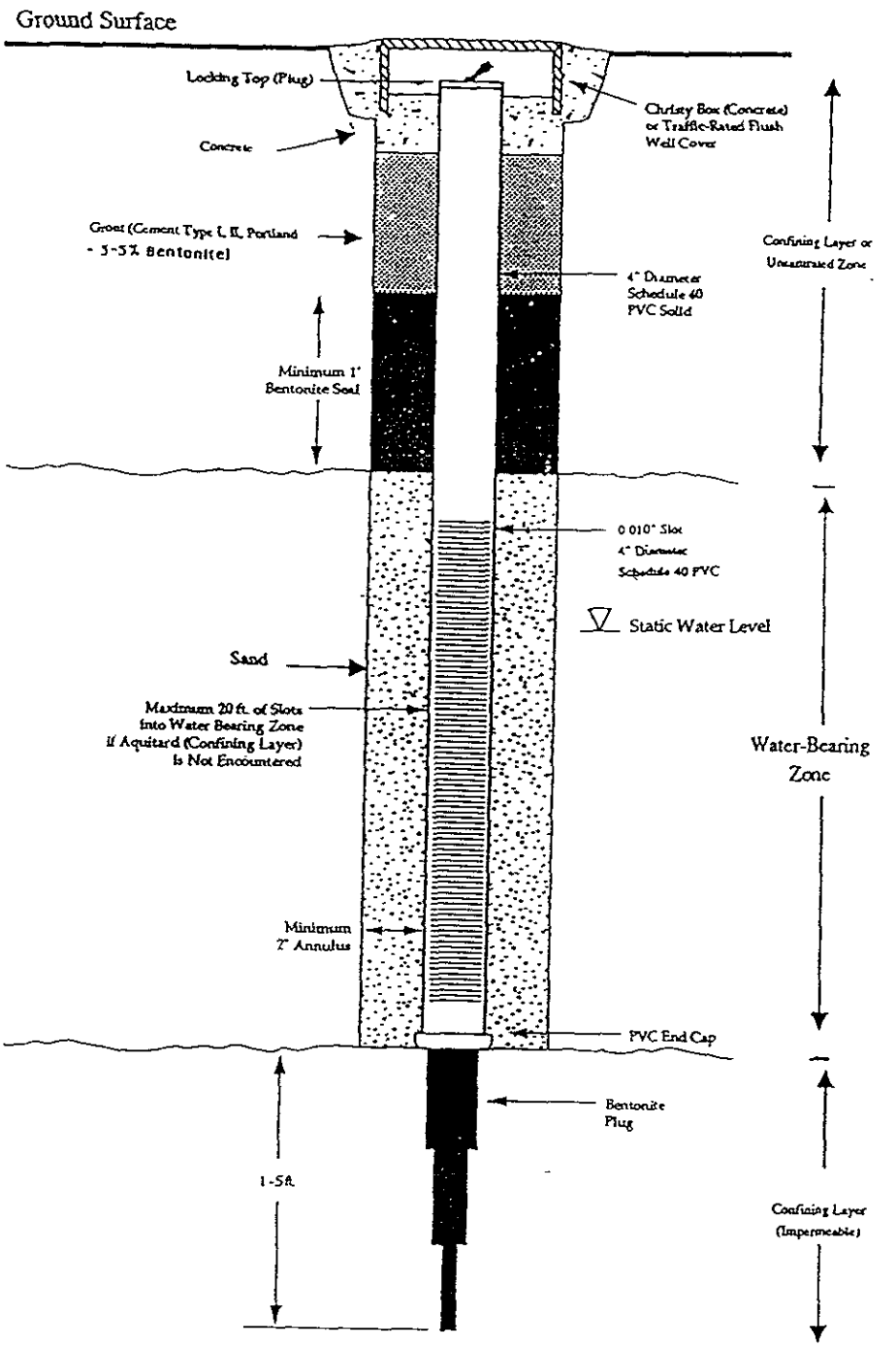


FAST-TEK ENGINEERING SUPPORT SERVICES 247B Tewksbury Aveune Point Richmond, California 94801 Phone (510) 232-2728 Fax (510) 232-2823		**Site Map** Former Standard Brands Paint Company 4343 San Pablo Avenue Emeryville, California	
Project No.: 301-001-02F	Date: 9/24/97	Prepared by: E. Chan	Figure 2



NOT TO SCALE

		Generalized Well Construction Details	
		Drawn by: OPJ	Figure No.

Attachment B: Standard Operating Procedures

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GROUNDWATER MONITOR / EXTRACTION WELL INSTALLATION AND DEVELOPMENT

WELL INSTALLATION

The boreholes for monitor / extraction wells are drilled using a truck-mounted hollow-stem auger drill rig. The diameter of the borehole is a minimum of four inches larger than the outside diameter of the casing when installing the well screen (DWR Publication 74-81). The hollow-stem auger provides minimal interuption of drilling while permitting soil sampling at the desired intervals. All wells are installed by state-licensed drillers.

The monitor / extraction wells are cased with threaded, factory-slotted, blank schedule 40 polyvinyl chhloride (PVC). The perforated interval consists of slotted casing, generally 0.020-inch wide by 1.5-inch long slot size, with 42 slots per foot. A threaded PVC cap is fastened to the bottom of the casing. Centering devices may be fastened to the casing to assure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and steam-cleaned prior to installation.

After setting the casing inside the hollow stem, sand or gravel filter material is poured into the annular space to fill from the bottom of the boring to 1 foot above the slotted interval. A 1 to 2 foot thick bentonite plug is placed above the filter material to prevent the grout from infiltrating down into the filter material. Neat cement, containing about 5% bentonite, is then tremied into the annular space from the top of the bentonite plug to the surface. A lockable PVC cap is placed on each wellhead. Traffic-rated flush-mounted steel covers are installed around wellheads for wells in parking lots and driveways, while steel stove pipes are usually set over wellheads in landscaped areas.

WELL DEVELOPMENT

After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing any fine material in the filter pack that can pass from the formation into the well. Well development is performed in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual*, the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* , and local regulatory guidelines. Well development techniques include pumping, bailing, surging, swabbing, jetting, flushing, and airlifting. During well development from three to ten well volumes are evacuated from the well, allowing pH, specific conductivity, temperature and sediment content of the water to stabilize. All development water and rinseate is collected for temporary storage in labeled 55-gallon containers or proper storage tanks, and is then disposed of properly depending on analytical results. To assure that cross-contamination does not occur between wells during drilling and development, all development equipment is either steam cleaned or cleaned using Alconox and rinsed twice with dionized water.

Artesian Environmental Consultants

Standard Operating Procedures

MONITORING WELL SAMPLING

Prior to groundwater sampling, initial water level and floating liquid hydrocarbon measurements are recorded for each well. Each well is sounded for depth to ascertain if silting has occurred and to verify the actual depth below ground surface. These measurements are used to calculate the volume for each well. At this time, all non-dedicated pumping and sampling supplies are washed with an Alconox solution, rinsed with clean water, and final rinsed with either distilled or deionized water to prevent any cross contamination from other sampling events.

Each well is purged by evacuating a minimum of three well-casing volumes of groundwater from the well. The well water may be evacuated either by bailing, or pumping. Any of the following may be used for bailing: a dedicated pvc bailer, sterile disposable polyethylene bailer, or a stainless steel bailer. For pumping the groundwater out of the well, a downhole impeller type pump (dedicated or removable with PVC tubing), a downhole dedicated bladder pump, or a surface peristaltic pump is used.

After three to four well volumes are pumped, each well is permitted to recharge to at least 80% of original capacity or for two hours; whichever occurs first. The water is then measured to verify whether the well has stabilized. Stabilization is determined by measuring the parameters of pH; temperature; and electrical conductivity. Stabilized measurements indicate that formation water has entered the well. When two subsequent measurements of these three parameters are within 10% of each other, the well is considered stabilized and is ready to be sampled.

The samples are collected using a new polyethylene bailer with a bottom siphon and nylon cord. The bailers are disposable, and therefore, never reused. The groundwater sample is visually inspected for the presence of free product in the sampling bailer. Agitation is minimized during sample retrieval to prevent aeration during the transfer from the well to the laboratory prepared sample containers. Duplicate water samples are collected from the well and siphoned into three, 40 ml, VOA, septum top vials, with additional 950 ml samples collected in an amber glass bottles or polyethylene bottles depending on the analyses to be performed. The VOA vials are filled completely, leaving no headspace, and are sealed with Teflon-lined lids. All samples are labeled, chilled to 4° C in an ice chest, and sent to a California State Certified hazardous materials testing laboratory under chain-of-custody documentation .

All groundwater samples are collected in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual*, the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, and local regulatory guidelines.

Standard Environmental Protection Agency (EPA), San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), and Department of Health Services (DHS) methodologies for sampling and analyses are routinely utilized.

Chain of Custody documentation accompanies all samples to the laboratory. A copy of the Chain of Custody documentation is attached to the Certificate of Analysis.

Monitor well purge water is properly stored and labeled on site in DOT 17-H containers pending off site disposal.