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July 13, 1995

IC Project No. 05100269

Ms. Jennifer Eberle
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
1131 Harbor Bay Parkway
Alameda, California 94502

VIA OVERNIGHT MAIL

Re: Workplan for Installation and Sampling of Additional Monitoring Wells
Southern Pacific Transportation Company
5th Avenue and 7th Street Property - Oakland, California

Dear Ms. Eberle:

Industrial Compliance (IC), on behalf of Southern Pacific Transportation Company (SPTCo), is submitting this workplan for installation of two additional monitoring wells at the SPTCo property located at 5th Avenue and 7th Street in Oakland, California. This workplan has been prepared in response to the Alameda County Health Care Services Agency (Alameda County) letter to SPTCo dated May 31, 1995. In this letter, it was indicated that additional ground water samples from a location directly to the south of the former underground storage tank (UST) locations on site would be required to support site closure.

SITE BACKGROUND

In February, 1989, Canonie Environmental Services Corporation (Canonie) prepared to remove four underground storage tanks (USTs) from the site: two 7,000-gallon diesel USTs and two 7,000-gallon Bunker "C" oil USTs. Prior to removal of the USTs, Canonie collected four subsurface soil samples from borings adjacent to the perimeter of the USTs (Figure 1 - attached). This preliminary collection of samples was required by Alameda County to verify that Canonie's tank removal activities would not further impact the site. Laboratory analyses performed on these soil samples indicated a maximum concentration of total extractable petroleum hydrocarbons (TEPH) of 16,000 parts per million (ppm). The results of these sampling activities were summarized in a Canonie letter report dated February 15, 1989 (letter report entitled: *Soil Sampling Report and Records of Correspondence with Regulatory Agencies, Southern Pacific Transportation Company Railyard, Fifth Avenue and Seventh Street, Oakland, California*).

On February 20, 1989, Canonie began the excavation and removal of the four USTs. Soil was removed from the excavation to a depth of approximately 12 feet below ground surface (bgs). According to the Canonie report, no water entered the excavation in the three days that it remained open and soil in the excavation did not appear impacted (by visual observation). Canonie reported approximately 500 cubic yards (cy) of soil was generated from the UST excavation and was stockpiled onsite on plastic sheeting.

Prior to backfilling, a total of 12 soil samples were collected from the excavation. Six soil samples were taken from the bottom of the excavation at a depth of 12 feet bgs and six soil samples were taken from 2 feet below the bottom of the excavation (or at 14 feet bgs). Laboratory analyses performed on the soil samples collected at 12 feet bgs identified maximum concentrations of 12 ppm of TEPH and 43 ppm of total recoverable petroleum hydrocarbons (TRPH). The six samples at 12 feet bgs were composited into two samples and analyzed for polychlorinated biphenyls (PCBs). Laboratory analysis did not detect PCBs at or above the method practical quantitation limit. The excavation was backfilled with clean imported fill material. The stockpiled soil was appropriately disposed of offsite. The procedures and results of this work were presented in a Canonie report dated April 3, 1989 (report entitled: *Completion Report, Underground Storage Tank Removal, Southern Pacific Transportation Company Facility, Oakland, California*).

At the request of Alameda County, IC conducted a preliminary site assessment in April, 1994. A total of three soil borings were drilled at the site, which were then converted to monitoring wells (MW-1, MW-2, and MW-3) (Figure 1). Because of restricted access (due to utility lines and railroad tracks), the locations for two of the monitoring wells (MW-2 and MW-3) were moved in a westerly direction from their previously approved location. After a period of approximately nine days these wells were developed, and subsequently sampled six days thereafter. The procedures and results of this work were presented in an IC report dated September 2, 1994 (report entitled: *Soil and Ground Water Investigation Report, Southern Pacific Transportation Company, 5th Avenue and 7th Street, Oakland, California*).

In August of 1994, IC initiated quarterly ground water monitoring at the site using the monitoring wells installed during the April 1994 field activities. To date, three quarterly monitoring events have been completed and reports submitted to Alameda County (third and fourth quarter 1994 and first quarter 1995). Monitoring has been completed and the report for the second quarter 1995 (the fourth quarterly monitoring event) is in preparation and will be submitted to Alameda County in late July, or early August, 1995. There have been no valid detections of total petroleum hydrocarbons (TPH) as diesel, TPH as motor oil, or benzene, toluene, ethylbenzene and xylenes (BTEX) in ground water from any of the existing

monitoring wells during any of the monitoring events completed to date (including the second quarter 1995). The single detection of TPH as motor oil at 750 micrograms per liter (μg/L) in MW-2 in August 1994 (third quarter 1994) is not considered to be quantitatively valid data. Third quarter 1994 samples were analyzed by a different analytical laboratory and resulted in detections of hydrocarbons in ground water at this and several other monitoring sites where hydrocarbons had not been detected previously and have not been detected in any subsequent monitoring.

PROPOSED SCOPE OF WORK

Decisions on location of monitoring wells on the site during IC's preliminary site assessment were based on an assumed ground water flow direction and the assumed location of the former USTs. The ground water flow direction was assumed to be to the west southwest based on regional considerations (assumed ground water flow towards nearby portions of San Francisco Bay) and data from other sites in the vicinity. The assumed former location of the USTs shown on Figure 1 was based on a location shown on a figure in the Canonie workplan for UST removal. Recent review of figures from the Canonie tank removal report and aerial photos of the yard area suggests that the location of the former USTs may have been on the order of 200 feet west northwest of the location shown on Figure 1. Also, monitoring completed to date has indicated that ground water flow is predominantly to the north or northeast (April and August, 1994 and February, 1995) but has also been calculated to be to the south (November, 1994) and recently to the east (May, 1995 - data to be submitted to Alameda County with second quarter 1995 monitoring report).

To address Alameda County's stated requirement for ground water quality sampling in closer proximity to the former UST location, and to address the apparent fluctuation in ground water flow direction, it is proposed to conduct detailed reconnaissance within the railyard area to identify the best locations for additional monitoring wells (Task 1) and then, based on these results, to install and sample two additional monitoring wells at the site (Task 2). These proposed tasks are described below.

Task 1 - Identify Locations for Additional Monitoring Wells

A detailed reconnaissance of the railyard area and discussions with railyard personnel will be undertaken to assess constraints on monitoring well locations near the former location of the USTs. Following this detailed reconnaissance, an addendum to this workplan will be submitted to Alameda County showing the proposed location of two additional monitoring

wells within the railyard area, one to the south and one to the north of the former location of the USTs. The workplan addendum will be in the form of a site map showing the proposed location of the additional monitoring wells.

Task 2 – Monitoring Well Installation, Development and Sampling

Two-inch diameter ground water monitoring wells will be installed at the locations shown in the workplan addendum. Monitoring wells of 2-inch diameter are planned because the location to the south of the former USTs will be within an area of active track and not easily accessible by vehicle. The small well diameter will result in a small volume of purge water prior to sampling which can be transported from the well by hand in 5-gallon buckets rather than requiring 55-gallon drums or other large water storage containers to be transported to and from the monitoring wells.

Well Installation

The borings for the wells will be advanced with a small drill rig equipped with 6-inch nominal outside diameter hollow-stem augers. A core barrel sampler will be fit within the hollow stem of the lead auger to provide a continuous core of each 5-foot interval for purposes of lithologic logging. Given that the purpose of these borings is well installation and not site investigation, no soil samples will be collected for laboratory analysis.

Residuals generated from the drilling process will be placed in 55-gallon drums appropriate for the storage and transportation of hazardous wastes. These residuals will be transported from the site and added to an existing soil stockpile on SPTCo property containing soil assumed to be impacted with petroleum hydrocarbons.

The well casing will consist of 2-inch diameter polyvinyl chloride (PVC) pipe. The slotted section of the wells will consist of 0.020-inch factory slotted PVC which will extend 4 to 9 feet below and approximately 1 foot above the saturated zone. Because ground water is anticipated at a depth of approximately 5 feet below ground surface (bgs), the sand pack, consisting of #1C or equivalent sand, will extend approximately 6 to 8 inches above the slotted section. Approximately 6 to 8 inches of ¼-inch bentonite pellets will be emplaced over the sand pack and hydrated for a minimum of 30 minutes before filling the remaining annulus with a cement/bentonite grout consisting of approximately 2 pounds of powdered bentonite, 6.5 to 7 gallons of water, and 94 pounds (1 bag) of cement. The wells will be completed at grade in a traffic box or other surface-flush completion appropriate for the location.

Well Development   not 72 ?

After well installation is completed and the cement seal has set for a minimum of 24 hours, the wells will be developed. Again, due to well location, development will be limited to using a small bailer to remove coarse sediments that may have entered the wells. Conductivity, pH, and temperature measurements will be monitored during bailing.

The wells will be considered developed when the parameters have stabilized (<10 percent change in consecutive readings) and the water flows clear or when ten well volumes have been removed (whichever is the lesser amount).

Well Sampling 24 hrs ?

Prior to sample collection, each well will be purged to ensure that the water sample obtained from the well is representative of the formation water. Each well will be purged until the total quantity of water removed is approximately three times the saturated volume in the well. Conductivity, pH and temperature will be measured during purging. If parameters have not stabilized after three well volumes have been removed, an additional two well volumes (a total of five) will be removed and the well sampled.

A ground water sample will be collected with a clean Teflon™ bailer or a new, disposable polyethylene bailer. The water sample from the bailer will be transferred to clean, appropriately preserved laboratory-supplied glass containers.

The samples will be labeled and stored in a cooled ice chest until delivery to the analytical laboratory. A chain-of-custody form will be completed for the collected samples and will accompany these samples to a state-certified laboratory.

The ground water samples will be analyzed for those chemical constituents presently monitored in the existing monitoring wells on site TPH as diesel (EPA Method 8015 Modified), TPH as motor oil (EPA Method 8015 Modified), and BTEX (EPA Method 8020). ok

Quality Assurance/Quality Control (QA/QC)

As part of the QA/QC procedures for ground water sampling, the following will be submitted to the laboratory for analysis in addition to the ground water samples.

* One field blank prepared in the field using deionized water transferred through the well sampling equipment.

* One trip blank consisting of deionized water prepared in the laboratory, transported to the sampling location (in the ice chest to be used for the transport of all samples), and transported back to the laboratory along with the other ground water samples.

EVALUATION OF RESULTS AND WELL ABANDONMENT

If the initial analytical results from the new monitoring wells are non-detect for all compounds analyzed, SPTCo will request site closure. Following approval of site closure, all monitoring wells on site will be abandoned by appropriate procedures. If the initial analytical results from the new monitoring wells indicate detectable levels of TPH as diesel, TPH as motor oil, or BTEX compounds, SPTCo will discuss criteria for continued ground water monitoring at the site with Alameda County. If continued monitoring is warranted, SPTCo recommends that existing monitoring well MW-3 be deleted from the monitoring program and properly abandoned. Existing monitoring wells MW-2 and MW-3 are both located to the west of the former location of the USTs. As such, MW-3, being further away from the former UST locations than MW-2, would not add meaningful data to the ground water monitoring program.

SCHEDULE

The workplan addendum will be submitted to Alameda County within two weeks of the approval of this workplan. Following Alameda County approval of the proposed location of the additional monitoring wells, a period of approximately three weeks will be required for permitting, scheduling of subcontractors, and installation, development and initial sampling of the additional monitoring wells. A letter report documenting field and analytical results from the additional monitoring wells will be submitted to Alameda County four weeks after initial sampling.

If you have any questions regarding this workplan, please contact either of the undersigned at (510) 238-9540 or (916) 369-8971 or Mr. Mike Grant of SPTCo at (415) 541-2838.

Sincerely,

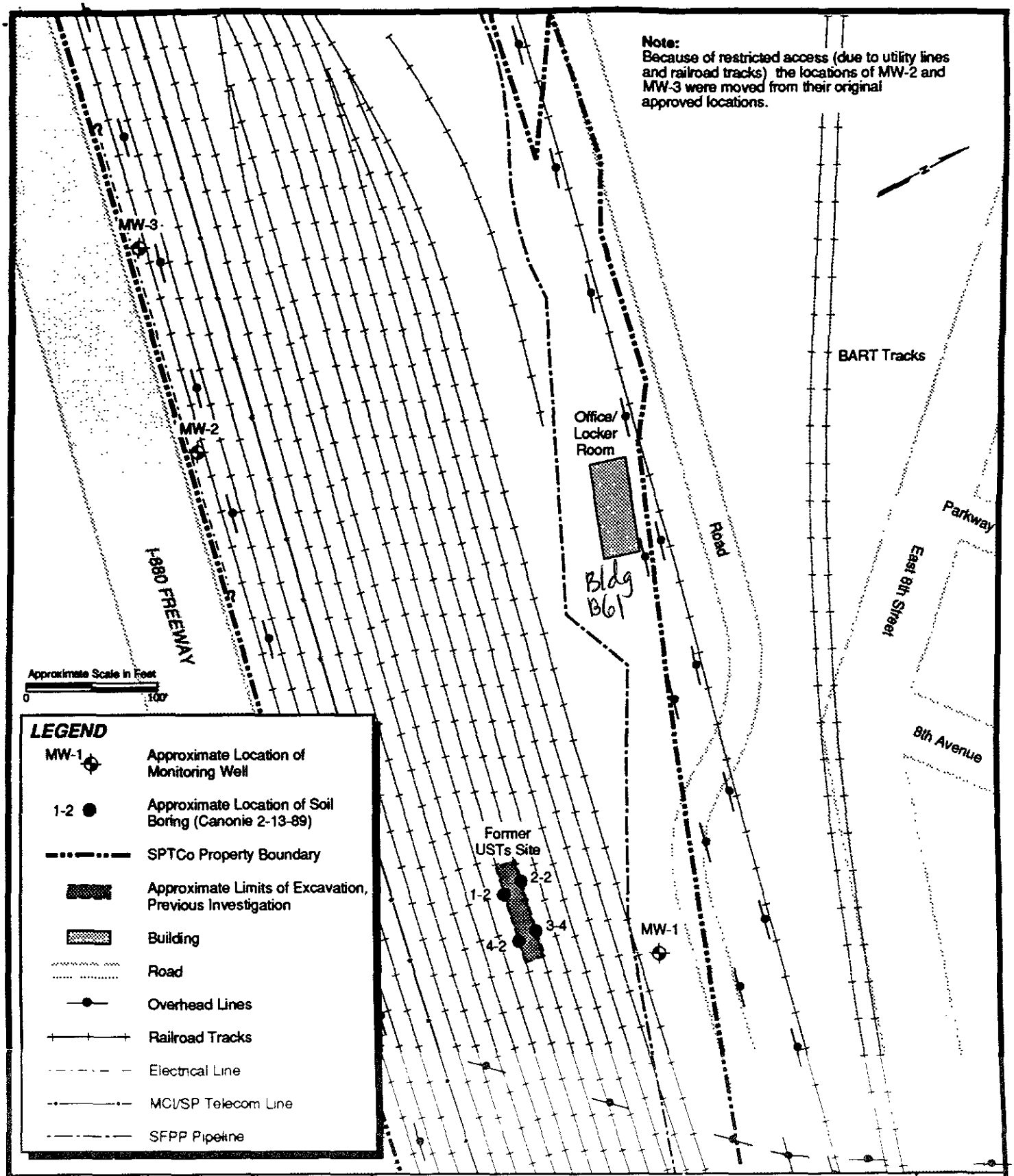
INDUSTRIAL COMPLIANCE

James B. Ackerman
Project Geologist

Richard L. Bateman, R.G.
Principal Hydrogeologist

JBA/RLB/ekw

cc: Mr. Mike Grant, Southern Pacific Transportation Company



Industrial Compliance
A Subsidiary of SP Environmental Systems Inc

SITE LAYOUT AND LOCATION OF SOIL BORINGS AND MONITORING WELLS INSTALLED DURING PREVIOUS SITE INVESTIGATIONS SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

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Drawn By	Patti Decker	Checked By	Richard Bateman

Figure 1
Page No
Scale as shown

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