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February 23, 1996

Project No. 05100535

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

**Re: Workplan for Ground Water Grab Sampling  
Southern Pacific Transportation Company  
1399 Wood Street Property - Oakland, California**

Dear Ms. Eberle:

Terranext (formerly Industrial Compliance), on behalf of Southern Pacific Transportation Company (SPTCo), has prepared this workplan to perform ground water grab sampling at the SPTCo property located at 1399 Wood Street in Oakland, California. This workplan has been prepared in response to the Alameda County Health Care Services Agency - Department of Environmental Health, Division of Hazardous Materials (Alameda County) letter to SPTCo dated November 7, 1995, as well as telephone conversations between Terranext and Alameda County during the interim. ~~Two ground water grab sample locations are proposed,~~ one adjacent to and downgradient of Excavation A (Tank Pit 3), the other adjacent to and downgradient of Excavation B (Tank Pit 1/2 and 4) (Figure 1). Temporary wells will be installed at each location for sample collection.

**SITE BACKGROUND**

In July 1988, Canonie Environmental Services Corporation (Canonie) removed a fuel dispensing island with associated piping and three underground storage tanks (USTs) (identified in Canonie's report as Tank 1/2, Tank 3, and Tank 4) from the 1399 Wood Street site: a 12,000-gallon split-compartment diesel-gasoline tank (Tank 1/2), a 7,300 gallon diesel tank (Tank 3), and a 550 gallon waste oil tank (Tank 4) (Figure 1). The procedures and results of this work were presented in a Canonie report dated December 18, 1989 (report entitled: *Final Site Report, Underground Storage Tank Removal, Southern Pacific Transportation Company, Oakland, California*).

Alameda County required SPTCo to conduct a further investigation of the site. In October 1992, Terranext (then Industrial Compliance [IC]) performed a preliminary soil investigation

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in which 11 soil borings (A1 through A11) were drilled (Figure 1). Total petroleum hydrocarbons as gasoline (TPH-G) were identified in three borings near the former location of Tanks 1/2 and 4 and the former location of the fuel dispensing island. Total petroleum hydrocarbons as diesel (TPH-D) were identified in four borings, two near the former location of Tanks 1/2 and 4, and two near the former location of Tank 3. The procedures and results of this work were presented in IC's report dated January 17, 1994 (report entitled: *Preliminary Soil Investigation Report, Southern Pacific Transportation Company, 1399 Wood Street, Oakland, California*).

In June of 1994, IC conducted a soil remediation and ground water investigation. As a result of the soil remediation activities, 1,100 cubic yards (cy) of petroleum hydrocarbon impacted soil were removed from the site. Excavation A included the area immediately around the former location of Tank 3 (60 cy); Excavation B included the former locations of Tank 1/2, Tank 4, and the fuel dispensing island (1,040 cy). After conclusion of the soil remediation activities, a ground water investigation was initiated. As part of this investigation, four soil borings were drilled, three of which were converted to monitoring wells (MW-1, MW-2 and MW-3). MW-1 was installed adjacent to the former location of Tank 3 and Excavation A; MW-2 was installed adjacent to the concrete loading dock; MW-3 was installed adjacent to the former fuel dispensing island and Excavation B (Figure 1). Quarterly ground water sampling commenced on June 29, 1994. The procedures and results of the June 1994 site activities were presented in IC's report dated August 29, 1994 (report entitled: *Soil Remediation and Ground Water Investigation Report, Southern Pacific Transportation Company, 1399 Wood Street, Oakland, California*).

After four ground water sampling events, TPH-G had been consistently detected in MW-3, adjacent to the former location of the fuel dispensing island, and TPH-D had been intermittently detected in MW-1, which was installed adjacent to the former location of the UST which had contained diesel. No hydrocarbon compounds had been detected in MW-2. In the transmittal letter for the *First Quarter 1995 Ground Water Monitoring Report* (June 6, 1995), IC requested a change in the sampling program which reflected the consistent analytical results. In a letter dated June 27, 1995, Alameda County accepted the changes to the sampling program. In the subsequent sampling events, ground water samples from MW-3 have been analyzed for TPH-G and benzene, toluene, ethylbenzene and xylenes (BTEX) only, while MW-1 has been analyzed for TPH-D only. MW-2 has not been sampled. Monitoring of ground water elevation has continued in all three wells. ✓

During the initial site investigation, the ground water flow direction was assumed to be to the north-northwest, towards the Oakland Outer Harbor and the nearest portion of San Francisco Bay. Preliminary water level data from soil borings supported this assumption and the

monitoring wells were located such that MW-1 was northwest (assumed downgradient) of the former location of Tank 3 while MW-3 was northwest of the former locations of Tank 1/2, Tank 4 and the dispenser island. MW-2 was located in an assumed upgradient position from the former location of the dispenser island. Subsequent quarterly ground water elevation monitoring has demonstrated that the predominant ground water flow direction (five of six monitoring events) is actually to the east-northeast. The ground water grab samples addressed in this workplan are being collected to assess hydrocarbon impact to site ground water in the predominant downgradient flow direction as indicated by site ground water elevation data.

## PROPOSED SCOPE OF WORK

The proposed ground water grab sample locations are shown on Figure 1. The proposed sampling locations are located within 15 feet and in the predominant downgradient direction from potential hydrocarbon sources on the site. The sample points will be advanced to a minimum depth of 5 feet based on the depth to water measured in the three existing monitoring wells, which has ranged from 1.24 to 4.56 feet below ground surface (bgs).

The ground water grab samples will be obtained by installing a temporary monitoring well at each sample location. Appropriate permits will be obtained from the Alameda County Flood Control and Water Conservation District and any other involved agencies prior to well installation. The boreholes for the temporary wells will be advanced by a truck mounted drill rig utilizing 8-inch outer diameter hollow stem augers. A core barrel sampler will be used during drilling for the purpose of lithologic logging. Cored sections will be logged by a Terranext geologist. After ground water has been encountered, the borehole will then be advanced to a depth which will ensure that the sand filter pack can be added during well installation to a minimum of 1-foot above the top of the temporary well screen, and still provide space for a bentonite seal.

The well casing will consist of 2-inch diameter schedule 40 polyvinyl chloride blank casing and screen. The well screen will consist of 5 feet of 0.020-inch factory slot. The assembled casing will be placed within the hollow stem augers, and the sand filter pack will be poured as the augers are retracted. The top of the sand filter pack will continually be "sounded" with a weighted cloth tape to ensure bridging has not occurred. After the sand filter pack has reached a depth which is a minimum of 1 foot above the top of the screen, bentonite pellets will be added to the surface and hydrated.

At least one hour after hydration of the bentonite seal, the depth to water in each temporary well will be measured with an electric sounder with an accuracy to 0.01 feet. The saturated well volume will be calculated by subtracting the depth to ground water from the total depth of the well and multiplying the resultant length by the number of gallons per foot of casing. Prior to sample collection, three saturated well volumes will be purged by hand-bailing from each of the wells. During purging, ground water characterization data, consisting of temperature, electrical conductivity, and pH, will be measured at least three times. It will be assumed that the ground water in each well is representative of the formation after a minimum of three well volumes are removed and consecutive parameter readings are within 10 percent. After purging is complete, each well will be allowed to recover to at least 90 percent of the pre-purge water level prior to sampling. Purge water will be collected in a 55-gallon Department of Transportation approved drum.

After the temporary wells are purged, ground water samples will be collected using new, disposable polyethylene bailers. Ground water samples will be poured into laboratory supplied containers of appropriate volumes and with required preservatives for the intended analysis. Volatile organic analysis sample bottles will be filled to capacity, sealed with Teflon™-lined lids, and checked for air bubbles. If air bubbles are detected, the vial will be reopened, and additional sample water added, and the vial resealed.

After sample collection is complete, each sample will be labeled with a unique sample number, the site name, date of collection, time of collection, initials of collector, and any other pertinent information. The samples will be then placed in a chilled ice chest for transport to Chromalab Environmental Services for analysis. A chain-of-custody form will be completed concurrent with sample collection and accompany the samples upon transport to the laboratory. The ground water sample collected downgradient of Excavation A will be analyzed for TPH-D by EPA Method 8015 Modified; the sample collected downgradient of Excavation B will be analyzed for TPH-G and BTEX by EPA Methods 8015 Modified and 8020 respectively.

Following sample collection, the temporary wells will be decommissioned by drilling out the casing, filter pack and seal and filling the boreholes with a cement/bentonite grout. Locations in paved areas will be capped with asphalt patch after the grout has cured.

Following receipt of analytical results for the ground water grab samples, a letter report will be prepared and submitted to Alameda County. This letter report will evaluate the grab sampling results and all previous site characterization and site monitoring data in terms of the recent interim guidance on criteria for characterization of a site as a low risk fuel site (memo dated January 5, 1996 from the California Regional Water Quality Control Board - San

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Francisco Bay Region to all agencies overseeing cleanup of fuel contaminated sites in the San Francisco Bay area). It is assumed at this time that the 1399 Wood Street site will meet the criteria for characterization as a low risk soils case and that a request for closure will be included with the letter report.

If you have any questions regarding this workplan, please contact the undersigned at (510) 238-9540 or (916) 369-8971 or Mr. John Moe of SPTCo at (415) 541-2557.

Sincerely,

TERRANEXT



James B. Ackerman  
Project Geologist



Richard L. Bateman, R.G.  
Principal Hydrogeologist

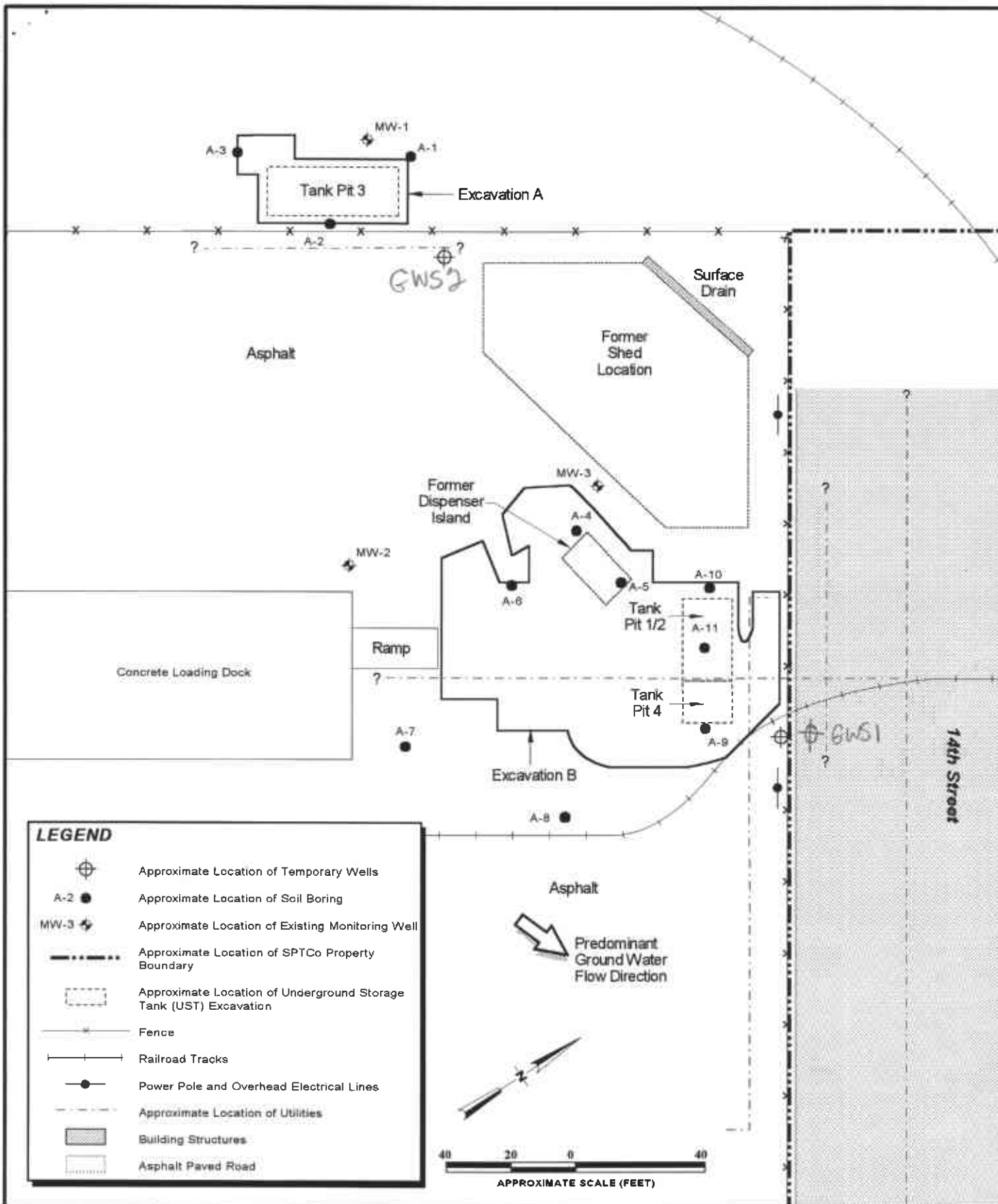
JBA/RLB/dao

Attachment

cc: Mr. John Moe, Southern Pacific Transportation Company (with attachment)  
Mr. Darrell J. Maxey, Oakland Program Office, Southern Pacific Transportation Company (with attachment)

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bcc: Mr. R. Webb Garey, Terranext (without attachment)  
Mr. Carl Taylor, Terranext (with attachment)



Project No. <b>05100536</b>	Figure No. <b>1</b>
Scale <b>As Above</b>	Page No.
File No. <b>0296F01</b>	Drawn By <b>Patti Decker</b>
Date <b>02/15/96</b>	Approved By <b>Richard Bateman</b>



**SITE FEATURES AND PROPOSED  
LOCATION OF TEMPORARY WELLS**  
SOUTHERN PACIFIC TRANSPORTATION COMPANY  
1399 WOOD STREET  
OAKLAND, CALIFORNIA