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23 February 2004
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City of Oakland
Fire Department, Office of Emergency Services
Hazardous Materials Program
1605 Martin Luther King Way
Oakland, California 94612

Attention: Mr. Hernan Gomez

Subject: Work Plan to Install Underground Fuel Conveyance Piping
2855 Mandela Parkway
Oakland, California

Dear Mr. Gomez:

On behalf of the property owners, Treadwell & Rollo, Inc. has prepared this Work Plan and Application for Underground Storage Tank Installation for the site located at 2855 Mandela Parkway in Oakland, California. This site is currently undergoing an environmental cleanup under the direction of the Alameda County Health Care Services (ACHCS). As part of this cleanup, free-phase petroleum hydrocarbons (gasoline) will be removed from the shallow groundwater surface beneath the site. The gasoline will be pumped out of the subsurface from wells and then conveyed through underground piping to a centralized collection and storage area (an above ground storage tank).

As you requested during our 20 February 2004 telephone conversation, we have prepared this Work Plan and completed the attached Application for Underground Storage Tank Installation for your review and approval. We understand that although we do not plan to install an underground storage tank on this site, this permit is required for the proposed underground conveyance piping for the gasoline recovered from the shallow groundwater during our environmental cleanup project.

Site Background and Conditions

History and Extent of Gasoline

The existing building on the property is a 143,000 square foot, single-story industrial structure. The building is currently occupied by a number of commercial tenants, mainly for warehousing and storage operations. The building was originally constructed in 1941 and operated until approximately 1983 by International Harvester as a truck service and sales facility. A 350-gallon underground gasoline storage tank was removed from the property in 1991 by a previous owner, Cypress Property.

Treadwell & Rollo, Inc. *Environmental & Geotechnical Consultants*
501 14th Street, Third Floor, Oakland, CA 94612
Telephone (510) 874-4500 Facsimile (510) 874-4507

Geologic conditions at the site consist of approximately two to eight feet of relatively sandy fill material underlain by Bay Mud to a depth of at least 24 feet below grade. The clayey Bay Mud appears to include heterogeneous zones of sandier soil and organic matter. The stabilized groundwater depth is approximately eight to ten feet. There are also indications of a localized (i.e., discontinuous) perched water zone at the interface between the fill and the Bay Mud.

Environmental investigations have confirmed the presence of free-phase product (gasoline) within the Bay Mud and significant concentrations of the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX) in groundwater beneath a portion of the property, including under the existing building. However, a soil-vapor survey in 1998 detected only relatively low and sporadic benzene concentrations in the shallow soil-gas beneath the building. A sample of perched water was collected in 1999 above an area of groundwater known to contain detectable BTEX concentrations; the perched water samples did not contain detectable BTEX concentrations.

These investigation results suggested that gasoline vapors from the free-phase product and those dissolved in the groundwater are inhibited from upward migration into the fill zone beneath the building because of geologic conditions. These conditions include the low-permeability clayey Bay Mud matrix and the presence of a perched water zone, as well as other factors. A study of the indoor-ambient air quality completed in March 2001, concluded that gasoline vapors, specifically BTEX, are not migrating in significant concentrations from the subsurface into the building.

Based on additional investigations conducted in 2001, the free-phase gasoline appears to be present in a relatively thin, laterally discontinuous zone of organic-rich ("peaty") clay that typically occurs between 6 and 8 feet below the ground surface. The peaty clay zone appears significantly more permeable that the surrounding clay, thereby allowing flow within that unit. The peaty clay zone was not encountered in each soil boring, suggesting that the peaty clay zone is discontinuous. As such, the free-phase gasoline plume configuration is also likely discontinuous, occurring in localized areas rather than beneath the entire site.

The volume of free-phase product contained within the thin peaty clay zone is estimated at approximately 2,500 gallons based on the saturated thickness of the peaty clay zone over an assumed area of about 15,000 square feet. This estimated volume is consistent with the reportedly leaking former 350-gallon UST that was removed from the site.

Warehouse Floor

The floor of the warehouse consists of a concrete slab approximately six inches thick overlying soil. The floor appears to be the original building floor constructed in 1941. The concrete floor is in good condition. There are no floor drains or underground utilities in the area of the proposed conveyance piping (see Figure 1).

Proposed Piping Design and Layout

Piping Location

The proposed piping location within the warehouse is labeled as Area "A" on attached Figure 1. This trench will be placed between two existing wells TR-4 and TR-6, and then directed towards the exterior wall near the loading door (southeast wall). The aboveground storage tank will be placed outside of the building.

Trench Design

The trench for the gasoline conveyance piping will be saw cut into the existing six-inch thick concrete floor, and the concrete from the trench will be removed and disposed offsite. The trench will be approximately six-inches wide and will extend through the entire floor-slab thickness to the underlying soil surface. The total length of trench inside the warehouse will be approximately 120 feet, extending from existing well TR-6 and terminating at the exterior wall near the loading door.

Where the trench terminates at the exterior wall, a hole will be drilled through the building foundation for the conveyance piping to exit the building and subsequently connect to the aboveground storage tank. However, physical constraints may prohibit drilling through the foundation at this location. If a hole cannot be drilled through the foundation wall, the conveyance piping will exit the trench at the foundation wall and will exit the building through the stucco wall immediately above the foundation sill.

The gasoline conveyance piping will be double-contained (as described below) and placed in the trench on top of the underlying soil (i.e., ground surface beneath the concrete floor slab. After the piping has been inspected, pressure tested, and approved for installation, a layer of sand approximately three-inches thick will be placed in the trench to cover the pipes. The remainder of the trench will be sealed with concrete up to the level of the existing floor slab surface. After the floor surface is restored, the only permanent access points to the conveyance piping will be at each of the two well manholes and where the piping exits the building.

Piping Design and Materials

Each of the pneumatic pumps (manufactured by Xitech) used to extract the gasoline require two lines, one line to force nitrogen into the pump and displace gasoline from the pump chamber, and one line to convey gasoline from the well to the collection tank. These lines are 0.5-inch diameter, oil resistant nylon tubing. This nylon tubing is chemically resistant to degradation from contact with gasoline and will remain flexible. The nylon tubing is rated to approximately 220 psi; however, the normal operated pressure for the nitrogen will be less than 50 psi. A pressure regulator will be used to prevent the nitrogen pressure inside the nylon tubing to exceed 75 psi.

The nitrogen supply lines and the gasoline conveyance lines will be contained within Schedule 40, two-inch diameter polyvinyl chloride (PVC) piping to create a double containment piping system. According to the Plastic Pipe and Fittings Association (PPFA), PVC is difficult to ignite, will not continue to burn without an outside heat source, and may be used in buildings that require non-combustible construction. The PVC piping will remain at atmospheric pressure; that is, no pressure or vacuum will be applied to the PVC secondary containment piping.

The piping will be constructed such that a leak contained within the secondary piping will flow to the wells and be contained. A leak in either the nitrogen tubing or in the gasoline tubing would be detected as a pressure loss by the pump controller. A pressure loss would result in the pneumatic displacement pump ceasing to operate, and therefore, gasoline would not be extracted from the well. In the event that pump operation ceases, residual gasoline in the conveyance piping would flow back into the well and would not leak into the trench.

Piping Testing

Prior to the piping being permanently sealed in the trench, each of the nitrogen and gasoline conveyance pipes will be pressure tested to demonstrate that there are no leaks. We will contact you a minimum of 72 hours in advance to schedule an inspector to observe the pressure testing of the conveyance pipes. The pressure testing procedures will follow the guidelines presented in the Application for Underground Storage Tank Installation. Each line will be tested by applying approximately 75 psi of nitrogen for a minimum of 30 minutes. Each of the joints will be soap tested.

Application to Install Underground Storage Tank

The completed application for an Underground Storage Tank Installation is attached to this Work Plan. A check for the application fee is also attached. At your direction, because this proposed project includes only underground conveyance piping for recovered gasoline and does not include the installation of an underground storage tank, sections of the attached application referring to underground storage tanks has been crossed out or left blank. A separate permit application will be submitted at a later date to include installing an aboveground storage tank (ConVault®) in an area outside of the warehouse building (Figure 1).

Schedule

Time is of the essence for this proposed underground piping installation phase. The warehouse space where the piping is required will be vacant until approximately 4 March 2004, after which, a new tenant will occupy this space. The new tenant requires the construction and placement of shelving and storage compartments on the floor space where the conveyance piping trench will

be located. Therefore, the placement of the underground conveyance piping must be completed before the new tenant moves occupies the space.

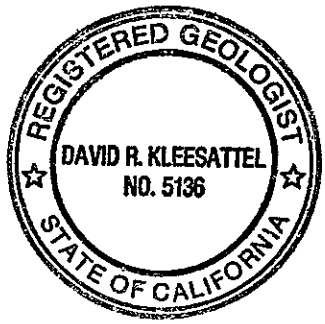
We plan to saw-cut the concrete floor during the week of 23 February 2004. We will prepare the trench for the installation of the conveyance piping. We also plan to prepare the conveyance piping for pressure testing, installation, and inspection by your office.

After you have reviewed this Work Plan and the attached application for installation, we can schedule and inspection by your office. All trenching and piping will be exposed for your inspection. At that time we will conduct a pressure test of the lines, in accordance with the appropriate guidelines included in the Application for Underground Storage Tank Installation, to demonstrate that the piping does not leak. After the line testing inspection, and with your approval, we will permanently seal the piping in the trenches with concrete.

This installation of the gasoline conveyance piping within the warehouse floor is the initial construction phase for the gasoline recovery project. A similar conveyance system is also required outside of the building, and will likely be installed during March 2004 (we will submit a separate permit request for that conveyance system). We anticipate starting the gasoline recovery systems later this year. Until that time, the underground gasoline conveyance piping will remain sealed and inactive.

If you have any questions regarding this Work Plan or application, please call me.

Sincerely,
TREADWELL & ROLLO, INC.



David R. Kleesattel, R.G.
Senior Geologist, Project Manager

Attachments: Site Plan Showing Piping Layout
Application for Installation of Underground Storage Tank
Application Fee Check (Check # 50234 in the amount of $540.00)